Contract Documents

Tri-Town Septage Treatment Facility Demolition, Orleans, MA

Orleans Brewster Eastham Groundwater Protection District

December 7, 2016

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DIVISION 0

BIDDING AND CONTRACT REQUIREMENTS

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SECTION 00100

ADVERTISEMENT FOR BIDS

INVITATION TO BID

ORLEANS BREWSTER EASTHAM GROUNDWATER PROTECTION DISTRICT

ORLEANS, MASSACHUSETTS

TRI-TOWN SEPTAGE TREATMENT FACILITY DEMOLITION PROJECT

The Orleans Brewster Eastham Groundwater Protection acting through the Town of Orleans Town Administrator will receive sealed bids for Tri-Town Septage Treatment Facility Demolition. The scope of work includes the demolition of the Tri-Town Septage Treatment Facility equipment and structures, including all above ground and below ground structures, piping, utilities, regulated waste removal and abatement, and site restoration with clean backfill, topsoil, and seed.

The Contract shall be completed within 175 calendar days from the date of the notice to proceed using no more than 120 working days.

Sealed bids will be received at the Town Administrator's Office, Orleans Town Hall, 19 School Road, Orleans, Massachusetts, 02653 until 9:00 a.m. prevailing time, on February 8, 2017 at which time and place said bids will be publicly opened and read aloud. Any bid received after this date and time will be returned to the applicant unopened. No exceptions will be made. Faxed/emailed bids will not be accepted.

Unforeseen Office Closure – if, at the time of the scheduled bid opening, Orleans Town Hall is closed due to uncontrolled events such as fire, snow, ice, wind, or building evacuation, the bid opening will be postponed until 9:00 a.m. on the next normal business day. Bids will be accepted until that date and time.

Bids must be submitted in a sealed envelope indicating the applicant's name and address and clearly marked "Tri-Town Septage Treatment Facility Demolition Project".

A copy of the Contract Documents may be obtained from the office of AECOM, 9 Jonathan Bourne Drive, Pocasset, MA 02559, attention of: Mr. Martin "Reggie" Donoghue, P.E. Bidding Documents are available on compact disc (as portable document format (PDF) files) for a non-refundable charge of $50, including shipping sent via United Parcel Service (UPS) or FedEx in the Continental United States. Partial sets of Bidding Documents will not be provided by the Owner nor Engineer. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including Addenda, if any, obtained from sources other than the Issuing Office. Contract Documents will be available for distribution on December 7, 2016.

The Instructions to Bidders, Form of General Bid, Agreement, Plans, Specifications, Performance and Payment Bond, and other Contract Documents may be examined between the hours of 9:00 am and 3:00 pm at AECOM Technical Services, Inc., 9 Jonathan Bourne Drive, Pocasset, Massachusetts 02559.

A mandatory Pre-bid Conference will be held on January 11, 2017 at the Tri-Town Septage Treatment Facility, 29 Overland Way, Orleans, MA at 10:00 a.m. prevailing time. Any request for interpretation of plans and specifications shall be submitted in writing (typed, not handwritten) at that time. Bidders will have an opportunity to view the site of the work during the mandatory Pre-bid Conference. Any bidder who does not attend the mandatory Pre-bid Conference is not eligible to submit a bid and any bid received will be returned to the bidder unopened.

Each bid must be accompanied by a Bid Security in the form of a bid bond, cash, certified check, treasurer's or cashier's check payable to the Owner in the amount of five percent of the bid, in accordance with SECTION 00200 - INSTRUCTIONS TO BIDDERS. If, upon acceptance of a Bid, a Bidder fails to enter into a Contract with the Orleans Brewster Eastham Groundwater Protection District, the bid security shall be forfeited to and become the property of the Orleans Brewster Eastham Groundwater Protection District.

No Bidder may withdraw its Bid within 60 calendar days after the date of the Bid opening. The successful Bidder must furnish a 100 percent Performance Bond and a 100 percent Payment Bond with a surety company satisfactory to the Orleans Brewster Eastham Groundwater Protection District and conforming to SECTION 00610 – PERFORMANCE BOND and SECTION - 00615 PAYMENT BOND.

All bids for this project are subject to applicable bidding laws of Massachusetts, including General Laws Chapter 30, Section 39M as amended.

Minimum Wage Rates as determined by the Commissioner of the Division of Occupational Safety of the Executive Office of Labor and Workforce Development under the provisions of the Massachusetts General Laws Chapter 149, Section 26 to 27D, as amended, apply to this project.

Bidders are not to include in their Bid Proposal sales and compensating use taxes on materials and supplies purchased for this project. All materials used are tax exempt.

A weekly certified payroll submittal shall be required of the successful bidder in accordance with MGL C149, S27B. No payments will be made by the Orleans Brewster Eastham Groundwater Protection District until all payroll information necessary for the Town to determine compliance with prevailing wage law requirements for the time period of the payment request have been submitted.

The Contractor shall not discriminate with regard to the personnel employed on this project on the basis of race, color, creed, national origin, gender, sexual preference, handicap or age.

Bid award will be subject to affirmative votes for funding at the Town of Eastham, Town of Brewster, and Town of Orleans May 2017Annual Town Meetings and Town Elections.

The Orleans Brewster Eastham Groundwater Protection District reserves the right to accept and/or reject any and all bids and to waive any informalities to the extent allowed by law, and to make the award as deemed to be in the best interest of the Towns.

Orleans Brewster Eastham Groundwater Protection District

c/o John F. Kelly, Orleans Town Administrator

END OF SECTION

SECTION 00200

INSTRUCTIONS TO BIDDERS

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1.01 RECEIPT AND OPENING OF BIDS

A. Orleans Brewster Eastham Groundwater Protection District herein called the OWNER, will receive sealed Bids for the Tri-Town Septage Treatment Facility Demolition.

B. Sealed bids will be received by the Owner at the Orleans Town Hall, 19 School Road, Orleans, Massachusetts, 02653 until 9:00 a.m. prevailing time, on February 8, 2017 at which time and place said bids will be publicly opened and read aloud. Any bid received after this date and time will be returned to the applicant unopened. Any bid received from a bidder who did not attend the mandatory pre-bid conference will be returned to the applicant unopened. No exceptions will be made. Faxed/emailed bids will not be accepted.

C. If the building at which bids are to be received is closed for any reason on the date and time that bids are due, receipt of bids by the Owner will be postponed until the next business day at the time originally stated for receipt of bids.

D. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered. By submission of a bid, the bidder agrees that this bid shall be good and may not be withdrawn for the number of days, after the opening of bids, as stipulated in the FORM OF GENERAL BID.

1.02 LOCATION AND WORK TO BE DONE

A. The location, general characteristics, and principal details of the Work are indicated on a set of drawings titled "Tri-Town Septage Treatment Facility Demolition, Orleans MA".

B. Additional drawings showing details in accordance with which the Work is to be done may be furnished by addendum from time to time during the bidding period by the Engineer, and shall then become a part of the Contract Documents.

C. The Contractor shall furnish all superintendence, labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, bailing, shoring, removal, and all other things necessary to do all work required for the completion of each item of the Work and as herein specified.

D. The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that item.

E. Contractor has option to retain any salvageable material than exists in the structures. All salvageable materials (e.g. HVAC systems, equipment, fixtures, machine and metal debris associated with facility operations) remaining at the site are property of Contractor for use or resale provided that such re-use is permitted under local, state, and federal regulations."

1.03 PREPARATION OF BID

A. Each bid must be submitted on the prescribed form in SECTION 00410- FORM OF GENERAL BID. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

B. Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, its address, and endorsed with the name of the project as specified in Receipt and Opening of Bids, above.

C. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in Receipt and Opening of Bids, above.

1.04 MODIFICATION OF BIDS

A. Any bidder may modify its bid by email at any time prior to the scheduled closing time for receipt of bids, provided such transmission is received by the OWNER prior to the closing time, and, provided further, the OWNER is satisfied that a written confirmation of the modification over the signature of the bidder was mailed prior to the closing time. Email bid modifications to jkelly@town.orleans.ma.us.

B. The modification communication shall not reveal the bid price but shall provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days prior to the closing time, no consideration will be given to the email transmission.

1.05 OBLIGATION OF BIDDER

A. At the time of the opening of bids each bidder will be presumed to have inspected the site, attended the mandatory pre-bid conference, and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of its bid.

1.06 INFORMATION NOT GUARANTEED

A. All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

B. It is agreed and understood that the OWNER does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents.

C. It is further agreed and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to it or obtained in any examination made by it in any manner as a basis of or grounds for any claim or demand against the Owner or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

1.07 BID SECURITY

A. Each bid must be accompanied by a certified check, a bid bond, cash, a treasurer's or cashier's check, payable to the OWNER, in the amount stated in SECTION 00100 - ADVERTISEMENT FOR BIDS. Such deposits will be returned to all except the three lowest responsible and eligible bidders within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids, and the remaining deposits will be returned promptly after the OWNER and the accepted bidder have executed the Contract, or if no notice of intent to award has been presented to any bidder within 30 days, Saturdays, Sundays and legal holidays excluded, after the date of the opening of bids, upon demand of the bidder at any time thereafter.

1.08 TIME FOR COMPLETION

A. The bidder must agree to commence work on or before a date to be specified in the written "Notice to Proceed" from the OWNER and to fully complete the project within the time limit stated in Section 00410 - FORM OF GENERAL BID.

1.09 ADDENDA AND INTERPRETATIONS

A. No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally, and if provided orally, shall not be relied upon by bidders unless confirmed in a written addendum. All information given to bidders other than by means of the plans, specifications, or by addenda, as described below, is given informally and shall not be used as the basis of a claim against the OWNER or the ENGINEER.

B. Every request for such interpretation should be in writing (typed, not handwritten) addressed to AECOM, 9 Jonathan Bourne Drive, Pocasset, Massachusetts 02559, Attention: Martin "Reggie" Donoghue, P.E., or sent via email at Martin.Donoghue@aecom.com and to be given consideration must be received at least ten working days prior to the date fixed for the opening of bids.

C. Addenda will be emailed to all prospective bidders to email addresses furnished by them for such purposes. Bidders picking up sets of bid documents will be given all addenda issued to date and will be required to sign for all documents, acknowledging receipt.

D. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under its bid as submitted and each bidder must confirm for itself that it has received all addenda. All addenda so issued shall become part of the Contract Documents.

1.10 BID OPENING PROCEDURE

A. The following list of requirements shall be met by each filed bid.

B. Bids shall be filed at the place and before the time specified in Receipt and Opening of Bids, above.

C. The bid and all accompanying documents so required shall be signed by the Bidder or its authorized representative before submission.

D. All bidders shall include with their bids written acknowledgment of receipt of all addenda. Refer to acknowledgment form provided in SECTION 00410, FORM OF GENERAL BID.

E. The total dollar amount of each bid will be read, and the three apparent lowest bids will be selected for further consideration. These three apparent low bids will be read aloud for the benefit of the other bidders and the bid opening procedure will be closed. All those present at the bid opening may examine all bids after the bid opening and after the reading of the three apparent low bids.

1.11 COMPARISON OF BIDS

A. Bids will be compared on the basis of the quantities and unit and lump sum prices stated in the bid forms.

B. In the event that there is a discrepancy in SECTION 00410 - FORM OF GENERAL BID between the lump sum or unit prices written in words and figures, the prices written in words will govern.

C. The Owner agrees to examine and consider each SECTION 00410-FORM OF GENERAL BID submitted in accordance with the terms and conditions set forth herein and as set forth in SECTION 00410, FORM OF GENERAL BID.

1.12 STATUTES REGULATING COMPETITIVE BIDDING

A. Any bid, which does not comply with the provisions of Massachusetts General Laws Chapter 30, Section 39M as amended, need not be accepted and the OWNER may reject every such bid.

1.13 RIGHT TO REJECT BID

A. The OWNER may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids, should the OWNER deem it to be in the public interest to do so.

B. The OWNER may also reject bids which in its sole judgment are either incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities, and may reject bids for any other reason permitted by law, or the OWNER may waive such omissions, conditions or irregularities.

1.14 ABILITY AND EXPERIENCE OF BIDDER

A. No award will be made to any bidder who cannot satisfy the OWNER that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the work successfully within the time named. The OWNER's decision or judgment on these matters will be final, conclusive, and binding to the fullest extent permitted by law.

B. The OWNER may make such investigations as it deems necessary, and the bidder shall furnish to the OWNER, under oath if so required, all such information and data for this purpose as the OWNER may request.

1.15 CONDITIONS OF WORK

A. Each bidder must inform itself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of its obligation to furnish all material and labor necessary to carry out the provisions of its contract. Insofar as possible the CONTRACTOR, in carrying out its work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

1.16 SECURITY FOR FAITHFUL PERFORMANCE

A. Simultaneously with his delivery of the executed Contract, the CONTRACTOR shall furnish a surety bond or bonds as security for faithful performance of this Contract and for the payment of all persons performing labor and materials under this Contract as specified in SECTION - 00700, GENERAL CONDITIONS included herein, each in the amount of 100 percent of its bid. The surety on such

bond or bonds shall be a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the OWNER. The bonds shall remain in force for one year after final acceptance of the work by the OWNER, unless the OWNER, in writing, releases the CONTRACTOR from the obligation sooner.

1.17 POWER OF ATTORNEY

A. Attorneys-in-fact who sign Contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

1.18 LAWS AND REGULATIONS

A. Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Federal and State Laws and Regulations exist, the more stringent requirement shall apply.

B. The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project 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.

C. Attention is directed to SECTION 00830 - STATE REGULATIONS and to other applicable sections of this specification. In the event of any conflict between provisions of law or regulation quoted or paraphrased in the Contract Documents, the actual provisions of law or regulation shall control.

1.19 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

A. The successful bidder, upon its failure or refusal to execute and deliver the Contract, Bonds and Certificates of Insurance required within 10 days after receipt of notice of the acceptance of the bid, shall, except as otherwise provided by applicable law, forfeit to the OWNER, as liquidated damages for such failure or refusal, the security deposited with its bid, provided that the amount forfeited shall not exceed the difference between its bid price and the bid price of the next lowest responsible and eligible bidder.

B. In case of death, disability, bonafide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the bidder, its bid deposit will be returned.

1.20 INDETERMINATE ITEMS AND ESTIMATED QUANTITIES

A. The work to be done under this Contract has been divided into parts or items, if applicable, to enable each bidder to bid on different portions of the work in accordance with its estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though each bidder may have judged that such quantity may be greater or less than the estimated quantity stated in SECTION 00410 - FORM OF GENERAL BID.

1.21 CONTRACTOR RECORDS

A. The CONTRACTOR shall comply with the provisions of Massachusetts General Laws, Chapter 30, Section 39R, concerning CONTRACTOR records. This section has been reprinted in Section 00830, STATE REGULATIONS.

1.22 MINIMUM WAGE RATES – BIDDER'S RESPONSIBILITY

A. It is the responsibility of the Bidder, before bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract.

1.23 BIDDER CERTIFICATION – OSHA TRAINING

A. All employees who work on Massachusetts public works construction sites, on projects estimated to cost more than $10,000, must have no less than ten (10) hours of OSHA- approved safety and health training.

B. The Massachusetts Attorney General is authorized to restrain award of construction contracts to any contractor who is in violation of this requirement and to restrain the performance of these contracts by non-complying contractors.

C. Noncompliance with this law will disqualify contractors from bidding on public contracts.

END OF SECTION

SECTION 00410R

FORM OF GENERAL BID

Proposal of S&R CORPORATION (hereinafter called "Bidder")*

- (X) a corporation, organized and existing under the laws of the State of Massachusetts
- ( ) a partnership
- ( ) a joint venture
- ( ) a limited liability company
- ( ) an individual doing business as _____

*Check corporation, partnership, joint venture, LLC or individual as applicable.

To the Orleans Brewster Eastham Groundwater Protection District (hereinafter called "Owner").

Gentlemen:

The Bidder, in compliance with your invitation for bids for Tri-Town Septage Treatment Facility Demolition having examined the plans and specifications with related documents and the site of the proposed work, attended the mandatory pre-bid conference, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all superintendence, labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, bailing, shoring, removal, and all other things necessary to construct the project in accordance with the contract documents, within the time set forth below, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this bid is a part.

The Bidder hereby agrees that if selected as the Contractor it will commence work under this contract on or before a date to be fixed in the written "Notice to Proceed" given by the Owner to the Contractor and to fully complete the project within 175 Consecutive calendar days of the start date fixed in the "Notice to Proceed" using no more than 120 working days. The Bidder further agrees to pay as liquidated damages the sum of $2,000.00 for each consecutive calendar day and/or working day thereafter during which the work as not been fully completed, as provided in the "Liquidated Damages" provisions of SECTION 00800 - SUPPLEMENTARY CONDITIONS.

Bidder acknowledges receipt of the following addenda:

No.	Dated
1	January 25, 2017
2	January 26, 2017
3	February 7, 2017

Bidder acknowledges attendance at the mandatory pre-bid conference: (X) Yes ( ) No

Insert the name of the bidders representative who attended the mandatory pre-bid conference: Wes Dumont

Item	Description	Quantity	Extended Total
1.	For Mobilization, as specified, the lump sum of (not to exceed five (5) percent of bid) Thirty-Three Thousand Dollars & No Cents Dollars ($ 33,000.00) L.S.	1	$33,000.00
2..	For Temporary Facilities and Controls, as specified, the sum of Ninety-Seven Thousand Five Hundred Dollars & No Cents Dollars ($ 97,500.00) per L.S.	1	$97,500.00
3.	For Regulated Waste Removal, as specified, the sum of Forty-Six Thousand Five Hundred Dollars & No cents Dollars ($ 46,500.00) per L.S.	1	$46,500.00
4.	For STF Pre-Demolition Activities, as specified, the sum of Ninety-Two Thousand Seven Hundred Dollars & No Cents Dollars ($ 92,700.00) per L.S.	1	$92,700.00
5.	For Compost Shed Demolition, as specified, the sum of One Hundred Fifty-Two Thousand Five Hundred Dollars Dollars ($ 152,500.00) per L.S. & No Cents	1	$152,500.00
6.	For STF Building Demolition, as specified, the sum of Five Hundred Twenty-Five Thousand Eight Hundred Dollars Dollars ($ 525,800.00) per L.S. & No cents	1	$525,800.00
7.	For Excavate and Stage Material, as specified, the sum of Thirteen Dollars & Twenty-Two Cents Dollars ($ 13.22) per c.y.	18,000	$237,960.00
8.	For Supply Common Fill From Off Site Source, as specified, the sum of Thirty Dollars & Fifty Cents Dollars ($ 30.50) per Ton	5,250	$160,125.00
9.	For Backfill Placement, as specified, the sum of Fifteen Dollars & No Cents Dollars ($ 15.00) per c.y.	18,000	$270,000.00
10.	For Restoration: Top Soil and Seeding, as specified, the sum of Zero Dollars & Eighty-Five Cents Dollars ($ 0.85) per s.f.	133,500	$113,475.00
11.	For Site Restoration and Demobilizations, as specified, the sum of Twenty Thousand Dollars & No Cents Dollars ($ 20,000.00) per L.S.	1	$20,000.00

Item	Description	Quantity	Extended Total
12.	For handling, removal and legal disposal of regulated materials, as specified, the sum of Fifty Thousand Dollars ($50,000) Allowance	1	$50,000
13.	For Septic System Removal and Legal Disposal, as specified, the sum of Three Thousand Five Hundred Dollars & No Cents Dollars ($ 3,500.00) per L.S.	1	$3,500.00

TOTAL AMOUNT OF BID BASED ON ENGINEER'S ESTIMATE OF QUANTITIES:
(Total of Item 1 through Item 13, inclusive) - BASIS OF AWARD

One Million Eight Hundred Three Thousand Sixty Dollars and No Cents

Dollars ($ 1,803,060.00)

Bidder agrees to perform all the work, including all incidental labor, materials and equipment necessary for the satisfactory completion of the work and in full compliance with the contents and intent of the Specifications and/or Drawings of the work.

All prices, except item totals, shall be stated in both words and figures. In the event of a discrepancy between the price in words and the price in figures, the words shall govern. In the event of a discrepancy between the total of the items and the total stated, the total of the items shall govern.

Interlineation, alteration or erasure may void the bid. All prices shall be typewritten or written by hand in ink.

The Owner reserves the right to withhold the fair market value for work not completed in addition to the retainage on work completed. Unbalanced bid items will specifically be subject to review and to this potential withholding from periodic payment applications.

The unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, engineering costs, etc., to cover the finished work of the several kinds called for. The Bidder understands that all bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including General Laws Chapter 30, Section 39M, as amended.

The contract will be awarded to the lowest responsible and eligible bidder.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn before June 30, 2017.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal agreement attached in SECTION - AGREEMENT and provide the requisite payment and performance bonds and certificates of insurance.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of SECTION 00200 - INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Owner in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract prices in accordance with SECTION 00610 - PERFORMANCE BOND, SECTION 00615 - PAYMENT BOND, and as stipulated in paragraph 5.01 of SECTION 00700 - GENERAL CONDITIONS of these specifications.

The undersigned offers the following information as evidence of its qualifications to perform the work as bid upon according to all the requirements of the plans and specifications.

1. Have been in business under present name for Fourteen years.

Project No. 1

Completion Date	Project Name	Contract Amount
Please See Attached		
Design Engineer	Reference Name	Telephone No.

Project No. 2

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

Project No. 3

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

Project No. 4

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

Project No. 5

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

S&R CORPORATION
SELECTED COMPLETED PROJECT LIST

01/01/17

Location	Project/Contract #	Description of Work	Class of Work	Dollar Amount of Each Class of Work	Owner and Owner's Rep.	Architect/Engineer & Contact Person	Contract Amount	Completion Date
Andover MA	Demolition and Abatement at Andover Woods	Demolition & abatement of the former St. Francis Seminary included cut/cap of utilities, reclaim roadway & paving areas. Preserved selected historical landmarks columns and lights for reuse.	Demolition Asbestos Abatement	$ 485,000 $ 340,000	Pulte Homes of New England LLC 115 Flanders Rd., Westborough MA 01581 POC: John Engdahl Tel: (508) 670-0408 Fax: (508) 982-9700 john.engdahl@PulteGroup.com	Bohler Engineering 352 Turnpike Road Southborough MA 01772 Tel: (508) 480-9900 Fax: (508) 480-9080	$ 825,000.00	10/31/2016
Devens MA	Concrete Foundations Removal & Crushing Project, Oak and Maple Housing Areas Contract No. 16-011 PO 4054	Asbestos abatement & demolition, excavation of former storehouse building & 42 foundations, removal/disposal of ACM and metals. Import gravel borrow and soil to backfill and compact thefoundation holes.	Demolition Asbestos Abatement	$ 656,030 $ 37,500	MassDevelopment Finance Agency 33 Andrews Parkway, Devens MA POC: Joseph Bisceglia Tel: (978) 783-2905 Fax: (978) 772-8815 jbisceglia@massdevelopment.com	ATC Group Services LLC 500 West Cummings Park,Woburn MA POC: Kristin Zeman Tel: (781) 932-9400 Fax: (781) 932-6211 Kristin.Zeman@ATCassociates.com	$ 693,529.50	9/30/2016
New Bedford MA	John Hannigan Elementary School Demolition	Abatement & demolition of the former school and adjacent residence included hazardous materials abatement, UST removal, disposal and recycling of waste	Demolition Asbestos Abatement	$ 398,195 $ 144,700	City of New Bedford MA 133 William Street, New Bedford MA 02740 POC: Debra Travers Tel: (508) 979-1432 Debra.Travers@NewBedford-Ma.gov	Deadalus Projects Inc. 112 South Street, Boston MA 02111 POC: Richard Marks Tel: (617) 451-2717 Fax: (617) 451-2679 Rmarks@dpi-boston.com	$ 542,895.00	8/16/2016
Belchertown MA	Building Demolition & Abatement - Phase II Former Belchertown State School Contract No. 16-007	Demolition & abatement includes decommissioning of steam tunnels, backfilling site restoration & removal of miscellaneous structures	Demolition Asbestos Abatement	$ 388,916 $ 277,750	MassDevelopment Finance Agency 33 Andrews Parkway, Devens MA 01434-5604 POC: Joseph Bisceglia Tel: (978) 783-2905 Fax: (978) 772-8815 jbisceglia@massdevelopment.com	Tighe & Bond 446 Main Street, Worcester MA 01608 POC: Marc Richards PE Tel: (508) 754-2201 Fax: (508) 795-1087	$ 666,666.00	7/29/2016
Windsor Locks CT	Demolition of Terminal "B" and Communications Relocation at Bradley International Airport	Demolition of Arrivals Bulding, Terminal B Concourses A&B, 2 existing viaducts & Entrance Plaza. Also included other structures, foundations, utility capping & site restoration	Demolition Asbestos Abatement Road Construction	$ 7,503,328 $ 4,634,971 $ 950,663	CT Airport Authority 334 Ella Grasso Tpke Windsor Locks CT POC: James Luczak PE Tel: (860) 254-5657 Fax: (860) 386-8793 jluczak@ctairports.org	Urban Engineers Inc. 530 Walnut St. Philadelphia PA 19106 POC: David Ottow PE Tel: (215) 922-8080 Fax: (215) 922-8082	$ 13,088,961.77	6/30/2016
Fitchburg MA	Demolition of the Former Central Steam Plant 465 Westminster Street Project No. 14495-545400	Demolition and asbestos abatement of the Central Steam Plant included site restoration	Demolition Asbestos Abatement	$ 241,491 $ 466,298	City of Fitchburg -Dir Community Development 610 Main Street., Fitchburg MA 01420 POC: Larry Casassa Tel: (978) 829-1892 Lcassassa@fitchburgma.gov	Weston & Sampson Engineers 5 Centennial Drive., Peabody MA 01960 POC: George Naslas, PG LSP Tel: (978) 532-1900	$ 707,789.15	5/31/2016

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Location	Project/Contract #	Description of Work	Class of Work	Dollar Amount of Each Class of Work	Owner and Owner's Rep.	Architect/Engineer & Contact Person	Contract Amount	Completion Date
Roxbury MA	Demolition, Abatement, & Environmental Remediation of Bartlett Yard located at 2565 Washington Street	Abatement/Demolition of 4 Buildings, a test-pit program excavation and disposal off-site of soils and reuse of soils of an 8 acre site.	Demolition Asbestos Abatement HazMat Remediation Site Work	$ 680,536 $ 236,000 $ 458,725 $ 388,474	Bartlett Place Land, Inc. 1 Federal Street, Boston MA 02110 POC: Mark Maiel Tel: (617) 989-1206 Fax: (617) 988-1216 Mmaiel@nuestrapdc.org	Weston & Sampson Engineers 5 Centennial Drive, Peabody MA 01960 POC: Paul Uzgiris Tel: (978) 977-0110 Fax: (978) 977-0100 uzgirisp@wseinc.com	$ 1,763,737.49	9/23/2015
Devens MA	Concrete Foundations Removal and Crushing Project Project No. 15-012	Excavation of foundations, abatement of ACM materials, transite and sewer pipe Utility capping and landscaping items.	Demolition Asbestos Abatement	$ 572,960 $ 262,390	MassDevelopment Finance Agency 33 Andrews Parkway, Devens, MA POC: Alan Delaney Tel: (978) 784-2917 Fax: (978) 772-8815 adelaney@massdevelopment.com	Cardno ATC 600 West Cummings Park, Woburn MA Tel: (781) 932-9400 Fax: (781) 932-6211	$ 835,350.00	9/23/2015
Roxbury MA	Abatement/Demolition of 135 Dudley Street Contract No. C-39006-14 Project No. 7046	Abatement/Demolition of the Former B-2 Police Station, Roxbury MA	Demolition Asbestos Abatement	$ 467,851 $ 234,826	City of Boston, Public Facilities Dept. 26 Court Street, Boston MA 02108 POC: Tom Leahy Tel: (617) 635-3408 Fax: (617) 635-0555 Tom.Leahy@Boston.Gov	BSC Group Inc. 15 Elkins Street, Boston, MA 02127 POC: David Bianavilla Tel: (978) 896-4300	$ 702,677.56	5/27/2015
Dorchester MA	65 East Cottage Street Building Demolition Project No. B5060B	Demolition of former bakery consisting of 9 contingouous units Includes abatement of hazardous materials, erosion protection utility disconnection, site restoration and stabilization	Demolition Asbestos Abatement	$ 616,937 $ 101,524	City of Boston-Dept of Neighborhood Develop 26 Court Street, Boston MA 02108 POC: James Smith Tel: (617) 635-3680 Fax: (617) 635-0282 James.Smith@Boston.gov	Weston & Sampson Engineers, Inc. 5 Centennial Drive, Peabody MA 01960 POC: Brian McCormack Tel: (978) 977-0110	$ 725,174.00	3/5/2015
Wrentham MA	Abatement & Demolition of Raymond Hospital at the Wrentham State School Contract No. DDS1403 HC1	Abatement, demolition & backfilling of the four-story Raymond Hospital Building Includes disposal, utilities, paving, site improvements and construction of an access man-way to an existing tunnel Also construction of a Parking Area	Demolition Asbestos Abatement Road Construction	$ 574,550 $ 312,000 $ 64,704	Div of Capital Asset Mgmt & Maint (DCAMM) 1 Ashburton Place, Boston MA POC: Kim Plunkett Tel: (617) 727-4050 x Fax: (617) 727-4043 kim.plunkett@state.ma.us	Pare Corporation 10 Lincoln Rd., Ste. 103, Foxboro MA 02035 POC: Andrew Chagnon Tel: (508) 543-1755 Fax: (508) 543-1881	$ 951,354.00	1/31/2015
Danvers MA	Essex-North Shore Agricultural & Technical High School Demolition & Abatement Work Contract Order No. 78125-000	Demolition, asbestos abatement & hazardous materials remediation, disposal of several structures	Demolition Asbestos Abatement Haz Mat Remediation	$ 840,000 $ 400,000 $ 264,068	Gilbane Building Company 155 Federal St., Boston MA 02110 POC: Daniel Keaveney Tel: (401 489-0775 dkeaveney@GilbaneCo.com	PMA Consultants, LLC 25 Braintree Hill Office Park Suite 303, Braintree MA Tel: (781) 794-1404	$ 1,504,068.00	9/30/2014

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Location	Project/Contract #	Description of Work	Class of Work	Dollar Amount of Each Class of Work	Owner and Owner's Rep.	Architect/Engineer & Contact Person	Contract Amount	Completion Date
Taunton MA	Phase II Building Abatement & Demolition of the Former Paul Dever State School Contract No. 13-009	Abatement/Demolition of 10 main bldgs inc. steam pipe corridors & tunnels on 36 acre area. Utility disconnection, disposal of hazardous & building materials & site restoration are part of this contract	Demolition Asbestos Abatement	$ 3,170,785 $ 1,115,674	Taunton Development/Mass Development Corp 33 Andrews Parkway, Devens, MA POC: Alan Delaney Tel: (978) 784-2917 Fax: (978) 772-6815 adelaney@massdevelopment.com	Weston & Sampson Engineers 5 Centennial Drive, Peabody MA 01960 POC: Paul Uzgiris PE Tel: (978) 532-1900 Fax: (978) 997-0100 uzgirisp@wseinc.com	$ 4,286,459.00	6/30/2014
Ipswich MA	Ipswich Antenna Test Facility Deconstruction Purchase Order No. W13-7043	Demolition of all buildings, structures, utilities, oil tanks. Included removal of hazardous materials and restoration of the project site	Demolition Asbestos Abatement	$ 1,149,894 $ 573,144	Watermark Environmental Inc. (GC) 176 Cabot St. Ste. 503, Lowell MA 01854 POC: Joe Spangenberger Tel: (978) 452-9696 Fax: (978) 453-9988 joes@watermarkenv.com	US Army Corps of Engineers 696 Virginia Road, Concord MA 01742	$ 1,723,038.00	5/31/2014
Prospect - Verona Island Maine	Bridge Removal & Other Incidental Work Waldo Hancock Bridge State WIN : 007965.58	Removal of existing bridge 2,000 lf includes hazardous materials remediation disposal, demolition, site restoration, paving, landscaping & park enhancement	Demolition Hazardous Mat Abatement Highway Construction	$ 4,486,342 $ 800,059 $ 300,000	Maine Department of Transportation 16 Child Street, Augusta Maine 04333 POC: Phil Roberts Tel: (207) 624-3000 Fax: (207) 624-3001 Phil.Roberts@maine.gov	Buckland & Taylor LTD 101-788 Harbourside Dr., Vancouver BC Canada, V7P 3R7 POC: Murray Johnson Tel: (604) 986-1222	$ 5,586,401.00	10/7/2013
Lowell MA	Demolition at Lowell General Hospital Order No. 62006-00	Demolition of various buildings at Lowell General Hospital including the Shedd Building, storage building, cancer center & laundry building	Demolition	$ 906,263	Gilbane Building Company (GC) 155 Federal Street, Boston MA 02110 POC: Al Cholnard Tel: (603)396-2262 acholnard@gilbaneco.co	RTKL Associates Inc. 901 Bond Street, Baltimore MD 21231 POC: Tony Whaley Tel: (410) 537-6000 Fax: (401) 276-2136	$ 906,263.00	1/31/2013
Cambridge MA	Magazine Beach Pedestrian Bridge Replacement over Route 3 (ABP) (DCR) Contract No. 61941	Demolition and replacement of the pedestrian bridge includes landscaping lighting and curbing	Demolition Highway Construction Bridge Construction	$ 175,000 $ 915,615 $ 3,370,927	Mass. Department of Transportation - District 6 185 Kneeland St., Boston, MA 02111 POC: Kathryn Barr Tel: (857) 368-6100 Kathryn.Barr@state.ma.us	URS Corporation 260 Franklin St., Boston, MA 02110 POC: Bill Egan Tel: (617) 542-4244	$ 4,461,542.00	7/31/2012
Lawrence MA	Abatement/Demolition of the In-Town Mall Contract No. NEC0801 - HC1	Demolition of 4-story former mall & parking garage facility (approx. 160,000 sf) includes removal of slabs, backfilling & repair of portions of adjacent buildings where the mall facility is attached.	Asbestos Abatement Demolition	$ 673,331 $ 825,000	Division of Capital Asset Management 1 Ashburton Place, Boston MA 02108 POC: Robert Gray Tel : (617)727-4030 x 481 Fax: (617)727-5363	HRP Associates Inc. 197 Scott Swamp Rd., Farmington CT POC: Thomas Battles Tel: (800) 246-9021 Fax: (860)674-9624	$ 1,698,331.00	4/30/2012
Reading MA	Reading Woods Development One Jacob Way, Reading MA Demolition of Six Structures	Asbestos, hazardous materials abatement & demolition includes all disposal. also removal/disposal of two (10,000 gal) underground storage tanks	Demolition Asbestos Abatement	$ 580,250 $ 519,750	Pulte Homes of New England LLC 115 Flanders Road, Westborough MA 01581 POC: John Engdahl Tel: (508) 962-9700 Fax: (508)870-0408 john.engdahl@PulteGroup.com	Haley & Aldrich Inc. 465 Medford St., Boston, MA 02129-1400 Tel: (617)886-7400 Fax: (617)886-7600	$ 1,100,000.00	12/31/2011

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Location	Project/Contract #	Description of Work	Class of Work	Dollar Amount of Each Class of Work	Owner and Owner's Rep.	Architect/Engineer & Contact Person	Contract Amount	Completion Date
Weymouth MA	Great Pond Water Treatment Plant Demolition & Appurtenant Work Contract No. 4	Demolition of the town's water treatment plant includes, installing drainage, paving erosion control, includes sludge removal hazardous materials remediation, excavation and site grading	Demolition	$ 655,925	Town of Weymouth,Department of Utilities 120 Winter Street, Weymouth MA 02188 POC: Michael Chiasson, Supt. Tel: (781) 337-5100 x 313 Fax: (781)337-6940 mchiasson@weymouth.ma.us	Environmental Partners Group Inc. 1900 Crown Colony Dr., Quincy MA 02169 POC: Stephen C. Olson, P.E. Tel: (617) 657-0200 Fax: (617) 657-0201	$ 655,925.00	9/30/2011
Danvers MA	Danvers High School Demolition and Abatement	Asbestos abatement & full demolition of portions of the existing Danvers High School Building including foundations, & construction of temp enclosures & access corridors	Demolition Asbestos Abatement Haz Materials Abatement	$ 465,992 $ 239,208 $ 4,299	Martins Construction Company, Inc. 130 Sylvan St., Suite 3, Danvers, MA 01923 POC: Molly Martins Tel: (978) 777-9084 Fax: (978) 750-4281 molly@martinscompanies.com	Dinisco Design Partnership 67 Summer Street, Boston, MA 02110 POC: Richard Rice Tel: (617) 426-2858 Fax: (617) 426-1457	$ 709,499.00	9/10/2010
Newport NH	Dorr Woolen Mill Demolition 529 Sunapee Street Lincoln NH Purchase Order No. 4-10480	Demolition of building, tunnel and raceway, backfill, install domestic water line, asbestos abatement removal and disposal and hazardous materials remediation	Demolition Asbestos Abatement	$ 1,252,251 $ 10,000	Sturm & Ruger & Co. Owner's Rep: GZA GeoEnvironmental Inc.	GZA GeoEnvironmental Inc. 380 Harvey St., Manchester NH 03103 POC: Stephen M. Raymond Tel: (603)623-3600 Fax: (603)624-9463 Smraymond@GZA.com	$ 1,262,251.00	7/15/2010
Lawrence MA	Riverwalk Abatement, Demolition & Backfill 300-350 Merrimack Street	Demolition of mill building with underground tank removal & site clearance, utility services	Demolition Asbestos Abatement Site Clearance Haz. Waste Remediation	$ 424,847 $ 113,000 $ 386,500 $ 350,000	Lupoli Companies 354 Merrimack Street, Lawrence, MA 01843 POC: Salvatore Lupoli Tel: (978) 681-7777 slupoli@sals-pizza.com	TEC Inc. 65 Glenn Street, Lawrence MA 01840 POC: Richard Friberg PE Tel: (978)794-1792 Fax: (978)794-1793	$ 1,274,447.00	12/15/2009
Lawrence MA	Emergency Abatement, Demolition & Backfill 290 Merrimack Street	Demolition of building with 2 stacks & conveyor bridge & site clearance, capping of utilities, removal/disposal of asbestos, lead & hazardous materials, according to Historical Commission mandates.	Demolition Asbestos Abatement Site Clearance	$ 550,000 $ 200,000 $ 25,000	Lupoli Companies 354 Merrimack Street, Lawrence, MA 01843 POC: Salvatore Lupoli Tel: (978) 681-7777 slupoli@sals-pizza.com	TEC Inc. 65 Glenn Street, Lawrence MA 01840 POC: Richard Friberg PE Tel: (978)794-1792 Fax: (978)794-1793	$ 775,000.00	12/15/2009
East Pittsburg, PA	Demolition/Asbestos Abatement & Removal Services RIDC Spec. Building I-001 Keystone Commons Industrial Park	Demolition & asbestos abatement of a 12-story former Westinghouse Mfg Plant. Steel frame, concrete floor & brick façade. Bldg was attached to an occupied bldg via walkway on the 3rd level	Demolition Asbestos Abatement Haz Materials Abatement	$ 907,797.00 $ 900,000.00 $ 190,357.00	Regional Industrial Dev Corp of SW PA 425 Sixth Ave., Ste 500, Pittsburg PA 15219 POC: Donald Smith Jr Tel: (412)471-3939 Fax: (412) 471-1740	KU Resources Inc. 22 S. Linden St., Duquesne PA 15110 POC: Mike Dowling Tel: (412)463-9331 Fax: (412)469-9336	$ 1,998,154.00	8/10/2009
New Britain Ct	Hazardous Material Abatement & Building Demolition for the Pinnacle Heights Housing Development	Asbestos abatement and demolition of 65 wood framed public housing units	Demolition Haz Materials Abatement	$ 635,633.00 $ 1,618,273.00	City of New Britain 27 West Main St., New Britain, CT 06052 POC: Jack Pieper Tel: (860) 826-3434 Fax: (860) 612-4204	Maguire Group Inc 1 Court Street, New Britain CT 06051 POC: David R. Stock	$ 2,253,906.00	6/30/2009

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Location	Project/Contract #	Description of Work	Class of Work	Dollar Amount of Each Class of Work	Owner and Owner's Rep.	Architect/Engineer & Contact Person	Contract Amount	Completion Date
Trenton NJ	Demolition of the Mercer County Detention Center MCIA	Demolition of Parking Garage and Detention Center	Demolition Asbestos Abatement	$ 981,200 $ 224,061	Mercer Cty Improvement Authority 640 S. Broad Street, Trenton NJ 08650 POC: Phillip Miller Tel: (609) 278-8100 Fax: (609) 695-1452	Langan Engineering & Environmental Service 619 River Dr. Center 1, Elmwood NJ 07407 POC: Richard Steiner Tel: (201) 398-4593 Fax: (201) 665-6410	$ 1,205,261.00	6/30/2009
Northampton MA	Abatement & Demolition of Building 26C, 26D and 26R at the former Northampton State Hospital	Demolition of (2) 3-story concrete & brick buildings and (1) story brick building	Demolition Asbestos Abatement	$ 476,500 $ 147,500	Mass. Development Finance Agency 33 Andrews Parkway, Devens MA 01434 POC: Alan Delaney Tel: (978) 784-2917 Fax: (978) 772-8815 adelaney@massdevelopment.com	Tighe & Bond Inc. 53 Southampton St., Westfield MA 01085 POC: Todd Brown Tel: (413) 572-3264 Fax: (413) 562-5317	$ 624,000.00	12/15/2008
Burlington MA	Demolition of the Wildwood School	Demolition of School Abatement of asbestos removal of underground fuel storage tank Site grading & restoration 52,000 SF	Demolition Asbestos Abatement Landscape & Roadside Dev	$ 262,288 $ 211,000 $ 142,000	Town of Burlington MA 29 Center St., Burlington MA 01803 POC: Thomas Hickey Tel: (781) 270-1634	Tighe & Bond Inc. 446 Main St., Worcester MA 01608 POC: Brian F. Day Tel: (508) 754-2201 bfday@tighebond.com	$ 615,288.00	10/9/2008
Devens, MA	Salerno Housing Demolition	Asbestos abatement and demolition of 71 buildings.	Demolition Asbestos Abatement	$ 2,237,553.95 $ 2,370,000.00	Mass Development Finance Agency 33 Andrews Parkway, Devens, MA 01434 POC: John P. Marc-Aurele, P.E. Tel: (978) 784-2900 Fax: (978) 772-8879 jmarc-Aurele@massdevelopment.com	Weston & Sampson Engineers, Inc. 5 Centennial Dr., Peabody, MA 01960 POC: Paul Uzgiris Tel: (978) 532-1900 x 2254 Fax: (978) 977-0100 uzgirisp@wsoinc.com	$ 4,607,553.95	06/09/08
Clarion, PA	Campbell Hall Demolition Contract #CL*633.1	Asbestos abatement and demolition of an 8 story building.	Demolition Asbestos Abatement	$ 695,000.00 $ 525,000.00	Clarion University of PA 840 Wood St, Clarion, PA 16214 POC: Ruth Wolfgang Tel: (814) 393-2000 Fax: (814) 393-2033	None POC: Tel: Fax:	$ 1,220,000.00	5/31/2008
Portsmouth, NH	Abatement and Demolition of Buildings at Pease International Tradeport	Asbestos, demolition and site restoration of 8 military buildings.	Demolition Asbestos Abatement Highway Construction	$ 548,175.00 $ 263,500.00 $ 90,000.00	Pease Development Authority 360 Corporate Drive, Portsmouth, NH 03801 POC: Michael Yeager Tel: (603) 433-6088 Fax: (603) 427-0433	Pease Development Authority 360 Corporate Drive, Portsmouth, NH 03801 POC: Michael Yeager Tel: (603) 433-6088 Fax: (603) 427-0433	$ 901,675.00	11/1/2007
Clinton, MA	Bridge Replacement (C-16-003) (Steel) Route 62 & 70 over the Nashua River FA #BR-001S(422)X Contract #44341	Construction of a multi-span cast in place concrete and steel framed bridge structure supported by large diameter drilled shafts.	Bridge Construction Highway Construction Demolition	$ 4,050,009 $ 1,008,919 $ 530,000	MA Department of Transportation - District 3 403 Belmont Street, Worcester, MA 01604 POC: Jonathan Gulliver Tel: (508) 929-3800 Fax: (508) 799-8763	Parsons 1 Federal St., Boston, MA POC: Mark K. Holcomb Tel: Fax:	$ 5,588,928.00	11/30/2008

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Northampton, MA	Abatement and Demo. of Main Building Complex at the former Northampton State Hospital Project #05-002	Asbestos and hazardous abatement. Demolition of buildings, removal of abandoned utilities and site restoration.	Highway Construction Demolition Asbestos Abatement	$ 250,000 $ 5,862,978 $ 900,000	Mass Development Finance Agency 33 Andrews Parkway, Devens, MA 01434 POC: Alan Delaney Tel: (978) 784-2917 Fax: (978) 772-8815 adelaney@massdevelopment.com	Tighe & Bond Inc 53 Southampton Rd., Westfield, MA 01085 POC: Todd Brown Tel: (413) 572-3264 Fax: (413) 562-5317	$ 7,012,978.00	10/31/2007
Pittsburgh, PA	Demolition of the Kelly Street High Rise, PA-1-14 Contract #10106.28	Demolition of a 14 story apartment building and site restoration.	Demolition	$ 498,989.00	Housing Authority of the City of Pittsburgh 100 Ross Street, 2nd Floor, Pittsburgh, PA 15219 POC: Sheree Thomas Tel: (412) 456-5020 Fax: (412) 456-5167	Moody-Nolan Inc. Pittsburgh, PA POC: A. Fulton Meachem, Jr. Tel: Fax:	$ 498,989.00	12/4/2007
Northampton, MA	Demolition of Buildings 26E and 26F Former Northampton State Hospital	Asbestos abatement, demolition and backfilling.	Demolition Asbestos Abatement	$ 254,833 $ 254,832	Mass Development Finance Agency 33 Andrews Parkway, Devens, MA 01434 POC: Alan Delaney Tel: (978) 784-2917 Fax: (978) 772-8815 adelaney@massdevelopment.com	Tighe & Bond Inc 53 Southampton Rd., Westfield, MA 01085 POC: Todd Brown Tel: (413) 572-3264 Fax: (413) 562-5317	$ 509,665.00	4/30/2007
Devens, MA	Demolition of Miscellaneous Former Wooden Barracks Buildings and Assoc Structures Adjacent to Patton Road Project #06-003	Asbestos abatement and Demolitionof 113 Buildings	Demolition Asbestos Abatement Haz Waste Remediation	$ 2,471,495 $ 1,100,000 $ 543,530	Mass Development Finance Agency 33 Andrews Parkway, Devens, MA 01434 POC: Alan Delaney Tel: (978) 784-2917 Fax: (978) 772-8815 adelaney@massdevelopment.com	Guertin, Elkerton & Associates 91 Montvale Avenue, Stoneham, MA 02180 POC: Tel: (781) 279-2828 Fax: (781) 279-7993	$ 4,115,025.00	11/30/2006
West Boylston, MA	Demolition of the Former Worcester County Hospital Project No. DCP0104	Demolition and Asbestos Abatement of a 4 story, concrete structure, approximately 140,000 square feet. Also included is tunnel demolition and the construction of a new, pre-cast, fire pump building.	Highway Construction Electrical Demolition Mechanical Asbestos Abatement Precast Concrete	$ 200,000 $ 69,500 $ 1,845,700 $ 74,800 $ 850,000 $ 180,000	DCAM 1 Ashburton Place, Boston, MA POC: Mark Roberts Tel: (617) 727-4003 Fax: (617) 727-6877	Tighe & Bond Inc 324 Grove St., Worcester, MA 01608 POC: Todd Brown Tel: (508) 754-2301 Fax: (508) 795-1087	$ 3,220,000.00	7/15/2006
Waltham, MA	Demolition of the Former "Olympus State Hospital" 775 Trapelo Rd. Waltham, MA	Complete Asbestos and Hazardous Materials Abatement and Demolition of a former State Hospital Facility	Highway Construction Demolition Asbestos Abatement	$ 50,000 $ 2,018,401 $ 800,000	Pulte Homes of New England LLC 115 Flanders Road, Suite 170 Westboro, MA 01581 POC: Michael Meurant Tel: (508) 962-9700 Fax: (508) 870-0408	Pulte Homes of New England LLC 115 Flanders Road, Suite 170 Westboro, MA 01581 POC: Michael Meurant Tel: (508) 870-9999 Fax: (508) 870-0408	$2,668,401.00	10/31/2005

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Chicopee, MA	Abatement and Demolition of Delta Park	Asbestos and hazardous materials abatement. Demolition of several buildings of a former foundry	Demolition	$ 677,600	Air Quality Experts, Inc. 40 Lowell Rd, Unit 1, Salem, NH 03079 POC: Chris Thompson Tel: Fax:	Tighe & Bond Matthew Jacquet 53 Southampton Rd, Westfield, MA 01085 Tel: (413) 562-1600 Fax:	$ 677,600.00	7/31/2004
Lowell, MA	Stoklosa Middle School Site Development	Demolition and Contaminated Soil Removal	Demolition Asbestos Abatement Haz Waste Remediation	$ 1,437,000 $ 50,000 $ 1,330,000	City of Lowell 375 Merrimack Street, Lowell, MA 01853 POC: Edward Souza Tel: (978) 446-7086 Fax: (978) 446-7089	Drummey/Rosanne and Anderson 141 Herrick Rd., Newton Center, MA 02459 POC: Tel: Fax:	$ 2,817,000.00	1/31/2004
Lowell, MA	Demolition of the Julian D. Steele Development	Demolition and Asbestos Abatement of 285 housing units.	Demolition Asbestos Abatement	$ 864,445 $ 600,000	Residents First Development Corp. Lowell, MA POC: Tom Collins Tel: (978) 656-4864 Fax: (978) 937-3599	Raymond T. Guerlin Architect 9R Page Street, Danvers, MA 01923 POC: Raymond T. Guerlin Tel: (978) 774-6169 Fax: (978) 750-4898	$ 1,464,445.00	10/15/2003
Greenfield, MA	Greenfield Tap & Die Demolition	Demolition and asbestos abatement, former mill buildings	Demolition Asbestos Abatement	$ 523,430 $ 5,000	Town of Greenfield 253 Main St., Greenfield, MA 01301 POC: Nancy Goff Tel: (413) 772-1548 Fax: (413) 772-1309	Tighe & Bond, Inc. 324 Grove St., Worcester, MA 01605 POC: Todd Brown Tel: (508) 754-2201 Fax: (508) 795-1087	$ 528,430.00	8/8/2003
Worcester, MA	Phase I - Site Preparation and Demolition of the Worcester Vocational High School Project	Demolition of Worcester Vocational High School	Demolition	$ 829,300	City of Worcester 455 Main Street, Worcester MA 01608 POC: Eric Twickler Tel: (508) 799-1220 Fax: (508) 799-1244	Lamoureux & Pagano Associates 14 E Worcester St, Worcester, MA 01604 POC: Robert Parrah Tel: (508) 752-2631 Fax: (508) 757-7769	$ 829,300.00	01/03
East Boston, MA	Demolition and Removal of the Dry-dock "Aries"	Dismantle and Remove Sunken Dry-dock.	Marine Demolition	$ 588,624	Boston Marine Works, Inc. POC: Lisa Goodhart Tel: (617) 428-3458 Fax:	None	$ 588,624.00	10/2/2002
Lynn, MA	G.E. Wharf Demolition	Demolition of 600' Wharf, timber pile removal and reconstruction of revetment	Demolition Marine Demolition	$ 375,188 $ 300,000	IDC POC: James Begley Tel: (781) 594-2960	Brown & Caldwell POC: Jeff Caputi Tel: (201) 818-6055	$ 675,188.28	4/1/2002
Devens, MA	Northwest Area Demolition and Asbestos Abatement	Asbestos Removal and Demolition of 129 Housing Buildings	Demolition Asbestos Abatement	$ 1,500,000 $ 487,000	Mass Development Finance Agency 43 Buena Vista Street, Devens, MA 01432 POC: Neil Mauer Tel: (978) 772-6340	Tighe & Bond, Inc. POC: Brian Day Tel: (413) 562-1600	$ 1,987,000.80	3/1/2002

S&R CORPORATION
SELECTED COMPLETED PROJECT LIST

01/01/17

Location	Project/Contract #	Description of Work	Class of Work	Dollar Amount of Each Class of Work	Owner and Owner's Rep.	Architect/Engineer & Contact Person	Contract Amount	Completion Date
Devens, MA	Business Service Area Demolition	Asbestos Removal and Demolition of 13 buildings	Demolition Asbestos Abatement	$ 520,000 $ 50,000	Mass Development Finance Agency 43 Buena Vista Street, Devens, MA 01432 POC: Larry Vincent Tel: (978) 772-6340	Guertin Elkerton & Associates POC: David Press Tel: (781) 279-2268	$ 570,000.00	1/1/2002
Malden, MA	Lincoln School Demolition 333 Cross Street	School Demolition	Demolition Asbestos Abatement	$ 468,000 $ 100,000	Malden Redevelopment Authority POC: Angelo Napolitano Tel: (781) 324-5720	Fay, Spofford, Thorndike, LLC. POC: George Protasowicki Tel: (781) 221-1196	$ 568,000.00	9/1/2000
Worcester, MA	Coes Knife Demolition	Asbestos removal, soil management and building demolition	Demolition	$ 584,600	City of Worcester POC: Art Tucker Tel: (508) 799-1200	Weston & Sampson Engineers, Inc. POC: Joel Kantola Tel: (978) 532-1900	$ 584,600.00	8/1/2000
Devens, MA	Jackson Road Demolition	Demolition of 24 buildings	Demolition Asbestos Abatement	$ 689,120 $ 340,000	Mass Development Finance Agency 43 Buena Vista Street, Devens, MA 01432 POC: Alan Delaney Tel: (978) 772-6340 adelaney@massdevelopment.com	Tighe & Bond, Inc. POC: Todd Brown Tel: (413) 562-1600	$ 1,029,120.00	8/1/2000
Methuen, MA	Methuen Mall Demolition	Demolition of 400,000 SF former shopping mall	Demolition	$ 705,615	Valley Partners Limited POC: Dan Schevis Tel: (978) 749-3000	Gilbane Building Company POC: Pat Walsh Tel: (978) 688-2828	$ 705,615.00	5/1/1999
Pittsfield, MA	England Brothers Demolition of Building	Asbestos abatement and demolition of 250,000 SF building	Demolition Asbestos Abatement	$ 754,777 $ 85,000	City of Pittsfield POC: Robert Tone Tel: (413) 499-9470	O'Brien & Gere POC: Phil Clark Tel: (413) 443-7471	$ 839,777.21	5/1/1999
Limestone, ME	South Wherry Asbestos Abatement and Demolition	Asbestos abatement demolition of 1500 housing units, construction, operation and closure of 6 acre demolition landfill	Demolition Asbestos Abatement	$ 1,000,000 $ 600,000	Loring Development Authority 1700 Texas Drive, Limestone, ME POC: Carl Flora Tel: (207) 328-7005	Langille Aroostook Engineering 219 Parsons Rd, Presque Island, ME 04769 Tel: (207) 764-9328	$ 1,600,000.00	11/1/1999
Lowell, MA	Lawrence Mills	Demolition/Asbestos abatement and management of asbestos waste of 13 buildings	Demolition Asbestos Abatement	$ 2,040,000 $ 60,000	DCAM 1 Ashburton Place, Boston, MA POC: Robert Gray/James Finnegan Tel: (617) 727-4050	Gale Associates, Inc. 163 Libbey Parkway, Weymouth, MA 02189 POC: Elizabeth Lewis Tel: (781) 335-6465	$ 2,100,000.00	1/1/1999

2. The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as Principals, are as follows:

Roger R. Ploof, Jr.	President	706 Broadway Street, Lowell MA 01854
Steven Ploof	Treasurer	706 Broadway Street, Lowell MA 01854

(Attach supplementary list if necessary)

3. The Bidder shall state below what work of a similar character to that included in the proposed contract it has done, and give references that will enable the Owner to judge its experience, skill and business standing (add supplementary page(s) if necessary).

Pursuant to M.G.L. CH. 62C, Sec 49A, the undersigned Bidder certifies under the penalties of perjury that it is in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

The undersigned Bidder hereby certifies that (1) it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; and (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity which sells materials, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof.

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of Section Twenty-Nine F of Chapter Twenty-Nine, Section 25C (10) of Chapter 152 (workers' compensation) or any other applicable debarment provisions of any other Chapter of the General Laws or any rule or regulations promulgated thereunder.

Respectfully submitted:

Date: Feb. 15, 2017

By: _____
(Signature)

Roger R. Ploof, Jr.
(Name – Typed or Printed)

President
(Title)

S&R CORPORATION
(Business Name)

02-0404568
(Federal ID Number)

706 Broadway Street
(Business Address)

Lowell Massachusetts 01854
(City and State)

(978) 441-2000
(Telephone Number)

(SEAL - if bid is by a corporation)

S&R CORPORATION

Address 706 Broadway Street · Lowell, MA 01854
Telephone 978-441-2000 Fax 978-441-2002 Web www.sandrcorp.com

CERTIFICATE OF VOTE

I, Mary D. Ploof, hereby certify:

THAT I am the duly elected secretary of S&R Corporation

I hereby certify the following is a true copy of a vote taken at a meeting of the Board of Directors of the Corporation, duly called and held on December 1, 2016 at which a quorum of the Board was present and voting:

VOTED:

> THAT Steven Ploof or Roger R. Ploof Jr. on behalf of the Corporation are hereby authorized to execute contracts, bonds and bid documents as may be necessary and to execute any and all other documents which in their judgment they deem desirable or necessary to effect the purpose of this vote.

I hereby certify that said vote has not been amended or repealed and remains in full force and effect as of June 1, 2017 and that Steven Ploof or Roger R. Ploof Jr. are the duly elected Treasurer and President respectively of this Corporation.

Dated: June 1, 2017

A True Record Attest

Secretary

S&R Corporation
706 Broadway Street
Lowell, MA 01854

State of Incorporation: Massachusetts

BID BOND

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

CONTRACTOR:
(Name, legal status and address)
S & R Corporation

706 Broadway Street
Lowell, MA 01854

SURETY:
(Name, legal status and principal place of business)
Philadelphia Indemnity Insurance Company
One Bala Plaza, Suite 100
Bala Cynwyd, PA 19004-1403

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)
Orleans Brewster Eastham Groundwater Protection District

MA

BOND AMOUNT: $ **Five Percent of the Attached bid (5%)**

PROJECT:
(Name, location or address, and Project number, if any)
Tri-Town Septage Treatment Facility Demolition, Orleans MA

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this **8th** day of **February, 2017**

(Witness)

S & R Corporation
(Principal) *(Seal)*

(Title) Roger R. Ploof, Jr. - President

(Witness)

Philadelphia Indemnity Insurance Company
(Surety) *(Seal)*

(Title) **Adam W. DeSanctis, Attorney-in-Fact**

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PHILADELPHIA INDEMNITY INSURANCE COMPANY
One Bala Plaza, Suite 100
Bala Cynwyd, PA 19004-0950

Power of Attorney

KNOW ALL PERSONS BY THESE PRESENTS: That **PHILADELPHIA INDEMNITY INSURANCE COMPANY** (the Company), a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, does hereby constitute and appoint **Adam W. Desanctis; Gregory D. Juwa; Bryan F. Juwa; Wilder Parks Jr.; Christine B. Gallagher; David A. Boutiette; James J. Axon; Jonathan Duggan; Michael F. Carney; Michael T. Gilbert; Paul A. Patalano; Rebecca Shanley; Richard F. Caruso OF THE CITY OF WOBURN, STATE OF MASSACHUSETTS,** its true and lawful Attorney-in-fact with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business and to bind the Company thereby, in an amount not to exceed **$25,000,000.00**

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of PHILADELPHIA INDEMNITY INSURANCE COMPANY at a meeting duly called the 1st day of July, 2011.

RESOLVED: That the Board of Directors hereby authorizes the President or any Vice President of the Company to: (1) Appoint Attorney(s) in Fact and authorize the Attorney(s) in Fact to execute on behalf of the Company bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof and to attach the seal of the Company thereto; and (2) to remove, at any time, any such Attorney-in-Fact and revoke the authority given. And, be it

FURTHER RESOLVED: That the signatures of such officers and the seal of the Company may be affixed to any such Power of Attorney or certificate relating thereto by facsimile, and any such Power of Attorney so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with the respect to any bond or undertaking to which it is attached.

IN TESTIMONY WHEREOF, PHILADELPHIA INDEMNITY INSURANCE COMPANY HAS CAUSED THIS INSTRUMENT TO BE SIGNED AND ITS CORPORATE SEALTO BE AFFIXED BY ITS AUTHORIZED OFFICE THIS 10TH DAY OF JUNE 2013.

(Seal)

Robert D. O'Leary Jr., President & CEO
Philadelphia Indemnity Insurance Company

On this 10th day of June 2013, before me came the individual who executed the preceding instrument, to me personally known, and being by me duly sworn said that he is the therein described and authorized officer of the **PHILADELPHIA INDEMNITY INSURANCE COMPANY**; that the seal affixed to said instrument is the Corporate seal of said Company; that the said Corporate Seal and his signature were duly affixed.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Kimberly A. Kessleski, Notary Public
Lower Merion Twp. Montgomery County
My Commission Expires Dec. 18, 2016
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Notary Public: _____

residing at: Bala Cynwyd, PA

(Notary Seal)

My commission expires: December 18, 2016

I, Edward Sayago, Corporate Secretary of PHILADELPHIA INDEMNITY INSURANCE COMPANY, do herby certify that the foregoing resolution of the Board of Directors and this Power of Attorney issued pursuant thereto on this 10TH day of June 2013 true and correct and are still in full force and effect. I do further certify that Robert D. O'Leary Jr., who executed the Power of Attorney as President, was on the date of execution of the attached Power of Attorney the duly elected President of PHILADELPHIA INDEMNITY INSURANCE COMPANY,

In Testimony Whereof I have subscribed my name and affixed the facsimile seal of each Company this 8th day of February 2017

Edward Sayago, Corporate Secretary
PHILADELPHIA INDEMNITY INSURANCE COMPANY

CHARLES D. BAKER
GOVERNOR

KARYN E. POLITO
LIEUTENANT GOVERNOR

The Commonwealth of Massachusetts
Executive Office for Administration and Finance
Division of Capital Asset Management and Maintenance
One Ashburton Place, 15th Floor
Boston, Massachusetts 02108
Tel: 857-204-1305
Fax: 617-727-8284
Email: Certification.DCAMM@state.ma.us

SECRETARY
ADMINISTRATION & FINANCE

CAROL W. GLADSTONE
COMMISSIONER

Prime/General
Certificate of Contractor Eligibility

CONTRACTOR IDENTIFICATION NUMBER: 1420

This Certificate Shall be Used for Submitting Prime/General Bids Only

1. CERTIFICATION PERIOD This Certificate is valid from 01/09/2017 to 02/07/2018*

2. CONTRACTOR'S NAME: S&R Corporation

3. CONTRACTOR'S ADDRESS: 706 Broadway Street, Lowell, MA 01854-3266

4. WORK CATEGORIES: This Contractor is certified to file bids under Massachusetts General Laws Chapter 149, Chapter 149A and Chapter 25A in the following checked Categories of Work:

☐ Alarm Systems	☐ Energy Management System	☐ Historical Painting	☐ Pumping Stations
☑ Asbestos Removal	☐ Exterior Siding	☐ Historical Roofing	☐ Roofing
☐ Deleading	☐ Fire Protection Sprinkler Systems	☐ Masonry	☐ Sewage and Water Treatment Plants
☑ Demolition	☐ Floor Covering	☐ Mechanical Systems	☐ Telecommunications Systems
☐ Doors and Windows	☐ General Building Construction	☐ Modular Construction/Prefab	☐ Waterproofing
☐ Electrical	☐ HVAC	☐ Painting	☐ Special (for DCAMM pre-approved projects only)
☐ Electronic Security Systems	☐ Historical Building Restoration	☐ Plumbing	
☐ Elevators	☐ Historical Masonry		

5. EVALUATIONS:

Number of Projects Evaluated:	31
Average Project Evaluation Rating:	96
Number of Projects Below Passing	0

6. PROJECT LIMITS:

Single Project Limit (SPL):	$16,167,000
Aggregate Work Limit (AWL):	$56,899,000
General Building Construction Limit:	$N/A

7. SUPPLIER DIVERSITY OFFICE CERTIFICATION: No

Taisha Crayton, Deputy Director, Contractor Certification, for Carol W Gladstone, Commissioner

01/09/2017
Approval Date

* NOTE TO CONTRACTORS: ***Complete Applications for Renewal of Contractor Eligibility are due no later than three months PRIOR to the Expiration Date of the Certification Period shown above. Failure to submit Complete Application timely may result in a gap in Certification or a lapse in Certification altogether for your Company.***

Reviewer's Initials: KT

Address 706 Broadway Street · Lowell, MA 01854
Telephone 978-441-2000 Fax 978-441-2002 Web www.sandrcorp.com

CERTIFICATE OF VOTE

I, Mary D. Ploof, hereby certify:

THAT I am the duly elected secretary of S&R Corporation

I hereby certify the following is a true copy of a vote taken at a meeting of the Board of Directors of the Corporation, duly called and held on December 1, 2016 at which a quorum of the Board was present and voting:

VOTED:

> THAT Steven Ploof or Roger R. Ploof Jr. on behalf of the Corporation are hereby authorized to execute contracts, bonds and bid documents as may be necessary and to execute any and all other documents which in their judgment they deem desirable or necessary to effect the purpose of this vote.

I hereby certify that said vote has not been amended or repealed and remains in full force and effect as of February 8, 2017 and that Steven Ploof or Roger R. Ploof Jr. are the duly elected Treasurer and President respectively of this Corporation.

Dated: February 8, 2017

A True Record Attest

Secretary

S&R Corporation
706 Broadway Street
Lowell, MA 01854

State of Incorporation: Massachusetts

SECTION 00520

AGREEMENT

Made in triplicate this the 5th day of July, 2017 between the Orleans Brewster Eastham Groundwater Protection District and S&R Corporation, hereafter the "Contractor".

WITNESSETH: That for and in consideration of the following mutual covenants contained herein the parties agree with each other as follows:

ARTICLE I: The Contractor agrees to sell and/or deliver to the Orleans Brewster Eastham Groundwater Protection District materials and/or services in accordance with the following:

TRI-TOWN SEPTAGE TREATMENT FACILITY DEMOLITION.

Exhibit 1. **Quote/bid dated February 15, 2017**

Exhibit 2. **Certificate of Non-Collusion**

Exhibit 3. **Statement of State Tax Compliance**

Exhibit 4. **Acknowledgement of Principal**

Exhibit 5. **Certificate of Insurance**

ARTICLE II: The Orleans Brewster Eastham Groundwater Protection District agrees to process the bills for payment to the Contractor upon the execution of the contract, satisfactory completion of the services as outlined in the specifications and approval by the appropriate Department Manager, Town Administrator and Town Accountant in the amount of One Million Eight Hundred Three Thousand Sixty Dollars and No Cents ($1,803,060).

IN WITNESS: Whereof the respective parties hereto have caused this instrument to be duly subscribed and sealed.

Orleans Brewster Eastham Groundwater Protection District Board of Managers

Signature

John Kelly
Printed Name

Orleans Town Administrator
Title

Signature

Martin McDonald
Printed Name

Eastham Town Administrator Representative
Title

Address

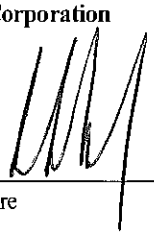
c/o Town of Orleans, MA
19 School Road
Orleans, MA 02653

Signature

Michael Embury
Printed Name

Brewster Town Administrator
Title

S&R Corporation



Signature

Roger R. Ploof, Jr.

Printed Name

President

Title

Address

706 Broadway Street
Lowell, MA 01854

SECTION 00520

ATTACHMENT A

ADDITIONAL FORMS TO BE SUBMITTED WITH THE BID

A. INSURANCE REQUIREMENTS FOR INCLUSION IN ALL SPECIFICATIONS AND CONTRACTS

B. STATEMENT OF STATE TAX COMPLIANCE

C. CERTIFICATE OF NON-COLLUSION

D. ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

E. ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

INSURANCE REQUIREMENTS FOR INCLUSION IN ALL SPECIFICATIONS AND CONTRACTS

OWNERS NAME: Orleans Brewster Eastham Groundwater Protection District

PROJECT NAME: Tri-Town Septage Treatment Facility Demolition

Insurance. The Contractor shall carry and maintain in effect during the entire currency of the contract, at his own expense, the following kinds and minimum amounts of insurance in a company or companies approved by the Orleans Brewster Eastham Groundwater Protection District. Such insurance shall cover claims and suits which arise out of or result from the Contractor's execution of the contract work whether such execution by the Contractor himself or by any Subcontractor.

1) X - Worker's Compensation as required by the Worker's Compensation Laws of the Commonwealth of Massachusetts and, in conjunction therewith, Employer's Liability with a minimum limit as required by statute.

2) X - "Broad Form" Comprehensive General Liability including, but not limited to, Bodily Injury, Personal Injury and Property Damage Liability, Full Contractual Liability and liability arising from Explosion, Collapse and Underground Damage and all other applicable insurance necessary to carry out the contractual obligation to proceed under the contract. Minimum limit of liability $1,000,000.00

3) X - Automobile Bodily Injury and Property Damage Liability for all owned, non-owned and hired automobiles operated in connection with the performance of the contract. Minimum limits of liability: Single limits of Property Damage and Bodily Injury $1,000,000.

4) X - Builder's Risk - Amount of the Contract

5) X - Professional Liability/ Errors and Omissions in the amount of $1,000,000.

Certificate of Insurance. Prior to beginning work under the contract, the Contractor shall furnish the Orleans Brewster Eastham Groundwater Protection District a Certificate of Insurance naming the Orleans Brewster Eastham Groundwater Protection District, Town of Brewster, Town of Eastham, Town of Orleans, and AECOM Technical Services, Inc. as additional insured. Such Certificate also shall provide that the Orleans Brewster Eastham Groundwater Protection District will be notified at least 30 days in advance of the cancellation or non-renewal of any insurance covered by the Certificate.

INSURANCE REQUIREMENTS FOR INCLUSION IN ALL SPECIFICATIONS AND CONTRACTS

OWNERS NAME: Orleans Brewster Eastham Groundwater Protection District

PROJECT NAME: Tri-Town Septage Treatment Facility Demolition

Insurance. The Contractor shall carry and maintain in effect during the entire currency of the contract, at his own expense, the following kinds and minimum amounts of insurance in a company or companies approved by the Orleans Brewster Eastham Groundwater Protection District. Such insurance shall cover claims and suits which arise out of or result from the Contractor's execution of the contract work whether such execution by the Contractor himself or by any Subcontractor.

1) X - Worker's Compensation as required by the Worker's Compensation Laws of the Commonwealth of Massachusetts and, in conjunction therewith, Employer's Liability with a minimum limit as required by statute.

2) X - "Broad Form" Comprehensive General Liability including, but not limited to, Bodily Injury, Personal Injury and Property Damage Liability, Full Contractual Liability and liability arising from Explosion, Collapse and Underground Damage and all other applicable insurance necessary to carry out the contractual obligation to proceed under the contract. Minimum limit of liability $1,000,000.00

3) X - Automobile Bodily Injury and Property Damage Liability for all owned, non-owned and hired automobiles operated in connection with the performance of the contract. Minimum limits of liability: Single limits of Property Damage and Bodily Injury $1,000,000.

4) _ - Builder's Risk - Amount of the Contract

5) _ - Professional Liability/ Errors and Omissions in the amount of $1,000,000.

Certificate of Insurance. Prior to beginning work under the contract, the Contractor shall furnish the Orleans Brewster Eastham Groundwater Protection District a Certificate of Insurance naming the Orleans Brewster Eastham Groundwater Protection District, Town of Brewster, Town of Eastham, Town of Orleans, and AECOM Technical Services, Inc. as additional insured. Such Certificate also shall provide that the Orleans Brewster Eastham Groundwater Protection District will be notified at least 30 days in advance of the cancellation or non-renewal of any insurance covered by the Certificate.

STATEMENT OF STATE TAX COMPLIANCE

OWNERS NAME: Orleans Brewster Eastham Groundwater Protection District

PROJECT NAME: Tri-Town Septage Treatment Facility Demolition

Pursuant to Ch. 233 of the Acts of 1983, §49A(b), I, Roger R. Ploof, Jr. - President, acknowledge that I am the authorized signatory for S&R Corporation, whose principal place of business is at 706 Broadway Street, Lowell MA 01854, and as such, do hereby certify under the pains of penalties of perjury that this company has complied with all laws of the Commonwealth relating to taxes.

Social Security or Federal ID Number: 02-0404568

Subscribed and sworn to this 15th day of February, 2017.

Contractor's Signature Roger R. Ploof, Jr. - President

Linda A. Tardiff
Notary Public Signature

(Seal)

My Commission expires on: November 21, 2019

CERTIFICATE OF NON-COLLUSION

OWNERS NAME: Orleans Brewster Eastham Groundwater Protection District

PROJECT NAME: Tri-Town Septage Treatment Facility Demolition

Pursuant to M.G.L. Ch. 30, the undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

S&R CORPORATION
Name of business

Contractor's Signature Roger R. Ploof, Jr. - President

Linda A. Tardiff
Notary Public Signature

(Seal)

My Commission expires on: November 21, 2019

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

OWNERS NAME: Orleans Brewster Eastham Groundwater Protection District

PROJECT NAME: Tri-Town Septage Treatment Facility Demolition

State of Massachusetts

County of Middlesex

SS: City of Lowell

On this 15 day of Feb., 2017 before me personally came and appeared to me who, being by me duly sworn, did depose and say to me that he resides at 28 Sheffield St Windham NH that he is of Pres. of S&R Corp., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the impressions affixed to said instrument is an impression of such seal; that it was so affixed by the order of the directors of said corporation, and that he signed his name thereto by like order.

Contractor's Signature Roger R. Ploof, Jr. - President

Linda A. Tardiff

Notary Public Signature

(Seal)

My Commission expires on: November 21, 2019

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

OWNERS NAME: Orleans Brewster Eastham Groundwater Protection District

PROJECT NAME: Tri-Town Septage Treatment Facility Demolition

State of NA

County of _____

SS: _____

On this ___ day of _____, 20__, before me personally came and appeared _____ to me known, and known to me to be one of the members of the firm described in and which executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

_____
Contractor's Signature

_____
Notary Public Signature

(Seal)

My Commission expires on: _____

STEVE-4 OP ID: RS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/03/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER DeSanctis Insurance Agcy, Inc. 100 Unicorn Park Drive Woburn, MA 01801	CONTACT NAME: PHONE (A/C, No, Ext): 781-935-8480 FAX (A/C, No): 781-933-5645 E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Liberty Mutual Fire Ins Co.	23035
INSURER B : Wausau Insurance	21458
INSURER C : Nautilus Insurance Company	17370
INSURER D : Starr Indemnity & Liability Co	38318
INSURER E : Philadelphia Insurance Company	
INSURER F :	

INSURED: S&R Corporation
706 & 700.1 Broadway Street
Lowell, MA 01854

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [ ] LOC OTHER:			TB2Z11261700026	09/30/2016	10/01/2017	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Emp. Ben.	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ 1,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			AS2Z11261700036	09/30/2016	10/01/2017	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
D	X UMBRELLA LIAB [ ] OCCUR EXCESS LIAB [X] CLAIMS-MADE DED RETENTION $			TBA	09/30/2016	10/01/2017	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			WCCZ11261700016	09/30/2016	09/30/2017	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ 1,000,000 $ 1,000,000 $ 1,000,000
C	Pollution/Prof			CPL201290612	09/30/2016	10/01/2017	POLL/PROF	$5M/$5M
E	Excess Umbrella			TBA ($5M/$5M)	09/30/2016	10/01/2017	XS UMBREL	$5M/$5M

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

EVIDENCE OF COVERAGE for Neponset Blue Hill Project. Blanket Additional Insured and Railroad Protective Liability Coverage apply per attached endorsements.

CERTIFICATE HOLDER

EVIDE-1

EVIDENCE OF INSURANCE

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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NOTICE TO PROCEED

To: S&R Corporation, 706 Broadway Street, Lowell, MA 01854

Project Description: Tri-Town Septage Treatment Facility Demolition,

Owner: Orleans Brewster Eastham Groundwater Protection District, Orleans, MA.

You are hereby notified to commence Work in accordance with the Agreement dated July 5, 2017, on or before September 18, 2017 and you are to complete the Work within 175 consecutive calendar days using no more than 120 working days. The date of Completion of all Work is therefore April 27, 2018. In addition you are hereby notified to provide all shop drawings and submittals for review on or before August 18, 2017.

IN WITNESS: Whereof the respective parties hereto have caused this instrument to be duly subscribed and sealed.

Orleans Brewster Eastham Groundwater Protection District Board of Managers

Signature

John Kelly

Printed Name

Orleans Town Administrator

Title

Signature

Martin McDonald

Printed Name

Eastham Town Administrator Representative

Title

Address

c/o Town of Orleans, MA
19 School Road
Orleans, MA 02653

Signature

Michael Embury

Printed Name

Brewster Town Administrator

Title

Acceptance of Notice to Proceed:

Receipt of the above Notice to Proceed is hereby acknowledged by

S&R Corporation

Address

706 Broadway Street
Lowell, MA 01854

Signature

Date

Roger R. Ploof, Jr.

Printed Name

President

Title

SECTION 00610

PERFORMANCE BOND

BOND #PB11731200071

KNOW ALL MEN BY THESE PRESENTS: That we S&R Corporation, a Corporation, organized and existing under the laws of the State of Massachusetts, hereinafter called "Principal" and
Philadelphia Indemnity Insurance of Bala Cynwyd, State of PA
(Surety) Company (City)

hereinafter called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the Orleans Brewster Eastham Groundwater Protection District, Orleans, Massachusetts, hereinafter called "Owner", in the penal sum of One Million Eight Hundred Three Thousand Sixty Dollars and No Cents ($1,803,060) in lawful money of the United States, for the payment of which sum well and truly to he made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal has entered into a certain contract with the Owner (the "Construction Contract"), dated the 5TH day of JULY, 2017, for the construction described as follows:

TRI-TOWN SEPTAGE TREATMENT FACILITY DEMOLITION

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of the Construction Contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under the Construction Contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise, this obligation shall remain in full force and effect.

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after (1) the Owner has declared the Principal in default of the Construction Contract or any provision thereof, or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to execute the work consistent with, and in conformance to, the Construction Contract (collectively referred to as a "Contractor Default"). The determination of a Contractor Default shall be made solely by the Owner. The Owner need not terminate the Construction Contract to declare a Contractor Default or to invoke its rights under this Bond, and Contractor hereby agrees not to assert any claims against Surety under any indemnity or similar agreements on the grounds that Surety has interfered with the Construction Contract by fulfilling its obligations hereunder in the absence of a termination of said contract.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the Owner, shall promptly take one of following steps: (1) arrange for the Principal to perform and complete the work of the Construction Contract; (2) arrange for a contractor other than the Principal to perform and complete the work of the Construction Contract; (3) reimburse the Owner, in a manner and at such time as the Owner shall reasonably decide, for all costs and expenses incurred by the Owner in performing and completing the work of the Construction Contract. Surety will keep Owner reasonably informed of the progress, status and results of any investigation of any claim of the Owner.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Construction Contract; (2) additional design, professional services, and legal costs, including attorney's fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Construction Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligations of the Principal, if any, as provided in the Construction Contract; and (5) liquidated damages as provided in the Construction Contract, or if no such damages are specified, actual damages and consequential damages resulting from the Contractor Default or any default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the Commonwealth of Massachusetts.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the work or to the specifications.

The Surety providing the Bond shall have a rating of A or better within Best's Key Rating Guide.

IN WITNESS WHEREOF, this instrument is executed in three (3) counterparts, each one of which shall be deemed an original, this 5TH day of JULY, 2017.

ATTEST:	
Roger R. Ploof, Jr.	Linda A. Tardiff
Principal	Witness
Principal Signature	Witness as to Principal Signature
President	Mary D. Ploof, Secretary/Clerk
Name and Title	Name and Title
Address	Address
S&R Corporation 706 Broadway Street Lowell, MA 01854	S&R Corporation 706 Broadway Street Lowell, MA 01854
City and State	City and State

(SEAL)

ATTEST:

Philadelphia Indemnity Insurance Company	
Surety	Witness
Attorney-in-Fact Signature	Witness as to Surety Signature
Adam W. DeSanctis, Attorney-in-fact	**Rebecca Shanley, Attorney-in-fact**
Name and Title	Name and Title
One Bala Plaza, Suite 100	**100 Unicorn Park Drive**
Address	Address
Bala Cynwyd, PA 19004	**Woburn, MA 01801**
City and State	City and State

(SEAL)

NOTES: Date of Bond must not be prior to date of Contract.

If Contractor is a Partnership, all partners shall execute Bond.

END OF SECTION

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PHILADELPHIA INDEMNITY INSURANCE COMPANY
One Bala Plaza, Suite 100
Bala Cynwyd, PA 19004-0950

Power of Attorney

KNOW ALL PERSONS BY THESE PRESENTS: That **PHILADELPHIA INDEMNITY INSURANCE COMPANY** (the Company), a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, does hereby constitute and appoint **Adam W. Desanctis; Gregory D. Juwa; Bryan F. Juwa; Wilder Parks Jr.; Christine B. Gallagher; David A. Boutiette; James J. Axon; Jonathan Duggan; Michael F. Carney; Michael T. Gilbert; Paul A. Patalano; Rebecca Shanley; Richard F. Caruso** OF **THE CITY OF WOBURN, STATE OF MASSACHUSETTS**, its true and lawful Attorney-in-fact with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business and to bind the Company thereby, in an amount not to exceed **$25,000,000.00**.

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of PHILADELPHIA INDEMNITY INSURANCE COMPANY on the 14th of November, 2016.

RESOLVED: That the Board of Directors hereby authorizes the President or any Vice President of the Company: (1) Appoint Attorney(s) in Fact and authorize the Attorney(s) in Fact to execute on behalf of the Company bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof and to attach the seal of the Company thereto; and (2) to remove, at any time, any such Attorney-in-Fact and revoke the authority given. And, be it

FURTHER RESOLVED: That the signatures of such officers and the seal of the Company may be affixed to any such Power of Attorney or certificate relating thereto by facsimile, and any such Power of Attorney so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN TESTIMONY WHEREOF, PHILADELPHIA INDEMNITY INSURANCE COMPANY HAS CAUSED THIS INSTRUMENT TO BE SIGNED AND ITS CORPORATE SEAL TO BE AFFIXED BY ITS AUTHORIZED OFFICE THIS 14TH DAY OF NOVEMBER, 2016.

(Seal)

Robert D. O'Leary Jr., President & CEO
Philadelphia Indemnity Insurance Company

On this 14th day of November, 2016, before me came the individual who executed the preceding instrument, to me personally known, and being by me duly sworn said that he is the therein described and authorized officer of the **PHILADELPHIA INDEMNITY INSURANCE COMPANY**; that the seal affixed to said instrument is the Corporate seal of said Company; that the said Corporate Seal and his signature were duly affixed.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Nora Howard, Notary Public
Lower Merion Twp., Montgomery County
My Commission Expires Jan. 8, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Notary Public: Nora Howard

residing at: Bala Cynwyd, PA

(Notary Seal)

My commission expires: January 8, 2018

I, Edward Sayago, Corporate Secretary of PHILADELPHIA INDEMNITY INSURANCE COMPANY, do hereby certify that the foregoing resolution of the Board of Directors and this Power of Attorney issued pursuant thereto on this 14th day of November, 2016 are true and correct and are still in full force and effect. I do further certify that Robert D. O'Leary Jr., who executed the Power of Attorney as President, was on the date of execution of the attached Power of Attorney the duly elected President of PHILADELPHIA INDEMNITY INSURANCE COMPANY,

In Testimony Whereof I have subscribed my name and affixed the facsimile seal of each Company this day of , 20 .

Edward Sayago, Corporate Secretary
PHILADELPHIA INDEMNITY INSURANCE COMPANY

SECTION 00615

PAYMENT BOND

BOND #PB11731200071

KNOW ALL MEN BY THESE PRESENTS: That we S&R Corporation, a Corporation, organized and existing under the laws of the State of Massachusetts, hereinafter called "Principal" and
Philadelphia Indemnity Insurance of Bala Cynwyd, State of PA
(Surety) Company (City)

hereinafter called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the Orleans Brewster Eastham Groundwater Protection District, Orleans, Massachusetts, hereinafter called "Owner", in the penal sum of One Million Eight Hundred Three Thousand Sixty Dollars and No Cents ($1,803,060) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal has entered into a certain contract with the Owner (the "Construction Contract"), dated the 5TH day of JULY, 20 17, for the construction described as follows:

TRI-TOWN SEPTAGE TREATMENT FACILITY DEMOLITION

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications. The Surety Company providing the bond shall have a rating of A or better within the Best Key Rating Guide.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in Four 4 counterparts, each one of which shall be deemed an original, this the 5TH day of JULY, 2017

ATTEST:

Roger R. Ploof, Jr.

Principal

Principal Signature

President

Name and Title

S&R Corporation
706 Broadway Street
Lowell, MA 01854

City and State

Witness

Witness as to Principal Signature

Mary D. Ploof, Secretary/Clerk

Name and Title

S&R Corporation
706 Broadway Street
Lowell, MA 01854

City and State

ATTEST:

Philadelphia Indemnity Insurance Company

Surety

Attorney-in-Fact Signature

Adam W. DeSanctis, Attorney-in-fact

Name and Title

One Bala Plaza, Suite 100

Address

Bala Cynwyd, PA 19004

City and State

Witness

Witness as to Surety Signature

Rebecca Shanley, Attorney-in-fact

Name and Title

100 Unicorn Park Drive

Address

Woburn, MA 01801

City and State

(SEAL)

NOTES: Date of Bond must not be prior to date of Contract.

If Contractor is a Partnership, all partners shall execute Bond.

END OF SECTION

PHILADELPHIA INDEMNITY INSURANCE COMPANY
One Bala Plaza, Suite 100
Bala Cynwyd, PA 19004-0950

Power of Attorney

KNOW ALL PERSONS BY THESE PRESENTS: That **PHILADELPHIA INDEMNITY INSURANCE COMPANY** (the Company), a corporation organized and existing under the laws nf the Commonwealth of Pennsylvania, does hereby constitute and appoint **Adam W. Desanctis; Gregory D. Juwa; Bryan F. Juwa; Wilder Parks Jr.; Christine B. Gallagher; David A. Bouticttc; James J. Axon; Jonathan Duggan; Michael F. Carney; Michael T. Gilbert; Paul A. Patalano; Rebecca Shanley; Richard F. Caruso OF THE CITY OF WOBURN, STATE OF MASSACHUSETTS**, its true and lawful Attorney-in-fact with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business and to bind the Company thereby, in an amount not to exceed **$25,000,000.00**.

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of PHILADELPHIA INDEMNITY INSURANCE COMPANY on the 14th of November, 2016.

RESOLVED: That the Board of Directors hereby authorizes the President or any Vice President of the Company: (1) Appoint Attorney(s) in Fact and authorize the Attorney(s) in Fact to execute on behalf of the Company bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof and to attach the seal of the Company thereto; and (2) to remove, at any time, any such Attorney-in-Fact and revoke the authority given. And, be it

FURTHER RESOLVED: That the signatures of such officers and the seal of the Company may be affixed to any such Power of Attorney or certificate relating thereto by facsimile, and any such Power of Attorney so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN TESTIMONY WHEREOF, PHILADELPHIA INDEMNITY INSURANCE COMPANY HAS CAUSED THIS INSTRUMENT TO BE SIGNED AND ITS CORPORATE SEALTO BE AFFIXED BY ITS AUTHORIZED OFFICE THIS 14TH DAY OF NOVEMBER, 2016.

(Seal)

Robert D. O'Leary Jr., President & CEO
Philadelphia Indemnity Insurance Company

On this 14th day of November, 2016, before me came the individual who executed the preceding instrument, to me personally known, and being by me duly sworn said that he is the therein described and authorized officer of the **PHILADELPHIA INDEMNITY INSURANCE COMPANY**; that the seal affixed to said instrument is the Corporate seal of said Company; that the said Corporate Seal and his signature were duly affixed.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Nora Howard, Notary Public
Lower Merion Twp., Montgomery County
My Commission Expires Jan. 8, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Notary Public: Nora Howard

residing at: Bala Cynwyd, PA

(Notary Seal)

My commission expires: January 8, 2018

I, Edward Sayago, Corporate Secretary of PHILADELPHIA INDEMNITY INSURANCE COMPANY, do hereby certify that the foregoing resolution of the Board of Directors and this Power of Attorney issued pursuant thereto on this 14th day of November, 2016 are true and correct and are still in full force and effect. I do further certify that Robert D. O'Leary Jr., who executed the Power of Attorney as President, was on the date of execution of the attached Pnwer of Attorney the duly elected President of PHILADELPHIA INDEMNITY INSURANCE COMPANY,

In Testimony Whereof I have subscribed my name and affixed the facsimile seal of each Compaoy this day of , 20 .

Edward Sayago, Corporate Secretary
PHILADELPHIA INDEMNITY INSURANCE COMPANY

STEVE-4 OP ID: RS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 05/30/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER DeSanctis Insurance Agcy, Inc. 100 Unicorn Park Drive Woburn, MA 01801	CONTACT NAME: PHONE (A/C, No, Ext): 781-935-8480 FAX (A/C, No): 781-933-5645 E-MAIL ADDRESS:
INSURED S&R Corporation Boston Concrete Corp 706 & 700.1 Broadway Street Lowell, MA 01854	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Liberty Mutual Fire Ins Co. — 23035 INSURER B : Wausau Insurance — 21458 INSURER C : Nautilus Insurance Company — 17370 INSURER D : Starr Indemnity & Liability Co — 38318 INSURER E : Philadelphia Insurance Company — 18058 INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY			TB2Z11261700026	09/30/2016	10/01/2017	EACH OCCURRENCE	$	1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$	300,000
	X Public Liability						MED EXP (Any one person)	$	5,000
	X Extended Casualty						PERSONAL & ADV INJURY	$	1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$	2,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$	2,000,000
	OTHER:						Emp. Ben.	$	1,000,000
	AUTOMOBILE LIABILITY			AS2Z11261700036	09/30/2016	10/01/2017	COMBINED SINGLE LIMIT (Ea accident)	$	1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$	
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$	
	X HIRED AUTOS / X NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$	
								$	
D	X UMBRELLA LIAB / OCCUR			1000023139	09/30/2016	10/01/2017	EACH OCCURRENCE	$	10,000,000
	EXCESS LIAB / X CLAIMS-MADE						AGGREGATE	$	10,000,000
	DED / RETENTION $							$	
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			WCCZ11261700016 W/ USL&H	09/30/2016	10/01/2017	X PER STATUTE / OTH-ER		
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N N (Mandatory in NH)	N/A		CT,ME,MA,NH,NJ,RI,VT			E.L. EACH ACCIDENT	$	1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$	1,000,000
							E.L. DISEASE - POLICY LIMIT	$	1,000,000
C	Pollution/Prof			CPL201290612	09/30/2016	10/01/2017	POLL/PROF		$5M/$5M
E	Excess Umbrella			PHUB559190 ($5M/$5M)	09/30/2016	10/01/2017	XS UMBREL		$5M/$5M

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

PROJECT: Tri-Town Septage Facility Demolition Project, Orleans MA..
"ADDITIONAL INSURED LIMITS ARE NO GREATER THAN THOSE REQUIRED BY WRITTEN CONTRACT" Orleans Brewster Eastham Groundwater Protection District and AECOM Technical Services Inc. are named additional insureds.

CERTIFICATE HOLDER

ORLEA-2

Orleans Brewster Eastham
Groundwater Protection
District / Orleans Town Hall
10 School Road
Orleans, MA 02653

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE

a practice division of the

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

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Construction Specifications Institute

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National Society of Professional Engineers

1420 King Street, Alexandria, VA 22314

American Consulting Engineers Council

1015 15th Street N.W., Washington, DC 20005

American Society of Civil Engineers

345 East 47th Street, New York, NY 10017

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CON- TRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submit- ted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

*12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Con- tract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

*19. *ENGINEER*--The individual or entity named as such in the Agreement.

*20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. General Requirements--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

**30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated *biphenyls.*

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CON- TRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

*41. *Specifications*~~--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.~~

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

**43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the non-engineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to

describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 Copies of Documents

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed *

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 Starting the Work

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 Before Starting Construction

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

*C. *Evidence of Insurance:* ~~Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.~~

2.06 Preconstruction Conference

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 Initial Acceptance of Schedules

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CON- TRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Mile- stones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

*A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation,

services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 Reference Standards

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 Reuse of Documents

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and

acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – AVAILABILITY OF LANDS, SUBSURFACE AND PHYSICAL CONDITIONS, REFERENCE POINTS REFERENCE POINTS

4.01 Availability of Lands

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 Subsurface and Physical Conditions

* A. Reports and Drawings: The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 Differing Subsurface or Physical Conditions

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

**B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

   b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of para- graphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

   c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 Underground Facilities

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

   1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

   2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

      a. reviewing and checking all such information and data,

      b. locating all Underground Facilities shown or indicated in the Contract Documents,

      c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

      d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated

   1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable *adjustment shall be made i n the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or *indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 Reference Points

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.*

4.06 Hazardous Environmental Condition at Site

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those* reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents. *

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stop- page or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Enviromnental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRAC- TOR shall also furnish such other Bonds as are required by the Contract Documents. *

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CON- TRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 Certificates of Insurance

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to *purchase and maintain. ~~OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.~~

5.04 CONTRACTOR's Liability Insurance

*A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

*1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include completed operations insurance;
4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).*

~~*5.05 OWNER's Liability Insurance*~~

~~*A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.~~

~~*5.06 Property Insurance*~~

~~* A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:~~

~~1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;~~

~~2. be written on a Builder's Risk "all-risk" or open-peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water dam- age, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;~~

~~3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);~~

~~4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;~~

~~5. allow for partial utilization of the Work by OWNER;~~

~~6. include testing and startup; and~~

~~7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.~~

~~*B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.~~

~~* C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.~~

~~*D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.~~

~~*E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.~~

5.07 Waiver of Rights

*A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance * ~~held by OWNER as trustee or~~ otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 Receipt and Application of Insurance Proceeds

~~*A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.~~

~~*B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such~~

~~objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.~~

5.09 Acceptance of Bonds and Insurance; Option to Replace

~~*A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.~~

5.10 Partial Utilization, Acknowledgment of Property Insurer

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

~~*B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.~~

6.02 Labor; Working Hours

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 Services, Materials, and Equipment

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents.

All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

**6.05 Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. "Or-Equal" Items: If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CON- TRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any,

to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CON- TRACTOR may furnish or utilize a substitute means, meth- od, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CON- TRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CON- TRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation.

CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

**F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRAC TOR will obtain the same.

6.07 Patent Fees and Royalties

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 Permits

**A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at

the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 Laws and Regulations

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

***6.10 Taxes*

CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

***6.11 Use of Site and Other Areas*

A Limitation on Use of Site and Other Areas

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 Record Documents

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 Safety and Protection

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Under- ground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 Safety Representative

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 Hazard Communication Programs

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 Shop Drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

   a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

   b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

   c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

   d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. ENGINEER's Review

*1. ENGINEER will ~~timely~~ review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and

ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. Resubmittal Procedures

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 Continuing the Work

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 CONTRACTOR's General Warranty and Guarantee

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage. B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

a. observations by ENGINEER;
b. recommendation by ENGINEER or payment by OWNER of any progress or final payment;
c. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;
d. use or occupancy of the Work or any part thereof by OWNER;
e. any acceptance by OWNER or any failure to do so;
f. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
g. any inspection, test, or approval by others; or
h. any correction of defective Work by OWNER.

6.20 Indemnification

~~*A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:~~

~~1. 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~~

~~2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.~~

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of

them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CON- TRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

~~*C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:~~

~~1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or~~ Specifications~~; or~~

~~2. giving directions or instructions, or failing to give them, if that is the primary cause of the~~ injury ~~or damage.~~

ARTICLE 7 - OTHER WORK

7.01 Related Work at Site

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 Coordination

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 Communications to Contractor

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 Replacement of ENGINEER

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 Furnish Data

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 Pay Promptly When Due

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 Lands and Easements; Reports and Tests

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 Insurance

~~*A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.~~

8.07 Change Orders

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 Inspections, Tests, and Approvals

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 Limitations on OWNER's Responsibilities

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 Undisclosed Hazardous Environmental Condition

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 Evidence of Financial Arrangements

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 OWNER'S Representative

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

**9.02 Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 Project Representative

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such

Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 Clarifications and Interpretations

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may deter- mine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

***9.05 Authorized Variations in Work*

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRAC- TOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 Rejecting Defective Work

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 Shop Drawings, Change Orders and Payments

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 Determinations for Unit Price Work

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CON- TRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 Decisions on Requirements of Contract Documents and Acceptability of Work

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 Limitations on ENGINEER's Authority and Responsibilities

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 Authorized Changes in the Work

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 Unauthorized Changes in the Work

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 Execution of Change Orders

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to para- graph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 Notification to Surety

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 Claims and Disputes

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRAC- TOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

***11.01 Cost of the Work*

~~A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CON- TRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.~~

~~1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such~~

employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in

CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 Cash Allowances

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, over- head, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

*C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

~~**A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.~~

~~B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:~~

~~1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of para- graph 11.03); or~~

~~2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or~~

~~3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under para- graph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).~~

~~C. *CONTRACTOR's Fee:* The CONTRACTOR's fee for overhead and profit shall be determined as follows:~~

~~1. mutually acceptable fixed fee; or~~

~~2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:~~

~~a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;~~

~~b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;~~

~~c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;~~

~~d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;~~

~~e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and~~

~~f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with para- graphs 12.01.C.2.a through 12.01.C.2.e, inclusive.~~

12.02 Change of Contract Times

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 Delays Beyond CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 Delays Within CONTRACTOR's Control

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within tbe control of CONTRACTOR.

12.05 Delays Beyond OWNER's and CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 Delay Damages

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

* ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 Tests and Inspections

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CON- TRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGI- NEER has not acted with reasonable promptness in response to such notice.

13.04 Uncovering Work

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to tbe amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 OWNER May Stop the Work

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way tbat the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on tbe part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 Correction Period

~~*A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.~~

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 OWNER May Correct Defective Work

*A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CON- TRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required hy the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

~~*3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.~~

B. Review of Applications

~~**1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.~~

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWN- ER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

   c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGI- NEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CON- TRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

   a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

   b. the Contract Price has been reduced b Written Amendment or Change Orders;

   c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

   d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. Payment Becomes Due

*1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

**D.Reduction *in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

   a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

   b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

   c. there are other items entitling OWNER to a set-off against the amount recommended; or

   d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 CONTRACTOR's Warranty of Title

* ~~A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.~~

14.04 Substantial Completion

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGI- NEER shall make an inspection of the

Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 Partial Utilization

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons there- for. If ENGINEER considers that part of the Work to be substantially complete, the provisions of para- graph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 Final Inspection

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 Final Payment

A. Application for Payment

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance

with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRAC- TOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by suhparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. Review of Application and Acceptance

**~~1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.~~

C. *Payment Becomes Due*

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 Final Completion Delayed

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

**~~A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CON- TRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.~~

15.02 OWNER May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

*B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 OWNER May Terminate For Convenience

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 CONTRACTOR May Stop Work or Terminate

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CON- TRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or other- wise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 Methods and Procedures

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will he omitted from the computation.

17.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

17.05 Controlling Law

A. This Contract is to be governed by the law of the state in which the Project is located.

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SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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ARTICLE 1. DEFINITIONS AND TERMINOLOGY

Add the following language at the beginning of definition 1.01 A.12 entitled "Contract Documents" in the General Conditions: "The Advertisement for Bids, Instructions to Bidders, State Regulations, ..."

Delete the words "The individual or entity named as such in the Agreement" in 1.01.A.19, "Engineer", and insert the following in their place: "The individual or entity duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly appointed representatives."

Delete the words "and who is identified as such in the Supplementary Conditions" at the end of definition 1.01 A.20, entitled "ENGINEER'S Consultant."

Delete definition 1.01 A.41 entitled "Specifications" in the General Conditions in its entirety and insert the following in its place: "Sections included under Division 1 through Division 16 of the Contract Documents."

ARTICLE 2. PRELIMINARY MATTERS SC-2.02

Delete paragraph 2.02A of the General Conditions in its entirety.

SC-2.03

Add paragraph 2.03B:

Notwithstanding the time limitations provided in paragraph 2.03A, the OWNER may desire to commence the Contract Times later than the sixtieth day after the bid opening. The OWNER and CONTRACTOR, upon mutual agreement, may extend the commencement of the Contract Times to any date that they elect. OWNER must obtain CONTRACTOR's approval for extending the time beyond the dates/times stated in the Contract Documents.

SC-2.05

Delete paragraph 2.05C of the General Conditions in its entirety and insert the following in its place:

"C. Evidence of Insurance: CONTRACTOR shall deliver to OWNER, with a copy to the ENGINEER, Certificates of Insurance within 10 days after receipt of the notice of the acceptance of bid (and other evidence requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of Article 5."

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE SC-3.01

Add the following sentence at the end of Paragraph 3.01A of the General Conditions:

"...by all. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion."

ARTICLE 4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

SC-4.02

Delete the term "Supplementary Conditions" of paragraph 4.02 A of the General Conditions and replace it with "Contract Documents".

SC-4.04

Change "of" to "or" on line 6 of paragraph 4.04 B.2 of the General Conditions.

Delete the following words from lines 8 and 9 of paragraph 4.04 B.2 of the General Conditions: "...or not shown or indicated with reasonable accuracy..."

SC-4.05

Add a new paragraph immediately after paragraph 4.05A of the General Conditions which is to read as follows:

"B. ENGINEER may check the lines, elevations and reference marks set by CONTRACTOR, and CONTRACTOR shall correct any errors disclosed by such check. Such a check shall not be considered as approval of CONTRACTOR's work and shall not relieve CONTRACTOR of the responsibility for construction of the entire Work in accordance with the Contract Documents. CONTRACTOR shall furnish personnel to assist ENGINEER in checking lines and grades."

ARTICLE 5. BONDS AND INSURANCE NOTICE TO CONTRACTOR:

1. Proof of Insurance coverage shall be furnished to the OWNER in accordance with the schedule for submittal of Bonds and Agreements.
2. Additionally refer to Article 2. PRELIMINARY MATTERS, Paragraph SC-2.05.C

SC-5.01

Insert these sentences following SC-5.01.A:

"The Surety Company providing the bonds shall have a rating of A or better within the Best Key Rating Guide and be licensed by the Massachusetts Division of Insurance. The CONTRACTOR shall pay the premiums for such Bonds."

SC-5.03

Delete the second sentence in paragraph 5.03A of the General Conditions, which begins "OWNER shall deliver to...."

SC-5.04

The limits of liability for the insurance required by paragraph 5.04A of the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

5.04 A.1 and 5.04 A.2 Workers' Compensation.

(1) Worker's Compensation per Statutory Requirements

(2) Coverage B - Employer's Liability $100,000/$500,000/$100,000

5.04 A.3, 5.04 A.4 and 5.04 A.5 Commercial General Liability Limits shall include coverage for Independent Contractors (also known as Owners and Contractors Protective Liability), explosion, collapse and underground hazard coverage (XCU), broad form property damage, blanket contractual liability and products/completed operations. The general aggregate limits shall be endorsed so that they respond on a per project and per location basis.

Limits: $1,000,000 each occurrence

$2,000,000 general aggregate

$2,000,000 products/completed operations aggregate

5.04 A.6 Automobile Liability for owned, hired and non-owned vehicles:

(1)	Bodily injury:	$1,000,000	Combined single limit
(2)	Property damage	$1,000,000	Combined single limit

Revise the beginning of paragraph 5.04.B.1 to read as follows: "with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.5 inclusive and paragraph 5.04.C, include as additional insureds..."

Delete paragraph 5.04.B.5 in its entirety and insert the following in its place:

"5. Contains a provision that notice of cancellation of insurance be delivered in accordance with policy provisions. In addition, the CONTRACTOR and/or its insurance broker/agent shall immediately notify the OWNER and ENGINEER should any insurance coverage be cancelled. The CONTRACTOR shall immediately stop work on the Project and shall not resume work until the CONTRACTOR provides evidence, to the OWNER and ENGINEER, in the form of an acceptable insurance certificate, of new insurance coverage that replaces all cancelled coverage that is required for the Project."

Add two new paragraphs immediately after paragraph 5.04B of the General Conditions which are to read as follows:

"C. The CONTRACTOR shall also provide:

1. CONTRACTOR shall, as a minimum, purchase and maintain excess liability insurance in the umbrella form with a combined single limit of not less than $5,000,000 per occurrence and in the aggregate. Evidence of such excess liability shall be delivered to OWNER in accordance with paragraph 2.05C in the form of a certificate indicating the policy numbers and limits of liability of all underlying insurance.

2. General Liability, Workers' Compensation, Automobile Liability and Umbrella Liability Policies will contain waivers of subrogation in favor of the Engineer and Owner.

3. If the aggregate limits of liability indicated in CONTRACTOR' insurance provided in accordance with paragraphs 5.03 and 5.04 are not sufficient to cover all claims for damages arising from his operations under this Contract and from any other work performed by him or if the commercial general liability insurance policy of insurance does not provide that the general aggregate limits apply on a per project and per location basis, CONTRACTOR shall have the policy amended so that the aggregate limits of liability required by this Contract will be available to cover all claims for damages due to operations under this Contract."

SC-5.05

Delete paragraph 5.05 of the General Conditions in its entirety.

SC-5.06

Delete Paragraph 5.06A of the General Conditions in its entirety.

Delete paragraph 5.06B of the General Conditions in its entirety.

Delete Paragraph 5.06C of the General Conditions in its entirety.

Delete paragraph 5.06D of the General Conditions in its entirety.

Delete paragraph 5.06E of the General Conditions in its entirety.

SC-5.07

Amend the last sentence of paragraph 5.07A of the General Conditions by striking out the words "held by OWNER as trustee or." As so amended, paragraph 5.07A remains in effect.

SC-5.08

Delete paragraph 5.08A of the General Conditions in its entirety.

Delete paragraph 5.08B of the General Conditions in its entirety.

SC-5.09

Delete paragraph 5.09A of the General Conditions in its entirety and insert the following in its place:

"A. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with this Article 5 on the basis of its not complying with the Contract Documents, OWNER will notify CONTRACTOR in writing thereof within thirty days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.05C. CONTRACTOR will provide such additional information in respect of insurance provided by him as OWNER may reasonably request."

ARTICLE 6. CONTRACTOR'S RESPONSIBILITIES SC-6.01

Delete paragraph 6.01B of the General Conditions in its entirety and replace with the following:

"B. At the site of the Work the CONTRACTOR shall employ a full-time construction superintendent or foreman who shall have full authority to act for the CONTRACTOR. It is understood that such representative shall be acceptable to the ENGINEER and shall be one who will be continued in the capacity for the particular job involved unless the representative ceases to be on the CONTRACTOR's payroll. If at any time during the Work the representative is deemed by the ENGINEER to be no longer acceptable, the representative shall be promptly replaced by the CONTRACTOR. All communications to the superintendent or foreman shall be as binding as if given to the CONTRACTOR."

SC-6.04

Add the following paragraph after paragraph 6.04A.2 of the General Conditions:

"B. The CONTRACTOR's resident superintendent shall attend monthly progress meetings at the site of the work with the ENGINEER and others as appropriate to review schedule status and such other pertinent subjects as may be listed on the agenda by the ENGINEER."

SC-6.05

Revise the second sentence of Paragraph A to read as follows:

"Unless the specification indicates that a proprietary item is called for, other items of material or equipment or material or equipment of other suppliers may be submitted to ENGINEER for review under the circumstances described below, and in accordance with MGL c.30, s.39M."

SC-6.17

In paragraph 6.17 E.1 of the General Conditions, delete the word "timely" from the first line.

SC-6.20

Delete paragraph 6.20A of the General Conditions in its entirety and replace with the following:

"A. To the fullest extent permitted by law, the CONTRACTOR shall indemnify and hold harmless the OWNER, the ENGINEER, ENGINEER's consultants, and any of their officers, directors, employees, agents, affiliates, subsidiaries and partners from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by acts or omissions of the CONTRACTOR, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall apply to any such claims, damages, losses and expenses which arise and/or are incurred by any person or entity either during the performance of the Work and/or after completion of construction. Nothing in this paragraph shall be construed to negate, abridge, or reduce other rights or obligations of indemnity or contribution which would otherwise exist as to a party or person indemnified hereunder. CONTRACTOR hereby assumes the responsibility and liability for injury to or death of any and all persons, including the CONTRACTOR's employees, and for any and all damage to property caused by, resulting from, or arising out of any act, omission or neglect on the part of the CONTRACTOR, or of any Subcontractor or of anyone directly or indirectly employed by any of them or of anyone for whose acts, any of them may be liable. The Contractor hereby acknowledges its obligation under the foregoing paragraph to indemnify the Engineer and Owner against judgments suffered because of the contractor's work and to assume the cost of defending the Engineer and Owner against claims as described in the foregoing paragraph."

Delete paragraph 6.20C of the General Conditions in its entirety.

ARTICLE 8. OWNER'S RESPONSIBILITIES

SC-8.02

Delete the phrase "to whom the CONTRACTOR makes no reasonable objection."

SC-8.06

Delete paragraph 8.06A of the General Conditions in its entirety.

SC-8.09

Insert the following after the first sentence:

"However, the OWNER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto."

ARTICLE 9. ENGINEER'S STATUS DURING CONSTRUCTION SC-9.01

Add a new paragraph 9.01B after paragraph 9.01A of the General Conditions, which is to read as follows:

"B. Nothing contained in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the ENGINEER and CONTRACTOR, (2) between the OWNER and a Subcontractor or Subcontractors, or (3) between any person or entities other than the OWNER and CONTRACTOR. The ENGINEER shall, however, be entitled to performance and enforcement of obligations under the CONTRACT DOCUMENTS intended to facilitate performance of the ENGINEER'S duties."

SC-9.10

Insert the following after the first sentence on paragraph 9.10B:

"However, the ENGINEER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto."

ARTICLE 11. COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

Delete Article 11 of the General Conditions in its entirety and replace with the following:

"A. The unit price of an item of Unit Price work shall be subject to reevaluation and adjustment under the following conditions:

(1) If the total extended bid price [Estimated Quantity times the Bid Unit Price] of a particular item of Unit Price Work amounts to 5 percent or more of the Original Contract Price and the variation in the quantity of the particular item of Unit Price Work performed by CONTRACTOR differs by more than 15 percent from the estimated quantity of such item indicated in the Agreement; and

(2) If there is no corresponding adjustment with respect to any other item of work; and

(3) If CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof, CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed. If OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, OWNER shall be entitled to an adjustment in the unit price in an amount determined by the ENGINEER. ENGINEER shall not be liable in connection with any determination relating to adjustments which is rendered in good faith."

ARTICLE 12. CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

SC-12.01

Delete paragraph 12.01 in its entirety.

SC-12.06

Add the following new paragraphs after paragraph 12.06 of the General Conditions: "12.07 Liquidated Damages:

"A. If the CONTRACTOR shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a part consideration for the awarding of this Contract, to pay to the OWNER the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contract shall be in default after the time stipulated in the Contract for completing the work. Such damages may be retained from time to time by the OWNER from progress payments or any amounts owing to the CONTRACTOR, or otherwise collected.

B. The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain, and said amount is agreed to be the amount of damages which the OWNER would sustain and said amount shall be retained from time to time by the OWNER from current periodical estimates.

C. It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein as definite and certain length of times if fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract. Provided that the CONTRACTOR shall not be charged with liquidated damages of any excess cost when the OWNER determines that the CONTRACTOR is without fault and the CONTRACTOR's reasons for the time extension are acceptable to the OWNER; Provided, further, that the CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

1) to any preference, priority or allocation order duly issued by the Government;

2) to unforeseeable cause beyond the control and without the fault or negligence of the CONTRACTOR, including, but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

3) to any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections C (1) and C (2) above;

D. Provided, further, that the CONTRACTOR shall, within thirty (30) days from the beginning of such delay, unless the OWNER shall grant a further period of time prior to the date of final settlement of the Contract, notify the OWNER, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the CONTRACTOR within a reasonable time of its decision in the matter."

ARTICLE 13. TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-13.07

Delete paragraph 13.07A of the General Conditions and insert the following in its place:

"A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective work, or, if it has been rejected by OWNER, remove it from the site and replace it with work that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other work or the work of others therefrom. If CONTRACTOR does not begin the repairs within ten (10) days of receipt of written notification and promptly comply with the terms of OWNER's written instructions, or in an emergency where delay would cause serious risk, loss or damage, OWNER may have the defective work corrected or the rejected work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR."

SC-13.09

Revise paragraph 13.09A of the General Conditions

"A. Delete the word "seven" and replace it with the word "ten" so that it reads "after ten days written notice to CONTRACTOR."

ARTICLE 14. PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02

Delete paragraph 14.02A.3 and insert the following in its place:

"3. Retainage with respect to progress payments will be five percent or, if stipulated, the maximum allowed by law."

Add Paragraph 4. to read as follows:

"4. The CONTRACTOR shall submit Weekly Payroll Records Report and Statement of Compliance verifying compliance with the Minimum Prevailing Wage Law, MGL ch. 149, Sections 26-27H. These Statements of Compliance shall be submitted as a condition of payment for work performed during the period the reports apply."

SC-14.03

Delete paragraph 14.03A in its entirety and insert the following in its place:

"A. CONTRACTOR warrants and guarantees that title to all work, material and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than at the time of Application for Payment free and clear of all liens. CONTRACTOR shall provide written transfer of title and a certified paid invoice provided by the supplier."

ARTICLE 15. SUSPENSION OF WORK AND TERMINATION

SC-15.02

Add a new paragraph immediately after paragraph 15.02 A.4 of the General Conditions which is to read as follows:

"5. If the Work to be done under this Contract shall be abandoned, or if this Contract or any part thereof shall be sublet, without the previous written consent of OWNER, or if the contract or any claim thereunder shall be assigned by CONTRACTOR otherwise than as herein specified;"

ARTICLE 17. MISCELLANEOUS

SC-17.06, 17.07, 17.08, 17.09

Add the following new paragraphs after paragraph 17.05 of the General Conditions:

"17.06 Assignment:

The CONTRACTOR shall not assign the whole or any part of this Contract or any moneys due or to become due hereunder until thirty (30) days prior notice in writing has been given to the OWNER of the intention to assign, which notice shall state the identity and address of the prospective assignee. No assignment shall be made without the OWNER's prior written consent. Such consent shall not be unreasonably withheld. In case the CONTRACTOR assigns all or any part of the moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the CONTRACTOR shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this Contract.

17.07 Liability

It is understood and agreed that members of the OWNER or the ENGINEER or any agent or employees of the OWNER signing this Agreement shall not be personally liable hereunder for any action incurred in connection with this Agreement.

17.08 State Statutes and Regulations

See Section 00830 for further modifications of the General Conditions due to state statutes and regulations.

17.09 Severability

If any provision of this Agreement shall be invalid or unenforceable to any extent or in any application, then the remainder of this Agreement and of such terms and conditions, except to such extent or in such application, shall not be affected thereby, and each and every term and condition of this Agreement shall be valid and enforced to the fullest extent and in the broadest application permitted by law."

END OF SECTION

SECTION 00830

STATE STATUTES AND REGULATIONS

COMMONWEALTH OF MASSACHUSETTS

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A. REVISIONS TO GENERAL CONDITIONS

1. Definitions

The term "AWARDING AUTHORITY," as used herein, shall be considered to be synonymous with the term "OWNER," described in definition 1.01 A.30.

Delete definition 1.01 A.43 entitled "Substantial Completion" in the General Conditions in its entirety and insert the following in its place:

"Substantial Completion shall be interpreted in accordance with Massachusetts General Law

Chapter 30, Section 39G or 39K as appropriate."

2. Subsurface Conditions Found Different

Add the following sentence to the end of paragraph 4.03A of the General Conditions:

"...to do so. Adjustments resulting from subsurface or latent physical conditions will be in accordance with Massachusetts General Law Chapter 30, Section 39N."

3. Subcontracting

Add the following language at the end of paragraph 6.06F of the General Conditions:

"Except as required otherwise by Massachusetts General Law Chapter 149, Section 44F, for

Work governed by Chapter 149, sections 44A through 44H.

4. Permits

Delete paragraph 6.08A of the General Conditions in its entirety and insert the following in its place:

"A. Unless otherwise provided for in Section 00890 PERMITS, the AWARDING AUTHORITY shall be responsible for identifying and obtaining all federal, state, and local permits required by the nature and location of construction, including but not limited to railroad permits, building construction permits, and permits for street and highway cuts and openings. CONTRACTOR shall be responsible for obtaining all permits required of its equipment, work force, or particular operations in the performance of the Work and not otherwise specified to be obtained by the AWARDING AUTHORITY. These permit fees shall be paid by CONTRACTOR. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of bids, or, if there are no Bids, on the Effective Date of the Agreement."

5. Contractor Records

Add a new paragraph immediately after paragraph 6.09C of the General Conditions, which is to read as follows:

"D. The CONTRACTOR shall comply with all applicable provisions Chapter 30, Section 39R of the Massachusetts General Laws regarding, CONTRACTOR's records."

6. Massachusetts Sales and Use Tax

Add the following paragraph after paragraph 6.10A of the General Conditions:

"B. The materials and supplies to be used by the CONTRACTOR in the Work of this Contract are exempt from the Sales and Use Tax of the Commonwealth of Massachusetts. The AWARDING AUTHORITY tax exemption certificate number will be furnished to the CONTRACTOR."

7. Clarifications and Interpretations

Add the following language at the end of paragraph 9.04A of the General Conditions:

"The ENGINEER'S interpretation will be made in accordance with the requirements of Massachusetts General Law Chapter 30, Section 39P."

8. Change of Contract Price

Delete paragraphs 11.01, 11.02 and 12.01 of the General Conditions, having to do with Change of Contract Price. Changes in contract price will be governed by the section called "Change Orders," in Attachment D, Section 00830 and Article 11 in the Supplementary Conditions.

9.Payments

Delete paragraph 14.02B.1 of the General Conditions in its entirety and insert the following in its place:

"1. Progress Payments will be made in accordance with Massachusetts General Law Chapter 30, Section 39G, or 39K, as applicable."

Add the following new paragraph following paragraph 14.02C.1 of the General Conditions:

"2. The CONTRACTOR shall make payments to Subcontractors in accordance with the requirements of Massachusetts General Law Chapter 30, Section 39F."

Delete paragraph 14.07B of the General Conditions in its entirety and insert the following in its place:

"1. If, on the basis of the ENGINEER's observation of the Work during construction and final inspection and, upon the ENGINEER's review of the final Application for Payment and accompanying documentation, the ENGINEER is satisfied that the Work has been completed and that the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will indicate in writing its recommendation of payment and present the Application to the AWARDING AUTHORITY for payment. Thereupon the ENGINEER will give written notice to the AWARDING AUTHORITY and the CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.15. Otherwise, the ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment. In such case the CONTRACTOR shall make the necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, the AWARDING AUTHORITY shall in accordance with the applicable provisions of the Massachusetts General Laws, make payment to the CONTRACTOR."

10. Suspension of Work and Termination

Delete paragraph 15.01A of the General Conditions in its entirety and insert the following in its place:

"A. The AWARDING AUTHORITY may order, at any time and without cause, the CONTRACTOR to suspend or delay the Work in accordance with Massachusetts General Law Chapter 30, Section 39O."

11. Labor Classifications and Minimnm Wage Rates

Add the following paragraphs under the heading "Wage Rates" after paragraph 17.09 of the

Supplementary Conditions: "17.11 Wage Rates

A. Minimum Wage Rates as determined by the Commissioner of the Division of Occupational Safety of the Executive Office of Labor and Workforce Development under the provisions of Massachusetts General Laws Chapter 149, Sections 26-27D apply to this project. A copy of the wage schedule is included in Attachment A of Section 00830. If, after the Notice of Award, it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the Commissioner. Such approved minimum rate shall be retroactive to the time of the initial employment of such person in such trade or occupation. The CONTRACTOR shall notify the AWARDING AUTHORITY of its intention to employ persons in trades or occupations not classified in the wage determinations as soon as possible in order to allow sufficient time for the AWARDING AUTHORITY to obtain approved rates for such trades or occupations.

B. The schedule of wages referred to above are minimum rates only, and the AWARDING AUTHORITY will not consider any claims for additional compensation made by CONTRACTOR because of payment by the CONTRACTOR of any wage rate in excess of the applicable rate contained in the Contract.

C. The said schedule of wages shall continue to be the minimum rates to be paid during the life of this Agreement, except in the case of the duration of this Agreement exceeding one year, when the Contractor will be responsible for requesting and obtaining updated minimum wage rates from the Owner before the one-year anniversary of the project's start date, and a legible copy of said schedule shall be kept posted in a conspicuous place at the site of the Work.

D. CONTRACTOR and subcontractors shall submit a copy of weekly payroll records to the AWARDING AUTHORITY and the AWARDING AUTHORITY shall retain the records for a minimum of three years."

B. OTHER REGULATORY REQUIREMENTS:

1. Working Hours

No laborer, workman, mechanic, foreman, or inspector, working within the Commonwealth, in the employ of the CONTRACTOR, subcontractor, or other person doing or contracting to do the whole or a part of the work contemplated by this contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency.

2. Commonwealth of Massachusetts Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program.

The Contractor shall abide by the Commonwealth of Massachusetts Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program, which is attached in its entirety on pages 00830-C.

3. MassDEP Community Sound Level Criteria

The Community Sound Level Criteria as established by the Commonwealth of Massachusetts' Department of Environmental Protection (MassDEP) must be conformed to prior to the AWARDING AUTHORITY's acceptance of the structure. The following sound level criteria must be met at the construction site:

A. The increase in the broadband noise level shall not be in excess of ten (10) dB(A) above ambient at the station boundary. The ambient level is defined as the A-weighted noise level that is exceeded ninety (90) percent of the time measured during the period in question.

B. The primary noise source(s) shall not produce a puretone condition. Puretone is any given octave band center frequency that exceeds the two adjacent center frequencies by three (3) or more decibels.

4. OSHA 10 Hour Certification Requirements

All employees of the Contractor who work at the jobsite must have received OSHA 10 Hour safety training, and have proof, at the jobsite, of being certified by OSHA as having received the training. The Contractor must provide written proof (copy of OSHA card each employee is required to carry is preferred) of this certification for every employee with submission of the first certified payroll report for each employee.

END OF SECTION

SECTION 00830

ATTACHMENT A

MINIMUM WAGE RATES

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ATTACHMENT B

Excerpts from Chapters 30, 82 and 149 of the Massachusetts General Laws

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***NOTICE** - These are **NOT** the official versions of the Massachusetts General Laws (MGL). While reasonable efforts have been made to assure the accuracy of the excerpts provided, do not rely on this information without first checking an official edition of the MGL. If you are in need of legal advice or counsel, consult a lawyer. These excerpts include amendments to the General Laws passed through February 28, 2014. For laws enacted since that time, see the 2014 Session Laws.*

Certain excerpts from the Massachusetts General Laws are applicable to Construction contracts. Attention is directed to the following Sections of Chapter 149 as amended.

Section 25. Lodging, board and trade of public employees; statute part of employment contract

"Every employee in public work shall lodge, board, and trade where and with whom he elects; and no person or his agents or employees under contract with the commonwealth, a county, city or town, or with a department, board, commission or officer acting therefor, for the doing of public work shall directly or indirectly require, as a condition of employment therein, that the employee shall lodge, board or trade at a particular place or with a particular person. This section shall be made a part of the contract for such employment."

Section 26. Public works; preference to veterans and citizens; wages

"In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works by the commonwealth, or by a county, town, authority or district, or by persons contracting or subcontracting for such works, preference shall first be given to citizens of the commonwealth who have been residents of the commonwealth for at least six months at the commencement of their employment who are veterans as defined in clause Forty-third of section 7 of chapter 4, and who are qualified to perform the work to which the employment relates; and, within such preference, preference shall be given to service-disabled veterans; and secondly, to citizens of the commonwealth generally who have been residents of the commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, and every contract for such work shall contain a provision to this effect..."

Section 34. Public contracts; stipulation as to hours and days of work; void contracts

"Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or any town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one-day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency, or, in case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one-day, except as aforesaid..."

Section 34A. Contracts for public works; workers' compensation insurance; breach of contract; enforcement and violation of statute

"Every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or other public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall, before commencing performance of such contract, provide by insurance for the payment of compensation and the furnishing of other benefits under chapter one hundred and fifty-two to all persons to be employed under the contract, and that the contractor shall continue such insurance in full force and effect during the term of the contract. No officer or agent contracting in behalf of the commonwealth or any political subdivision thereof shall award such a contract until he has been furnished with sufficient proof of compliance with the aforesaid stipulations. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the officer or agent who awarded the contract at least fifteen days prior to the intended effective date thereof, which date shall be expressed in said notice. Notice of cancellation sent by the party proposing cancellation by registered mail, postage prepaid, with a return receipt of the addressee requested, shall be a sufficient notice..."

Section 34B. Contracts for public works; wages for reserve police officer

"Every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wage paid to regular police officers in such city or town."

Whenever general bids are invited for a contract subject to Section 44A, the following provision applies:

Section 44E. Filing of bids; forms; modular buildings. Second paragraph of subdivision (2), clause E

"The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A."

For projects estimated to cost more than $20,000, the following provision applies to sub-bidders:

Section 44F. Plans and specifications; sub-bids; form; contents. First paragraph of clause I of subdivision (2) of section 44F

"The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards of subcontracts subject to section 44F."

Section 44G. Allowances; alternates; weather protection devices

"(A) "Allowance" as used herein means a sum of money covering one or more items of labor or labor and materials which is designated in bid documents and which general bidders are required to use in computing their bids. The use of such allowances shall be prohibited in the award of any contract subject to the provisions of section forty-four A. Whenever the designer is unable to supply specifications for any item prior to the solicitation of bids, such item shall not be included in any contract subject to the provisions of section forty-four A. The awarding authority shall solicit bids for every such item separately pursuant to the provisions of section forty-four A after specifications for that item are prepared.

(B) Every alternate contained in the form for general bids shall be listed in a numerical sequence in order of priority. When the awarding authority decides to consider alternates in determining the lowest eligible and responsible bidder, the awarding authority shall consider the alternates in descending numerical sequence, such that no single alternate shall be considered unless every alternate preceding it on the list has been added to or subtracted from the base bid price.

(C) The use of options other than alternates in bid documents or bid forms subject to section forty- four A shall be prohibited under all circumstances.

(D) Every contract subject to section forty-four A shall include specifications for the installation of weather protection and shall require that the contractor shall install the same and that he shall furnish adequate heat in the area so protected during the months of November through March. Standards for such specifications shall be established by the commissioner or his designee."

Section 44J. Invitations to bid; notice; contents; violations; penalty

"(1) No public agency or authority of the commonwealth or any political subdivision thereof shall award any contract for which competitive bids are required pursuant to section forty-four A of this chapter or section thirty-nine M of chapter thirty, or for which competitive proposals are required pursuant to subsection (4) of section forty-four E of this chapter or section eleven C of chapter twenty-five A, unless a notice inviting bids or proposals therefor shall have been posted no less than one week prior to the time specified in such notice for the receipt of said bids or proposals in a conspicuous place in or near the offices of the awarding authority, and shall have remained posted until the time so specified, and unless such notice shall also have been published at least once not less than two weeks prior to the time so specified in the central register published by the secretary of state pursuant to section twenty A of chapter nine and in a newspaper of general circulation in the locality of the proposed project. Said notice shall also be published at such other times and in such other newspapers or trade periodicals as the commissioner of capital asset management and maintenance may require, having regard to the locality of the work involved.

(2) Said notice shall specify the time and place where plans and specification of the proposed work may be had; the time and place of submission of general bids; and the time and place for opening of the general bids. For contracts subject to the provisions of section forty-four A to H, inclusive, of this chapter, said notice shall also specify the time and place for submission of filed sub-bids, where required pursuant to section forty-four F; and the time and place for opening of said filed sub-bids.

Said notice shall also provide sufficient facts concerning the nature and scope of such project, the type and elements of construction, and such other information as will assist applicants in deciding to bid on such contract.

(3) No contract or preliminary plans and specifications shall be split or divided for the purpose of evading the provisions of this section.

(4) General bids and filed sub-bids for any contract subject to this section shall be in writing and shall be opened in public at the time and place specified in the posted or published notice, and after being so opened shall be open to public inspection.

(5) The provisions of this section shall not apply to any transaction between the commonwealth and any public service corporation.

(6) The provisions of this section may be waived in cases of extreme emergency involving the health and safety of the people and their property, upon the written approval of said commissioner. The written approval shall contain a description of the circumstances and the reasons for the commissioner's determination.

(7) Whoever violates any provision of this section shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than three years or in a jail or house of correction for not more than two and one-half years, or by both said fine and imprisonment; and in the event of final conviction, said person shall be incapable of holding any office of honor, trust or profit under the commonwealth or under any county, district of municipal agency.

Each and every person who shall cause or conspire to cause any contract or preliminary plans and specifications to be split or divided for the purpose of evading the provisions of this section shall forfeit and pay to the commonwealth, a political subdivision thereof or other awarding authority subject to this section, the sum of not more than five thousand dollars and, in addition, such person or persons shall pay, apportioned among them, double the amount of damages which the commonwealth or political subdivision thereof or other awarding authority may have sustained by reason of the doing of such act, together with the costs of the action.

(8) If an awarding authority rejects all general bids or does not receive any general bids, and advertises for a second opening of general bids with the original filed sub-bids as set forth in subsection (1) of section forty-four E the notice for receipt of such general bids may be published in the central register and elsewhere as required not less than one week prior to the time specified for such second opening of general bids.

(9) No request for proposals or invitation for bids issued under sections 38A ½ to 38O, inclusive, of chapter 7, section 11C of chapter 25A, section 39M of chapter 30, this section and sections 44A to 44H, inclusive, shall be advertised if the awarding authority's cost estimate is greater than 1 year old."

Attention is directed to the following sections of Chapter 30 of the General Laws of Massachusetts as amended to date.

Section 38A. Price adjustment clause in contracts for road, bridge, water and sewer projects awarded under Sec. 39M

"Contracts for road and bridge projects awarded as a result of a proposal or invitation for bids under section 39M shall include a price adjustment clause for each of the following materials: fuel, both diesel and gasoline; asphalt; concrete; and steel. Contracts for water and sewer projects awarded as a result of a proposal or invitation for bids under said section 39M shall include a price adjustment clause for fuel, both diesel and gasoline; liquid asphalt; and portland cement contained in cast-in- place concrete. A base price for each material shall be set by the awarding authority or agency and shall be included in the bid documents at the time the project is advertised. The awarding authority or agency shall also identify in the bid documents the price index to be used for each material. The price adjustment clause sball provide for a contract adjustment to be made on a monthly basis when the monthly cost change exceeds plus or minus 5 per cent."

Section 39F. Construction contracts; assignment and subrogation; subcontractor defined; enforcement of claim for direct payment; deposit; reduction of disputed amounts

"(1) Every contract awarded pursuant to sections forty-four A to L inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth-day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a

detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

(i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g), and (h).

(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) "Subcontractor" as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (a) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction."

Section 39G. Completion of public works; semi-final and final estimates; payments; extra work; disputed items

"Upon substantial completion of the work required by a contract with the commonwealth, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges and other highway structures, sewers and water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such list a notice setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the awarding authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor's certification within the twenty-one-day period, the contractor's certification shall take effect as the awarding authority's declaration that the work has been substantially completed.

Within sixty-five days after the effective date of a declaration of substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one percent retainage on that work, including the quantity, price and all but one percent retainage for the undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payment filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the contract by subcontractors, material suppliers or others.

If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.

Within fifteen-days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five-days after the receipt of such list or before the then contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, subsequent to seven-days' written notice to the contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.

Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefor, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is so designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the site, or at some location agreed upon in writing, to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances. The awarding authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on its estimate of the fair value of its claims against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five per cent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty; provided, that a five per cent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding authority to approve a quantity and amount of, all or part of any work item or extra work item.

Substantial completion, for the purposes of this section, shall mean either that the work required by the contract has been completed except for work having a contract price of less than one percent of the then adjusted total contract price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract."

Section 39I. Deviations from plans and specifications

"Every contractor having a contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the commonwealth, or of any political subdivision thereof, shall perform all the work required by such contract in conformity with the plans and specifications contained therein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the engineer or architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract such deviation from the plans or specifications may be authorized by a written order of the awarding authority or such engineer or architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the awarding authority stating: (1) if such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the contracting agency and the contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the contracting authority.

Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

Whoever violates any provision of this section willfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both."

Section 39J. Public construction contracts; effect of decisions of contracting body or administrative board

"Notwithstanding any contrary provision of any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount of the contract is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, town, district, board, commission or other public body, a decision, by the contracting body or by any administrative board, official or agency, or by any architect or engineer, on a dispute, whether of fact or of law, arising under said contract shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily is unsupported by substantial evidence, or is based upon error of law."

Section 39K. Public building construction contracts; payments

"Every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, town, district, board, commission or other public body, shall contain the following paragraph: Within fifteen days (thirty days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five-days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less, (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as

provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such a periodic estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by specifications and a column listing the amount paid to each subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.

A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such terminations shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149."

Section 39L. Public construction work by foreigu corporations; restrictions and reports

"The commonwealth and every county, city, town, district, board, commission or other public body which, as the awarding authority, request proposals, bids or sub-bids for any work in the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or other public works (1) shall not enter into a contract for such work with, and shall not approve as a subcontractor furnishing labor and materials for a part of the work, a foreign corporation which has not filed with such awarding authority a certificate of the state secretary stating that the corporation has complied with requirements of section 15.03 of subdivision A of Part 15 of chapter 156D and the date of compliance, and further has filed all annual reports required by section 16.22 of subdivision B of Part 16 of said chapter 156D, and (2) shall report to the state secretary and to the department of corporations and taxation any foreign corporation performing work under such contract or subcontract, and any person, other than a corporation, performing work under such contract or subcontract, and residing or having a principal place of business outside the commonwealth."

Section 39M. Contracts for construction and materials; manner of awarding

"(b) Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the awarding authority or promptly given in writing by the awarding authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if, in the opinion of the awarding authority: (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications.

For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said named or described materials."

For projects estimated to cost more than $10,000, the following provision, section 39M subsection c, applies:

"(c) The term "lowest responsible and eligible bidder" shall mean the bidder: (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; (4) who, where the provisions of section 8B of chapter 29 apply, shall have been determined to be qualified thereunder; and (5) who obtains within 10 days of the notification of contract award the security by bond required under section 29 of chapter 149; provided that for the purposes of this section the term "security by bond" shall mean the bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority; provided further, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable."

Section 39N. Construction contracts; equitable adjustment in contract price for differing subsurface or latent physical conditions

"Every contract subject to section forty-four A of chapter one hundred and forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:

If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."

Section 39O. Contracts for construction and materials; snspension, delay or interruption due to order of awarding authority; adjustment in contract price; written claim

"Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension, delay or interruption for fifteen days or more due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim."

Section 39P. Contracts for constrnction and materials; awarding authority's decisions on interpretation of specifications, etc.; time limit; notice

"Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made."

Section 39Q. Contracts for capital facility construction; contents; annual claims report

"(1) Every contract awarded by any state agency as defined by section thirty-nine A of chapter seven for the construction, reconstruction, alteration, remodeling, repair or demolition of any capital facility as defined by the aforesaid section thirty-nine A shall contain the following subparagraphs (a) through (d) in their entirety:

(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract as a result of any dispute subject to this section. Any disputed order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute.

(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefor, and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time period specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his designee shall be final and conclusive unless an appeal is taken as provided below.

(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one day period shall not apply to such filing and the period of filing such action shall be the same period otherwise applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, he shall notify all parties of the reasons for the delay and the date when the decision will issue. Failure to issue a decision within the one hundred and twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.

(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer's decision shall be final and conclusive, and shall not be set aside except in cases of fraud.

(2) The commissioner of administration shall require the division of hearings officers to prepare annually a report concerning the construction contract claims submitted to the division during the preceding twelve months, in such form as the commissioner shall prescribe. The report shall contain, at a minimum, the following information: the number of claims submitted; the names of all parties to each such claim; a brief description of the claim: the date of submission and of disposition of the claim; its disposition, whether by settlement, withdrawal, default or written decision; and the number of claims currently pending. The original of the report shall be submitted to the commissioner of administration by January fifteenth, and a copy shall be filed with the state librarian and shall be a public document."

Section 39R. Definitions; contract provisions; management and financial statements; enforcement

"(a) The words defined herein shall have the meaning stated below whenever they appear in this section:

(1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty- five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.

(3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

(4) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

(5) "Audit," when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

(6) "Accountant's Report," when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

(7) "Management," when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:

(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

(2) Until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and

(3) If the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and

(4) If the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and (5) If the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

(c) Every contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and subsidiaries reasonably assures that:

(1) Transactions are executed in accordance with management's general and specific authorization; (2) Transactions are recorded as necessary:

i. To permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. To maintain accountability for assets;

(3) Access to assets is permitted only in accordance with management's general or specific authorization; and

(4) The recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he/she has examined the statement of management on internal accounting controls, and expressing an opinion as to:

(1) Whether the representations of management in response to this paragraph, and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

(2) Whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the awarding authority upon request.

(e) The office of inspector general, the commissioner for capital asset management and maintenance and any other awarding authority shall enforce the provisions of this section. The commissioner of capital asset management and maintenance may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b)."

Section 39S. Contracts for constrnction; requirements

"(a) As used in this section the word "person" shall mean any natural person, joint venture, partnership corporation or other business or legal entity. Any person submitting a bid for, or signing a contract to work on, the construction, reconstruction, alteration, remodeling or repair of any public work by the commonwealth, or political subdivision thereof, or by any county, city, town, district, or housing authority, and estimated by the awarding authority to cost more than

$10,000, and any person submitting a bid for, or signing a contract to work on, the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency, estimated to cost more than $10,000, shall certify on the bid, or contract, under penalties of perjury, as follows:

(1) That he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

(b) Any employee found on a worksite subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.

(c) The attorney general, or his designee, shall have the power to enforce this section including the power to institute and prosecute proceedings in the superior court to restrain the award of contracts and the performance of contracts in all cases where, after investigation of the facts, he has made a finding that the award or performance has resulted in violation, directly or indirectly, of subsection (b), and he shall not be required to pay to the clerk of the court an entry fee in connection with the institution of the proceeding."

Section 40. Discharge or release of bonds

"Bonds given to the commonwealth, any county, city, town or political subdivision to secure the performance of contracts for the construction or repair of public buildings or other public works may be discharged or released by the awarding authority, upon such terms as it deems expedient, after the expiration of one year from the time of completion, subject to section thirty-nine K, of the work contracted to be done; provided that no claim filed under said bond is pending, and provided further, that no such bonds shall be discharged or released prior to the expiration of all special guarantees provided for in the contract unless new bonds in substitution therefor specifically relating to the unexpired guarantees shall be taken."

Attention is directed to the following sections of Chapter 82 of the General Laws of Massachusetts as amended to date. Section 40. Definitions.

"The following words, as used in this section and sections 40A to 40E, inclusive, shall have the following meanings:

"**Company**", natural gas pipeline company, petroleum or petroleum products pipeline company, public utility company, cable television company, and municipal utility company or department that supply gas, electricity, telephone, communication or cable television services or private water companies within the city or town where such excavation is to be made.

"**Description of excavation location**", such description shall include the name of the city or town, street, way, or route number where appropriate, the name of the streets at the nearest intersection to the excavation, the number of the buildings closest to the excavation or any other description, including landmarks, utility pole numbers or other information which will accurately define the location of the excavation.

"**Emergency**", a condition in which the safety of the public is in imminent danger, such as a threat to life or health or where immediate correction is required to maintain or restore essential public utility service.

"**Excavation**", an operation for the purpose of movement or removal of earth, rock or the materials in the ground including, but not limited to, digging, augering, backfilling, test boring, drilling, pile driving, grading, plowing in, hammering, pulling in, jacking in, trenching, tunneling and demolition of structures, excluding excavation by tools manipulated only by human power for gardening purposes and use of blasting for quarrying purposes.

"**Excavator**", any entity including, but not limited to, a person, partnership, joint venture, trust, corporation, association, public utility, company or state or local government body which performs excavation operations.

"**Premark**", to delineate the general scope of the excavation or boring on the paved surface of the ground using white paint, or stakes or other suitable white markings on nonpaved surfaces. No premarking shall be acceptable if such marks can reasonably interfere with traffic or pedestrian control or are misleading to the general public. Premarking shall not be required of any continuous excavation that is over 500 feet in length.

"**Safety zone**", a zone designated on the surface by the use of standard color-coded markings which contains the width of the facilities plus not more than 18 inches on each side.

"**Standard color-coded markings**", red - electric power lines, cables, conduit or light cables; yellow - gas, oil, street petroleum, or other gaseous materials; orange - communications cables or conduit, alarm or signal lines; blue - water, irrigation and slurry lines; green - sewer and drain lines; white - premark of proposed excavation.

"**System**", the underground plant damage prevention system as defined in section 76D of chapter 164."

Section 40A. Excavations; notice

"No excavator installing a new facility or an addition to an existing facility or the relay or repair of an existing facility shall, except in an emergency, make an excavation, in any public or private way, any company right-of-way or easement or any public or privately owned land or way, unless at least

72 hours, exclusive of Saturdays, Sundays and legal holidays but not more than 30 days before the proposed excavation is to be made, such excavator has premarked not more than 500 feet of the proposed excavation and given an initial notice to the system. Such initial notice shall set forth a description of the excavation location in the manner as herein defined.

The notice requirements shall be waived in an emergency as defined herein; provided, however, that before such excavation begins or during a life-threatening emergency, notification shall be given to the system and the initial point of boring or excavation shall be premarked. The excavator shall ensure that the underground facilities of the utilities in the area of such excavation shall not be damaged or jeopardized.

In no event shall any excavation by blasting take place.

Section 40B. Designation of location of underground facilities

"Within 72 hours, exclusive of Saturdays, Sundays and legal holidays, from the time the initial notice is received by the system or at such time as the company and the excavator agree, such company shall respond to the initial notice or subsequent notice by designating the location of the underground facilities within 15 feet in any direction of the premarking so that the existing facilities are to be found within a safety zone. Such safety zone shall be so designated by the use of standard color-coded markings. The providing of such designation by the company shall constitute prima facie evidence of

an exercise of reasonable precaution by the company as required by this section; provided, however, that in the event that the excavator has given notice as aforesaid at a location at which because of the length of excavation the company cannot reasonably designate the entire location of its facilities within such 72 hour period, then such excavator shall identify for the company that portion of the excavation which is to be first made and the company shall designate the location of its facilities in such portion within 72 hours and shall designate the location of its facilities in the remaining portion of the location within a reasonable time thereafter. When an emergency notification has been given to the system, the company shall make every attempt to designate its facilities as promptly as possible."

Section 40C. Excavator's responsibility to maintain designation markings; damage caused by excavator

"After a company has designated the location of its facilities at the location in accordance with section 40B, the excavator shall be responsible for maintaining the designation markings at such locations, unless such excavator requests remarking at the location due to the obliteration, destruction or other removal of such markings. The company shall then remark such location within 24 hours following receipt of such request.

When excavating in close proximity to the underground facilities of any company when such facilities are to be exposed, non-mechanical means shall be employed, as necessary, to avoid damage in locating such facility and any further excavation shall be performed employing reasonable precautions to avoid damage to any underground facilities including, but not limited to, any substantial weakening of structural or lateral support of such facilities, penetration or destruction of any pipe, main, wire or conduit or the protective coating thereof, or damage to any pipe, main, wire or conduit.

If any damage to such pipe, main, wire or conduit or its protective coating occurs, the company shall be notified immediately by the excavator responsible for causing such damage.

The making of an excavation without providing the notice required by section 40A with respect to any proposed excavation which results in any damage to a pipe, main, wire or conduit, or its protective coating, shall be prima facie evidence in any legal or administrative proceeding that such damage was caused by the negligence of such person."

Section 40D. Local laws requiring excavation permits; public ways

"Nothing in this section shall affect or impair local ordinances or by-laws requiring a permit to be obtained before excavation in a public way or on private property; but notwithstanding any general or special law, ordinance or by-law to the contrary, to the extent that any permit issued under the provisions of the state building code or state fire code requires excavation by an excavator on a public way or on private property, the permit shall not be valid unless the excavator notifies the system as required pursuant to sections 40 and 40A, before the commencement of the excavation, and has complied with the permitting requirements of chapter 82A."

Section 40E. Violations of Secs. 40A to 40E; punishment

"Any person or company found by the department of telecommunications and energy, after a hearing, to have violated any provision of sections 40A to 40E, inclusive, shall be fined $1000 for the first offense and not less than $5,000 nor more than $10,000 for any subsequent offense within

12 consecutive months as set forth by the rules of said department; provided, however, that nothing herein shall be construed to require forfeiture of any penal sum by a state or local government body for violation of section 40A or 40C; and provided, further, that nothing herein shall be construed to require the forfeiture of any penal sum by a residential property owner for the failure to premark for an excavation on such person's residential property."

Attention is directed to the following sections of Chapter 30 of the Acts of 2009. Section 33.

"(a) Notwithstanding any general or special law to the contrary, the following requirements shall apply to any public works project funded by the American Recovery and Reinvestment Act of 2009 where the amount of construction costs under any contract awarded is likely to exceed $1,000,000. For the purposes of this section, "public works" shall mean building or work the construction of which is carried on by authority of the commonwealth, or by a county, town, authority or district, or with funds of a federal agency or the commonwealth or a county, city, town, authority or district to serve the interest of the general public, regardless of whether title thereof is in the commonwealth or in a county, city, town, authority or district; provided, however, that for the purposes of this definition, "construction" shall have the meaning provided in section 27D of chapter 149 of the General Laws.

(b) For any public works project subject to subsection (a), the specifications set forth in any request for responses shall include a requirement that, on a per project basis, not less than 20 per cent of the total hours of employees receiving an

hourly wage who are directly employed on the site of the project, employed by the contractor or a subcontractor and subject to the prevailing wage, shall be performed by apprentices in bona fide apprentice training programs as provided in sections 11H and 11I of chapter 23 of the General Laws which are approved by the division of apprentice training in the executive office of labor and workforce development.

(c) During the performance of a public works project subject to subsections (a) and (b), the contractor shall submit periodic reports to the awarding authority with records indicating the total hours worked by all journeymen and apprentices in positions subject to the apprentice requirement. In any instance in which the apprentice hours do not constitute 5 per cent of the total hours of employees subject to the apprentice requirement, the contractor shall submit a plan to the awarding authority describing how the contractor shall comply with the apprentice requirement.

(d) The attorney general shall have all the necessary powers to require compliance with the requirements of subsections (a), (b) and (c) therewith, including the power to institute and prosecute proceedings in the superior court to restrain the award of contracts and the performance of contracts. Prior to award of the contract, an awarding authority may petition the attorney general for approval to adjust the requirements set forth in said subsections (a), (b) and (c). The attorney general may adjust these requirements only if he determines that compliance with these requirements is not feasible or if application of the requirements would be preempted by federal law.

(e) An awarding authority serving a low-income population may require additional specifications that address the needs of its clients including, but not limited to, preferential hiring for residents of public housing authorities for available apprenticeship positions.

(f) Subject to appropriation, the division of apprentice training shall enhance its outreach efforts to underserved populations in order to increase and diversify the number of apprentices in the commonwealth."

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"Any entity located in the commonwealth that receives federal funds through the American Recovery and Reinvestment Act of 2009 shall provide information as directed by the secretary of administration and finance regarding the use of the funds. The required information shall include, but not be limited to, the reporting information required by the federal government and any other information deemed necessary by the secretary to administer the American Recovery and Reinvestment Act of 2009 responsibly, efficiently and transparently. To the extent possible, the secretary shall work to streamline the reporting of this information, minimize duplication of data entry by recipients and ensure data consistency. The secretary may issue regulations to effectuate this reporting requirement."

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"Employers and hiring agents on all projects funded in whole or in part by the American Recovery and Reinvestment Act of 2009 shall post notices of available employment opportunities to the commonwealth's job bank or the one-stop career centers closest to where the projects shall be located. The postings shall contain such information as directed by the secretary of labor and workforce development. The secretary may issue regulations to effectuate this job posting requirement."

END OF SECTION

ATTACHMENT C
CHANGE ORDERS

Policy:

This section supplements Article 12, Change of Contract Price, in the General Conditions and Supplementary Conditions.

All executed change orders submitted to the Engineer for review and processing must be prepared in accordance with the attached change order format (Appendix A) with the appropriate number of copies, calculation sheet(s) (Appendix B) and all other supporting documentation necessary for evaluation. Failure to comply with these instructions will result in delays in processing the change order.

In order to avoid possible delays with approval of change orders, at the beginning of the project and as circumstances warrant, the Contractor shall submit a list of construction equipment, identifying major pieces of equipment to be utilized on the project. The list shall include the Contractor's designation, if any, the manufacturer, model, year of manufacture, serial number, size and horsepower of equipment. The Contractor shall also provide for approval a proposed bluebook equipment rental rate development that separately lists for each piece of equipment the monthly rental rate, area adjustment factor, depreciation factor, estimated operating cost per hour and total hourly rate. In the event the Contractor fails or is unable to provide appropriate rate information the Engineer may develop equipment rental rates for use on change orders.

Payment of Change Orders:

Payment of all change orders shall be in accordance with the relevant provisions of Massachusetts General Laws, Chapter 30, Section 39G for non-building construction and Section 39K for building construction as amended from time to time.

Payment of change orders shall be made in accordance with one of the following three methods:

A. Existing unit prices as set forth in the contract; or

B. Agreed upon lump sum or unit prices; or

C. Time and materials

A. Payment for work for which there is a unit price in the contract:

Where the contract contains a unit price for work and the Engineer orders a change for work of the same kind as other work contained in the contract and is performed under similar physical conditions, the Contractor shall accept full and final payment at the contract unit price(s) for the acceptable quantities. Under certain circumstances, the unit prices may be subject to revaluation and adjustment. See Article 11 in the Supplementary Conditions.

B. Payment for work or materials for which no price is contained in the contract:

If the Engineer directs, the Contractor shall submit promptly in writing to the Engineer an offer to do the required work on a lump sum or unit price basis, as specified by the Engineer. The stated price, either lump sum or unit price, shall be divided so as to show that it is the sum of:

1. The estimated cost of Labor, plus
2. Direct Labor Cost, plus
3. Material and Freight Costs, plus
4. Equipment Costs, plus
5. An amount not to exceed 20% of the sum of items 1 through 4 for overhead and profit, plus (if applicable),
6. In the case of work done by a subcontractor an amount not to exceed 7 ½%, for the general contractor of the sum of the cost (not including subcontractor's overhead and profit) of items 1 through 4 for his overhead and profit (less, if applicable),

7. Credits for work deleted from the contract, including actual costs of the deleted work plus the percentage of overhead, profit, bonds and insurance attributable to such credit amount.

C. Payment for work on a time and materials basis:

Unless an agreed lump sum and/or unit price is obtained as noted above and is so stated in the change price, the Contractor shall accept as full payment for which no agreement is contained in contract, an amount equal to:

1. The estimated cost of Labor, plus
2. The Direct Labor Costs, plus
3. Equipment Costs, plus
4. Material and Freight Costs, plus
5. An amount not to exceed 20% of the sum of items 1 through 4 for overhead and profit, plus, if applicable,
6. In the case of work done by a subcontractor an amount not to exceed 7 ½%, for the general contractor of the sum of the cost (not including subcontractor's overhead and profit) of items 1 through 4 for his overhead and profit (less, if applicable),
7. Credit for work deleted from the Contract, including actual costs of the deleted work plus the percentage of overhead, profit, bonds and insurance attributable to such credit amount.

Explanation of items 1 through 7 as outlined in "B" and "C" above:

1. Labor - Only those workers employed on the project who are doing the extra work, including the foreman in charge, are allowable. General foremen, superintendents, or other supervisory personnel are considered to be included in the overhead markup as provided in items 5 and/or 6. Hourly labor rates in excess of those as listed in the contract wage rates require documentation. As a minimum, an explanation and the appropriate copy of the certified payroll are required.
2. Direct Lahor Costs - These costs are limited to those which are required in the contract document. Coverage in excess of the contract provisions, secured by the contractor/subcontractor(s) at his option, are ineligible. The following list of typical direct labor charges is provided for your assistance and is in no way intended to be complete or all encompassing:

   Workman's Compensation

   Federal/State: Social Security Tax and Unemployment Tax;

   Health, Welfare and Pension Benefits; (this cost is included in the wage rates appearing in the Attachment A Massachusetts Wage Rates.

Liability insurance:	Bodily injury; excess umbrella; property damage; public liability
Blasters insurance:	If applied to any required direct labor costs
Builders risk insurance:	If applied to any required direct labor costs
Experience modification insurance:	If applied to any required direct labor costs
Surcharges:	If applied to any required direct labor costs

   Following award and prior to execution of a construction contract, the Contractor and filed subbidders (where applicable) shall submit for review by the Owner, documentation to establish the markup percentage(s).

   The documented direct labor markup for this contract may be adjusted on an annual basis as measured from the date the contract is executed. The contract agreement will provide for the establishment of the Direct Labor Cost percentage.

3. Material and Freight - Only those materials required as a result of the change order and reasonable freight charges for delivery of same are allowable.

4. Equipment - Only the equipment required as a result of the change order is allowable.

   Equipment rental rates shall be governed by the current Equipment Watch, division of Intertec Publishing [Formerly Nielson/Dataquest] Rental Rate Bluebook for Construction Equipment (the "Bluebook"). In determining the rental rate the following shall apply:

   a. For equipment already on the project - the monthly prorated rental rate by the hourly use shall be applicable;

   b. For equipment not on the project the daily rate, the weekly rate, or monthly rate will prevail, whichever will prove to be most cost effective. Small tools and manual equipment are examples of costs not allowable under this item. These costs are considered to be included in the overhead markup as provided in items 5 and/or 6.

      (1 Month (Normal Use) = 176 hours)

5. Overhead and Profit - All other costs not previously mentioned are considered to be included in this item, be it for the general contractor or subcontractor(s).

6. Overhead and Profit - All other costs not previously mentioned are considered to be included in this item, be it for the general contractor or subcontractor(s).

7. Credits - Work deleted, material and equipment removed from the contract, stored and/or returned shall be credited to the cost of the change order, less documented costs.

This change order will be prepared in such manner as to clearly separate Eligible and Ineligible Costs (as applicable to state-funded projects).

The Contractor shall furnish itemized statements of the cost of the work ordered and shall give the Engineer access to all accounts, bills and vouchers relating thereto; and unless the Contractor shall furnish such itemized statements, and access to all accounts, bills and vouchers, he shall not be entitled to payment for any items of extra work for which such information is sought by the Engineer.

APPENDIX A

CHANGE ORDER

Sheet 1 of ___

Date_____

Project Name. Tri-Town Septage Treatment Facility Demolition

Contract No. _____

Change Order No. _____

Owner's Name: Orleans Brewster Eastham Groundwater Protection District

Owner's Address: c/o Town of Orleans, MA, 19 School Road, Orleans, MA 02653

Contractor's Name: S&R Corporation

Contractor's Address: 706 Broadway Street, Lowell, MA 01854

Item 1:

Description of Change:_____

Reason for Change:_____

Backup Information:_____

Cost: $_____

Item 2

Description of Change:_____

Reason for Change:_____

Backup Information:_____

Cost: $_____

Sheet ___ of ___

Change Order (Continued)

Date _____

Project No. _____

Contract No. _____

Change Order No. _____

Contract Amount (As Bid) $_____

Amount of Previous Change Orders $_____

Net Change in Contract Price (this Change Order) $_____

Total Adjusted Contract Price (including this Change Order $_____

This Change Order extends the time to complete the work hy _____ calendar days.

The extended completion date is _____.

This Change Order checked by: _____

Resident Representative Date

This Change Order is requested by: _____

This Change Order is recommended by:

Consultant Engineer P.E. # Date

The undersigned agree to the terms of the Change Order.

Contractor Date

Owner Date

Certification of Appropriation under M.G.L. c.44, s.31C: Adequate funding in an amount sufficient to cover the total cost of this change order is available.

By: _____ _____

Certification Officer (Auditor, Accountant, Treasurer) Date

Do not write below this space: this space reserved for STATE AGENCY APPROVAL

APPENDIX B

EXAMPLE CALCULATION SHEET

1. Labor

Foreman	10 hours @	$10.00/hour	$100.00
Engineer	10 hours @	$8.80/hour	$85.00
Operator	10 hours @	$9.50/hour	$95.00
Laborers	24 hours @	$7.00/hour	$168.00
			$448.00

2. Direct Labor Cost (use the agreed upon Direct Labor Cost)

   *(30)% of $448.

   *(used for example purposes only) $134.00

3. Materials & Freight

150 l.f. of 12" pipe @ $2.00/l.f.	$300.00
15 v.f. precast SMH	$1,700.00
Freight (slip 652-1 enclosed)	$25.00
	$2,025.00

EXAMPLE

4. Equipment

1 Backhoe - 10 hours @ $80.00/hour	$800.00
1 Truck-crane - 10 hours @ $100.00/hour	$1,000.00
	$1,800.00
TOTAL (items 1 through 4):	**$4,407.00**

5. (20%) markup for Overhead, Profit

   (20%) of $4,407 $881.00

6. (7½ %) markup on subcontractor's cost for general contractor(if subcontractor is involved)

   (7½ %) of $4,407 $331.00

7. Credits (deductibles)-$323.00

TOTAL COST: **$5,296.00**

Reminder: Provide support documentation as necessary i.e. vouchers, correspondence, calculation, photographs, reports.

END OF SECTION

DIVISION 1

GENERAL REQUIREMENTS

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL 1
1.01 DEFINED TERMS 1
1.02 EXISTING CONDITIONS 3
1.03 PROJECT SUMMARY 5
1.04 WORK BY OTHERS 6
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PART 2 – PRODUCTS – NOT USED 7
PART 3 – EXECUTION – NOT USED 7

PART 1 – GENERAL

1.01 DEFINED TERMS

A. **AECOM:** AECOM Technical Services. Inc., who is the Engineer of Record for the Project. The terms AECOM Technical Services. Inc., AECOM and Engineer may be used interchangeably in the Contract Documents (specifications and drawings).

B. **Contractor:** The person, firm, or corporation with whom the Orleans Brewster Eastham Groundwater Protection District, Orleans, MA has entered into the Agreement to perform the Work specified herein.

C. **Daily Construction Report**: The Contractor's Daily Construction Report described in Section 01 32 00 - Construction Progress Documentation.

D. **Decontamination Zone:** Transition area between the Exclusion Zone(s) and the Support Zone(s) or other non-exclusion areas of the Secured Zone(s) where impacted soil, sediment and other undesirable materials can be cleaned from personnel and equipment.

E. **Disturbed Areas:** Areas that have been disrupted or otherwise changed from their pre-construction conditions by the Contractor's activities that have not been restored as required by the Contract Documents.

F. **Drawings:** The Drawings that show the scope, extent, and character of the Work to be furnished and performed by Contractor and which have been prepared or approved by the Engineer and are included within or referred to in the Contract Documents. Shop Drawings are not Drawings as so defined.

G. **Engineer:** AECOM Technical Services, Inc. or its designated agent authorized to monitor conformance of the Contractor's Work with the Specifications and Drawings. The terms AECOM Technical Services, Inc., AECOM, and Engineer may be used interchangeably in the Contract Documents (specifications and drawings).

H. **Exclusion Zone:** An area within the Secured Zone with controlled access due to the presence of Impacted Materials and other potential threats to human health or safety.

I. **Field Order:** A written notice prepared by Engineer responding to RFI, clarifying contract documents or directing Contractor to comply with the Work as detailed in the Contract Documents.

J. **HASP:** The Site-Specific Health and Safety Plan prepared by the Contractor described in Section 01 41 50 - Health and Safety Requirements.

K. **Impacted:** An area, object, or material that contains or has been in contact with a substance at concentrations exceeding applicable environmental standards or guidelines for that substance.

L. **Laws and Regulations; Laws or Regulations:** Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

M. **Non-Conforming:** An adjective, which when modifying the word Work, refers to Work that is unsatisfactory, faulty, or deficient, in that it does not meet the requirements of a specified inspection, reference standard, test, approval, or performance requirement referred to in the Specifications or Drawings, or has been damaged prior to the Engineer's recommendation and the Owner's approval of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion).

N. **Normal Work Hours:** The hours during which the Contractor may perform the Work as defined in the Specifications.

O. **Owner:** Orleans Brewster Eastham Groundwater Protection District, Orleans, MA. The terms Orleans Brewster Eastham Groundwater Protection District and Owner may be used interchangeably in the Contract Documents (specifications and drawings).

P. **Owner's Representative**: AECOM Technical Services, Inc. which has a technical oversight role of work performed and shall be reviewing, inspecting, observing, and accepting work or deliveries in conjunction with the Owner. The terms AECOM Technical Services, Inc., AECOM and Engineer may be used interchangeably in the Contract Documents (specifications and drawings).

Q. **PPE:** Personal Protective Equipment.

R. **Progress Schedule:** The Progress Schedule described in Section 01 32 00 – Construction Progress Documentation.

S. **Project:** The project consists of facility demolition as described in the Contract Documents (specification and drawings) at Tri-Town Septage Treatment Facility, Orleans MA.

T. **Project Engineer:** The individual who may be assigned to the Project by the Engineer to provide on-site Engineering support during construction.

U. **Project Site:** The Project Site (the Site) is Tri-Town Septage Treatment Facility located on 29 Overland Way, Orleans MA.

V. **Project Superintendent:** The Contractor's Project Superintendent described in Section 01 31 00 - Project Management and Coordination.

W. **Record Documents:** The Record Documents and reports described in Section 01 32 00 - Construction Progress Documentation.

X. **Request for Information (RFI):** A written notice prepared by Contractor to receive clarification, direction, or explanation from the Owner or Engineer regarding the Work.

Y. **Samples:** Physical examples of material, equipment, or Workmanship that are representative of some portion of the Work, and which establish the standards by which such portion of the Work will be evaluated.

Z. **Secured Zone:** The area(s) within which Contractor shall perform the Work and where Contractor has primary responsibility for operation, security, and safety of materials, equipment, and personnel.

AA. **Site Construction Manager:** The authorized representative of the Engineer who may be assigned to the Project Site or any part thereof.

BB. **Specifications:** Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, standards, workmanship, measurement, and payment as applied to the Work and certain administrative details, applicable thereto.

CC. **SSHO:** The Contractor's Site Safety and Health Officer described in Section 01 41 50 - Health and Safety.

DD. **Subcontractor:** An individual, firm, or corporation having a direct contract with the Contractor or with any other Subcontractor for performance of a part of the Work.

EE. **Submittals:** The Submittals described in the Specifications including, but not limited to, Section 01 33 00 – Submittal Procedures.

FF. **Successful Bidder:** The Bidder to whom the Owner awards the Contract for the Work.

GG. **Supplier:** A manufacturer, fabricator, distributor, or vendor having a direct Contract with Contractor or with any Sub-Contractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Sub-Contractor.

HH. **Support Zone:** Designated area within the Secured Zone that contains no Impacted Materials or construction hazards.

II. **T&M:** Time and materials.

JJ. **Technical Execution Plan:** A written Work Plan, submitted by Bidder in accordance with the requirements of the Bidding Documents, and subsequently modified by Contractor in accordance with the Contract Documents, that describes methods, materials, and sequences of specific Work items.

KK. **Underground Facilities:** All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities that have been installed underground.

LL. **Weekly Progress Meetings:** The Weekly Progress Meeting referred to in Section 01 31 00 – Project Management and Coordination.

MM. **Work:** The entire completed construction and the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, performing or furnishing services or transportation, performing treatment, and furnishing documents, all as required by the Contract Documents.

NN. **Work Zones:** Areas of the site where Work is conducted. Work zones include, but are not limited to, the Decontamination Zone, Exclusion Zone, Secured Zone, and Support Zone.

1.02 EXISTING CONDITIONS

A. The location of the Project Site is shown on the Drawings.

B. The existing surface layout of the Project Site is shown on the Drawings.

C. The Tri-Town Septage Treatment Facility is situated on six parcels of land totaling 26.02 acres of land. For the purpose of this work, the "subject property" is limited to the compost building, the septage treatment facility and ancillary equipment, and immediately surrounding land where septage treatment operations have occurred. No Work shall occur within the undeveloped and/or wooded portion of the property.

D. Constructed in the mid/late 1980s, many elements of the Tri-Town Septage Treatment Facility have reached or exceeded their planned 20 to 30-year design life. The facility was designed to treat trucked-in septage (primarily residential) and grease (primarily from restaurant operations). The facility provided services to the Towns of Orleans, Eastham and Brewster; however, it also received septage from other Cape communities including, Provincetown, Truro and Wellfleet. Without a mutually agreeable means of financing necessary upgrades, the three town partnership mutually decided to decommission, and ultimately demolish, the Tri-Town Septage Treatment Facility. The facility stopped accepting septage as of the end of May 2016. Operations at the subject property shut down at the end of August 2016.

E. The subject property is improved with an open sided and covered 40,000 square-foot compost building; a two-story approximately 14,400 square-foot Operations Building with a basement; an approximately 1,000 square-foot, one-story Chemical Building; an approximately 1,200 square-foot, one-story Disinfection Building with a partial basement; two primary and two secondary clarifiers; four rotating biological contactors (RBCs); and four effluent disposal beds. Two emergency generators are located northeast of the Operations Building.

F. Two 500-gallon diesel underground storage tanks (USTs) were identified at the subject property that will be removed and decommissioned as part of this project. One 500-gallon diesel UST and diesel dispenser, reportedly installed in the late-1980s, is located at the southwestern corner of the compost building and one 500-gallon diesel UST, reportedly installed in the late-1990s is located northeast of the operations building. Both USTs are of double-walled fiberglass construction. According to the site contact, the UST at the compost building is out of use, the contents were pumped; however, to his knowledge, the UST was not filled with sand or concrete. The UST located northeast of the operations building is associated with one of the emergency generators and is currently not in use.

G. Several bulk chemical aboveground storage tanks (ASTs) are located throughout the interior of the facility, primarily in the Operations Building and a hydrochloric acid (HCL) AST is located in the Chemical Building. The ASTs are situated in concrete berms and/or secondary containment structures. At the time of the site inspection, most of the ASTs had been emptied and cleaned. The contractor shall assume that additional cleaning and legal disposal of the ASTs will be required.

H. Several underground tanks associated with the wastewater processing are located throughout the facility and are to be removed by the Contractor, including the following (capacities indicated are approximate): grit wet well (1,000 gallon); septage receiving tanks (2 @ 130,000 gallons each); septage conditioning tanks (2 @28,000 gallons each); grease/grit tank (1,500 gallons); grease storage tanks (2 @30,000 gallons each); grease tank (10,000 gallons; solidified contents); filtrate equalization tanks (2 @60,000 gallons each); and filtrate equalization tank (250,000 gallons).

I. The subject property is located within a sole-source aquifer and an estimated rare wetland wildlife habitat. However, the Limits of Demolition is not within a Natural Heritage & Endangered Species Program Estimated or Priority Habitat.

J. Historical research indicates that the subject property was undeveloped land from at least 1938 through 1985. Dirt roads through the subject property which appeared to be associated with Oak Ridge Lane and Bay Bridge Lane were present since at least 1974. According to information obtained from previous reports, the treatment facility was constructed in the late-1980s and began operations in 1989. Facility upgrades constructed between 1995 and 1997 included additional septage/grease holding tanks, gravity belt thickeners, a filtrate equalizer tank, secondary clarifiers, and sand filters. The facility was permitted to receive septage as of 1986 under a GWDP (0-187).

K. The septage treatment facility received septage waste from both commercial and residential properties. Once processed, the sludge was trucked to the compost building. The compost building is covered but open sided with a sump in the southwest corner. The sump discharges to the general waste sump at the Operations Building.

L. According to the Town of Orleans Conservation Commission Administrator, the project site is not subject to Natural Heritage Endangered Species Program (NHESP) jurisdiction and therefore no NHESP filing is required.

M. A portion of the Project Site is located in a 100-foot wetland buffer zone. However, the Work Area is restricted such that no activities are allowed within 100 feet of the wetlands. This includes the Contractor restricted from staging/stockpiling on Overland Way (which is adjacent to the wetland/bog).

N. Utilities and Facilities shown or indicated:

1. The information and data shown or indicated on the Drawings with respect to existing utilities and facilities at or contiguous to the Project Site are based on information and data furnished to the Owner or the Engineer by the Owners of such utilities or facilities or by others.

2. The Owner and the Engineer shall not be responsible for the accuracy or completeness of any such information or data relating to utilities or facilities. Contractor is required to verify all locations prior to subsurface Work.

3. The cost of all of the following shall be included in the Contract Price and the Contractor shall have full responsibility for:

   a. Reviewing and checking all information and data regarding existing conditions.

   b. Locating all existing utilities and facilities.

   c. Coordination of the Work with the Owners of existing utilities and facilities during construction.

   d. The safety and protection of all existing utilities and facilities designated to be protected on the Drawings, and repairing any damage resulting from the Work.

4. A copy of the historical as-built drawings, utility information, depicting utility and facility information with respect to this project site that was furnished by the Owner and/or Engineer is provided in the Appendices (As-Built Facility Drawings) of these specifications.

5. A copy of the Facility Decommissioning Plan/Checklist developed in close consult with operating staff describing the process and tasks involved in decommissioning the facility that was conducted prior to demolition is provided in Appendices of these specifications.

6. There are two fire hydrants that will remain as shown on the Drawings. The Contractor can use these hydrants for dust control or other uses. The Town of Orleans Water Department will provide a hydrant meter; Contractor shall pay for the water used.

7. The Orleans Water Department has indicated that two water mains, a 6 inch line and 1 ½ line, that cross the site (serving other portions of the Town) are to remain and are not to be damaged/ excavated during demolition. The locations of these water mains that will remain are shown on the Drawings.

1.03 PROJECT SUMMARY

A. The Project includes work required for the following general activities required for the complete demolition of all above ground and underground components of the Tri-Town Septage Treatment Facility including but not limited to":

   1. Lead Based Paint, Universal Waste and Other Hazardous Materials (removal, transportation and legal disposal).

   2. Removal and legal disposal/recycling of all remaining treatment system equipment, ancillary equipment, underground piping, ASTs, USTs and materials (including office furniture).

   3. Cutting, capping, and permanently and/or temporary relocating utilities within the limits of the Tri-Town Septage Treatment Facility.

   4. Demolition and removal (recycling and/or legal disposal) of Tri-Town Septage Treatment Facility and Compost Shed including slab, underground utilities, piping, and foundation walls, site features including roadways, curbs, etc. as shown on the Drawings. This includes excavation and staging of soil needed to access slabs, piping, and foundations.

   5. Backfill, grading, seeding and final restoration as shown on the Drawings.

B. AECOM prepared a photographic log depicting current conditions of the Tri-Town Septage Treatment Facility and Compost Shed. A copy of the photographs is provided in the Appendices of these specifications.

C. AECOM prepared an inventory of all structures and equipment that will be decommissioned and demolished. A copy of the structure and equipment inventory is provided in Appendices of these specifications.

D. AECOM conducted an ACM, LBP and universal waste investigative survey of Tri-Town Septage Treatment Facility Building to facilitate scheduled demolition of the Tri-Town Septage Treatment Facility. The ACM/LBP portion of the hazardous materials survey included the inspection of accessible areas of the building interior and exterior. The hazardous materials portion of the survey included a visual inspection to identify thermostats, fluorescent bulbs, light ballasts, emergency lights, batteries and oil-filled equipment and a quantity of OHM that was identified. A copy of the Hazardous Materials Report is provided in Appendices of the Specifications.

E. The Project will result in a disturbance of approximately 3.5 acres and is subject to the requirements of the National Pollution Discharge Elimination System (NPDES) stormwater program. The NPDES stormwater program requires projects proposing clearing, grading, and excavating activities that disturb 1 acre or more to obtain coverage under a NPDES permit for stormwater discharge. As a result, a NPDES permit will be required for this project and the Contractor is required to obtain a NPDES permit and to develop a Stormwater Pollution Prevention Plan (SWPPP) for this project.

1.04 WORK BY OTHERS

A. Operations staff removed and legally disposed of materials on site which would be considered hazardous or other regulated materials (i.e. – chemicals, lube oils, cleaning materials, spent fluorescent light bulbs), but did not remove miscellaneous office clutter, furniture, landscaping equipment, etc. Additionally, lube oils in equipment (e.g. – RBC gearboxes) remain in place for removal with the equipment and legal disposal by the Contractor.

B. Operations staff cleaned process tankage to the extent possible through the recirculation of treated facility effluent, but the tanks were entirely cleaned, pressure washed, etc. Operations staff removed residual materials to the extent possible with a "pumper" truck, but some residual water, grit, and grease may remain. Operations staff stabilized remaining material with lime. The Contractor is responsible for the cleaning and legal disposal of the remaining 5 percent of the tank volumes.

1.05 WORK SEQUENCE

A. Below is a suggested work sequence to complete construction activities. The Contractor is responsible to provide a work sequence to complete construction activities as part of their final Technical Execution Plan in accordance with 01 33 00.

1. Submit required work submittals, permits, plans for Engineer review and approval in accordance with submittal deadlines.
2. At least 3 business days prior to starting any earth disturbance activities or expanding into an area previously unmarked, notify the Dig Safe for the location of existing underground utilities.
3. Perform Subsurface Utility Investigation prior to Foundation demolition.
4. Survey and stake out the limits of disturbance.
5. Mobilize Personnel, equipment, incidentals on Site.
6. Install Erosion and Sediment Control in accordance with the Contractor SWPPP and with the Drawings, and down gradient of earth disturbance activities where necessary/appropriate.
7. Prepare and Install all required Temporary Facilities and Controls including Fencing, Temporary Trailers, Decontamination Facilities, and Stockpile Area.
8. Perform Lead Base Paint and Regulated Waste Removal and legal disposal.

9. Decontaminate, remove and/or legally dispose/recycle all remaining equipment, tanks and materials.

10. Complete Utility Disconnects prior to Demolition.

11. Complete cut/cap of utility mains/services to the Tri-Town Septage Treatment Facility. The Contractor must perform this work from an "approved Contractor's list" maintained by the Town of Orleans Water Department.

12. Conduct building demolition, foundation and tank removal and cleaning(both aboveground and underground) and legal disposal. This includes excavation and staging of soil needed to access slabs and foundations.

13. Transportation and legal disposal of Tri-Town Septage Treatment Facility Buildings and Foundations.

14. Place backfill and rough grade the site to the elevations shown on the drawings minus the depth of topsoil.

15. Place topsoil, perform final grading, complete final clean-up, seed and mulch, and re-establish temporary erosion and sediment controls.

16. Demobilize from Site.

17. Remove temporary erosion and sediment controls once entire site has been stabilized by minimum uniform, perennial 70 percent vegetative cover. Stabilize areas disturbed during removal of erosion and sediment controls immediately.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

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SECTION 01 14 00

WORK RESTRICTIONS

PART 1 – GENERAL 1
1.01 CONTRACTOR'S USE OF PREMISES 1
1.02 TRAFFIC PLAN AND ACCESS ROADS 1
1.03 PARKING 2
1.04 WORK HOURS 2
1.05 RESTRICTIONS ON NOISE, DUST, AND ODOR EMISSIONS 2
1.06 RESTRICTIONS ON AIR EMISSIONS OF TOXIC CHEMICALS 3
1.07 PROTECTION OF EXISTING UTILITIES 3
1.08 WETLANDS 3
PART 2 – PRODUCTS – NOT USED 4
PART 3 – EXECUTION – NOT USED 4

PART 1 – GENERAL

1.01 CONTRACTOR'S USE OF PREMISES

A. Contractor shall confine all operations, including the storage of materials, to the designated areas of the Project Site as shown in the Drawings, or as otherwise approved in writing by the Engineer. Contractor shall be responsible for arranging for, and paying the costs of, any necessary off-site storage. Any further use of the property must be approved in writing by the Engineer.

B. No Impacted Materials shall be stored in vehicles or stockpiled outside of the Project Site and /or Work Area.

C. Contractor's use of the premises shall be limited to the Work being performed under the Contract Documents (specifications and drawings).

D. Contractor shall be responsible for the security and safety of Contractor's equipment and facilities. Owner and the Engineer shall not be liable for loss or damage of Contractor's tools, vehicles, equipment, or materials, whatever the cause. Such loss or damage shall not be sufficient reason for changes in the Project Schedule.

E. Contractor shall be responsible for any damage to roadways, facilities, trees, or structures on, or adjacent to, the Project Site due to negligence, carelessness, actions, errors, or omissions on the part of the Contractor.

1.02 TRAFFIC PLAN AND ACCESS ROADS

A. Contractor vehicles shall enter and exit the Site only at the location designated on the Drawings or as otherwise approved in writing by the Engineer. Access into and out of the Site shall be off Overland Way, subject to final approval by Town of Orleans Police Department.

B. Contractor shall be responsible for obtaining any permits and paying any fees necessary for Contractor's use of public streets or roads.

C. Contractor shall provide any flaggers and signage needed to prevent impeded traffic flow on public streets.

D. Contractor shall, at all times, provide for unimpeded access for emergency vehicles to the Project Site and nearby properties.

1.03 PARKING

A. Contractor shall park construction vehicles and construction equipment only in the Work Area and/or as approved in writing by the Engineer.

B. Contractor employees shall park personal vehicles only in an employee parking area only in the Work Area and/or as approved in writing by the Engineer

C. Vehicles shall not be parked in any locations where they impede traffic or access to areas where Work is being conducted.

1.04 WORK HOURS

A. Normal Work Hours shall be from no earlier than 7:00 A.M. to no later than 5:00 P.M., Monday through Friday or as otherwise approved in advance by the Engineer, and subject to availability of adequate daylight to safely perform the Work. Contractor shall submit a Staffing Plan detailing Work hours and shift requirements as part of the Technical Execution Plan.

B. Work hours established by any ordinance, Law, or Regulation shall supersede the requirements of this Section.

C. Contractor shall conduct all Work between sunrise and sunset when there is adequate light so that the Work can be conducted safely and the Engineer can effectively observe the Work, or Contractor shall furnish adequate lighting for activities conducted by prior written approval of the Engineer and Owner between sunset and sunrise. Contractor shall provide adequate lighting at all times, as deemed necessary by the Engineer for safety reasons. However, the Engineer shall not require additional lighting if Contractor can demonstrate that light levels in the Work area meet or exceed OSHA Regulations.

D. Contractor may, with Engineer's approval, conduct regular equipment maintenance during hours outside of the Normal Work Hours defined in this Section.

E. Contractor personnel shall not work on site alone.

F. Any variation from Normal Work Hours shall be subject to approval by the Engineer. Any request for change must be made to the Engineer no less than 48 hours in advance.

G. Emergency repairs of equipment may be performed, with Engineer's written approval, outside of Normal Work Hours provided that all such work complies with local ordinance, law and regulations.

1.05 RESTRICTIONS ON NOISE, DUST, AND ODOR EMISSIONS

A. Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning noise or sound levels. The Contractor will be required to minimize noise after hours to the extent practicable and this may entail achieving noise levels at the perimeter which are more stringent than local ordinances. Measures to be employed to control and monitor noise should be identified in bidder's Technical Execution Plan.

B. Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning airborne dust emissions. Visible dust must be controlled to prevent airborne particulate from migrating off site. Measures to be employed to control and monitor dust should be identified in bidder's Technical Execution Plan.

C. Contractor is responsible for conducting all Work in accordance with Laws and Regulations concerning odor emissions. Measures to be employed to control and monitor odors should be identified in bidder's Technical Execution Plan.

D. Contractor shall control the Work at all times such that noise, dust, and odor measurements do not exceed the Levels set forth in local ordinances.

E. The Engineer shall have authority to direct Contractor to stop Work or modify Work methods or activities as necessary to enforce compliance with the Air Monitoring Action Levels, or if the Engineer deems odor emissions, noise or sound levels, or dust emissions are exceeded.

1.06 RESTRICTIONS ON AIR EMISSIONS OF TOXIC CHEMICALS

A. Contractor shall be responsible for conducting all Work in accordance with Laws and Regulations concerning airborne emissions of toxic chemicals.

B. The Engineer shall have authority to direct the Contractor to stop Work or modify Work methods or activities as necessary to enforce compliance with the Action Levels for airborne emissions of toxic chemicals.

1.07 PROTECTION OF EXISTING UTILITIES

A. Contractor shall contact and cooperate with utility companies to locate all utilities (including pipelines, cables, power poles, guy wires, and other structures) on the site prior to beginning the Work.

B. Contractor will be required to obtain disconnect letter from all utilities services to the proposed demolition areas.

C. Contractor shall comply with the requirements of specific utility protection Laws or Regulations.

D. All utilities and storm drain lines shall be protected from damage during construction, unless otherwise indicated to be removed or abandoned. If damaged, the utilities shall be repaired as required by the utility's owner at the Contractor's expense.

E. If a utility is encountered that is not shown on the Drawings or otherwise made known to the Contractor prior to beginning the Work, the Contractor shall promptly take necessary steps to assure that the utility is not damaged, and give written notice to the Engineer. The Engineer shall then review the conditions and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the utility.

1.08 WETLANDS

A. Wetlands, subject to protection by the Massachusetts Wetlands Protection Act and the Town of Orleans By-Law (Chapter 160) and Regulations (Chapter 196A), are located on the Property, but not within 100 feet of the Work Area, as shown on the Drawings.

B. Contractor shall not fill, excavate, or alter any portion of the Property within 100 feet of any wetland or bog without prior approval from the Engineer and the Town of Orleans Conservation Commission.

C. No equipment, materials, trash, or debris shall be stored or stockpiled within 100 feet of any wetland or bog without prior approval from the Engineer and the Town of Orleans Conservation Commission.

D. All work, including site preparation, land disturbance, demolition, and site restoration, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan, as well as the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit.

E. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the Contractor shall inspect erosion controls on a daily basis and shall remove accumulated sediments as needed. The Contractor shall immediately control any erosion problems that occur at the site, as well as along adjacent portions of Overland Way, and shall immediately notify the Orleans Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. If additional, or corrective, erosion controls must be installed at the request of the Orleans Conservation Commission, the Contractor shall comply, at no additional cost to the Owner.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

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PART 1 – GENERAL

1.01 SUBMITTALS

A. Contractor shall submit all documentation and correspondence regarding changes in the Work in accordance with the procedures in Section 01 33 00 – Submittal Procedures.

1.02 PROCEDURES FOR CHANGES IN THE WORK

A. The Contractor will be contracted directly to the Owner. The Contractor shall direct all scope change requests, correspondence, and communications through the Engineer.

B. The Engineer may at any time make changes in the Drawings, Specifications, and requirements of any Work Order that the Engineer deems necessary or as directed by the Owner. Contractor shall not make any changes to the Drawings or Specifications except upon written notice from the Engineer.

C. **Request for Information.** The Contractor shall issue a Request for Information (RFI) in writing to the Engineer whenever unforeseen conditions are encountered and clarification or direction is required from the Engineer. The Contractor shall issue an RFI to the Engineer and receive a Field Order, Work Change Directive, or Change Order before proceeding with any out of scope Work. Each RFI will include the date, name of person issuing it, the relevant Specification or Drawing number, and any additional information necessary for documentation. RFIs will be numbered sequentially for record keeping purposes.

D. **Field Order** (form attached): The Engineer may make minor modifications to the Work, and provide interpretations or clarifications, which do not entail any change to the Contract Price or Contract Times, or respond to an RFI through the issuance of a Field Order. The Field Order will include the date, name of person issuing it, the relevant Specification or Drawing number, and any additional information necessary for documentation. Field Orders will be numbered sequentially for record keeping purposes.

E. **Work Change Directive** (form attached): The Work Change Directive is used to modify the quantity of Work covered under a unit price defined in the Section 00410 – Form of General Bid. The Engineer may order an addition, deletion, or revision in the Work, or respond to differing or unforeseen physical conditions under which the Work is to be performed, such as by adding or modifying quantities established under unit price Bid Items, by issuance of a Work Change Directive. The Work Change Directive shall be signed by the Owner's Project Manager, the Engineer's representative, and by the Contractor. The Work Change Directive shall include a description of the change to the Work, including reference to the Specification Section(s) and Drawing number(s), the method for measurement of the Work covered by the unit price, and an estimate of the expected resulting change to the Contract Price and Contract Time.

F. **Change Order** (form attached): A Change Order is used for addition of new bid items to Section 00410 – Form of General Bid or for modification in the scope and\or unit price of an existing bid item. A Change Order will be executed for any necessary change to the Work that Contractor will perform on the basis of a unit price or lump sum price for a new Work item that is not included in Section 00410 – Form of General Bid. The Schedule of Quantities and Prices shall be modified by issuance of a Change Order. The Change Order shall be signed by the Owner's Project Manager, the Engineer's representative, and the Contractor, and shall include a description of the change to the Work including reference to the Section and Drawing number, the new unit price, the method for measurement of the Work covered by the unit price, and an estimate of the expected resulting change to the Contract Price and/or Contract Time.

G. If a change to the Work involves a deduction from the Work Order amount, not determinable by reference to the Schedule of Quantities and Prices, the Engineer's estimate of same shall be accepted by Contractor if Contractor fails to submit its own estimate within five (5) working days following notice of such proposed change. The amount of such deduction shall, at the Owner's option, be a lump-sum amount agreed upon between the Owner and Contractor, or the actual cost saved on labor, material, and equipment usage, which would have been necessary for the portion of the Work not performed.

H. The amount to be allowed to the Contractor in excess of the Work Order amount for the performance of additional Work, unless being accomplished on a Time and Materials (T&M) or Cost Plus Percentage (CP) basis, or determined upon reference to an applicable unit price, shall be a lump sum agreed upon between parties.

I. If the Contractor is seeking a change in unit price due to a change in conditions, then they shall promptly and clearly document (in an RFI) the reason for change in conditions, how the change in conditions influenced production rates, and provide clear documentation supporting change in unit rate.

J. In the event that the Contractor performs any Work on a T&M or CP basis, Contractor shall submit supporting documentation prior to the Application for Payment. No T&M work shall be performed without written Owner and Engineer approval.

K. Contractor agrees that if the Owner and Engineer are not satisfied with the price quoted by the Contractor, for any change in the Work with a value estimated by the Engineer to be more than $25,000, the Owner may engage another Contractor to perform the change in the Work.

L. If the Owner and Contractor are not able to agree as to the amount, either of money or time, to be allowed or deducted for any changes in the Drawings, Specifications, or requirements for the Work or any Work Order, it shall, nevertheless, be the duty of the Contractor, upon written notice from the Engineer, to proceed immediately with the changes and continue the Work as directed by the Engineer.

M. All out-of-scope work performed by the Contractor shall be brought to the attention of the Engineer immediately. Under no circumstances should any out-of-scope work be performed prior to Engineer notification and Owner approval. Written notification must follow within 24-hours of the verbal notification.

1.03 CONTRACTOR REQUEST FOR CHANGE IN CONTRACT PRICE OR CONTRACT TIME

A. Contractor shall maintain detailed records of Work done on the basis of T&M. Contractor shall include documentation with the Daily Construction Report itemizing T&M Work for verification and approval by the Engineer each day that the Contractor performs Work on the basis of T&M.

B. Contractor shall document each request for a change in cost or time with sufficient data to allow the Engineer's evaluation of the request, and, if deemed necessary by the Engineer, Contractor shall provide the following types of additional data to support computations:

1. Quantities of products, labor, and equipment.

2. Taxes, where applicable.

3. Overhead and profit.

4. Justification for any change in Contract Time.

C. Contractor shall support each claim for additional costs with the following additional information for verification by the Engineer:

1. Origin and date of claim.

2. Dates and times Work was performed, and by whom.

3. Time records for labor and equipment solely applicable to claim.

4. Invoices and receipts for products, equipment, and Subcontractors, similarly documented.

D. Mark-up for overhead and profit is limited to 10% for work performed under Change Order.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01. CORRELATION OF CONTRACTOR SUBMITTALS

A. Contractor shall promptly revise the Schedule of Values and Application for Payment forms to record each authorized Work Change Directive or Change Order as a separate line item and adjust the Contract Price.

B. Contractor shall promptly revise Progress Schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of Work affected by the change, and resubmit.

C. Contractor shall promptly enter changes in Project Record Documents described in Section 01 32 00 – Construction Progress Documentation.

END OF SECTION

CONTRACT MODIFICATION FORMS FOLLOW

AECOM
9 Jonathan Bourne Drive
Pocasset, MA 02559

508.833.6950 tel
508.833.6951 fax

FIELD ORDER FORM

F.O. NUMBER:	**PROJECT NUMBER:**
DATE:	**SITE LOCATION:**
ISSUED BY:	**COPIES TO:**

Subject:

Specification or Drawing No:

Reason for Change:

Details of Change:

CHANGE ORDER

No. _____

DATE OF ISSUANCE: _____ EFFECTIVE DATE: _____

OWNER _____
CONTRACTOR: _____
Contract / Work Order: _____
Name of Site: _____ OWNER Project No: _____

You are directed to make the following changes to the Work:

Reasons for Change Order:

Attachments:

CHANGE IN CONTRACT PRICE		CHANGE IN CONTRACT TIMES
Original Contract Price $ _____		Date for Substantial Completion: _____
Net Increase (Decrease) from previous Change Orders $ _____		Date for Completion and Readiness for Final Payment: _____
Contract Price prior to this Change Order: $ _____		
Net increase (decrease) of this Change Order: $ _____		
Contract Price with all approved Change Orders: $ _____		

RECOMMENDED:

By: _____
OWNER Field Representative

Date: _____
OWNER Field Representative

ACCEPTED:

By: _____
CONTRACTOR

Date: _____
CONTRACTOR

APPROVED:

By: _____
OWNER Project Manager

Date: _____
OWNER Project Manager

WORK CHANGE DIRECTIVE

No. _____

DATE OF ISSUANCE: _____ EFFECTIVE DATE: _____

OWNER _____
CONTRACTOR: _____
Contract / Work Order: _____
Name of Site: _____ OWNER Project No: _____

You are directed to proceed with the following changes to the Work:

Description:

Purpose for Work Change Directive:

Attachments:

If OWNER or Contractor believe that the above change has affected Contract Price, any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Agreement and the Specifications:

___ Unit Prices

___ Lump Sum $ _____

___ Cost of the Work

Estimated increase (decrease) in Contract Price: $_____. If the change involves an increase, the estimated amount is not to be exceeded without further authorization.	Estimated increase (decrease) in Contract Times: Substantial Completion:_____days; Ready for final payment: _____ days.

RECOMMENDED:	ACCEPTED:	APPROVED:
By: _____	By: _____	By: _____
OWNER Field Representative	CONTRACTOR	OWNER Project Manager
Date: _____	Date: _____	Date: _____
OWNER Field Representative	CONTRACTOR	OWNER Project Manager

SECTION 01 27 00

MEASUREMENT AND PAYMENT

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PART 1 – GENERAL

1.01 QUANTITY ESTIMATES

A. For all Unit Price Work, the Contract Price will include an amount equal to the sum of the unit price for each pay item times the estimated quantity of each item as indicated in the Section 00410 - Form of General Bid. The estimated quantities shown on Section 00410 - Form of General Bid are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract Price. Quantities and measurements supplied or placed in the Work in accordance with the Sections and Drawings and verified by the Engineer will determine payment.

B. The Engineer will determine the actual quantities and classifications of Unit Price Work performed by the Contractor. The Engineer will review with the Contractor the Engineer's preliminary determinations before rendering a written decision on an Application for Payment.

C. If the actual Work requires more or fewer units than the estimated units indicated on Section 00410 - Form of General Bid, Contractor shall provide the required units at the unit prices contracted. Under no circumstances may Contractor exceed stated quantities without prior written approval from the Engineer.

1.02 PAYMENT

A. Payment includes: Full compensation for the complete demolition of the Tri-Town Septage Treatment Facility including all required labor, products, tools, equipment, transportation, services, and incidentals; erection, application, or installation of an item of the Work, including overhead and profit.

B. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products remaining on hand after completion of work.
3. Additional work undertaken to expedite Contractor's operations.
4. Repair or replacement of utilities, or any other facilities property located within or adjacent to the Work Area.

C. Payment will be made by the Owner for all Work actually performed during a particular payment period. Payments for lump sum items will be made based on the percent completion of the pay item. Upon approval by the Engineer, judgments of percent completion of lump sum items will be made in reference to the Schedule of Quantities and Prices.

D. The Owner reserves the right to withhold the fair market value for work not completed in addition to the retainage on work completed. Unbalanced bid items will specifically be subject to review and to this potential withholding from periodic payment applications.

1.03 ASSESSMENT OF NON-CONFORMING WORK

A. Contractor shall replace Work, or portions of the Work, that do not conform to the requirements of the Sections and Drawings, as assessed by the Engineer.

B. If, in the opinion of the Engineer it is not practical to remove and replace the non-conforming Work, the Engineer will direct one of the following remedies:

1. The non-conforming Work may remain, but the unit price will be adjusted to a new price at the discretion of the Engineer.
2. The non-conforming Work shall be partially repaired to the instructions of the Engineer, and the unit price will be adjusted to a new price at the discretion of the Engineer.

C. The individual Section paragraphs may modify these options or may identify a specific formula or percentage price reduction.

D. The authority of the Engineer to assess non-conforming work and identify payment adjustment is final.

1.04 ELIMINATED ITEMS

A. Should any items contained in the Drawings or Sections be found unnecessary for the proper completion of the Work, the Engineer may, upon written order to the Contractor, eliminate such items from the Work, and such action shall in no way invalidate the Agreement.

B. Contractor will be paid for actual Work done and all documented costs incurred, including mobilization of materials prior to elimination of such items.

1.05 MEASUREMENT AND PAYMENT OF BID ITEMS

A. Section 00410 - Form of General Bid, Schedule of Quantities and Prices, lists the Bid Items and Unit Price Items for the Work. Measurement and payment of the Work covered by the Contract Documents is specified herein below.

B. At the direction of the Engineer, Contractor may be asked to perform change order work on a Lump Sum and/or T&M basis.

C. The following paragraphs specify measurement and payment of the Bid items listed in Section 00410 - Form of General Bid:

BID ITEM 1 MOBILIZATION

a. Work required to complete Mobilization includes, but is not limited to:

i. Review all available site documentation provided in these Sections including reports, drawings, historical as-built drawings, and tables.

ii. Preparation, submittal, and revision of all required submittals as described in Section 01 33 00 – Submittal Procedures.

iii. Participation in three meetings: (1) a pre-construction meeting with the Engineer and Owner; and (2) a pre-construction meeting with certain Town of Orleans boards/commissions. All meetings will be held at or near the project site.

iv. Performing utility clearance prior to commencement of work activities.

v. Movement of personnel, equipment, and materials to the Site, if such movement is not included in any other Bid Item. This also includes any movement of personnel, equipment, and materials to or from or the site during the period when the overhead utilities are being relocated, if necessary.

b. Mobilization will be measured for payment as one unit, complete as specified.

c. Payment for Mobilization Work will be made on a percent complete basis of the lump sum price for the Bid item listed in Section 00410 - Form of General Bid. Payment of the lump sum price for "Mobilization" shall constitute full compensation for all labor, supervision, materials, equipment, start up submittals, incidentals and all other costs necessary to complete Mobilization Work, including the transport of all equipment, labor and temporary facilities and materials to and from the Site.

BID ITEM 2 TEMPORARY FACILITIES AND CONTROLS

a. Work required to complete the Temporary Facilities and Controls includes, but is not limited to:

i. Any work or costs required to comply with protections and requirements specified in Section 01 14 00 – Work Restrictions unless specifically identified as being provided by others.

ii. Implement health and safety requirements specified in Section 01 41 50 – Health and Safety Requirements.

iii. Implement temporary erosion and sediment controls specified in Section 01 57 00 – Erosion and Sediment Controls as shown on the Drawings.

iv. Provide and Install decontamination facilities specified in Section 02 06 00 - Decontamination and management and disposal of any liquids or residues generated during decontamination.

v. Provide and install temporary Fencing and Gates per Section 32 31 00 – Chain Link Fence and Gates along the Work Area Limit of Work.

vi. Maintain and repair of all temporary facilities and controls including those provided by others during the period when Work is taking place at the site.

vii. Conduct all surveys required to control the work and determine measurement and payment.

viii. All other one-time and recurring activities required by the Subcontractor to complete the Project unless included in another pay item or specifically identified as being the responsibility of others.

ix. Install any temporary facilities and controls specified in Section 01 50 00 –Temporary Facilities and Controls as shown on the Drawings not specifically listed above.

x. Prepare a Stormwater Pollution Prevention Plan, file a Notice of Intent application for coverage under the NPDES Construction General Permit, and implement SWPPP.

b. Temporary Facilities and Controls Work will be measured for payment as one unit, complete as specified.

c. Payment for Temporary Facilities and Controls Work will be made on a percent complete basis of the lump sum price for the Bid item listed in Section 00410 - Form of General Bid. Payment shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs required to complete the scope of work for this Bid Item as described in the Sections.

BID ITEM 3 REGULATED WASTE REMOVAL

a. Work required to complete Regulated Waste Removal includes, but is not limited to, Regulatory notifications and removal and disposal; removal and disposal of all regulated waste; and removal and termination of the electrical service and telephone connections to the buildings targeted for demolition as shown on the Drawings as necessary to complete the work. This work will be in accordance with the Section 02 00 00 - Hazardous Material Abatement.

b. Regulated Waste Removal will be measured for payment as one unit, as specified.

c. Payment for Regulated Waste Removal will be made on a percent complete basis of the lump sum price for the Bid item listed in Section 00410 - Form of General Bid. Payment shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs required to complete the scope of work for this Bid Item as described in the Sections.

BID ITEM 4 PRE-DEMOLITION ACTIVITIES

a. Work required to complete Pre-Demolition Activities includes, but is not limited to:

i. Obtain and pay for all required state and local permits, including, but not limited to Town of Orleans Building Permit, Demolition Permit and utility disconnect letters.

ii. De-energize, cut and cap all utilities to be removed as shown on the Drawings. Note: Contractor must use "cut and cap" contractor on the "Approved Contractor's list" maintained by the Town of Orleans.

iii. Protect and maintain, and replace if damaged at no cost to Owner, the monitoring wells as shown on the drawings.

iv. Identify and protect the two water mains that cross the site, in consultation with the Town of Orleans, using methods and equipment pre-approved by Engineer.

v. Remove, clean and dispose of all ASTs, USTs, and remaining treatment facility equipment and ancillary equipment as provided in the appendices and shown on the drawings.

vi. Remove and dispose of any underground storage tanks per Federal, State, and local regulations. Visual inspection of underground tank by Engineer and Contractor, and testing of soils beneath tank by Contractor. Assume no contaminated soil will be encountered.

vii. Decontaminate all visibly stained surfaces in buildings and treatment facility equipment and aboveground and below ground tanks prior to disposal.

vii. Inspect, drain, remove and dispose of any STF related equipment and piping. Assume free oil or hazardous materials will be encountered.

iv. Remove covers of floor drainage system throughout the buildings. Visual inspection of floor drainage system by Engineer and Contractor. Remove, load and dispose of any hazardous and non-hazardous materials from trenches. Assume oil or hazardous materials will be encountered in trenches.

b. Pre-Demolition Activities will be measured for payment as one unit, as specified.

c. Payment of the lump sum price for "Pre Demolition Activities" shall constitute full compensation including but not limited to mobilization, temporary facilities, documentation (Section 01 33 00 – Submittal Requirements and Section 01 41 50 – Health & Safety Requirements), Permits (Local, State, and Federal), laboratory testing, disposal fees, labor, supervision, incidentals, notifications and all other costs necessary to perform pre-demolition tasks as described in the specifications and as shown on the Drawings.

BID ITEM 5 COMPOST SHED DEMOLITION

a. Work required to complete Compost Shed Demolition includes, but is not limited to:

i. Performance of pre-construction and post-construction surveys; perform ongoing vibration monitoring during demolition.

ii. Removal, termination and capping of all utilities entering and exiting the Compost Shed as shown on the Drawings.

iii. Removal of underground diesel storage tank and associated fuel dispensing equipment.

iv. Demolition, removal, transportation and recycling/disposal of Compost Shed as shown on the Drawings.

v. Break up and stockpile foundation elements. Note: Contractor will remove all foundation floor slabs and subsurface pits.

vi. Removal, transportation, and disposal of all demolition debris and trash located within the limits of work shown on the Drawing. Note: Contractor shall stockpile demolition debris within building footprint prior to disposal; no separate stockpile locations are needed.

vii. Removal, transportation and disposal of all equipment and associated waste material from the buildings and any basements. Contractor has option to retain any salvageable material that exists in these structures.

b. Compost Shed Demolition will be measured for payment as one unit, complete as specified.

c. Payment of the lump sum price for "Compost Shed Demolition" shall constitute full compensation including but not limited to mobilization, temporary facilities, documentation (Section 01 33 00 – Submittal Requirements and Section 01 41 50 – Health & Safety Requirements), Permits (Local, State, and Federal), laboratory testing, disposal fees, labor, supervision, incidentals, and all other costs necessary to demolish structures encompassing the horizontal and vertical limits of these structures as specified in Section 02 11 60 – Site Demolition and as shown on the Drawings.

BID ITEM 6 FACILITY DEMOLITION

a. Work required to complete STF Demolition includes, but is not limited to:

i. Demolition, removal, transportation and recycling/disposal of all site structures and site features (curbs, roads, etc.) as shown on the Drawings.

ii. Break up and stockpile foundation elements, concrete lined pits, various storage tanks (both aboveground and belowground), equipment pads, Note: Contractor will remove all foundation floor slabs and subsurface pits.

iii. Removal, transportation, and disposal of all demolition debris and trash located within the limits of work shown on the Drawing. Note: Contractor can stockpile demolition debris within building footprint prior to disposal; no separate stockpile locations are needed unless required to complete the work.

iv. Removal, transportation and disposal of all equipment and associated waste material from the buildings and any basements. Contractor has option to retain any salvageable material that exists in these structures.

v. Removal, transportation, sampling, testing and legal disposal of the top 8 inches of soil (sand) from the limits of the infiltration beds as shown on the drawings. Note: Contractor shall legally dispose of this material to an approved off-site disposal facility.

b. STF Buildings Demolition will be measured for payment as one unit, complete as specified.

c. Payment of the lump sum price for "STF Buildings Demolition" shall constitute full compensation including but not limited to mobilization, temporary facilities, documentation (Section 01 33 00 – Submittal Requirements and Section 01 41 50 – Health & Safety Requirements), Permits (Local, State, and Federal), laboratory testing, disposal fees, labor, supervision, incidentals, and all other costs necessary to demolish structures encompassing the horizontal and vertical limits of these structures as specified in Section 02 11 60 – Site Demolition and as shown on the Drawings.

BID ITEM 7 EXCAVATE AND STAGE MATERIAL

a. Work required to complete Excavate and Stage Material includes, but is not limited to:

i. Excavate, stage, stockpile excess on site material (following removal of building foundation slabs as shown on the Drawings) in order to achieve final grades. Payment for placing this backfill material will be measured in Bid Item 9.

ii. Any on-site transportation and handling of excavated soils from building footprints.

b. Excavate and Stage Material will be measured for payment by the in-place cubic yard based on survey of existing grades prior to excavation and the final excavation grades approved by the Engineer.

c. Payment for Excavate and Stage Material will be made in accordance with the unit price for the Bid Item listed in Section 00410 - Form of General Bid. Payment for Excavate and Stage Material shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation and Staging work as specified in Section 31 22 00 – Backfilling and Grading and as indicated in the Drawings including handling and loading, and movement of excavated materials using earth moving equipment within and/or along Overland Way. Payment will only be made for soil excavated within the horizontal and vertical limits of demolition as shown on the Drawings, or unless otherwise directed by the Engineer.

BID ITEM 8 SUPPLY COMMON FILL FROM OFF SITE SOURCE

a. Work required to complete Supply Common Fill from Off Site Source includes, but is not limited to:

i. Delivery of approved offsite backfill material in accordance with Section 31 22 00 - Backfill and Grading.

ii. Any off Loading, Staging and stockpiling of offsite backfill material for placement as described in Bid Item 9.

b. Supply Common Fill from Off Site Source will be measured for payment on a per ton basis as verified from delivery weight tickets.

c. Payment for Supply of Common Fill from Off Site Source will be made in accordance with the unit price for the Bid item "Supply of Common Fill from Off Site Source listed in Section 00410 - Form of General Bid. Payment of the unit price for "Supply Common Fill from Off Site Source" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to place backfill as shown in the Drawings and as specified in Section 32 22 00– Backfill and Grading.

BID ITEM 9 BACKFILL PLACEMENT

a. Work required to complete the Backfill Placement includes, but is not limited to:

i. Placing, compacting, and grading backfill material in accordance with the Drawings and Section 31 22 00 – Backfilling and Grading. Note: Backfill placement work includes excavated on site material from high elevation and off site common fill required to meet final grades.

b. Backfill Placement will be measured for payment by in place cubic yards based on survey.

c. Payment for Backfill Placement will be made in accordance with the unit price for the Bid Item listed in Section 00410 - Form of General Bid. Payment of the unit price for Backfill Placement shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary for placing, compacting, and grading backfill.

BID ITEM 10 RESTORATION: TOPSOIL AND SEEDING

a. Work required to complete the Restoration: Topsoil & Seeding pay item includes the following:

i. Providing and transporting clean topsoil and seed mix from an off-site source, in accordance with Section 31 22 00 – Backfill and Grading and 02 95 00 Hydroseeding.

ii. Staging or stockpiling of this topsoil material and seed mix.

iii. Transporting topsoil backfill material from designated stockpile location to the location where it shall be placed. Note: Assume 6 inches of topsoil over disturbed areas prior to seeding.

iv. Placing, compacting, and grading topsoil backfill material from off-site borrow sources in accordance with the Drawings and Section 31 22 00 – Backfill and Grading.

v. Furnish, install and maintain vegetative cover, including, but not limited to, surface preparation, fertilizing, seeding, mulching, watering, and maintenance, complete as specified in Section 02 95 00 – Hydroseeding in all locations as shown on the drawings and areas disturbed by the Contractor during the Work.

b. Restoration: Topsoil & Seeding will be measured for payment by square foot installed, complete as specified.

c. Payment for the Restoration: Topsoil & Seeding will be made in accordance with the unit price for the Bid item "Topsoil and Seeding" listed in Section 00410 - Form of General Bid. Payment of the unit price for "Topsoil and Seeding" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, install and maintain vegetative cover including but not limited to, surface preparation, seeding, mulching, watering, maintenance, fertilizing, complete as specified as shown in the Drawings and disturbed by Contractor as specified in Section 31 22 00– Backfill and Grading and 02 95 00 - Hydroseeding.

BID ITEM 11 SITE RESTORATION AND DEMOBILIZATION

a. Description of Work: Work required to complete the Site Restoration and Demobilization pay item includes, but is not limited to:

i. Removal of temporary facilities and controls, temporary erosion and sediment controls, removal of temporary fencing, requirements for environmental protection, decontamination facilities, and all other remaining construction facilities or structures, including those installed by others, unless identified to remain, identified as the responsibility of others, or included in another pay item.

ii. Re-establishing any stormwater/sewer drain manholes to ensure proper drainage.

iii. Removal of all personnel, equipment, and materials from the Site at the completion of the Work including, but not limited to, (1) removal of temporary controls including fencing, dust, odor, erosion and sediment controls (2) removal and disposal of construction debris (3) removal of temporary roads (4) removal of stockpile and decontamination areas (5) decontamination of construction equipment and removal, transportation and disposal of decontamination residues (6) restoration of site to a clean, neat, and orderly condition including repair of any damaged asphalt, as approved by the Engineer (7) Demobilization of personnel, equipment and unused materials from the site.

b. Site Restoration and Demobilization Work will be measured for payment as one unit, complete as specified.

c. Payment for Site Restoration and Demobilization will be made in accordance with the unit price for the Bid item "Site Restoration and Demobilization" listed in Section 00410 - Form of General Bid. Payment of the unit price for "Site Restoration and Demobilization" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete the Work.

Alternate Bid Item 1 Septic System Removal and Disposal

a. The Description of Work: Work required to complete the Septic System Removal and Disposal pay item includes, but is not limited to:

i. Inspect location of septic system with Engineer;

ii. Review any septic system drawings;

iii. Advance notification of Board of Health or any other approval authority necessary to obtain removal of system, and obtaining any permits for removal and disposal of septic system;

iv. Furnish all labor, equipment, materials necessary to pump septic system solids and liquids to on-site tank or truck. Assume 1,000 gallons of septic system solids and liquids will be pumped out.

v. Transportation and Disposal of septic system solids and liquids to an approved disposal facility;

vi. Removal, Transportation, and Disposal of entire Septic system to an approved disposal facility;

vii. Furnish, Placement, and Compaction of backfill material as necessary to match existing grade of the Site.

b. Septic System Removal and Disposal will be measured for payment as one unit, complete as specified.

c. Payment of the lump sum price for "Septic System Removal" shall constitute full compensation for all tasks described herein including all, but not limited to, mobilization, temporary facilities, documentation, Permits (Local, State, and Federal), laboratory testing, disposal fees, labor, supervision, incidentals, and all other costs necessary to demolish structures encompassing the horizontal and vertical limits of these structures as shown in Appendix G.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

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SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 – GENERAL 1
1.01 FORMAT 1
1.02 SUBMITTAL PROCEDURES 1
1.03 APPLICATIONS FOR PAYMENT 1
1.04 INVOICES 2
1.05 SUBSTANTIATING DATA 2
PART 2 – PRODUCTS – NOT USED 2
PART 3 – EXECUTION – NOT USED 2

PART 1 – GENERAL

1.01 FORMAT

A. Form of General Bid, submitted by the Successful Bidder, as modified by any executed Change Order, will be the basis of all payments to the Contractor. The Engineer may require further breakdown of certain lump sum items to be included as deemed necessary by the Engineer. The Form of General Bid will serve as the basis for progress payments and will be incorporated into a form of Application for Payment as specified herein.

B. Contractor shall submit one Application for Payment and invoice, covering the Work, less retainage, as specified in the Agreement, performed in each calendar month, for each month for the duration of the Work.

C. Contractor shall submit to the Engineer an Application for Payment on the specified forms, and attach a separate invoice, for the Work completed in the calendar month covered by that Application for Payment. Contractor shall submit each Application for Payment using AECOM Form S702 – Application and Certification for Payment, and AECOM Form S703 – Continuation Sheet, attached to this Specification. The Form of General Bid shall form the basis for Form S703.

D. The Engineer shall return, without review, any invoice not accompanied by completed S702 and S703 forms.

1.02 SUBMITTAL PROCEDURES

A. Contractor shall submit original Application for Payment and invoice, and one copy of each, to the Engineer's Work Order Representative for review.

B. Once invoice is approved by Engineer, Contractor shall submit invoice to Owner per the requirements in the Agreement.

C. Contractor shall submit invoices at intervals not less than 30 days. Contractor shall submit an invoice for each month no later than the invoice closing date of the following month as set by the Engineer.

D. Contractor shall prepare a final Application for Payment and invoice as specified in Specifications Section 01 77 00 – Closeout Procedures.

1.03 APPLICATIONS FOR PAYMENT

A. An Application for Payment form is attached with this Specification. A completed copy of the attached AECOM Forms S702 and S703 shall accompany each invoice.

B. Applications for Payment shall be executed and certified by signature of authorized officer of Contractor in the space indicated on Form S702.

C. Contractor shall list original Work Order amount, and each authorized Change Order and Work Change Directive, listing Change Order or Work Change Directive number and dollar amount.

D. Retainage in the amount of 5 percent shall be withheld as specified in the Agreement. This retainage shall be itemized on the Form S702 and Form S703 form.

E. Fair market value for work not completed shall be withheld as specified in the Agreement. This fair market value shall be itemized on the Form S702 and Form S703 form

1.04 INVOICES

A. Each invoice shall be accompanied by the specified Application for Payment form and shall show the following:

1. The date of the Contract Documents.
2. Purchase Order Number.
3. Purchase Order Date.
4. A description of the Work performed (the description of the Work shall document site location, Project code number, and detail the actual Work performed and completed).

B. Invoices that include previously approved Work performed on a Time and Materials (T&M) or Cost Plus (CP) basis shall be supported with copies of daily time sheets, and Contractor shall attach photocopies of receipts for all materials and expenses claimed as T&M or CP Work. Lack of complete documentation for T&M or CP Work will be just cause for refusal by the Engineer to certify payment for such claimed costs, pending submittal of required documentation. All documentation shall be submitted and approved prior to invoice submittal. Contractor shall submit backup copies of all required paperwork that was previously submitted as a part of a daily or weekly submittal.

1.05 SUBSTANTIATING DATA

A. The Engineer may request substantiating data for any claimed payment. When the Engineer requires substantiating data, Contractor shall submit within 30 days data justifying quantities of Work and dollar amounts in question. The Engineer may conditionally approve any claimed payment pending submittal of acceptable substantiating data. Unsubstantiated claims for payment will result in withholding of the unsubstantiated amounts from subsequent payment claims.

B. Contractor shall submit one copy of substantiating data with cover letter for each request for substantiating data. Each submittal of substantiating data shall show Application for Payment number and date, and pay item by number and description.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF TEXT

PAYMENT FORMS FOLLOW

APPLICATION AND CERTIFICATION FOR PAYMENT Form S702

PAGE ONE OF PAGES

TO ORLEANS BREWSTER EASTHAM GROUNDWATER PROTECTION DISTRICT:

PROJECT:

FROM CONTRACTOR:

CONTRACT FOR:

APPLICATION NO:

PERIOD ENDING:

ENGINEER'S PROJECT NO:

CONTRACT DATE:

Distribution to:
☐ ENGINEER
☐ CONTRACTOR

Application is made for payment, as shown below, in connection with the Contract.
AECOM Form S703 Continuation Sheet is attached.

1. ORIGINAL CONTRACT PRICE		$
2. Net change by Change Orders		$
3. CONTRACT PRICE TO DATE (Line 1 + 2)		$
4. TOTAL COMPLETED & STORED TO DATE (Column G on Continuation Sheet)		$
5. RETAINAGE/FAIR MARKET VALUE:		
a. 5% of Completed Work (Column D + E on Continuetion Sheet)	$	
b. Materials Stored to Date (Column F on Continuation Sheet)	$	
c. Fair Market Value for Work Not Completed	$	
Total		$
6. TOTAL EARNED LESS RETAINAGE / FAIR MARKET VALUE (Line 4 Less Line 5 Total)		$
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$
8. CURRENT PAYMENT DUE		$
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 Less Line 6)		$

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes epproved in previous months by Owner		
Total approved this Month		
TOTALS		
NET CHANGES by Change Order		

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief, the Work covered by this Application for Payment has been completed in accordance with the Specifications and Drawings, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: County of:
Subscribed and sworn to before me this ___ day of _____, ____
Notary Public:
My Commission expires:

ENGINEER'S RECOMMENDATION FOR PAYMENT

In accordance with the Agreement, Specifications and Drawings, based on on-site observations and the data comprising the application, the Engineer recommends that to the best of the Engineer's knowledge, information and belief, the Work has progressed as indicated, the quality of the Work is in accordance with the Specifications and Drawings, and the Contractor is entitled to payment of the Amount Recommended.

AMOUNT RECOMMENDED $ _____

(Attach explanation if Amount Recommended differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ENGINEER:

By: _____ Date: _____

OWNER:

By: _____ Date: _____

CONTINUATION SHEET

Form S703

PAGE __ OF __ PAGES

1. Form S702, APPLICATION AND CERTIFICATION FOR PAYMENT, including Contractor's signed certification is attached.
2. In tabulations below, amounts are stated to the nearest dollar.
3. Use Column I on contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD ENDING:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G/C)	BALANCE TO FINISH (C - G)	RETAINAGE / FAIR MARKET VALUE
			TOTAL FROM PREVIOUS APPLICATION	THIS PERIOD					
	GRAND TOTALS								

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL 1
1.01 CONTRACTOR'S PROJECT SUPERINTENDENT 1
1.02 SUBMITTALS 1
1.03 PROJECT MEETINGS 2
1.04 COORDINATION - GENERAL 2
1.05 COORDINATION OF CONTRACTOR'S WORK WITH WORK BY OTHERS 3
1.06 LAYOUT OF THE WORK 3
PART 2 – PRODUCTS – NOT USED 3
PART 3 – EXECUTION – NOT USED 3

PART 1 - GENERAL

1.01 CONTRACTOR'S PROJECT SUPERINTENDENT

A. Contractor shall employ a qualified Project Superintendent for the duration of the Work. The Project Superintendent shall be qualified to coordinate all aspects of work to be performed under the contract. Contractor shall employ an adequate project coordination staff to assist the Project Superintendent in the required control of Sub-Contractors, obtaining permits and approvals, development of Progress Schedules, and preparation of Submittals.

B. Contractor shall not change the Project Superintendent without prior written approval from the Engineer.

C. The Contractor's Project Superintendent shall be on the Project site at all times during the Work, including any work performed by Sub-Contractors.

D. The Project Superintendent shall be responsible for the completion of the Work in accordance with the Drawings and Specifications, and shall perform the following specific duties:

1. Coordinate the work of Contractor's labor and equipment, and that of the Sub-Contractors.

2. Serve as the Contractor's primary point of communication with the Engineer, Owner, and others who are responsible for other aspects of the project.

3. Coordinate the schedule by which the various tasks are completed within the specified construction milestones.

4. Participate in Project meetings with the Engineer and Owner.

5. Schedule and conduct meetings with Sub-Contractors and other concerned parties as necessary to maintain the Project schedule, resolve matters in dispute, and coordinate use of utilities and other resources.

6. Ensure compliance with all Laws and Regulations, and permit requirements.

1.02 SUBMITTALS

A. Contractor shall prepare and transmit the following Submittals, and any other Submittals described in other sections of the Specifications, in accordance with the procedures of Section 01 33 00 - Submittal Procedures:

1. Contractor shall submit Contractor's Daily Construction Report by 10:00 A.M. the next working day.

2. Contractor shall submit Applications for Payment as specified in Section 01 29 00 – Payment Procedures.

1.03 PROJECT MEETINGS

A. General:

1. The Engineer will schedule and provide locations for project coordination meetings throughout the progress of Work. The Engineer will prepare meeting agenda in cooperation with Owner and Contractor, and distribute the agenda with written notice of each meeting to all parties. The Engineer will preside at meetings. The Engineer will record minutes to include significant proceedings and decisions, and reproduce and distribute copies of minutes.

2. Representatives of the Engineer, Contractor and Sub-Contractors shall attend project coordination meetings. Others who are responsible for portions of the Project shall attend meetings as needed.

B. Weekly Progress Meetings:

1. Contractor shall attend scheduled weekly progress meetings at the Project site to review progress of the Work, Project schedule, submittal status and delivery schedule, contract modifications, health and safety, and other matters.

2. Attendees will include:

a. The Engineer.

b. Contractor's Project Superintendent.

c. Contractor, Sub-Contractors, and suppliers, as appropriate.

d. Others as appropriate.

C. Other meetings will be scheduled in accordance with the Specifications or as may be required by the Engineer.

1.04 COORDINATION - GENERAL

A. Contractor shall direct all communications regarding the Work directly to the Engineer's Site Construction Manager or Project Manager. Contractor shall not discuss the Work nor take direction from any other contractor, consultant, public official, media representative, the Owner, or any other person without prior written approval by the Engineer.

B. Site Construction Manager: The Engineer may assign a Site Construction Manager to carry out the duties of the Engineer at the Project Site.

C. Owner's Representative: Owner may assign a representative to oversee Work conducted at the Site.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with these Specifications or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. Observation by the Engineer.

2. Recommendation of any progress payment or final payment by the Engineer.

3. Use or occupancy of the Work or any part thereof by the Engineer or others.

4. Any acceptance by the Engineer, or failure to do so.

5. Any review and approval of a Submittal by the Engineer.

6. Any inspection, test, or approval by others.

7. Any correction of Non-Conforming Work performed by the Engineer or others.

E. Hazard Communication Program: Contractor will be responsible for coordinating any exchange of Safety Data Sheets (SDS) at https://www.osha.gov/Publications/OSHA3514.html or other hazard communication information required to be made available to or exchange and between or among employees at the site. Contractor shall compile and properly file SDS for all materials furnished by Contractor or its Sub-Contractors and suppliers.

1.05 COORDINATION OF CONTRACTOR'S WORK WITH WORK BY OTHERS

A. Coordination of Work of Sub-Contractors: Contractor shall be responsible for overall coordination of the Work in accordance with the Construction Milestones set forth in the Project Schedule approved by the Engineer. Contractor shall obtain from its Sub-Contractors a schedule similar to Contractor's Progress Schedule and shall be responsible for Sub-Contractors maintaining these schedules and for coordinating any required schedule modifications.

B. Work by Others: Contractor shall coordinate and schedule its work in cooperation with the adjacent property owners, Owner, and the Engineer.

C. Contractor shall coordinate with the Engineer regarding haul routes, any necessary limitations of public use of streets or sidewalks, and obtain any necessary permits or approvals for use of public roads or closure of streets or sidewalks.

1.06 LAYOUT OF THE WORK

A. Contractor shall coordinate with the Engineer for laying out the Work, including lines and grades, and for the correctness thereof in accordance with the Specifications and Drawings.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

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SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

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1.01 SUBMITTALS 1
1.02 CONSTRUCTION MILESTONES 1
1.03 PROGRESS SCHEDULE 1
1.04 DAILY CONSTRUCTION REPORT 2
1.05 HEALTH AND SAFETY REPORTS 3
1.06 RECORD DOCUMENTS 4
1.07 PROGRESS SCHEDULE REVIEWS, ACCEPTANCE, UPDATES, AND REVISIONS 4
PART 2 – MATERIALS – NOT USED 5
PART 3 – EXECUTION – NOT USED 5

PART 1 – GENERAL

1.01 SUBMITTALS

A. Work and progress payments shall not start without an initial Progress Baseline Schedule reviewed and approved by the Engineer and Owner. The baseline shall not be altered for the duration of the project. Contractor shall submit an initial Baseline Progress Schedule for approval prior to the Notice to Proceed, and shall submit weekly updates of the Progress Schedule comparing progress to the baseline during the Work in accordance with Section 01 33 00 - Submittal Procedures. The Project name and date of Submittal shall be written on each sheet.

1.02 CONSTRUCTION MILESTONES

A. Specific requirements for phasing of the Work are set forth in Project Schedule approved by the Engineer. The initial Progress Schedule shall be based on progress and completion of the Work within the Construction Milestones and Contract Times.

a. Contract Award (Notice To Proceed) : July 5, 2017

b. Contractor to provide all shop drawings and submittals for Engineer Review: August 18, 2017

c. Contractor Mobilization : September 18, 2017

d. Contractor Loaming and Seeding : April 2, 2018 to April 27, 2018

1.03 PROGRESS SCHEDULE

A. The Progress Schedule shall be a bar graph (Gantt chart) showing the proposed order of Work, the expected beginning and completion times for the salient Work features, predecessor(s) for each item, and the duration of each item. The Progress Schedule shall show each activity and, as a minimum, each activity description shall contain:

1. Activity name and identifying number;
2. Predecessor(s);
3. Successor(s);

4. Activity duration (in calendar days);

5. Percent complete; and

6. Float for each activity, where float is the amount of time that an activity can be delayed without delaying the start of the next activity.

B. The Contractor's Progress Schedule shall be developed using the critical path method (CPM) and Microsoft Project or equivalent software.

C. Activities:

1. The Progress Schedule shall identify all major construction activities.

2. The Progress Schedule shall show all significant design, testing, submittals, manufacturing, shipping, construction, installation, milestones for start of Work, completion of construction phases, and punch list.

3. Any utility service interruptions necessary to perform the Work shall be identified.

4. A separate activity shall be provided for each occasion where Work is to be performed by others.

5. The Progress Schedule shall identify permits and approvals that are the responsibility of the Contractor.

6. The Progress Schedule shall identify all Sub-Contractor's Work.

7. The Progress Schedule shall identify any Work to be performed by the Owner or Engineer.

8. The Progress Schedule shall identify draft invoice and final invoice submittal dates in accordance with monthly closing dates established by the Engineer.

D. Contractor's Progress Schedule shall explain any additional information or coding used.

E. Contractor shall consider normal calendar year holidays, weather delays, long lead items, review times, Project phasing, Project Site conditions and space availability in preparing the Progress Schedule.

F. The Contractor shall consider off-site management facility and trucking restrictions in preparing the Progress Schedule.

G. The milestone completion dates shall be clearly identified on the Progress Schedule. The critical path shall be clearly indicated.

H. The Progress Schedule shall be updated and submitted weekly at the time of the Weekly Progress Meeting. The Progress Schedule shall be available to all meeting participants during the Weekly Progress Meeting.

1.04 DAILY CONSTRUCTION REPORT

A. Contractor shall prepare a written Daily Construction Report in a format acceptable to the Engineer. The Daily Construction Report shall be prepared for each day Contractor is on the Project Site and submitted to the Engineer, electronically and in hard copy, no later than 10:00 A.M. the next Working day.

B. Daily Construction Reports shall include:

1. Number of Workers for each trade and the names of the Workers.

2. Names of Sub-Contractors and their on-site employees.

3. Names and affiliations of Site visitors, including Owner's representatives.

4. Hours of Work for each trade or type of equipment.

5. Equipment on the Project Site and materials furnished.

6. Major Work activities performed, and progress thereof, including estimated amounts of excavation, stockpiling, loading, and backfilling Work completed.

7. Weather conditions and temperature.

8. Unforeseen subsurface conditions.

9. A list of Submittals transmitted to or received from the Engineer.

10. Meetings attended.

11. Accidents, safety, and security issues.

12. Tests and inspections performed and the results of tests and inspections. Note that no testing of soil, groundwater or building materials may be performed by Contractor without Engineer's prior written approval.

13. Reasons for construction delays.

14. Units of T&M Work, subject to approval daily by the Engineer.

15. Daily Trucking Logs as specified in Section 02 81 00 Transportation and Disposal.

16. Vehicle Inspection Logs as specified in Section 02 60 00 - Decontamination.

C. If multiple daily Work shifts are used, Contractor shall submit a Daily Construction Report for each shift.

D. The Daily Construction Reports may be used to substantiate any claim for delay, impact, or change, and shall contain sufficient information to document each potential impact.

E. The Daily Construction Report may be used as the basis for documentation of T&M Work. The units of T&M Work reported by the Contractor's Project Superintendent shall be reviewed daily by the Engineer and are subject to approval by the Engineer. Contractor's Project Superintendent shall promptly make any changes, as required by the Engineer, to the units of T&M Work recorded on the Daily Construction Report.

1.05 HEALTH AND SAFETY REPORTS

A. Contractor's Daily Construction Report shall include a summary of daily Health and Safety meetings, conferences, issues, incidents, near misses, and actions taken to address and resolve Health and Safety issues.

B. Contractor shall immediately (within 30 minutes) verbally report to the Engineer the occurrence of any and all Health and Safety incidents, including, but not limited to, injuries, accidents, and unsafe conditions. An Incident Report form or Near-Miss Report form, which is included in Section 01 41 50 – Health and Safety Requirements, shall be submitted to the Engineer within 24 hours of occurrence of the incident or near-miss. The Engineer will be the sole arbitrator of what is to be considered an incident or near miss.

C. Contractor shall provide to the Engineer periodic summary reports of Contractor's Health and Safety performance, including number of hours worked in the period and a list of Health and Safety incidents with the date, names of any individuals involved, type of incident, current status of any medical treatment of individuals for the incident, and actions taken by Contractor to address the incident or unsafe condition.

D. Contractor shall report to the Engineer the occurrence of any situations requiring a permit or checklist for confined space entry or hot work (welding or torch cutting), and maintain documentation as specified in Section 01 41 50 – Health and Safety Requirements.

E. Additional reporting requirements are provided in Section 01 41 50 – Health and Safety Requirements.

1.06 RECORD DOCUMENTS

A. Contractor shall maintain in a safe place at the Project Site one copy of all Weigh Tickets, Drawings, Survey Data, Specifications, Addenda, Change Orders, Field Orders, Work Change Directives, Submittals, Laboratory Data, Photographs and written interpretations and clarifications, in good order and annotated to show all changes made during construction. These Record Documents shall be available to the Engineer or Owner upon request.

B. During the course of the Work, Contractor shall maintain the following records up-to-date at the Project Site at all times, and shall submit the following documents to the Engineer prior to final Application for Payment:

1. General Records:

   a. Contractor's Daily Construction Reports.

   b. Daily Safety Meeting minutes or notes.

   c. Soil Tracking Logs.

   d. Soil and debris disposal documentation (manifests, weight tickets, etc.).

   e. Health and Safety Incident (Accident) Reports and Near-Miss Reports.

   f. Hot Work Permits and Confined Space Entry Permits.

   g. Minutes of all other Contractor meetings.

   h. Progress Photographs and Videos.

   i. All required records documenting OSHA training and medical monitoring.

2. Test and Laboratory Analytical Results: One copy of all test and analytical results.

3. Bills of Lading: One copy of all bills of lading for materials received.

4. Record Drawings: At the end of construction, the Contractor's surveyor shall prepare record Drawings showing horizontal and vertical limits of excavation; final grades and elevations; utilities including pipe invert elevations; and other significant site features changed during construction. Record Drawings shall include work plans, cross-sections, and profiles as necessary to accurately represent conditions.

C. At completion of the Project, the Contractor shall submit two bound copies of all Record Documents and two CDs containing documents in their native format (ACAD, Microsoft Word, Microsoft Excel, etc.) to the Engineer.

1.07 PROGRESS SCHEDULE REVIEWS, ACCEPTANCE, UPDATES, AND REVISIONS

A. The initial Progress Schedule and all updates submitted by the Contractor shall be reviewed with the Engineer and shall be revised and resubmitted if they do not receive the Engineer's approval. The schedule shall be reviewed for:

1. Proper application of CPM methodology and logic.

2. A sequence of Work that satisfies the requirements of the Contract Documents and is reasonable and logical.

3. Activity durations, which are within an expected range, or can be justified by the Contractor to the satisfaction of the Engineer.

B. This review shall not be construed as an assignment of responsibility of performance to the Engineer.

C. Contractor shall make all necessary revisions to the initial Progress Schedule based on the Engineer's review and resubmit within 2 days of receipt of comments from the Engineer.

1. After the Engineer's review, Contractor shall use the Progress Schedule for planning, organizing, and directing the Work and reporting progress.

2. The Contractor shall bear sole responsibility for ensuring completion of the Work within the Contract Times.

3. The Engineer's acceptance of any Progress Schedule shall not transfer any of the Contractor's responsibilities to the Engineer. The Contractor alone shall remain responsible for adjusting forces, equipment, and schedules to ensure completion of the Work within the time(s) specified in the Contract Documents.

D. Updates:

1. Contractor shall keep the Progress Schedule current during the Project so that it is an accurate indication of Project progress. Updates shall include any Field Orders, Work Change Directives, Change Orders, and delays.

2. All updates should show progress compared to the project baseline schedule and include actual start dates.

3. Contractor shall update the Progress Schedule weekly to document the construction progress. Contractor shall submit the weekly update on the day of the weekly Project meeting. Failure to submit a weekly updated Progress Schedule shall be cause for withholding of progress payments until the update is received and reviewed. Updates shall include a detailed 2-week look ahead, providing day by day, planned activities for the upcoming 2 week period.

4. Activity descriptions shall not be changed.

5. Any changes in the milestone dates must be approved, in writing, by the Engineer. Changes in milestone dates shall not cause an extension of the Project completion date without the execution of a Change Order.

E. Revisions:

1. In addition to weekly Progress Schedule Submittals, Contractor shall revise the Progress Schedule when additional Work, delays, or accumulations of causes indicate the Contract Times will be exceeded. Contractor shall submit a written statement describing the cause of the delay.

2. The Engineer shall require a revised Progress Schedule when it is apparent that the Contractor's schedule does not substantially match the actual progress and order of the Work as measured by:

   a. Accumulated delays, which are more than 5 percent of the allotted Contract Times, or 15 calendar days, whichever is less.

   b. Critical path activities (or activities restrained by critical path activities), which have been accomplished.

PART 2 – MATERIALS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

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SECTION 01 32 33

PRE- AND POST-CONSTRUCTION SURVEYS

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1.03 QUALITY ASSURANCE 2
1.04 USAGE RIGHTS 2
1.05 SEQUENCING AND SCHEDULING 2
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PART 3- EXECUTION 4
3.01 PRE- AND POST-CONSTRUCTION SURVEYS 4
3.02 CLOSEOUT ACTIVITIES 4

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide pre- and post-construction surveys and construction photographs as indicated and specified.

B. Section includes administrative and procedural requirements for the following:

1. Pre-construction photographs.

2. Final completion construction photographs.

3. Certified topographic field surveys performed by a registered land surveyor to determine first floor elevations, etc. as specified herein.

1.02 SUBMITTALS

A. Submit the following shop drawings in accordance with Section 01 33 00.

B. Qualification Data: For photographer.

1. Samples of work by proposed photographer on construction photography of similar nature to the Work under this Contract.

2. Proposed photographer's qualifications as specified herein.

C. Field Reports:

1. 4 copies of each draft and final Pre-Construction Survey reports.

2. 4 copies of each draft and final Post-Construction Survey reports.

D. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

E. Digital Photographs: Submit image files within three days of taking photographs.

1. Digital Camera: Minimum sensor resolution of 8 megapixels.
2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
3. Identification: Provide the following information with each image description in file metadata tag:
   - **a.** Name of Project.
   - **b.** Name and contact information for photographer.
   - **c.** Name of Engineer.
   - **d.** Name of Contractor.
   - **e.** Date photograph was taken.
   - **f.** Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
   - **g.** Unique sequential identifier keyed to accompanying key plan.
4. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, three-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as corresponding video recording. Include name of Project and date of video recording on each page.

1.03 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than five years.

B. Photographer to use techniques, material and equipment capable of producing photographs with a minimum of 8 megapixels.

C. Dates for photography at site to be coordinated with the Owner. The Owner must be present during photographic periods at site.

D. Photographer to make and retain all photographs and digital files.

E. The topographic survey shall be performed by or under the supervision of and certified by a Massachusetts Registered Land Surveyor.

1.04 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

1.05 SEQUENCING AND SCHEDULING

A. Dates for Pre- and Post-Construction Survey at the site shall be coordinated with the Engineer.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

2.02 PRINTS

A. Type: Color prints.

B. Finish: Smooth glossy surface.

C. Size: 4-inch x 6-inch (10 cm x 15 cm).

D. Paper weight: Single weight.

E. Number of prints: Two of each photograph.

2.03 PRINT IDENTIFICATION

A. Each print to carry identification and information without interfering with exposure printed.

B. Each photograph shall have permanently written on it an identification number for reference and a legible description indicating name of Project, title of contract, number of contract, building, structure or road, owner, date taken, location identification, description data, and Contractor's name.

C. Back of Print:

1. Project name, photographer's numbered identification of exposure, time and date of exposure, name of photographer making exposure, detailed description of view including point from which exposure made, compass direction of view, vertical declination of view (horizontal, looking up, looking down, etc.) identification of main features in view and information pertinent to the purpose and identification of the exposure.

2. Weather conditions under which exposure made.

2.04 PRINT MOUNTING

A. Each print to be inserted in a clear plastic envelope intended for the purpose:

1. Envelope material or fabrication shall be acid free.

2. Envelope shall be sealed to prevent print from accidentally slipping out of the envelope.

3. Front and back of print shall be visible through the plastic envelope.

4. Envelope shall be re-sealable for removal and insertion of print.

5. Envelope shall have a reinforced binding edge for binder specified herein.

2.05 PRINT FILING BINDER

A. Furnish binders for filing:

1. Furnish 2 binders for filing prints.

2. Prints shall be inserted into binders.

3. All binders to be identical.

B. Binders:

1. Intended for long term filing of prints.

2. Provisions for labeling front cover and binding face.

3. Have back and front cover hinges.

4. Of size appropriate for filing mounted prints.

5. Permit removal and insertion of mounted prints.

2.06 PHOTO-CD

A. Provide photographic compact disc (photo-CD) for digital image at the time of development of each print.

2.07 TOPOGRAPHIC SURVEYS

A. Provide first floor elevations, the corners of buildings and structures foundations both front and rear.

B. Provide elevations of sidewalks, driveways, edge of roadway, retaining walls, fence, garages, sheds, etc.

C. The location of each elevation shall be described in detail in words and located on the plan. The contour interval shall be 1-foot.

PART 3- EXECUTION

3.01 PRE- AND POST-CONSTRUCTION SURVEYS

A. Provide construction surveys for existing (pre-construction) and final (post-construction) conditions in accordance with the following:

1. Notify the Owner a minimum of 48 hours prior to each survey.
2. The Contractor shall obtain permission, by registered mail, from the Facility Owner a minimum of 7 days prior to conducting each interview and survey.
3. If the Contractor is unable, after two repeated attempts, to obtain permission from the Facility Owners, then the Contractor shall immediately notify the Owner so that appropriate measure may be taken.
4. Obtain the age of each facility, known permit modification and foundation information from local building departments.
5. Detailed examination shall include a visual internal and external survey of the building or structure; digital video and color photographs showing visually evident internal and external structural cracks and damage.
6. For the Pre-Construction Survey, interview Owner staff regarding existing conditions and structural faults, and determine dates and extent of recent repairs.
7. Color photographs shall be taken to indicate conditions. The Contractor shall furnish two prints of each photograph and photographic compact disk(s).
8. The report shall include location and description of site; results of visual inspection; color photographs; sketches; results of property owner or tenant interviews. Description of existing facility foundation. Points where deterioration has occurred shall be noted and color photographs and digital video recording taken on all sides of the buildings and structures to show existing condition and any deterioration or other deficiencies. The absence of deficiencies shall also be recorded. The Engineer shall examine said draft reports and may indicate additional information that is required. The final report copies shall be given to Owner, Engineer, and the Facility Owner.

B. Three hundred color photographs (250 photographs pre-construction and 50 photographs post-construction) shall be taken at the facilities listed below:

1. Tri-Town Septage Treatment Facility.
2. Compost Shelter.

3.02 CLOSEOUT ACTIVITIES

A. Provide in accordance with Section 01 77 00 – Closeout Procedures.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL 1
1.01. SUBMITTAL PROCEDURES 1
1.02. REQUESTS FOR INFORMATION 2
1.03. STARTUP SUBMITTALS 2
1.04. OUTLINE OF CONTRACTOR'S TECHNICAL EXECUTION PLAN 3
PART 2 – PRODUCTS – NOT USED 5
PART 3 – EXECUTION – NOT USED 5

PART 1 – GENERAL

1.01. SUBMITTAL PROCEDURES

A. Contractor shall prepare and transmit two copies of the following Submittals to the Engineer:

1. Contractor shall submit a Technical Execution Plan as discussed in this Section.

2. Contractor shall submit Contractor's Daily Construction Report electronically by 10:00 A.M. the next Working day as specified in Section 01 32 00 – Construction Progress Documentation.

3. Contractor shall submit quality control reports and data as specified in other Sections of the Specifications.

4. Contractor shall submit biweekly revisions and updates of Progress Schedule and Technical Execution Plan as required by the Engineer.

5. Contractor shall submit monthly Health and Safety reports, as specified in Section 01 41 50 – Health and Safety Requirements.

6. Additional submittals as described in the Specifications.

B. Contractor shall transmit each Submittal to the Engineer at the Project Site. Each submittal will be reviewed and returned with one of the following Classifications:

1. No exceptions taken; Contractor may proceed with the work.

2. Conformed As Noted: Contractor may proceed with the work subject to the comments and/or notes on the Submittal. Re-submittal is not required.

3. Revise and Resubmit: Contractor may not proceed with the work. Re-submittal is required for certain items.

4. Reject

C. Contractor shall develop a submittal register for review at weekly progress meetings. Register shall be based on submittals listed in the Submittal Summary following this section, requirements throughout the Specifications and additional items as deemed necessary by r Engineer. In the event a submittal is not listed in the Submittal Summary it does not relieve the Contractor from the responsibility to provide such submittal.

D. Contractor shall submit copies (with all signatures affixed) of all waste manifests, weigh tickets, Certificates of Destruction, and other shipping documentation.

E. Contractor shall transmit each Submittal with a cover letter signed by Contractor's Project Superintendent. Contractor shall, by signing each Submittal, certify that Contractor has reviewed the Submittal, and that the submitted information conforms to the requirements of the Work and these Specifications.

F. Contractor shall sequentially number the transmittals (e.g., Submittal No. 001). Contractor shall number revised Submittals with original number and a sequential alphabetic suffix (e.g., Submittal No. 001a).

G. Each Submittal shall include Project title, Contractor, Subcontractor or Supplier, title of Submittal, Section number and, if applicable, Drawing number.

H. Submittals that do not conform to the requirements of the Specifications shall be returned with a notation of deficiencies. Contractor shall revise to correct noted deficiencies and resubmit. When revised for resubmission, Contractor shall identify all changes made since previous submission.

I. Submittals not required by the Specifications shall not be recognized or processed.

1.02. REQUESTS FOR INFORMATION

A. Contractor shall submit all Requests for Information to the Engineer in writing. Requests for Information shall be numbered sequentially and shall include the related Section number or Drawing number.

B. The Engineer will provide any revisions to the Specifications or Drawings in writing.

C. Contractor shall request written confirmation of any interpretations or clarifications provided verbally by the Engineer.

1.03. STARTUP SUBMITTALS

A. This paragraph specifies Submittals that Contractor shall prepare and transmit prior to commencing the Work at the Project Site. Additional Submittals are specified in other Sections of these Specifications.

1. Contractor shall submit the initial Progress Schedule as specified in Section 01 32 00 – Construction Progress Documentation.

2. Contractor shall submit the Contractor's HASP as specified in Section 01 41 50 – Health and Safety Requirements, including documentation of worker's OSHA training and medical monitoring and the name and qualifications of the full-time Site Safety and Health Officer.

3. Certain parts of the Work are performance-based, requiring Contractor to provide detailed written information for review, comment, and approval by the Engineer, regarding the means and methods proposed by Contractor to execute the Work. Contractor shall submit a draft Technical Execution Plan (TEP), conforming to the outline specified in Paragraph 1.04, for the Engineer's review and comment. Contractor shall revise the draft TEP as requested by the Engineer and submit a final TEP, subject to the Engineer's review, approval, and acceptance, prior to commencing Work. Any material changes in the Work, process, staffing, major equipment or materials will require a TEP amendment and review and approval by the Engineer.

4. Contractor shall provide for Construction Manager's approval the name and qualifications for Subcontractors providing any laboratory, analyses, geotechnical, or surveying services as required in the Specifications and/or contract documents. Such approvals shall not be unreasonably withheld.

5. Contractor shall prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) in accordance with NPDES permit requirements.

1.04. OUTLINE OF CONTRACTOR'S TECHNICAL EXECUTION PLAN

A. Contractor shall prepare and transmit a Proposed Technical Execution Plan to the Engineer. The Technical Execution Plan shall, at a minimum, include the following sections:

1. Project Coordination.

- **a.** Detailed Project staffing plan showing staffing levels for each task and phase of Work, along with any plans for shift Work. Note: No undocumented workers are allowed to work on site.
- **b.** Resumes of key project staff including Project Superintendent(s).
- **c.** List of all proposed subcontractors, including truckers and fill material sources.
- **d.** List of major Equipment, Systems, and Materials.
- **e.** List of Permits and Approvals to be obtained by Contractor, including contact names, titles, and phone numbers.

2. Progress Schedule.

- **a.** Contractor's initial Baseline Progress Schedule.

3. Construction Facilities and Temporary Controls.

- **a.** Locations, sizes, and requirements for utility services.
- **b.** Layout of Work Zones.
- **c.** Proposed design of Decontamination Stations.
- **d.** Decontamination Methods and Equipment.
  - **i.** Procedures to prevent contamination of clean areas.
  - **ii.** Vehicle decontamination and inspection procedures.
  - **iii.** Procedures for collection, treatment, and disposal or discharge of decontamination residuals and used PPE.

4. Erosion and Sediment Control

- **a.** Proposed detail description and design of Erosion and Sediment controls to be used during construction activities.
- **b.** Contractor is responsible for following the requirements for Erosion and Sediment Control in accordance with the SWPPP.

5. Notifications and Permits.

- **a.** List of all required Permits and Notifications.
- **b.** Description of information and assistance required for Contractor to obtain above-referenced notifications and permits.

6. Regulated Waste Work Plan.

- **a.** Identify regulated waste subcontractor to be used, if work will not be performed by Contractor.
- **b.** Include detailed work procedures to be used in the removal and demolition of the lead based paint, regulated waste and universal waste.
- **c.** Contractor shall review the Engineer's Hazardous Materials Report provided in the Appendices.

7. The work plan will identify proposed regulated waste disposal and recycling facilities. STF Buildings and Compost Shed Demolition.

   a. Proposed sequence of demolition work.

   b. Planned methods and equipment to be used for demolition activities.

   c. Procedures to be followed to demolish structures and remove foundations and underground tanks.

   d. Procedures to be followed to decontaminate and clean all tanks prior to demolition.

   e. Description of utility termination process.

   f. Proposed Stockpile locations and construction.

   g. Equipment and procedures to be employed to control dust and noise.

   h. Dust and noise monitoring procedures.

8. Utility Cut and Cap Work Plan

   a. Contractor is responsible for preparing a Utility Cut and Cap Work plan for review and approval. This plan must provide the following information:

      i. Provide a detailed description describing cutting and capping of utilities and equipment and personnel used.

      ii. Proposed Sequence of Utility Cut and Cap Work

      iii. Planned Methods and equipment and personnel to be used to cut and cap utilities

9. Stockpile Management and Loading.

   a. If necessary, provide a Drawing showing the proposed layout of the stockpile area, including locations of stockpiles for Clean Material. Show on-site truck routes and loading areas for off-site transportation.

   b. Truck loading areas, staging areas for incoming empty trucks.

   c. Coordination of demolition, stockpiling, and loading.

10. Off-site Transportation and Traffic Control Plan.

   a. Provide an estimate, by day, of the expected quantities of material to be shipped from the site. Describe the number of trucks to be used, the expected turn-around-times, and the expected number of trips per day.

   b. Describe locations and procedures for staging and sequencing trucks to minimize disruption and obstruction of the area around the site.

   c. Describe locations and equipment to be used to weigh haul trucks. Include frequency for obtaining true weight of trucks.

   d. Provide a Traffic Control Plan showing how trucks will enter and exit the site, the location of flaggers and signs, truck driver orientation and acceptance forms that shall include truck driver responsibilities as specified in the Transportation Plan, designated haul route to and from the off-site disposal facilities with posted speed limits, warnings, etc., and incident reporting procedures for trucking related incidents.

   e. Provide a plan for verifying the accuracy of weight scales.

11. Backfill placement

a. Proposed stockpile locations if necessary and construction methods and facilities for managing stormwater run-on/runoff from stockpile areas

b. Detailed description of backfill equipment and methods for backfilling trenches and compaction

c. Describe source, staging and placement methods including production rates and number of trucks delivering clean Soil backfill per day. Backfill will be placed following removal of structures and slabs in demolition areas.

12. Site Restoration.

a. Describe proposed procedures and equipment and production routes to be used to restore disturbed areas. Provide a description of proposed method for the following:

i. Placing and working of backfill to within 6 inches of desired final grade.

ii. Placing and working of topsoil and seed over backfill within demolition areas.

iii. Establishing vegetation given project timing.

b. Describe procedures and all materials to be used to restore disturb areas, sampling requirements, testing requirements, and chemical analyses required to be submitted.

17. Site Specific Health and Safety Plan (HASP).

a. Provide a HASP, including measures to be taken to control exposure to lead in paint.

18. Disposal Facilities.

a. List of proposed disposal and recycling facilities to be used and their daily capacities for this project.

19. Survey.

a. Provide approximate number of surveys to be conducted to control and document the work.

b. Detailed procedures for as-built and layout survey

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

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SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 – GENERAL 1
1.01 PERMITS AND APPROVALS 1
1.02 LAWS AND REGULATIONS 1
PART 2 – EQUIPMENT – NOT USED 2
PART 3 – EXECUTION – NOT USED 2

PART 1 – GENERAL

1.01 PERMITS AND APPROVALS

A. Contractor shall obtain and pay for all construction permits, licenses, governmental charges and inspection fees necessary for execution of the Work. Permits and approvals to be obtained by the Contractor include, but are not limited to, the following:

1. Demolition permits.
2. EPA and Mass DEP notifications as applicable for removal of regulated waste materials identified in the AECOM Hazardous Material Report as provided in the Appendices.
3. Building permits, including electrical, plumbing and others, as applicable.
4. Emergency Plan and Checklist prepared for the Town of Orleans Fire Department
5. Traffic permits, Dig Safe, Road Opening permits and others, as applicable
6. Any utility approval letters on utility deactivation and capping relating to structures to be demolished.
7. Fire hydrant use.
8. Request for Determination of Applicability (RDA) and/or Order of Conditions from the Town of Orleans Conservation Commission, if the Contractor's Technical Execution Plan results in Work encroaching within 100 feet of wetlands or bogs.

1.02 LAWS AND REGULATIONS

A. Contractor shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor the Engineer, will be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws and Regulations, Contractor shall bear all claims, costs, losses, and damages caused by, arising out of or resulting therefrom.

C. All demolition activities shall conform with applicable Local, State and Federal regulation and policies including but not limited to:

a. Municipal Ordinances

1. See municipal code website (http://ecode360.com/OR1150) for all Town of Orleans (Barnstable County) Ordinances for this project:

2. Orleans Municipal Code Title Chapter 172: Presents specific requirements on obtaining building demolition permits.

3. Orleans Municipal Code Title Chapter 120: Presents specific requirements for Noise and Construction work hours.

D. All utility and subsurface piping and building demolition activities shall conform with applicable Local, State and Federal regulation and policies including but not limited to:

1. OSHA Standards 29 CFR Part 1910 – Occupational Health and Safety Standards.
2. OSHA Standards 29 CFR Part 1926 – Health and Safety regulations for construction sites:
   a. Subpart C – General Health and Safety Provisions
   b. Subpart E – Personal Protective and Life Saving Equipment
   c. Subpart F – Fire Protective and Life Saving Equipment
   d. Subpart G – Signs, Signals and Barricades
   e. Subpart H – Materials Handling, Storage Use and Disposal
   f. Subpart K – Electrical
   g. Subpart T – Demolition
3. Demolition activities to comply with 527 CMR 1.00 and NFPA 241 codes and consistent with International Existing Building Code (IEBC) Chapter 14.

PART 2 – EQUIPMENT – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

TOWN OF ORLEANS PERMITS FOLLOW

Town of Orleans
Building Permit Application

For any building other than a one or Two Family Dwelling

Section 1: Location	
No. and Street	Unit identification or name of building (as applicable)

Section 2: Proposed Work
Existing building ☐ Repair ☐ Alteration ☐ Addition ☐ Demolition ☐ Change of use ☐ Change in Occupancy ☐ Other ☐
Brief Description of Proposed Work:

Section 3 : Complete this section if existing building is undergoing renovation, addition , or Change in Use or Occupancy	
Check here if an Existing Building Evaluation is enclosed (see 780 CMR 3402.0) ☐	
Existing Use Group(s) _____ Existing Hazard Index _____	Proposed Use Group(s) _____ Proposed Hazard Index _____

Section 4: Building Height and Area	Existing		Proposed	
No. Floors/stories (including basement) & sq. ft. per. floor				
Total Area (sq. ft. and Total height (ft.)				

Section 5: Use Group (Check as applicable)
A: Assembly A1 ☐ A2r ☐ A-2nc ☐ A3 ☐ A4 ☐ A5 ☐ **B Business** ☐ **E Education** ☐ **F: Factory** F1 ☐ F2 ☐ **H: High Hazard** H1 ☐ H2 ☐ H3 ☐ H4 ☐ H5 ☐ **I: Institutional** I-1 ☐ I-2 ☐ I-3 ☐ I-4 ☐ **M: Mercantile** ☐ **R: Residential** R-1 ☐ R-2 ☐ R-3 ☐ R-4 ☐ **S: Storage** S-1 ☐ S-2 ☐ U: **Utility** ☐ **Special Use** ☐ and please describe below:
Building designed as: Separate buildings ☐ mixed use non separated ☐ mixed use separated ☐

Section 6: Construction Type (Check as applicable)				
IA ☐ IB ☐	IIA ☐ IIB ☐	IIIA ☐ IIIB ☐	IV ☐	VA ☐ VB ☐

Section 7: Site Information:
Zoning district ____ **overlay district** ____ **flood zone** ____ **water supply** public ☐ private ☐ **Railroad right away** NA ☐ consent to build enclosed ☐ **Ma. Historic Com. Review** reviewed ☐ NA ☐

Section 8: Content of Certificate of Occupancy
Edition of Code _____ Flood Zone _____ Type of Construction _____ Sprinkler system _____ Occupant Load per floor and or space:

Section 9: Property Owner Authorization

Property owner:_____ No. and street _____
City or town _____ State _____ zip _____
Title _____ Telephone no. ___-____-_____ cell phone___-____-_____
e-mail address _____

If applicable, the property owner hereby authorizes:
Name :_____ No. and street _____
City or town _____ State _____ zip _____
Title _____ Telephone no. ___-____-_____ cell phone___-____-_____
e-mail address _____
To act on the property owner's behalf, in all matters relative to work authorized by this building permit application

Section 10: Construction Control

Cubic space within the building as described under 780 CMR 116.1 (1) _____ cu. Ft.
(If less than 35,000 cu. ft. or not required to be under construction control check here ☐and skip section 10.1)

10.1 Registered professional Responsible for Construction Control

Name :_____ No. and street _____
City or town _____ State _____ zip _____
Title _____ Telephone no. ___-____-_____ cell phone___-____-_____
e-mail address _____
Registration Number _____ **Discipline** _____ **Expiration date** __/__/___

10.2 General Contractor

Company name: _____
Name of person Responsible for Construction _____
Name :_____ No. and street _____
City or town _____ State _____ zip _____
Title _____ Telephone no. ___-____-_____ cell phone___-____-_____
Construction supervisors license # _____ Expiration date ___/___/___

Sections 11 and 12		
Documents/ sign offs	**Area square ft. per floor**	**Official Use only**
Health Department _____ *	Crawl space _____	X ____ = ____
Water Department _____	Basement _____	X ____ = ____
Z.B.A. case # _____	1st floor _____	X ____ = ____
Workers comp. affidavit MGL c. 152 ☐	2nd floor _____	X ____ = ____
Controlled construction affidavit(s) ☐	Other floors	
Debris disposal affidavit ☐	_____ _____	X ____ = ____
Site plan ☐	_____ _____	X ____ = ____
Fire protection 780 CMR 901.7.1.1 ☐	_____ _____	X ____ = ____
Energy conservation 780 CMR 1301.8 ☐	Attach additional pages as necessary	O.P. ____
Floor plans (demo egress as applicable) ☐	**Estimated Value**	Other ____
Elevations ☐	$_____	Total $____
Cross section(s) & structural details ☐		
*required sign off		

For purposes of 780 CMR 111.1 this permit application is not considered to have been filed and or accepted by the Building Department until all other departments as applicable have signed off the application and returned it to the Building Department for building and zoning code review

Section 13: Signature of Building Permit Application

By entering my name below, I hereby attest under the pains and penalties of perjury that all of the information contained in this application is true and accurate to the best of my knowledge and understanding.

_____ _____ ___-___-_____
Print name **Title** **telephone**

_____ _____ _____ _____
Street Address **City/Town** **State** **zip**

_____ _____
Signature **Date**

Town of Orleans
Demolition Affidavit

Demolition is defined as: The act or process of pulling down, destroying, removing or razing a building, or any portion that results in a change in the footprint. Does not include ordinary maintenance or repair to any building or structure.

_____ _____

House # Street Name

_____ _____

Map # Parcel #

Description of structure or portion thereof to be demolished:

_____

Date constructed as determined by Assessing_____

*Attach verification or sign-off from Assessing_____

I do hereby certify under the pains and penalties of perjury that the building or portion thereof described above is not a ***significant building***, as defined under the Code of Orleans, Demolition of Historical Structures By-law, Chapter 106, Adopted 5/8/2000.

_____

Owner Name (please print)

_____ _____

Owner Signature Date

Significant Building is defined, in part, as: a building not within regional or local historic district..., but which is included in the historical property survey of the Town of Orleans and on file with the Massachusetts Historical Commission, or

A. The building was built in or prior to 1920, and
B. Is listed in, or within an area listed in, the National or State Register of Historical Places, or is the subject of a pending application for listing in said Registers, or has previously been determined to be eligible for listed in the Nation Register of Historic Places, or
    1. Historically or architecturally significant in, terms of period, style, method of building construction, or association with famous architect or builder, or
    2. Is importantly associated with one or more historic persons or events, or the broad architectural, political, economic or social history of the Town or Commonwealth.

We recommend that applicants apply to the Orleans Historical Commission before applying to Old Kings Highway or Architectural Review committees when applicable.

Note: Per the Massachusetts State Building Code, 780 CMR, 112.1, no demolition permit is valid and no demolition is to take place until releases have been received from all applicable utilities stating that services are disconnected or capped in an appropriate manner.

Town of Orleans
Debris Disposal Affidavit

In accordance with Chapter 40, Section 54, Towns are required to issue a building permit for the new construction, demolition, renovation, rehabilitation or other alteration of a building or structure. This is to assure that the debris resulting the above will be disposed of in a properly licensed solid waste facility, as defined by Section 150 (A) of Chapter 111.

The debris from construction work being performed at:

_____.
(Please print house number and street name)

Is to be disposed of at:

_____
(Please print name and location of facility)

Or will be disposed of in a dumpster on-site rented or leased from:

_____
(Company Name and Address)

_____ _____
Signature of Permit Applicant or Owner **Date**

Temporary disposal permits may be obtained by out of town contractors by bringing a copy of the building permit to the Orleans Transfer Station. Construction debris will not be accepted by the Transfer Station without a valid sticker or a temporary disposal permit.

If, for any reason, the debris will not be disposed of as indicated, the Applicant or Owner shall notify the Building Department as to the location where the debris will be disposed.

SECTION 01 41 50

HEALTH AND SAFETY REQUIREMENTS

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PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes requirements for Health and Safety during performance of Work, including identification of applicable Laws and Regulations, Submittals, notification requirements, and Health and Safety execution Specifications.

1.02 REFERENCES

A. Applicable regulations and publications include, but are not limited to, the following:

1. ACGIH, Threshold Limit Values and Biological Exposure Indices (most recent version).
2. ANSI, Emergency Eyewash and Shower Equipment, Z358.1, 1981.
3. ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1, 1979.
4. ANSI, Practices for Respiratory Protection, Z88.2, most recent version.
5. ANSI, Protective Footwear, Z41.1, 1983.
6. ANSI, Respirator Use Physical Qualification for Personnel, Z88.6, 1984.
7. DHHS, "Manual of Analytical Methods", 3rd edition Volumes I and II, DHHS (NIOSH) Publication 84-100.
8. DOT Standards and Regulations, 49 CFR 171, 49 CFR 172 and 49 CFR 214.
9. NFPA, Flammable and Combustible Liquids Code, NFPA 30, most recent revision.

10. NIOSH Pocket Guide to Chemical Hazards, DHHS/PHS/CDC/NIOSH, August, 2006 or most recent.

11. NIOSH/OSHA/USCG/USEPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, DHHS/PHS/CDC/NIOSH, October 1985.

12. OSHA, Title 29 CFR Part 1910, Occupational Safety and Health Standards, and Title 29 CFR Part 1926, Safety and Health Regulations for Construction Sites.

13. OSHA, Title 49 CFR Part 214, Roadway workplace safety.

14. USEPA, Health and Safety Requirements for Personnel Engaged in Field Activities, USEPA Order No. 14402.

15. USEPA, Standard Operating Safety Guidelines, November 1984.

B. Where two or more regulations/documents conflict, the one(s) offering the greatest degree of protection shall apply.

1.03 CONTRACTOR'S RESPONSIBILITY FOR HEALTH AND SAFETY

A. Contractor shall comply with any and all state, federal, and local ordinances, Laws and Regulations.

B. Contractor shall be responsible for the Health and Safety of Contractor's employees, its Subcontractors, Suppliers, agents, inspectors, visitors, the general public, and any others associated with or interacting with Contractor who provides labor, goods, or other services on the Site.

C. Contractor shall be responsible for emergency response planning and notification, and for actual response to any and all emergencies that may occur during the course of the Work, including emergencies that may occur when Contractor is not present at the Site.

D. Contractor is responsible for communicating daily with the Engineer regarding Health and Safety issues for the Engineer's safe conduct of the Engineer's duties, but such communication shall not imply any duty or responsibility on the part of the Engineer with regard to Health and Safety of Contractor's employees, its Subcontractors, Suppliers, the general public, or others. The Engineer's responsibility and duty with regard to Health and Safety shall be limited to the Engineer's employees. Contractor shall have responsibility and duty to the Engineer to communicate Health and Safety issues accurately and in a timely manner to allow the Engineer to take appropriate actions to protect the Engineer's employees and the Owner's employees.

E. Contractor shall designate a dedicated Contractor's Site Safety and Health Officer (SSHO) on the Site during the Work who shall, at a minimum, have at least 1 year of experience as an SSHO on an uncontrolled hazardous waste site, and have 40-hour OSHA Hazardous Waste Operations training and 8-hour OSHA Supervisor training. Contractor's SSHO shall be solely dedicated to Health and Safety issues from the start of the site activities through completion.

F. The SSHO shall enforce the requirements of safety for all Contractor personnel onsite at all times. The SSHO shall ensure that all Contractor personnel, Subcontractor personnel, and Contractor visitors follow the Contractor's site Health and Safety Plan (HASP), including wearing the designated level of Personal Protective Equipment (PPE). If the SSHO elects to require a higher level of protection than that specified in the Contractor's HASP, the extra costs associated with such higher level shall be borne by Contractor, unless such extra costs are approved in advance in writing by the Engineer.

G. Prior to mobilization and continually through the duration of the Work, the SSHO shall inspect the Site and document area-specific and worker-specific protection requirements.

H. After mobilization, the SSHO shall monitor activities and shall document the need for additional worker protection as required, based on activities performed and Action Levels specified in the HASP.

I. The SSHO shall verify that all activities are performed in accordance with the HASP and all federal, state, local, and Health and Safety standards, Laws and Regulations, and guidelines.

J. In the event of a health or safety risk, as determined by the SSHO or by other Contractor personnel or by the Engineer, Contractor shall not proceed with the Work until a method for handling the risk has been determined in consultation with the Engineer and implemented. Any health or safety risk resulting in a stoppage of Work shall be reported immediately to the Engineer.

K. Contractor shall be responsible for implementing a behavior-based safety process and providing site training, observation, and feedback for Contractor personnel employed at the Site.

L. Contractor shall be responsible for stability of excavations and embankments caused by the Contractor's Work. Contractor shall designate one competent person as defined in 29 CFR Part 1926, Subpart P, Excavations, to inspect and document excavation safety conditions daily, and to ensure excavation safety prior to any personnel entering an excavation.

1.04 SUBMITTALS

A. Contractor shall prepare and submit a HASP to the Engineer as a part of the Technical Execution Plan. The Contractor shall follow all applicable local, state, and federal Health and Safety standards, Laws and Regulations, and guidelines implemented through, but not limited to, the OSHA, NIOSH, ACGIH, and USEPA. Where these are in conflict, the most stringent requirement shall be followed. The following points shall be addressed in the Contractor's HASP:

1. Names of key personnel and alternates responsible for Health and Safety, including a Contractor Health and Safety Representative and SSHO. The Engineer must approve the SSHO.
2. A Health and Safety risk or Job Safety Analysis (JSA) associated with each portion of the Work (i.e., list potential chemical and physical hazards), including JSAs for demolition, excavation and backfilling, stockpiling, loading, and transportation,.
3. Employee and Subcontractor training assignments to ensure compliance with 29 CFR 1910.120.
4. A requirement that Contractor locate Underground Facilities by using "Safe Dig" procedures prior to the start of the Work.
5. Personal protective equipment (PPE) to be used for each of the site tasks and operations being conducted, as required by the PPE program in 29 CFR 1910.120, 29 CFR Subpart I, and 29 CFR 1926.
6. Medical surveillance requirements in accordance with the program in 29 CFR 1910.120.
7. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used by the Contractor, including methods of maintenance and calibration of monitoring and sampling equipment.
8. Corrective actions and upgrading of PPE based on monitoring of air, personnel, and environmental sampling, with specific Action Levels identified.
9. Site control measures in accordance with the control program required in 29 CFR 1910.120 and 29 CFR 1926.
10. Decontamination procedures in accordance with 29 CFR 1910.120.
11. An emergency response plan meeting federal, state, and local requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment. Explanation of potential emergencies and contingency plan of action, including description of the route to the nearest appropriate hospital, hospital route map, and posting of emergency telephone numbers at the Site.

12. If confined space entry is required, include confined space entry procedures in accordance with 29 CFR 1910.146, and a list of all anticipated confined space entries required by Contractor in the course of the Work.

13. A spill containment program meeting the requirements of all applicable local, state, and federal Health and Safety standards.

14. A list of Health and Safety and emergency equipment available on the Site.

15. A description of engineering controls used to reduce the hazards of equipment operation and exposure to site hazardous chemicals.

16. Open trench excavation procedures in accordance with applicable OSHA Regulations.

17. Procedures for earthwork near buried utilities, where hand digging should be performed within 24 inches of known utility lines unless more stringent requirements are specified by Laws or Regulations, or the affected utility.

18. Training for emergency response procedures.

19. Heat stress program.

20. Cold stress program.

21. Lockout/Tagout where the operation of machinery and/or equipment in which the unexpected energization on start up or the release of stored energy could cause injury to personnel.

B. Contractor's Daily Construction Report, submitted in accordance with Section 01 32 00 – Construction Progress Documentation shall include a summary of daily safety issues and a summary of Contractor's Daily Safety Meeting.

C. Contractor shall submit monthly safety reports that include:

1. The names of all Contractor and Subcontractor personnel employed at the Site at any time during the month, and the names and duties of key personnel including Contractor's Project Manager, Project Superintendent, SSHO, and excavation-competent person.

2. A summary of all Health and Safety incidents describing any medical treatment that was provided during the month, the current Work status of any individuals affected, the names of individuals who may have observed the incident, and actions taken by Contractor to address the unsafe act or unsafe condition.

3. A summary of all Health and Safety near-misses or observations providing an opportunity for shared learning and future hazard avoidance. For any Health or Safety incident or near-miss, list the date, the nature of the incident or near-miss, and the names of individuals involved.

4. The total number of labor hours worked at the Site during that month.

5. Internal Health and Safety audits performed by the Contractor as part of the Contractor's HASP.

D. Prior to initiating Work, Contractor shall provide the Engineer with documentation of employee and applicable Subcontractor training and medical certifications required by 29 CFR 1910.120 as described herein.

E. Contractor shall submit a Hot Work Permit for any welding, torch cutting, or activities that generate sparks.

F. Contractor shall conduct a JSA for significant activities and submit the documentation to the Engineer for review prior to the start of the activities. Contractor's JSA shall be submitted on the JSA forms attached to this Section, or other form acceptable to the Engineer.

G. Contractor shall submit copies of all periodic equipment inspections completed.

1.05 NOTIFICATIONS

A. Contractor shall immediately (within 30 minutes) verbally report to the Engineer the occurrence of any and all Health and Safety incidents. A Supervisor's Accident/ Incident Report (SAIR), which may be requested from the Engineer, shall be submitted within 24 hours of occurrence of the incident or issue.

B. Contractor shall immediately and fully investigate any such incident or near-miss and conduct a root cause analysis, and shall submit to the Engineer, the Contractor's written corrective action plan for such incident within one day after the incident occurs in accordance with Section 01 33 00 – Submittal Procedures.

C. Contractor shall notify the Engineer in writing at least 5 days prior to bringing any hazardous material, equipment, or process to the site, or using the same on the Site. Contractor shall provide the Engineer with a SDS for all chemicals brought on to the Site.

D. Contractor shall immediately notify the Engineer in writing of any hazard that Contractor discovers or observes on the site and corrective measures planned or taken to eliminate or minimize such hazard. Hazard reporting will be completed in accordance with Federal, State and Local rules and regulations.

PART 2 – PRODUCTS

2.01 EQUIPMENT AND FACILITIES

A. Contractor shall provide all equipment, temporary facilities, and personnel required to perform activities onsite safely in accordance with all Laws and Regulations and standards, and with the Contractor's HASP.

2.02 PERSONAL PROTECTIVE EQUIPMENT

A. The appropriate level of PPE shall be determined by the Contractor for specific tasks as described in the Contractor's HASP. If hazards are identified that require a level of protection greater than Level C (defined in paragraph D below), Work shall be suspended and the Engineer notified. The Contractor's SSHO, in consultation with the Engineer, shall determine what actions are required prior to restarting Work. Contractor shall determine and document the appropriateness of suggested minimum PPE requirements for Contractor's employees and others at the Site.

B. Contractor shall furnish and maintain materials and equipment for the Health and Safety of Contractor employees, its Subcontractors, Suppliers, and visitor personnel. Contractor shall provide all required Health and Safety equipment, first aid equipment, tools, monitoring equipment, PPE, and ancillary equipment and methods required to ensure workers' Health and Safety and to comply with the Contractor's HASP. Level D protection will be required at all times while onsite by all personnel and visitors on the site, except in Support Zone areas. Level D PPE consists of:

1. Hard hat.
2. Steel-toed boots.
3. Safety glasses with permanent side shields.
4. Work clothes (long pants, shirts with sleeves).
5. Work gloves.
6. High visibility reflective safety vests.
7. Hearing protection (as needed to prevent exposure exceeding 85 dB level).

C. If additional protection consisting of Level C PPE is required during the Work, Level C PPE shall include protection from dust particulates and entrained heavy metals and consist of Level D protection with the following additions:

1. Air purifying respirator, half-face or full-face (depending on required protection factor) with High Efficiency Particulate Air cartridges meeting NIOSH/Mine Safety and Health Administration Specifications.
2. Disposable poly-coated chemically protective coveralls.
3. Disposable chemically resistant outer gloves (nitrile).
4. Disposable chemically resistant inner gloves (nitrile).
5. Chemically resistant, steel-toed, and steel-shanked boots (PVC, neoprene, or nitrile), or outer booties.

D. In most cases, Level C will be the maximum allowed level of PPE. Level B may be allowed provided that personnel are properly trained and certified and exposure levels are below immediately dangerous to life and health (IDLH) conditions.

E. In cases where Owner requires additional PPE, the Engineer shall notify the Contractor of these additional requirements in advance of mobilization so that Contractor may obtain the necessary equipment.

2.03 OTHER HEALTH AND SAFETY EQUIPMENT

A. Contractor is required to have the following equipment available on the Site for the Health and Safety of Contractor, Subcontractors, Suppliers, and visitors:

1. First aid kits.
2. Fire suppression equipment (appropriate to location and type of flammable materials present). Equipment will be certified ready for use within the previous twelve months and will also have been inspected each month; documentation supporting certification and inspections will be available for review.
3. Emergency eyewash facilities meeting OSHA specifications.
4. Personnel decontamination facilities and equipment.
5. Other equipment or supplies as determined to be necessary or prudent by Contractor or the Engineer.
6. Flammable liquids storage cabinet(s), if necessary.
7. Fall protection equipment appropriate for the hazards on the project.
8. Heavy Blankets.

PART 3 – EXECUTION

3.01 WORKER QUALIFICATION

A. Contractor shall provide the following training to workers except those who will be restricted to the Support Zone:

1. Initial 40-hour OSHA hazardous waste Health and Safety training and current annual 8-hour refresher training.
2. Eight-hour OSHA hazardous waste supervisory training (required for the Contractor's Superintendent and SSHO).
3. Enrollment in a medical monitoring program, with clearance within the previous 12 months from a licensed physician allowing the worker to participate in field activities and use respiratory protective equipment. Contractor shall not submit detailed medical information for employees.
4. Current respiratory fit testing certification.

5. Current cardiopulmonary resuscitation (CPR) and first aid certification for at least two workers assigned to Work on the site.

6. Confined Space Entry Training for workers entering confined spaces.

7. For one who is assigned the role of a "competent person," documentation of sufficient and relevant training and experience to perform the assigned duties and responsibilities of that role. As defined in 29 CFR 1926.31, the competent person shall be "one who is capable of identifying existing and predictable hazards, and who has authority to take prompt corrective measures to eliminate them." Relevant training and experience shall be in the same type of Project activities included in the Work under this Contract.

3.02 WORK PLANNING AND MEETINGS

A. Contractor shall conduct a daily Health and Safety meeting, prior to beginning Work for that day, to address Health and Safety issues, changing site conditions, activities and personnel. All Contractor and Subcontractor employees working on the Site on that day shall attend the meeting. All meetings shall be documented and attendees shall sign acknowledgement of their presence at the meeting. Daily meetings shall include an evaluation of the Work to be conducted, the hazards associated with the work, and control measures being used to reduce exposure.

B. Contractor personnel who are not in attendance for the daily Health and Safety meeting shall be briefed on the meeting notes upon arrival at the Site and prior to commencing their Work activities. Employees shall sign acknowledgement of briefings prior to commencing Work.

C. Contractor shall hold and document additional safety meetings at the start of each major task and whenever site conditions affecting personnel safety change. Any major task undertaken shall require the completion, or modification, of a JSA as described in this Section.

3.03 ENGINEERING CONTROLS

A. Contractor shall, at a minimum, provide the following engineering controls to reduce the hazards of equipment operation and exposure during demolition:

1. Roll-over cages for bulldozers, back hoes, loaders, and tractors.

2. Back-up alarms for all trucks and moving equipment.

3. Wetting of soil and other media or other means to control dust during the Work.

4. Decontamination of personnel and equipment in accordance with Section 02 06 00 - Decontamination.

5. Others as determined to be necessary or prudent by Contractor or as directed by the Engineer.

B. Contractor shall post ground-level warning signs every 50-feet below all overhead utilities onsite.

3.04 MONITORING

A. Contractor shall perform heat exposure and cold exposure monitoring activities as required by weather conditions.

B. Contractor shall perform all air monitoring activities described in the Contractor's HASP required to provide Health and Safety protection to the Contractor's and Subcontractors' personnel.

C. Personal air monitoring for the Engineers' employees shall be implemented by the Engineer.

3.05 EVALUATION OF PERFORMANCE

A. Contractor shall routinely conduct internal safety audits on Subcontract and Sub-subcontract Work sites in accordance with the Contractor's HASP. The focus of these routine audits will be on compliance with OSHA and local occupational safety regulations.

B. Contractor shall conduct routine behavioral observations and provide immediate feedback during Work activities to promote safe behavior of Contractor employees and Subcontractor employees.

END OF SECTION

HEALTH AND SAFETY FORMS FOLLOW

EHS Opportunity or Near Miss Report

Reported by: _____ Incident Date/Time: _____

Date Reported: _____ Site Location: _____

Report Type (please check one):

☐ EHS Opportunity (*suggestion for improvement, good EHS idea to share, or EHS observation*)
☐ EHS Near-Miss (*event that could have resulted in an incident under different circumstances)*

Description:

Describe key aspects such as the operation in progress, worker experience, potential outcome of event, and any contributing conditions. Use additional sheets as necessary.

Possible Outcome (check all that apply):

☐ Injury/illness ☐ Property damage ☐ Environmental release ☐ Regulatory Violation

Hazard Category (check all that apply):

☐ Body mechanics/ergonomics	☐ Hand safety	☐ Road/vehicle
☐ Chemical exposure/release	☐ Mechanical	☐ Security lapse
☐ Drowning/engulfment	☐ Noise	☐ Sharp/broken object
☐ Electrical	☐ Pinch point	☐ Slip/trip/fall
☐ Equipment/tools	☐ Plants/animals	☐ Weather
☐ Fire/explosion	☐ Pressure/heat	☐ Other:

Possible Causal Factors (as identified by employee):

1. Immediate Cause

- ☐ Engineering design – inadequate
- ☐ Inattentiveness/awareness – inadequate
- ☐ Protective systems/equip. – inadequate
- ☐ Pre-planning – inadequate
- ☐ Procedure – not followed
- ☐ Tool/Equipment– wrong for the job
- ☐ Tool/Equipment – inadequate insp./maint.
- ☐ Worksite layout or control – inadequate
- ☐ Other:

DUE TO: →

2. Root Cause

- ☐ Behavior – rushing or frustration
- ☐ Behavior – fatigue or complacency
- ☐ Change in condition/scope of work
- ☐ Procedure – inadequate or not present
- ☐ Staffing – insufficient number of staff
- ☐ Staffing – inadequate physical state
- ☐ Staffing – inadequate supervision
- ☐ Training – inadequate
- ☐ Other:

Corrective Action Taken and Lesson Learned:

Submit to: ☐ Your supervisor or PM (review for quality then send to:)
☐ EHS Coordinator (review, enter in monthly report, then send to:)
☐ Corporate EHS

First Report of Occupational Injury, Illness, or Exposure

Reported by: _____ **Incident Date/Time:** _____

Date/Time Reported _____ **Client Name/Site:** _____

Supervisor: _____ **AECOM Office:** _____

Description:

Describe the operation in progress, body part affected, witness names, client notifications made, potential non-work related causes, and any contributing conditions. Use additional sheets as necessary.

Response and Care Provided:

☐ Taken to medical facility (provide facility name and phone):

☐ First aid provided(describe):

Incident Resulted from (check all that apply):

☐ Body mechanics/ergonomics	☐ Hand safety	☐ Road/vehicle
☐ Chemical exposure/release	☐ Mechanical	☐ Security Lapse
☐ Drowning/engulfment	☐ Noise	☐ Sharp/broken object
☐ Electrical	☐ Pinch point	☐ Slip/trip/fall
☐ Equipment/tools	☐ Plants/animals	☐ Weather
☐ Fire/explosion	☐ Pressure/heat	☐ Other:

Possible Causal Factors (as identified by employee):

1. Immediate Cause

- ☐ Engineering design – inadequate
- ☐ Inattentiveness/awareness – inadequate
- ☐ Protective Systems/Equip. – inadequate
- ☐ Pre-planning – inadequate
- ☐ Procedure – not followed
- ☐ Tool/Equipment– wrong for the job
- ☐ Tool/Equipment – inadequate insp./maint.
- ☐ Worksite layout or control – inadequate
- ☐ Other:

DUE TO: →

2. Root Cause

- ☐ Behavior – rushing or frustration
- ☐ Behavior – fatigue or complacency
- ☐ Change in condition/scope of work
- ☐ Procedure – inadequate or not present
- ☐ Staffing – insufficient number of staff
- ☐ Staffing – inadequate physical state
- ☐ Staffing – inadequate supervision
- ☐ Training – inadequate
- ☐ Other:

Corrective Action Taken and Lesson Learned:

Submit immediately to all of the following:

☐ Your supervisor ☐ Project Manager (if applicable) ☐ EHS Coordinator ☐ Corporate EHS

Hot Work Permit

Permit Valid For 1 Work Day

Site Name:_____ **Project Number:**_____

EHS Officer:_____ **Client:**_____

Hot Work Description:_____

_____

_____

Workers/Welders Conducting Hot Work:_____

Permits MUST be completed in its Entirety Before Hot Work Begins

	Yes	No
Has Project supervisor been notified of intended Hot Work?		
Does client representative need to be notified of the intended Hot Work?		
Will Hot Work impact the general public, clients, or operation employees?		
Will the intended Hot Work need to be coordinated with other contractors who may be working on the site to make them aware of any hazards and the scope of work to be performed?		
Have hazardous energy sources been identified, isolated, and locked out/tagged out before the start of the Project?		
Will Hot Work be conducted within a confined space?		
All testing equipment (i.e., CGI, oxygen meter, etc.) and firefighting equipment (i.e., extinguisher, etc.) have been checked to ensure proper operation and calibration before the start of this Project?		
Has a fire watch been designated and on station?		
Have coatings on metal surfaces been tested for ignitability and flame spread?		
Has the area been cleared of all flammable materials?		
Have all fuel sources been identified and protected?		
Has the area been restricted with proper barriers and signs?		
Has the area been tested to be certain that atmosphere is 0% LEL before starting Hot Work?		
Have flame sensitive areas and equipment (including cylinders and gas delivery lines) exposed to slag and sparks been protected by flame resistant blankets or removed from the area?		
Have all equipment and hoses been protected from falling metal structures and debris?		
Have escape routes been identified before starting work?		
Is ventilation equipment needed? Type needed:		

The Following Protective Equipment Will be Required:

	Yes	No		Yes	No
Welding Goggles/Shield Tint			Supplied Air Respirator		
Safety Boots			Head Protection		
Leather gloves			Safety Harness		
Hearing Protection			Welding Leathers – Top		
APR Cartridge			Welding Leathers - Bottom		

Permit Valid for 1 Work Day

The following procedures will be applicable prior to Hot Work on tanks or other types of enclosed structures. (Check all that apply and fill in appropriate information.)

- ☐ Ventilate to 0% LEL
- ☐ Confined Space Entry Permit
- ☐ Mechanical Ventilation Required
- ☐ Cold Cut Only Method Allowed:_____
- ☐ Hot Cutting Permitted Method Allowed:_____

Inert to <___% Oxygen

Approvals:

_____
Date

_____
Client Representative

_____
AECOM Site Safety Officer

_____
Fire Watch

_____
Performed Hot Work Employee

File Permit in Project Work File and Health and Safety Department

Job Hazard Analysis

JHA Type: ☐ Investigation ☐ O&M ☐ Office ☐ Construction	☐ New ☐ Revised	Date:
Work Activity:		
Personal Protective Equipment (PPE):		

Development Team	Position/Title	Reviewed By	Position/Title	Date

❶ Job Steps [1]	❷ Potential Hazards [2]	❸ Critical Actions [3]

Notes

1 – Target number of job steps: six to ten

2 – Codes for Potential Hazards:

Caught Between (CBT)	Contacted By (CB)	Caught On (CO)	Fall To Below (FB)	Overexertion (O)	Struck Against (SA)
Caught In (CI)	Contact With (CW)	Exposure (E)	Fall - Same Level (FS)	Release To (R)	Struck By (SB)

3 – Types of Critical Actions: Administrative Controls, Engineering Controls, PPE, and/or Safe Work Practice / SOP

Form Version 4/3/06

Safety Task Analysis Review (STAR)
Task Description:

_____

List Tasks:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Company: _____
Completed By: _____
Date: _____
Job Location: _____

List Additional Hazards (Hazards Not Shown with Check Box)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

List Additional Controls (Controls Not Shown with Check Box)

_____
_____

Tailgate Meeting Topic

_____
_____

Signatures of Personnel on Task Analysis Review/Tailgate Meeting:

_____
_____

Mentor Assigned to Work

_____
_____
_____

Lessons Learned (Based on changes in conditions, EHS Near- Incidents/ Observations, Potential Emergencies)
Is there a better/safer way to perform the work/task?

_____
_____

Supervisor Review (date/Time): _____
EHS Review (date/time): _____
Comments: _____
_____
_____

Identify Potential Hazards

☐ Abrasions
☐ Biological Hazards (Plants, Animals, Insects)
☐ Cave-in (Trench/Excavation Work)
☐ Chemical/Thermal Burn
☐ Cuts
☐ Dermatitis
☐ Dropping Materials/Tools to Lower Level
☐ Drowning/Flowing Water
☐ Dust
☐ Electrical Shock
☐ Elevated/Overhead Work
☐ Energized Equipment
☐ Fire
☐ Flammability
☐ Foreign Body in Eye
☐ Hazardous Materials (Exposure or Release)
☐ Heat or Cold Stress
☐ Heavy Equipment Operation
☐ Heavy Lifting
☐ High Noise Levels
☐ Impact Noise
☐ Inability to Maintain Communication
☐ Inclement Weather
☐ Overhead Work
☐ Overhead Utilities
☐ Underground Utilities
☐ Pinch Points
☐ Pressurized Lines
☐ Slips, Trips, Falls
☐ Sprains/Strains
☐ Traffic
☐ Underground Utilities
☐ Confined Space
☐ New or Rental Equipment
☐ Surface Water Run-On/Run-Off
☐ Odor/VOC Emissions
☐ Compressed Gas Cylinders
☐ Generated Wastes (Solids/Liquids)
☐ Known/Unknown Visitors
☐ Visibility
☐ New Personnel
☐ Hoists/Rigging/Slings/Wire Rope
☐ Special Operations/Instructions (Attach)
☐ Ergonomics

Identify Controls

☐ Air Monitoring
☐ Barricades/Fencing/Silt Fencing
☐ Buddy System
☐ Appropriate Clothing/Monitoring of Weather
☐ Confined Space Procedures
☐ Decontamination
☐ Drinking Water/Fluids
☐ Dust abatement Measures
☐ Equipment Inspection
☐ Exclusion Zones
☐ Exhaust Ventiletion
☐ Fall Protection
☐ Fire Extinguisher/Fire Watch
☐ Flotation Devices/Lifelines
☐ Grounds on Equipment/Tanks
☐ Ground Feult Interrupter
☐ Ground Hydraulic Attachments
☐ Hand Signal Communication
☐ Hazardous/Flammable Material Storage
☐ Hazardous Plant/Animal Training
☐ Hearing Protection (Specify)
☐ Hoses, Access to Water
☐ Hot Work Procedures
☐ Insect Repellent or Precautions
☐ Isolation of Equipment or Process (LO/TO)
☐ Stormwater Control Procedures/Methods
☐ Machine/Equipment Guarding
☐ Manual Lifting Equipment (Chain Falls)
☐ Protective Equipment (Specify)
☐ Proper Lifting Techniques
☐ Proper Tool for Job
☐ Radio Communication
☐ Respirator, (Specify Type)
☐ Safety Harness/Lanyard/Scaffold
☐ Sloping, Shoring, Trench Box
☐ Vehicle Inspection
☐ Spill Prevention Measures/Spill Kits
☐ Equipment Manuals/Training
☐ Emergency Procedures/Incident Management Plan
☐ Appropriate Labels/Signage
☐ Derived Waste Management Plan
☐ Visitor Escort/Orientation/Security
☐ Window Cleaning/Defrost
☐ Proper Work Position/Tools

Pre-Task Review (Yes/No/NA)

1. Has Job Hazard Analysis been completed and reviewed? _____
2. Is Job Scope understood by all Personnel? _____
3. Proper Safety Equipment on job site? _____
4. Permit Issued?
   What type?
   ☐ Hot Work ☐ Confined Space
   ☐ Excavation ☐ Other:_____
5. Proper Tools for Job on site? _____
6. Oxygen/Flammability checked? _____
7. Reviewed MSDSs for any hazardous substance that might be present? _____
8. Proper training for all personnel? _____
9. Are there any planned deviations from set procedures for equipment modifications? __ If so, contact supervisor to check applicability of MOC procedures.
10. Is there any work planned that could cause activation of emergency procedures? _____
    If so, have these procedures been discussed and communicated?

Post-Task Review

1. Work area cleaned up?_____
2. All locks and tags removed and signed off by individuals?_____
3. Have Permits been turned in? _____
4. STAR submitted to EHS Department? _____
5. Were there any unplanned deviations from set procedures or equipment modifications? _____
   If so, contact supervisor to check applicability of MOC procedures.

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

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PART 1 – GENERAL

1.01 ELECTRIC SERVICE

A. A licensed electrician shall perform all electrical Work.

B. Contractor shall furnish and install electrical connections from main service disconnect to Contractor's facilities and equipment, and to all field offices/trailers.

C. Contractor shall pay for power used during the Work.

D. All electrical connections shall meet appropriate NEMA ratings consistent with the intended service.

E. Contractor shall coordinate with local electric utility and obtain any necessary inspections and permits.

1.02 WATER SERVICE

A. Contractor shall provide, maintain, and pay for suitable quantity and quality of water service for dust control and decontamination. The Town of Orleans will make available two hydrants on site.

B. Contractor shall provide water conveyance from the water service terminus to any locations on the Project Site where water is used.

C. Contractor shall provide, maintain, and pay for a suitable quantity of potable drinking water for all on-site employees. Contractor shall furnish drinking water in Contractor's field office trailer and, if necessary at other locations near the Work being conducted.

1.03 TEMPORARY SANITARY FACILITIES

A. Contractor shall provide a sufficient number of portable toilets for Contractor and Contractor Work crews, the Engineer, Owner, and visitors in accordance with usage ratings, or as otherwise directed by the Engineer. The facilities shall be provided at time of project mobilization and maintained in clean and sanitary condition until Substantial Completion.

B. Contractor shall provide and maintain in clean, good working order, a water hand washing facility for personnel decontamination.

C. Contractor shall provide and maintain in clean, good working order an emergency decontamination and eye wash station.

D. Contractor shall provide and maintain, in clean, good working order other personnel decontamination facilities required by the Contract Documents or the HASP.

1.04 TRAFFIC CONTROL SIGNS

A. Contractor shall furnish, install, and maintain traffic control signs in accordance with requirements of the Town of Orleans, and as otherwise deemed necessary by the Engineer for the safety of the public.

B. Contractor shall provide a flag person to manage all Work-related truck traffic along Bay Ridge / Oak Ridge Lanes and into and out of the Site.

1.05 WORK ZONES

A. During handling of residuals materials that warrant decontamination and regulated waste removal the Contractor shall establish a Secured Zone, Support Zone, Exclusion Zone, and Decontamination Zone, as defined herein.

1. Contractor shall lay out the Work Zones and establish boundaries, barriers, facilities, and controls to ensure that all personnel and equipment exiting the Exclusion Zone shall pass through the Decontamination Zone before entering the Support Zone and before exiting the Project Site.

B. Contractor shall establish a general Secured Zone that excludes unauthorized personnel from entering the Project Site.

1. Access to Secured Zone shall be controlled by steel chain link fence and locking gates as shown on the Drawings.

2. Contractor shall furnish locks for Secured Zone gates and provide duplicate keys to Engineer and Owner.

3. Contractor and Engineer shall control access to the Secured Zone. The Engineer and Owner shall be allowed free access to the Secured Zone 24 hours per day, subject to appropriate safety precautions.

4. Contractor shall maintain a log sheet on which all Contractor personnel and visitors must sign in and out upon entering or leaving the Secured Zone.

5. Contractor shall be responsible for the security and safety of equipment, facilities, personnel, and materials within the Secured Zone.

C. Contractor shall establish a Support Zone for field offices, storage, sanitary facilities, hand washing facilities, and non-construction vehicle parking.

1. The Support Zone shall be an area free of physical and chemical hazards.

2. Contractor shall maintain the Support Zone in a safe, clean, orderly, and sanitary manner at all times.

D. Contractor shall establish an Exclusion Zone within the Secured Zone using the following criteria and other criteria deemed necessary by the Engineer:

1. Open excavation areas shall be included in the Exclusion Zone.

2. Impacted Material stockpile area shall be designated an Exclusion Zone.

3. Consideration of meteorological conditions and the potential for contaminants or other materials to be blown or washed from the area.

4. OSHA Regulations and other applicable Laws and Regulations.

E. Contractor shall establish Temporary Activity Zones within the Exclusion Zone using high-visibility warning tape fastened to metal posts or weighted barrels to delineate areas where specific Work tasks will take place. Temporary Activity Zones shall be revised as necessary and as the Work progresses. Temporary Activity Zones shall be established to include the following tasks:

1. Excavation areas shall be marked with yellow or orange caution tape at all times.

2. Stockpile areas (i.e., unimpacted stockpiles, import material stockpiles) shall be established as Temporary Activity Zones and signs installed to indicate the type of material stockpiled in each stockpile area. Signs may consist of high visibility spray paint on the plastic membrane stockpile cover.

3. Storage areas for materials or equipment shall be established and maintained as Temporary Activity Zones.

4. Any temporary decontamination areas shall be marked as Temporary Activity Zones.

F. Contractor shall establish a Decontamination Zone between the Support Zone and the Exclusion Zone.

1. Contractor shall provide suitable facilities for personnel decontamination in the Decontamination Zone, including emergency eyewash, hand washing, and shower facilities.

2. Contractor shall construct, maintain, and improve as necessary, the vehicle and equipment decontamination facility (decon zone), which shall allow for containment and collection of liquid and solid residuals from decontamination of construction vehicles.

3. Contractor shall inspect all vehicles and equipment that have been in the Exclusion Zone prior to exiting the Exclusion Zone. Contractor shall remove loose mud and debris from all vehicles that have been in the Exclusion Zone prior to movement of equipment between the Exclusion Zone and Non-Exclusion Zone areas of the Secured Zone.

4. Contractor shall provide splash protection around the vehicle decontamination facility. Splash protection shall minimize potential contamination from splatter and mist during the vehicle and equipment decontamination process. Splash protection shall be temporary, but stable, and capable of being dismantled in the event of high winds.

5. Contractor shall provide a drainage and collection system for wastewater generated during decontamination procedures.

1.06 ENCLOSURES AND FENCING

A. Contractor shall maintain temporary fencing around the Limit of Work Area which enclose the all stockpile areas, excavation areas, process areas and work zones.

B. Contractor shall add temporary chain link fencing around the Limits of Demolition shown on the Drawings as well as all other areas where Contractor's activities shall take place including laydown and staging areas, parking areas, storage areas, and stockpile areas. Chain link fencing

will be in accordance with Section 32 31 00 – Chain Link Fences and Gates. Any temporary chain link fencing shall be removed after work is complete.

C. Contractor shall furnish and post signs at least every 50 feet along the fence warning the general public that the Project site contains physical and chemical hazards and that access is forbidden to unauthorized persons.

D. Contractor shall furnish and post a professionally lettered sign, minimum size 4 feet by 4 feet, at the entrance gate to the site with the following text, or other similar text approved by the Engineer.

Sign Number	Sign Wording
1	All Site Visitors Must Check In at Site Office
2	All Personnel and Visitors Beyond This Point Must Wear Hard Hat, Safety Glasses, High-Visibility Vest and Steel Toe Boots

E. Contractor shall install and maintain visual barrier fabric to perimeter chain link fencing in accordance with Section 32 31 00 – Chain Link Fences and Gates.

1.07 PROTECTION OF THE WORK

A. Contractor shall protect the existing trees, shrubs, sidewalks, driveways, streets, catch basins, manholes, subsurface utilities, curbs, and gutters by such means as determined by Contractor to be adequate for such protection, unless such facilities are designated on the Drawings for removal.

B. All existing trees, shrubs, sidewalks, driveways, streets, catch basins, manholes, subsurface utilities, curbs, or gutters that are cracked, broken, or otherwise damaged by Contractor shall be replaced/repaired by the Contractor in accordance with Town of Orleans requirements at no cost.

1.08 TEMPORARY EROSION AND SEDIMENT CONTROLS

A. Contractor shall remove all soil, mud, and residuals from vehicle wheels, fenders, and tailgates before exiting to public streets.

B. The Contractor shall provide, install, and maintain all required sediment and erosion controls.

1.09 HAUL ROADS AND ACCESS ROADS

A. Contractor shall maintain on-site haul and access roads as designated on the Drawings, or as necessary to complete the Work with Engineer's approval.

1.10 PARKING

A. Engineer shall designate an on-site parking area to accommodate personal vehicles of Contractor employees, the Engineer, Owner, and visitors. Construction vehicles shall not be allowed in the areas designated for parking personal vehicles.

B. Contractor shall designate an area of the Secured Zone to be used for parking and maintenance of construction vehicles and equipment.

1.11 PROGRESS CLEANING AND WASTE REMOVAL

A. Contractor shall maintain all Work areas free of waste materials, debris, and rubbish, maintain the Work site in a clean and orderly condition, and collect and remove waste materials, debris, and rubbish from the Work site weekly and dispose off site.

1.12 STOCKPILE AREAS

A. Stockpile and Laydown Area(s) will be constructed by the Contractor, if applicable. The Contractor shall maintain these facilities during the course of the Work, modify them as required to implement the Work, and remove them when the Work is complete.

B. Contractor shall establish individual stockpiles within the area as necessary for coordination of excavation with off-site transportation of waste materials, subject to approval by the Engineer.

1.13 FIELD OFFICES AND SHEDS

A. General requirements for all sheds and offices shall be as follows:

1. Structurally sound, weather tight, with floors raised above ground, with hurricane tie-down straps.

2. Thermal insulation compatible with occupancy and storage requirements.

B. The Contractor shall furnish and maintain a separate field office for the use of the Engineer at the Project Site, at a location to be coordinated with the Contractor, during the entire period of Work. The Contractor shall cooperate with the Engineer to locate the field office and provide power to the field office.

C. Contractor shall furnish and maintain a field office for the use of Contractor at a location coordinated with the Engineer, during the entire period of Work.

1. Field offices shall be located in the Support Zone.

2. Field offices shall be of a size, construction, and outfitted in a manner customary to such facilities at similar construction sites.

3. Field offices (other than the Engineer's) shall be furnished with appropriate fire extinguishers, first aid supplies, and office supplies.

1.14 REMOVAL AND RESTORATION OF UTILITIES, FACILITIES, AND CONTROLS

A. Contractor shall remove temporary utilities, equipment, and construction facilities, prior to submitting final Application for Payment.

B. Contractor shall remove from the Work site all materials, equipment, vehicles, construction facilities, temporary controls, rubbish, debris, and wastes.

C. Contractor shall dismantle and remove from the Project Site, as directed by the Engineer, any temporary fencing installed by the Contractor.

1.15 FUEL STORAGE AND DISPENSING

A. Contractor shall store fuel on site only in approved containers that meet all relevant fire codes.

B. Contractor shall provide secondary containment and spill protection devices at all onsite fueling facilities.

C. No fuel storage, nor equipment refueling, shall occur within 100 feet of any wetland or bog.

D. Extreme care shall be taken to prevent fuel spills. Contractor's representative shall be present at all times when equipment is being fueled. Contractor shall notify the Engineer, the local Fire Department, the Town of Orleans Conservation Commission, and other authorities as required in the event of a spill. Contractor shall be prepared and shall provide personal equipment and materials to immediately respond to fuel spills, and is responsible for all costs of containing, removing and disposing of materials contaminated by fuel spills.

E. Contractor shall provide and maintain absorbent materials, shovels, containers and other appropriate materials for spill response and cleanup. Cleanup materials shall be appropriate for the type of fuels, oils and other materials used.

F. Contractor is responsible for all mandatory regulatory notifications and reports of any releases. Engineer and Owner are to be advised immediately of any spills.

G. Contractor shall not commingle waste materials caused by fueling or vehicle maintenance activities. Contractor shall dispose of waste materials caused by fueling at no expense to the Owner.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

SECTION 01 57 00

EROSION AND SEDIMENTATION CONTROL

PART 1 – GENERAL 1
1.01 PERFORMANCE REQUIREMENTS 1
PART 2 – PRODUCTS 2
2.01 MATERIALS 2
PART 3 – EXECUTION 2
3.01 SURFACE WATER RUN-ON/RUN-OFF CONTROL 2
3.02 INSPECTION AND MAINTENANCE 2

PART 1 – GENERAL

1.01 PERFORMANCE REQUIREMENTS

A. Permits and Approvals: Contractor is responsible for preparing Stormwater Pollution and Prevention Plan, submitting a Notice of Intent for coverage under the NPDES Construction General Permit, and all other permits and approvals related to Erosion and Sediment Control.

B. Compliance: Contractor shall be responsible for compliance with requirements of *The Manual for Erosion and Sediment Control in Massachusetts*, any and all permits and approvals, and the Drawings.

C. Implementation: Contractor shall employ the following general procedures, and other procedures as required by all regulations:

1. The sediment and erosion control structures shown on the Drawings shall be installed by the Contractor. The Contractor shall inspect and maintain these facilities in accordance with the Contract Documents.

2. Contractor shall take necessary precautions and implement best management practices to prevent sediment from entering roadways, storm sewers, catch basins, or surface water. Special measures will be required to protect the stormwater manholes within the manufacturing building.

D. Street Cleanliness

1. Where construction vehicle access routes intersect public roads, Contractor shall make provisions to mitigate the transport of mud, soil, or dust onto the public road. If soil, mud, or dust is transported onto a road surface, Contractor shall clean the road thoroughly immediately. Contractor shall remove soil from the roads by shoveling or sweeping, with sweepings legally disposed of. Street washing with water shall be allowed only after soil is removed to the extent practical by sweeping.

E. Control of Pollutants Other than Soil/Mud/Dust/Sediment:

1. All pollutants that occur on the Project Site during demolition shall be handled and disposed in a manner that does not impact stormwater runoff.

2. Fueling of Contractor's equipment shall be performed away from storm drain inlets and catch basins.

3. All fuel containers, tanks, and pumps shall have secondary containment.

4. No fuel storage, nor equipment refueling, shall occur within 100 feet of any wetland or bog.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Silt Fence, straw bales, compost filter socks/tubes, and/or straw wattles: Silt Fence, straw bales, compost filter socks/tubes, and/or straw wattles shall be installed according to Best Management Practices in Massachusetts.

PART 3 – EXECUTION

3.01 SURFACE WATER RUN-ON/RUN-OFF CONTROL

A. Contractor shall intercept surface water and divert it away from demolition and Work areas through use of dikes, ditches, curb walls, pipes, sumps, or other Engineer-approved means.

3.02 INSPECTION AND MAINTENANCE

A. Contractor shall inspect and repair or replace damaged components of temporary erosion and sediment controls weekly. Inspection and repairs shall be conducted immediately after rain or flooding events, and inspection and repairs shall be conducted at least once each day during prolonged rain events.

B. Contractor shall remove sediment deposits and place them in designated spoil areas. Sediment shall not be allowed to migrate off site. If sediment has been in contact with contaminated materials, it shall be incorporated into material to be disposed or further characterized to determine appropriate disposition.

C. Damage to erosion and sediment control systems shall be repaired immediately.

END OF SECTION

SECTION 01 58 00

ENVIRONMENTAL CONTROL

PART 1 – GENERAL 1
1.01 DUST CONTROL 1
1.02 NOISE CONTROL 1
1.03 WETLANDS 2
PART 2 - PRODUCTS 2
2.01 PERIMETER FENCE 2
PART 3 – EXECUTION – NOT USED 2

PART 1 – GENERAL

1.01 DUST CONTROL

A. Dust Control: Dust particles, aerosols and gaseous by-products generated from demolition and regulated material activities shall be controlled at all times including weekends, holidays and hours when work is not in progress. The Contractor shall maintain demolition areas, stockpiles, haul roads, permanent and temporary access roads, staging areas, and other work areas within or outside the Work Area free from particulates which would cause the air pollution standards to be exceeded or which would cause a hazard or nuisance. The Contractor must have sufficient equipment and personnel available to accomplish these tasks.

B. Contractor shall provide all labor, materials and equipment, including water trucks and dust suppressant, needed to limit visible dust generation during on-site transportation and other work activities.

C. Contractor shall provide dust control measures required by all applicable regulatory requirements including the following:

1. Wetting agents shall be used on an as needed basis;

2. Trucks carrying soil shall be covered;

3. Demolition and soil stockpiles shall be located away from pedestrian areas and covered when not in use;

4. Periodic street and sidewalk cleaning shall be provided as needed; and

5. An equipment decontamination pad.

1.02 NOISE CONTROL

A. Contractor shall be responsible for conducting all Work in accordance with Laws and Regulations concerning noise or sound levels as specified in Section 01 41 00 – Regulatory Requirements.

B. The Engineer will have authority to direct Contractor to stop Work or modify Work methods or activities as necessary.

C. Contractor shall control the Work at all times, such that sound levels measured at the Project site property boundary comply with the local ordinances.

D. Contractor's vehicles and equipment shall be outfitted with mufflers and other sound attenuating equipment so that sound levels comply with local ordinances.

1.03 WETLANDS

A. Wetlands, subject to protection by the Massachusetts Wetlands Protection Act and the Town of Orleans By-Law (Chapter 160) and Regulations (Chapter 196A), are located on the Property, but not within 100 feet of the Work Area, as shown on the Drawings.

B. Contractor shall not fill, excavate, or alter any portion of the Property within 100 feet of any wetland or bog without prior approval from the Engineer and the Town of Orleans Conservation Commission.

C. No equipment, materials, trash, or debris shall be stored or stockpiled within 100 feet of any wetland or bog without prior approval from the Engineer and the Town of Orleans Conservation Commission.

D. All work, including site preparation, land disturbance, demolition, and site restoration, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan, as well as the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit.

E. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the Contractor shall inspect erosion controls on a daily basis and shall remove accumulated sediments as needed. The Contractor shall immediately control any erosion problems that occur at the site, as well as along adjacent portions of Overland Way, and shall immediately notify the Orleans Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. If additional, or corrective, erosion controls must be installed at the request of the Orleans Conservation Commission, the Contractor shall comply, at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 PERIMETER FENCE

A. Temporary perimeter fencing around the Limits of Work shall be installed at a minimum of six (6) feet tall.

B. The Contractor shall provide visual barrier on all temporary perimeter fencing.

PART 3 – EXECUTION – NOT USED

END OF SECTION

SECTION 01 72 00

SURVEYING

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PART 2 – PRODUCTS – NOT USED 2
PART 3 – EXECUTION 2
3.01 SURVEY REQUIREMENTS 2

PART 1 – GENERAL

1.01. SUBMITTALS

A. Contractor will retain the services of an independent land surveyor, licensed or registered in the Commonwealth of Massachusetts. Contractor shall submit surveyor qualifications to the Owner and the Engineer for review.

B. Contractor's surveyor will provide benchmarks, initial survey, staking of excavation boundaries as indicated on the Drawings, and as-built survey of final grades.

C. Contractor's surveyor shall perform surveying to record elevations during the course of excavation and demolition work and provide a survey of the final limits of excavation.

D. Contractor will submit all field notes, computations, data logger information, and other survey records for the purposes of progress surveys, confirmation of payment quantity estimation, and/or for final documentation of the Work to the Engineer on a daily basis.

E. Contractor shall provide three (3) hard copies of survey documentation for final limits of excavation and any independent surveys that Contractor may complete to confirm measurement and payment quantities determined based on Engineer's survey. Survey documentation shall be signed and sealed by Contractor's Professional Land Surveyor. Contractor shall also provide survey data electronically in AutoCAD and tabulated. Survey documentation shall conform to the following standards:

1. Measurements shall be provided in units of feet.

2. Elevations shall be provided to the nearest 0.01 feet.

3. Electronic submittal shall be saved as AutoCAD release 2014.

4. Drawing items in "Model" space shall be drawn to full scale or "World" scale.

5. All data points shall have horizontal and vertical data and reference point name, if appropriate; Engineer will provide data formatting requirements.

6. Graphical location of referenced benchmarks shall be included.

7. Blocks with attributes and polylines shall be used as applicable.

8. Proxy entities shall not be used.

9. Field data code list used to develop survey points shall be included.

F. Contractor will maintain and submit all survey data and survey Drawings as Record Documents.

1.02. EXAMINATION

A. Contractor shall verify locations of survey benchmarks shown on the Drawings prior to starting Work.

B. Contractor shall promptly notify the Engineer of any discrepancies discovered.

1.03. SURVEY REFERENCE POINTS

A. Benchmarks, if available, within the Work area as shown on the Drawings.

B. Contractor's surveyor will establish temporary benchmark(s) and horizontal control for the Work.

C. Contractor shall locate and protect survey control and reference points during construction.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 SURVEY REQUIREMENTS

A. All site survey data must be provided in the following coordinate systems:

1. North American Vertical Datum of 1988 (NAVD88).

2. Horizontal North American Datum of 1983.

B. Contractor's surveyor shall perform surveying to record elevations during the course of excavation work and will provide a survey of the final limits of excavation. This survey shall utilize recognized engineering survey practices appropriate for obtaining the information specified. Contractor shall conduct additional layout survey during the Work as needed to ensure that the Work performed is to the limits shown on the Drawings.

1. Volumes measured as in-place volumes will be determined by survey approved by the Engineer. To compute in-place volumes of excavation, the average end area method or other methods acceptable to the Engineer will be used.

C. Contractor's Land Surveyor shall perform the following surveys:

1. Shoot initial elevations shown on the Drawings to establish any differences between current conditions and conditions as shown on the Drawings;

2. Horizontal and vertical limits of the bottom of demolition limit;

3. Horizontal and vertical limits of structural fill material placement;

4. Horizontal and vertical limits of topsoil and vegetative cover placement;

5. Site final grades and elevations; and

6. All other significant site features changed during construction.

D. Contractor shall preserve the survey stakes, including replacement by the Registered Land Surveyor, at Contractor's expense, if destroyed or moved.

E. During the course of the Work, Contractor will record final locations and elevations of all excavation work when complete in each area.

F. During the course of the backfilling and site restoration Work, Contractor will record elevations and locations in completed working areas for each restoration material used.

G. Contractor shall promptly report to the Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons. Contractor shall make no changes without prior written notice to the Engineer.

H. The Work shall be executed in conformance with the lines and grades shown on the Drawings, unless otherwise reviewed by the Engineer and approved by the Owner.

I. If the Engineer believes that the Contractor completed the excavation outside the limits shown on the Drawings in certain areas, Work in that area shall be temporarily discontinued upon notification to Contractor. Contractor may then employ a Registered Land Surveyor to determine actual elevations and locations of excavation.

J. At the end of construction, Contractor's surveyor shall prepare Record Drawings showing horizontal and vertical limits of excavation; final grading, final locations and elevations of modified utilities and other significant site features changed during construction.

1. Record Drawings shall include Work plans, cross-sections, and profiles as necessary to accurately represent conditions.

2. Statements that design features were built "to plan" will not be an acceptable substitute for final as-built survey information.

K. If Contractor's Record Drawings vary from interim survey data provided during progress of the Work, Contractor shall perform any rework required at the direction of the Engineer, at no additional cost to the Owner.

END OF SECTION

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SECTION 01 77 00

CLOSEOUT PROCEDURES

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1.01 SUBMITTALS 1
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PART 3 – EXECUTION 1
3.01 FINAL CLEANUP 1
3.02 CONTRACT CLOSEOUT PROCEDURES 1

PART 1 – GENERAL

1.01 SUBMITTALS

A. Contractor shall submit the following in accordance with the Section 01 33 00 – Submittal Procedures:

1. Contractor shall submit a written statement that the Work has progressed to Substantial Completion.

2. Contractor shall submit a written request for a final inspection after Contractor has determined that the Work is complete in all respects.

3. Contractor shall submit Project Record Documents as described in Section 01 32 00 – Construction Progress Documentation.

4. Contractor shall submit a final Application for Payment.

5. Contractor shall submit a closeout report as described in this Section.

6. Contractor shall submit an Application for Payment of retainage accompanied by Contractor's affidavit of release of liens and Contractor affidavit of payment of debts and claims.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 FINAL CLEANUP

A. Upon completion of the Work and before final inspection, Contractor shall clean the entire Work premises occupied or used in connection with the Work of all rubbish, surplus and discarded materials, temporary facilities and controls, equipment, and debris. The entire Work premises shall be left in a clean, neat, and presentable condition.

3.02 CONTRACT CLOSEOUT PROCEDURES

A. Contract closeout procedures shall take place in the following order:

1. The Engineer will perform the final inspection.

2. If necessary, the Engineer shall prepare a punch list of Work items to be completed and transmit a copy of the punch list to Contractor.

3. Contractor shall complete all punch list items expeditiously to the satisfaction of the Engineer.

4. Contractor shall submit final Application for Payment to the Engineer identifying total adjusted Contract Price, previous payments, and amount remaining to be paid.

5. Contractor shall submit Application for Payment for retainage with required affidavits and with wavier of liens as required.

6. Contractor shall submit a Project closeout report that includes:

   a. Description of demolition activities, including total work quantities.

   b. Variations from the Plans and Specifications.

   c. Discussion of major problems encountered and the resolutions.

   d. Accident Injury report summary.

   e. Complete list of all Contractor personnel on the Site.

END OF SECTION

DIVISION 2

SITE WORK

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SECTION 02 00 00

HAZARDOUS MATERIAL ABATEMENT

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PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide hazardous material abatement of existing conditions as indicated, in compliance with regulatory agency requirements, and in compliance with Contract Documents. The work includes the removal and legal disposal of building materials that contain lead-based paint and universal wastes.

B. Universal Wastes are a category of waste materials designated as "hazardous waste", but containing materials that are common, including batteries, fluorescent (and other) lights, pesticides, thermostats and used electronic equipment. Contractor shall remove universal wastes prior to general demolition of the building.

C. The Work of this contract involves activities that will disturb LBP and Universal Wastes. The Engineer has attempted to identify all LBP and Universal Waste and their locations. The location and type of LBP and Universal Wastes known to be present at the worksite are described in Table 02 00 00-1 and Table 02 00 00-2. If any other LBP or Universal Waste is found, notify the Owner and the Engineer, and provide information on the location and quantities of material(s) within 24 hours of discovery.

D. Lead-Based Paint Materials (LBP)

1. The following lead-based paint materials will be disturbed under this contract.

TABLE 02 00 00-1: SUMMARY OF LBP

TRI TOWN SEPTAGE TREATMENT FACILITY – ORLEANS, MA

Sample ID	Material Description	Substrate	Lead Concentration
LBP-15B	White paint / Main Building, Basement, Main Open Area, Wall by Stairwell	Wood board	150 mg/Kg
LBP-16A	White / Main Building, Exterior, Northwest Area by Garage, Trim (Wood)	Wood	210 mg/Kg
TCLP-01	Composite of building materials from Main Building	Wall board and wood	<2.0 mg/L

2. Table 02 00 00-1 is based on results of laboratory analysis of samples collected by AECOM on July 27 and July 28, 2016, and analyzed by Ameri-Sci of Los Angeles, CA using US EPA Method 3050B/7000B. The laboratory report is provided in the Specifications Appendices for the Contractor's Reference. If any additional suspect materials are discovered during renovations, the Abatement Contractor must notify the Engineer within 24 hours of discovery.

3. Construction activities disturbing surfaces coated in lead paint, which are likely to be employed during future demolition activities (i.e., grinding, cutting, sandblasting, etc.), have the potential to expose workers to airborne levels of lead in excess of the OSHA Permissible Exposure Limit (PEL) of 50 micrograms of lead per cubic meter of air (ug/m^3) (8hr-time weighted average [TWA]). Accordingly, contractors performing work that will disturb LBP at the Site should comply with 29 CFR 1926.62, Construction Industry Lead Standard, as well as applicable federal, state, and local requirements pertaining to the disturbance of LBP. Special work practices and engineering controls should be utilized during demolition/renovation activities to prevent airborne lead emissions.

E. Universal Waste Materials (UW)

1. Table 02 00 00-2: Summary of Universal Waste Material Tri Town Septage Facility, Orleans, MA is attached to this Section.

2. Table 02 00 00-2 is based on results of field inspection of the facility conducted by AECOM on July 27, 2016 and July 28, 2016. If any additional suspect Universal Waste materials are discovered during renovations, the Abatement Contractor must notify the Engineer within 24 hours of discovery.

1.02 COMPLIANCE AND INTENT

A. All abatement work is to be scheduled and coordinated with the Owner, Engineer and the Contractor.

B. The intent is for the Contractor to protect his workers, subcontractors, authorized visitors and building occupants from exposure to hazardous materials during renovation activities that disturb LBP and Universal Waste.

C. The Contractor is responsible for repair, to the satisfaction of the Owner, of surfaces and property not scheduled for demolition that become damaged as a result of the work or resulting from leakage or spillage or from any other intentional or negligent acts or omissions. Damage repairs and replacement of materials are to be approved by the Owner prior to project completion and shall be at no increase to the contract price.

D. During all work, the contractor is to provide worker protective equipment in accordance with OSHA and as required by these specifications. Where there is conflict, the most stringent requirement shall apply.

E. Furnish all labor, materials, facilities, supplies, equipment, services, employee training, medical monitoring, permits and agreements necessary to remove and dispose of all LBP and Universal Wastes in accordance with this specification.

F. Comply with all federal, state, and local regulations pertaining to lead, storage, transportation and legal disposal; employee health and safety; Contractor certifications; lead certifications; and all licenses, permits, and training.

G. Work on the premises shall be confined to areas designated in the Contract Documents. Materials and equipment shall be stored within the Limit of Work area. Should additional space be required, the Contractor shall request permission for additional space and shall adequately safeguard persons at the site and adjacent properties from associated health and safety hazards.

H. Perform all work specified herein with competent persons trained, knowledgeable and qualified in state-of-the-art techniques relating to lead handling, and the subsequent cleaning of contaminated areas.

I. During removal activities, the Contractor shall protect against contamination of soil, water, plant life, and adjacent building areas, and shall ensure that there is no airborne release of lead and dusts. Evidence of settled dust or airborne levels of contaminants above background will require the implementation of additional controls at no increase to contract price.

J. LBP and Universal Wastes removed during the abatement activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to the Engineer and the Owner.

K. All work shall be performed in full compliance with current federal and state regulations including U.S. Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), U.S. Department of Transportation (DOT) regulations, National Institute for Occupational Safety and Health (NIOSH) recommendations, Massachusetts Department of Environmental Protection (MassDEP), all other Federal, State and Local government regulations, any other accepted state-of-the-art industry standards., and, and the specifications contained herein.

L. Any conflicts or overlap of these requirements shall be governed by the more stringent regulation or standard.

M. Neither the Owner nor their representative shall be responsible for acts or omissions of the Contractor, its subcontractors, or any of its agents or employees performing any of the waste related tasks.

1.03 REFERENCES

A. Project specific documents of subject facility inspections and screening.

1. Hazardous Materials Assessment Summary Report – Tri-Town Septage Treatment Facility, 29 Overland Road, Orleans, Massachusetts by AECOM, dated August 16, 2016 (Draft).

B. Massachusetts Department of Environmental Protection (MassDEP).

1. 310 CMR 30.1000: Standards for Universal Waste Management.
2. 310 CMR 18.00 and 19.00 Solid Waste Regulations.

3. 310 CMR Section 7.00, Section 7.09 Odor and Dust, Section 7.10 Noise, Section 7.15 Air Pollution Control Regulations.

C. Steel Structures Painting Council (SSPC).

1. Guide for Containing Debris Generated During Paint Removal Operations, Guide 61 (CON), Steel Structures Painting Council (SSPC).

2. Guide for the Disposal of Lead Contaminated Surface Preparation Debris, Guide 71 (DIS), SSPC.

D. United States Department of Transportation.

1. 49 CFR 171, General Information, Regulations, Definitions.

2. 49 CFR 173, Shippers: General Requirements for Shipments and Packages.

3. 49 CFR 178, Specifications for Packagings.

E. United States Environmental Protection Agency (US EPA).

1. 40 CFR 261, Identification and Listing of Hazardous Waste.

2. 40 CFR 262, Standards Applicable to Generators of Hazardous Waste.

3. 40 CFR 263, Standards Applicable to Transporters of Hazardous Waste.

4. 40 CFR 273, Standards for Universal Waste Management.

5. 49 CFR 171 and 172, Transportation.

F. United States Occupational Health and Safety Administration (US OSHA).

1. 29 CFR 1910.94 and 1926.57, Ventilation Ambient Air Quality.

2. 29 CFR 1910.134, OSHA Respiratory Protection.

3. 29 CFR 1910.1200, Hazard Communication.

4. 29 CFR 1920.20, General Safety and Health Provisions.

5. 29 CFR 1926.62, Lead Exposure in Construction.

1.04 SUBMITTALS

A. Submit the following before commencing work involving hazardous building materials. Coordinate preparation and processing of submittals with performance of demolition activities. Transmit each submittal sufficiently in advance of performance of related demolition activities to avoid delay.

B. Detailed work plan per 29 CFR 1926.1101 that includes:

1. Water and electrical power supply at the site;

2. Waste water discharge from showers and inside the work area;

3. Location and number of containments and decontamination units; and

4. Variances received from regulatory agencies if applicable.

C. Provide a contingency plan prior to project initiation. The contingency plan shall include, at a minimum:

1. Personal protective equipment;

2. Site safety and health hazards;

3. Control of water leakage or discharge within and/or from the work area;

4. Emergencies including but not limited to fire, accident, or power failure;

5. Lead paint handling procedures;

6. Contractor's internal administrative and inspection procedures;

7. Protocol for responding to complaints or questions from interested parties;

8. Notifications including other entities at the jobsite of the nature of abated materials and requirements set forth in these specifications and applicable regulations; and

9. 24-Hour emergency telephone numbers for Company Officers with authority to respond to emergencies.

D. Competent Person: Demonstrate education and specialized training with successful completion of examination of an EPA approved lead paint training provider. Workers: Demonstrate education and specialized training with successful completion of an EPA/MA Department of Labor Standards approved accredited training courses.

E. Submit most current certificates (less than 11 months) signed by each employee and trainer that the employee has received proper training in the handling of materials that contain lead paint.

F. Proof of Respirator Fit Testing: Provide proof of respirator fit testing. Fit testing records must be less than eleven (11) months old and document testing on the type of respiratory protective equipment used for this project. A person who is trained and qualified to perform fit tests must sign fit testing records. Quantitative fit tests done by an occupational health physician is the preferable fit test method.

G. Foreman Training: Submit evidence that the foreman to be used on the job fulfills the qualifications detailed in this specification and has experience in similar jobs.

H. Medical Examinations: Submit evidence signed by a physician that each employee used on the job has received an appropriate medical examination as detailed in 29 CFR 1926.1101, 29 CFR 1926.62 and 29 CFR 1910.134. The submitted document must be less than eleven months old.

I. Certificates of Compliance: Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain dust conform to ANSI Z9.2.

J. Submit written evidence that the landfill(s) are approved for legal disposal of the LBP waste or universal waste materials by the USEPA and state or local regulatory agency(s). Submit manifests prepared, signed and dated by an agent of the landfill. The manifest must certify the amount of materials delivered to the landfill. The manifest must be provided to the Engineer within ten working days after delivery.

K. Licenses: Submit copies of state and local licenses, evidence of MA accreditations and permits necessary to carry out the work of this contract.

L. Safety Data Sheets/Specification Sheets: The Contractor shall submit Safety Data and Specification Sheets for all chemicals to be used for this project.

M. Rental Equipment: When rental equipment is to be used in the abatement areas or to transport hazardous waste, the Contractor shall provide written notification regarding intended use of the rental equipment to the rental agency before use, with copies to the Engineer and the Owner.

N. Signage: Submit samples of the signs to be used at building entrances to comply with specifications and applicable regulations. Submit sample of written notification to the Owner describing scope of the lead abatement work with copies to the Engineer.

PART 2 - PRODUCTS

2.01 SIGNS AND LABELS

A. Provide labeling in accordance with USEPA and MassDEP requirements. Provide the required signs, labels, warnings, or posted instructions for containers used to transport hazardous materials and universal wastes to the landfill.

B. Location of Caution Signs and Labels: Provide bilingual caution signs at all approaches to work areas in languages used by the Contractor's employees. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide labels and affix to all LBP and UW containing materials, scrap, waste, debris, and other products.

C. Warning Label Format: Provide warning labels and signage that comply with 29 CFR Part 1926.1101 and 29 CFR, Part 1926.62.

2.02 PERSONNEL PROTECTION

A. Contractor shall erect all barricades and signs required by Federal and State Law.

B. Contractor shall supply all equipment needed for worker protection (respirators, safety equipment, etc.).

C. Provide authorized visitors, Owner, Consultants or other contractors requiring access to the work area with suitable protective clothing, headgear, eye protection, as described in this specification, whenever the visitor must enter the work area. The Contractor shall have available and maintain at all times a minimum of three (3) suits and other suitable protective equipment for this purpose. All protective equipment shall be new and for the exclusive use of visitors.

2.03 TRANSPORTATION EQUIPMENT

A. Transportation equipment, as required, shall be lockable and suitable for loading, temporary storage, transit and unloading of contaminated waste without exposure to persons or property. Any vehicle used to transport hazardous waste shall be properly registered with all applicable controlling agencies.

2.04 CONNECTIONS TO WATER SUPPLY

A. Contractor shall assure that all connections to the site's water system shall include backflow protection. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered.

B. After use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water shall not damage existing finishes or equipment.

2.05 SCAFFOLDING

A. Provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the Work of this Contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding shall comply with all applicable OSHA provisions. A competent person shall inspect the scaffolding prior to use.

B. Rungs of all ladders, etc. with an abrasive non-slip surface.

C. Provide a nonskid surface on all scaffold surfaces subject to foot traffic.

2.06 OTHER TOOLS AND EQUIPMENT

A. Prohibited Equipment: The following equipment is prohibited from use on this project unless accepted in writing by the Engineer:

1. High or low pressure water blasting equipment for hosing of work areas.
2. Gasoline, propane, diesel or other fuel powered equipment inside the building, unless previously approved in writing by the Owner and the Engineer.
3. Flammable solvents with a flash point below 140 degrees F or materials containing ethylene glycol ether, methylene chloride, ethyl chloroform (1,1,1-trichloroethane), or other hazardous substances.

PART 3 - EXECUTION

3.01 INITIAL AREA ISOLATION

A. Contractor shall conform to the Owner's lockout requirements, and secure the work area at all times. Area entrances and exits shall be secured by the Contractor throughout the UW removal phases. Unauthorized visitors are strictly prohibited. Only the Contractor, Engineer, and Owner's representatives are permitted at the job site. Contractor shall ensure that all doors, gates, windows, and potential entrances to the work areas and the designated waste location areas are secured and locked at the end of each workday.

3.02 PERSONNEL PROTECTION

A. Informed Workers: All workers shall be informed of the hazards of lead paint and other hazardous materials exposure. Workers shall also be instructed in the use and fitting of respirators, protective clothing, decontamination procedures, and all other aspects associated with abatement work in accordance with OSHA standards.

B. Provide and require the use of respiratory and personnel protective equipment to all employees who may be exposed to airborne dust in excess of 30 ug/m^3.

C. Personal Hygiene Practices: The Contractor shall enforce and follow good personal hygiene practices during the abatement of hazardous materials. These practices will include but not be limited to the following: No eating, drinking, smoking or applying cosmetics in the work area. The Contractor shall provide a clean space, separated from the work area, for these activities.

D. If air monitoring data in areas adjacent to the work areas shows exposure to airborne lead or other hazardous materials exceeding OSHA criteria, that area will become regulated and workers must wear protective clothing and approved respirators and must have a shower facility provided to them.

E. Respirators: Establish a respirator program as required by OSHA. Respirator selection shall meet the requirements of 29 CFR 1926.1101 (h). Respirators selected must be approved by the Competent Person. Submit program for review a minimum of five (5) working days prior to the commencement of abatement activities.

F. Protective Clothing: Provide potentially exposed personnel with fire retardant disposable protective whole body clothing, head coverings, gloves, and foot coverings. Provide appropriate gloves to protect workers hands from exposure to hazardous materials. Make sleeves secure at the wrists and make foot coverings secure at the ankles with tape. Ensure that all personnel entering and leaving the work area follow this procedure. Suits shall be of adequate size to accommodate the largest employee. Foot covers may be part of the coveralls. Non-disposable footwear shall be left in the work area until it is decontaminated or disposed of at the completion of the job. Protective clothing will be worn inside the work area until the area passes final clearance inspection.

G. Disposable coveralls, head covers, and foot wear covers shall be provided by the Contractor for the Owner, Engineer, and other authorized representatives who may inspect the job site.

3.03 PERMISSIBLE EXPOSURE LIMITS

A. Permissible Exposure Limits (PEL): Ensure that no worker is exposed to an airborne concentration of lead in excess of the Time-Weighted Average (TWA) limit set forth below.

1. Time Weighted Average (TWA) limit – Lead - Concentration of airborne lead to which any worker may be exposed as an eight (8) hour time-weighted average shall not exceed 50 micrograms per cubic meter (ug/m^2).

B. Air monitoring required by OSHA is the Contractor's responsibility and is not covered in this section

3.04 LEAD REMOVAL

A. The Contractor will be required to remove all loose and peeling paint from surfaces impacted by the demolition/renovation activities that have been identified as LBP in accordance with OSHA regulations. The Contractor will be required to remove lead-based paint from surfaces prior to mechanical or torch cutting, if required. Prior to bidding the Contractor shall investigate conditions and satisfy himself as to the extent of work required.

B. The Contractor shall ensure that the paint that remains on affected building components shall be sufficiently adhered to the substrate.

3.05 AIR MONITORING – LEAD

A. The Contractor shall conduct personal air sampling of his personnel, including daily 8-hr TWA air sampling/analysis, as required by 29 CFR Part 1926.62. Worker exposures shall be made from breathing zone air samples that are representative of the TWA exposure of each worker.

B. Representative TWA worker exposures shall be determined on the basis of one or more samples representing full-shift exposure for workers in each work area.

C. For any one specific operation which will be performed by certified workers, the Contractor may demonstrate that worker exposures will be below the PEL by data which conform to the following criteria:

1. Objective data demonstrating that the product or material containing lead or the activity involving such product or material cannot release airborne particulates in concentrations exceeding the PEL under those work conditions having the greatest potential for releasing lead; or

2. Where the Contractor has monitored prior lead jobs for the PEL within 12 months of the current job; the data were obtained during operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations; the operations were conducted by workers whose training and experience are no more extensive than that of workers performing the current job; and the data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that worker exposures will not exceed the PEL; or

3. The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the TWA exposures of each worker covering operations which are most likely during the performance of the entire lead job to result in exposures over the PEL.

D. The Contractor shall conduct daily air monitoring that is representative of the exposure of each worker who is assigned to work within a regulated work area, unless the Contractor has made a negative exposure assessment for the entire operation.

E. The Contractor shall institute exposure monitoring whenever there has been a change in process, control equipment, personnel, or work practices that may result in new or additional exposures above the PEL or when there is reason to suspect that a change may result in new or additional exposures above the PEL. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

3.06 WASTE HANDLING AND LEGAL DISPOSAL

A. The Contractor shall follow all federal and state regulations for waste handling, containerizing, transporting, and disposing of hazardous and universal waste.

B. The Contractor shall remove lead-contaminated waste from the building in accordance with specification requirements. Lead waste shall be deposited directly into waste receptacles (i.e., drums, enclosed dumpster, etc.) that will be used to transport the waste.

C. The Contractor is responsible for providing all waste receptacles required for legal disposal. All waste temporarily stored on site shall be secured to prevent against unauthorized entry and vandalism.

D. If required, the Contractor shall perform TCLP testing to properly characterize the lead-contaminated waste for off-site legal disposal.

E. The Contractor shall establish a manifest system that meets federal and state regulations and accounts for all waste at all times. The Contractor shall obtain a Site EPA Identification Number, if required.

F. The transporter must possess an approved EPA identification number. The appropriate Hazardous waste manifest must be completed by the Contractor.

G. The Contractor shall provide the Owner with copies of the EPA ID number of the transporter(s), MA DEP manifest or bill of lading form, and written acknowledgement from the landfill that they are authorized by the EPA and the state where they are located, to accept and dispose of hazardous waste.

H. Final manifest/bill of lading and legal disposal receipts must be provided to the Owner and Engineer within fourteen (14) days of the removal of the waste from the site.

3.07 FINAL JOB LOG

A. A final job log shall be prepared by the Contractor and presented to the Engineer in a binder before submitting final payment application. The binder shall contain a Table of Contents for the final submittals and tabs for each section of the final submittals. All submittals must be first-run copies of the original documents. The job log shall include, but not be limited to, the following:

1. Copies of all applicable permits, notifications, and changes. The original or a legible photocopy of each certified mail return receipt shall be attached to the applicable documents.

2. The Waste Shipment Records and any RCRA documents required for the project.

3. All employee medical records.

4. All employee training certificates and license or registration certificates.

5. Visitors sign-in log. Containment sign-in log.

6. Daily reports, signed by the on-site Supervisor.

7. Final inspection list.

8. Copies of OSHA compliance air monitoring records conducted during the work.

3.08 CLOSEOUT ACTIVITIES

A. Provide in accordance with Section 01 77 00 – Closeout Procedures.

END OF TEXT

TABLE 02 00 00-2: SUMMARY OF UNIVERSAL WASTE MATERIAL FOLLOWS

TABLE 02 00 00-2
SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY
TRI-TOWN SEPTAGE TREATMENT FACILITY
29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Disinfection Building	4-foot fluorescent light bulbs	16
	8-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	16
	fire alarm	3
	exit signs	1
	emergency lights	2
	emergency light control box	1
	smoke detector	2
	fire extinguisher	1
	ceiling-mounted heater	1
	dry transformer	1
	wall mounted air-conditioning unit	2
	snowblower	2
	ultra-violet machines	2
	eye wash station	1
Sludge Pumping Room	4-foot fluorescent light bulbs	12
	fluorescent light fixture ballasts	6
	dry transformer	1
	ceiling mounted heaters	1
	"Moyno" pumps	2
	"Scum Line" pumps	5
	fire alarm	1
	fire extinguisher	1
	emergency lights	2
	emergency light control box	1
Chemical Feed Building	4-foot fluorescent light bulbs	16
	fluorescent light fixture ballasts	8
	diesel fuel (5 gallon)	1
	diesel fuel (6 gallon)	1
	55-gallon drum (illegible)	1
	gasoline (5 gallon)	2
	gasoline (3 gallon)	1
	SAE motor oil (1 quart)	2

TABLE 02 00 00-2
SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY
TRI-TOWN SEPTAGE TREATMENT FACILITY
29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Chemical Feed Building (continued)	2-cycle motor oil (1 quart)	1
	eye wash station	1
	55-gallon drum ("Centaur HSV 4x6")	3
	fiberglass tank (unknown capacity) previously contained hydrochloric acid	1
	55-gallon drum ("Carbtrol")	1
	paint cans (1 gallon)	4
	automotive tires	8
	lawnmowers	2
	weed whackers	2
	ceiling mounted heaters (electrical)	3
	motorcycle frame	1
	hedge trimmer	1
	small man lift	1
Gravity Belt Thickener Room	8-foot fluorescent light bulbs	16
	fluorescent light fixture ballasts	8
	exit signs	1
	fire alarm	1
	fire extinguisher	1
	eye wash station	1
	paint cans (12 ounces)	3
	epoxy resin (32 fluid ounces)	1
	shell flour (2.5 pounds)	1
	anti-freeze (1 gallon)	1
	paint thinner (1 gallon)	1
	propane (14 ounces)	1
	starting fluid (1 ounce)	1
	degreaser (1 pound)	1
	2-cycle fuel (1 quart)	1
	microbacterial soap (17.5 ounces)	1
	thread cutting oil (1/2 pint)	1
	SAE motor oil (1 quart)	5
	anti-freeze (1 gallon)	5
	chainsaw	1
	bench grinder	1

TABLE 02 00 00-2

SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY

TRI-TOWN SEPTAGE TREATMENT FACILITY

29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Gravity Belt Thickener Room (continued)	arc welding generator	1
	drill press	1
	battery charger station	1
	automotive battery	3
	weed whacker	1
	power washer	1
	cathode ray tube television	1
Odor Control Room	8-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	4
	eye wash station	1
	exit signs	1
	55-gallon drum (Sodium Hypochlorite Solution)	1
	55-gallon drum (empty)	2
	1,400 gallon container of Hypochlorite	2
	Blast-Vac (UR-007)	1
	automotive tires	8
Electrical Room, Hallway, & Control Room	fire extinguisher	1
	exit signs	2
	fire alarm	1
	smoke detector	2
	dry transformer	2
	8-foot fluorescent light bulbs (loose)	16
	8-foot fluorescent light bulbs (mounted)	2
	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	4
Roof	none	none
Attic	compact fluorescent light bulbs	2
Basement - Blower Room, Adjacent Room (no label), & Stairwell	blower machines	6
	8-foot fluorescent light bulbs	16
	4-foot fluorescent light bulbs	4
	fluorescent light fixture ballasts	10
	fire alarm	2
	exit sign	2
	extra heavy circulating oil (1 gallon)	1

TABLE 02 00 00-2

SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY

TRI-TOWN SEPTAGE TREATMENT FACILITY

29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Basement - Blower Room, Adjacent Room (no label), & Stairwell (continued)	fire extinguisher	1
	wall-mounted heater	1
Basement - Main Open Area (Elevator, Stair #1, Stair #2, & Compressor Room)	eye wash station	5
	8-foot fluorescent light bulbs	8
	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	7
	emergency lights	8
	emergency light control box	2
	Mercury Vapor Bulbs (unconfirmed)	30
	fire extinguisher	3
	fire alarm	5
	exit sign	4
	unknown capacity container (ferric chloride)	1
Septage Receiving Building (Garage), Odor Control Room, and Screening/Degritting Room	fire extinguisher	1
	exit sign	1
	fire alarm	1
	eye wash station	1
	ceiling-mounted heater	2
	Mercury Vapor Bulbs (unconfirmed)	9
	compact fluorescent light bulbs	10
	emergency lights	4
	fluorescent light fixture ballasts	3
	weight scale for vehicles	1
First Floor, Stairwell #2 & Hallway (Up to Men's Bathroom)	8-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	3
	emergency lights	4
	exit sign	3
	ceiling-mounted heater	1
	smoke alarm	2
Filter Press Room, Press Control Room, Machine Room, Hallway, & Stairwells	4-foot fluorescent light bulbs	22
	fluorescent light fixture ballasts	11
	exit sign	3
	emergency lights	5

TABLE 02 00 00-2

SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY

TRI-TOWN SEPTAGE TREATMENT FACILITY

29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Filter Press Room, Press Control Room, Machine Room, Hallway, & Stairwells (continued)	fire alarm	3
	fire extinguisher	1
	Mercury Vapor Bulbs (unconfirmed)	16
	eye wash station	1
	filter press machines (large)	2
	55-gallon drum (Sodium Hypochlorite Solution)	1
	hydraulic oil (5 gallon)	7
	"shell oil - S2 G 320" (5 gallon)	4
	smoke detector	2
	used equipment motors	10
Blower Room	4-foot fluorescent light bulbs	12
	fluorescent light fixture ballasts	6
	emergency lights	1
	fire alarm	1
	ceiling-mounted heater	1
	cathode ray tube televisions/monitors	8
HVAC Equipment Room	4-foot fluorescent light bulbs	26
	fluorescent light fixture ballasts	13
	fire extinguisher	1
	fire alarm	1
	emergency lights	2
	emergency light control box	1
	hot water heater tank	1
	ceiling-mounted heater	1
Attic (Storage by HVAC Equipment Room)	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	3
	compact fluorescent light bulbs (round)	8
	cathode ray tube televisions/monitors	3
Garage (At North End of Building, Below the Filter Press Room) & Stairwell	55-gallon drum (5w-30 motor oil)	1
	55-gallon drum (15w-40 motor oil)	1
	55-gallon drum (industrial lubricant)	1
	55-gallon drum (turbine oil)	2
	55-gallon drum (SAE engine oil)	3
	55-gallon drum ("Mobil" 5W-30 motor oil)	4

TABLE 02 00 00-2

SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY

TRI-TOWN SEPTAGE TREATMENT FACILITY

29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Garage (At North End of Building, Below the Filter Press Room) & Stairwell (continued)	55-gallon drum (hydraulic fluid)	1
	55-gallon drum ("Omaha Oil 200")	1
	automotive battery	3
	gear oil (1 quart)	4
	spray paint (16 fluid ounces)	1
	power steering fluid (12 fluid ounces)	1
	anti-freeze (1 gallon)	2
	windshield washer fluid (1 gallon)	3
	propane (small)	1
	"DTE" extra heavy oil (1 gallon)	3
	15w-40 oil (5 gallon)	2
	ceiling-mounted heater	5
	compact fluorescent light bulbs	6
	winch system	1
	eye wash station	1
	fire alarm	2
	fire extinguisher	1
	emergency lights	3
	exit sign	2
Receiving Control Room	exit sign	1
	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	3
Mechanical Storage	plumbers putty (14 ounces)	1
	PVC cement (32 fluid ounces)	1
	paint cans (1 gallon)	6
Custodial Closet	bleach (1 gallon)	5
	"Resolve" carpet cleaner (32 fluid ounces)	1
	floor cleaner (1 gallon)	3
Electric Room (by Men's Bathroom)	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	3
Chief Operator's Office	4-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	4
	air-conditioning unit (window)	1
Administrator's Office	4-foot fluorescent light bulbs	8

TABLE 02 00 00-2

SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY

TRI-TOWN SEPTAGE TREATMENT FACILITY

29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Administrator's Office (continued)	fluorescent light fixture ballasts	4
Entry Way	2-foot fluorescent light bulbs	4
	fluorescent light fixture ballasts	2
	compact fluorescent light bulbs	7
	exit sign	1
	emergency lights	2
	fire alarms	2
Meeting Room	4-foot fluorescent light bulbs	20
	fluorescent light fixture ballasts	10
	compact fluorescent light bulbs	5
	compact fluorescent light bulbs (round)	1
Break Room	4-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	4
	exit sign	1
	emergency lights	1
	emergency light control box	1
	fire extinguisher	1
Laboratory & Hallway	4-foot fluorescent light bulbs	30
	fluorescent light fixture ballasts	10
	exit sign	3
	fire alarm	4
	fire extinguisher	2
	emergency lights	1
	eye wash station	1
	shower station	2
	refrigerator	2
	hach hydrogen sulfide test paper (50 mL)	1
	hach nitraver 5 reagent packs	100
	hach sulfide inhibitor (pillows)	50
	high range COD reagent (vials)	75
	safronin solution (250 mL)	1
	decolorizer solution (100 mL)	1
	crystal violet solution (200 mL)	1
	iodine solution (250 mL)	1

TABLE 02 00 00-2

SUMMARY OF OTHER HAZARDOUS/REGULATED ITEMS & EQUIPMENT INVENTORY

TRI-TOWN SEPTAGE TREATMENT FACILITY

29 OVERLAND ROAD, ORLEANS, MASSACHUSETTS 02653

Location	Item Description	Estimated Quantity
Laboratory & Hallway (continued)	potassium chloride	1
	glycerin	1
	stainless steel cleaner & polish (18 ounces)	1
	disinfectant spray (12.5 ounces)	1
	insect repellent (6 ounce)	1
	hand sanitizer (7.5 fluid ounces)	1
	mineral oil (32 fluid ounces)	1
	sodium hydroxide (500 ml)	1
Exterior	motion sensing lights	14
	compact fluorescent light bulbs	3

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SECTION 02 06 00

DECONTAMINATION

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1.01 SUMMARY 1
1.02 SUBMITTALS 1
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3.01 DECONTAMINATION OF TRI-TOWN SEPTAGE WASTEWATER TREATMENT EQUIPMENT AND STRUCTURES, VEHICLES AND EQUIPMENT 2
3.02 PERSONNEL DECONTAMINATION 2
3.03 DECONTAMINATION METHODS 2
3.04 MANAGEMENT OF DECONTAMINATION RESIDUALS 3

PART 1 – GENERAL

1.01 SUMMARY

A. This section covers the decontamination of personnel and equipment as they move from the Exclusion or Work Zones into the Support Zones of the site. This section also covers decontamination of building areas. Decontamination is required during Pre-Demolition and Demolition activities.

1.02 SUBMITTALS

A. Prior to mobilization, Contractor shall submit personnel decontamination procedures as part of the Contractor's HASP specified in Section 01 41 50 – Health and Safety Requirements. Contractor shall provide the following information:

1. Number and location of decontamination and wheel wash stations.

2. Decontamination methods and equipment that shall be used in accordance with Applicable State, Federal, and Local requirements.

3. Procedures to prevent cross-contamination of clean areas during Decontamination of Tri-Town Septage Wastewater Treatment equipment and structures, and demolition areas.

4. Methods and procedures to minimize worker contact with contaminants during removal of personal protective equipment (PPE).

5. Procedures for inspection and decontamination of vehicles leaving the Site.

6. Procedures for disposal of personal PPE.

7. Procedures for the collection, treatment, and disposal of all decontamination water and residuals, especially during decontamination of Tri-Town Septage Wastewater Treatment equipment and structures.

8. Procedures for minimizing generation of waste water.

B. Contractor shall prepare and submit Daily Trucking Logs to the Engineer on a daily basis.

1.03 DECONTAMINATION FACILITIES

A. Contractor shall construct and maintain decontamination facilities for equipment and trucks as described in the Contract Documents and Drawings, the Technical Execution Plan, and as approved by Engineer.

B. Contractor shall construct and maintain decontamination facilities for personnel as described in the HASP.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 DECONTAMINATION OF TRI-TOWN SEPTAGE WASTEWATER TREATMENT EQUIPMENT AND STRUCTURES, VEHICLES AND EQUIPMENT

A. Contractor shall decontaminate Tri-Town Septage Wastewater Treatment Equipment and Structures and visibly stained surfaces.

B. Contractor shall inspect and decontaminate all vehicles and equipment that have entered the Exclusion Zone.

C. Decontamination of vehicles and equipment shall include removal of soil and residues from the chassis (which includes undercarriage, suspension, and tires and wheels) and other parts of the vehicle known to have been contaminated or visually appearing to be contaminated.

D. Gross Decontamination is required and shall include spraying of the area (inside and out). If there are any part of this area that appears to be visually contaminated, the Contractor shall decontaminate until visual contamination is removed or upon approval of Engineer.

E. Contractor shall take care while decontaminating to avoid contaminating personnel, other parts of the vehicle, equipment or Wastewater Treatment Structures and Equipment identified. Personnel involved in vehicle, equipment, and Storage area decontamination shall be dressed in the appropriate level of PPE as determined by the HASP. All personnel shall follow all applicable safety procedures described in Section 01 41 50 - Health and Safety Requirements.

F. Contractor shall decontaminate haul trucks after loading and before the haul trucks exit onto public streets if inspection indicates the presence of contaminants. Contractor shall ensure that haul trucks exit through the Decontamination Zone and receive proper decontamination and inspection.

G. Contractor shall document decontamination of Wastewater Treatment Equipment and Structures, vehicles and equipment on the Daily Log.

3.02 PERSONNEL DECONTAMINATION

A. Contractor shall ensure that personnel who have entered the Exclusion Zone perform decontamination as required in the HASP as specified in Section 01 41 50 - Health and Safety Requirements prior to exiting the Decontamination Zone.

3.03 DECONTAMINATION METHODS

A. Physical decontamination techniques used during truck and equipment decontamination and decontamination of treatment structures and equipment shall include, but are not limited to, brushing and spraying with a heated water pressure washer until all visible contamination and debris is removed.

B. Brushing shall consist of removal of loose materials with the use of a broom and/or brushes.

C. A heated water pressure washer shall be used to provide application of water of sufficient temperature, pressure, residence time, and agitation to remove soil and contaminated residuals from surfaces.

D. Surfactants and detergents must be approved by the Engineer prior to use in decontamination operations. Materials which may be detrimental to water treatment, handling, or disposal shall not be allowed.

E. All equipment decontamination procedures shall be performed in a decontamination facility.

F. Overspray barriers shall be provided on each side of the decontamination area to prevent contamination of adjacent areas.

G. Contractor shall manage decontamination residuals, including water, soil, residues, used PPE, and other materials removed during decontamination as specified herein.

3.04 MANAGEMENT OF DECONTAMINATION RESIDUALS

A. Contractor shall collect decontamination liquids collected during personnel decontamination, truck and equipment decontamination, and decontamination of treatment equipment and structures to be legally disposed to a legal disposal facility.

B. Contractor shall dewater and collect decontamination solids. Dewatered decontamination solids shall be managed as Impacted Material and sent to legal disposal facility.

C. Contractor shall manage contaminated PPE as Impacted Material to be sent to legal disposal facility.

END OF SECTION

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SECTION 02 11 60

SITE DEMOLITION

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PART 1 - GENERAL

1.01 SUMMARY

A. This section covers the demolition/removal, legal disposal of demolition debris, and backfill of excavations.

1.02 PROJECT CONDITIONS

A. Work shall comply with applicable regulations provided in Section 01 41 00 – Regulatory Requirements.

B. Structure removal work shall be performed in a manner that does not disturb or damage existing utilities, monitoring wells or other facilities not indicated to be demolished and removed.

C. Contractor is responsible for ensuring that permanent deactivation of all utilities (electric, gas, sanitary, communication, water) connected to the structures targeted for demolition is complete.

D. The approximate locations and dimensions of existing structures and appurtenances to be demolished are shown in the Appendices.

1.03 SUBMITTALS

A. Contractor shall submit written documentation of all specified tests showing conformance of the materials and demolition work with the specifications within five days after test results are obtained.

B. Contractor shall submit sample of Common Backfill Material to Engineer. At least one sample shall be submitted for each borrow source.

1.04 QUALITY CONTROL

A. Chemical Analysis – Provide test results of U.S. EPA priority pollutants/ on each borrow source sample. Minimum of one test for each visible change in material

B. Testing of Common Backfill (By Contractor's QC firm) - Soil Classification (ASTM D 2487) and Particle-size analysis (ASTM D 422. Minimum of one test for each visible change in material.

1.05 COORDINATION AND SCHEDULING

A. The Work will be completed in the following sequence.

1. Perform regulated waste (e.g., universal waste, refrigerant) removal.
2. Decommissioning, decontamination, removal and legal disposal of existing wastewater treatment facility equipment prior to demolition.
3. Disconnect and cut and cap all remaining utilities entering and existing the Tri-Two Septage Treatment facility and Compost Shed.
4. Perform Pre-Demolition tasks.
5. Perform Demolition and Legal Disposal of Demolition Debris.
6. Perform Backfill and compaction (if necessary).
7. Perform Loaming and Seeding.

PART 2 – PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

A. Contractor shall comply with all applicable regulations for demolition work, including 29 CFR 1910 and 29 CFR 1926 Subpart T – Demolition.

B. Contractor shall make the necessary notifications, secure the necessary permits, including demolition permits, utility permits, and documentation that all utilities associated with the demolition of the facility are permanently deactivated and capped.

C. A temporary chain link fence will be erected around perimeter of the Limits of Work (as shown on the Drawings) to control access to the site during demolition. Openings can be left in the fence during work times to allow for movement of heavy equipment and personnel. The site shall be enclosed during all non-work hours.

D. Contractor shall demolish and legally dispose of all demolition debris.

3.02 DEMOLITION OF STRUCTURES

A. Demolition of site structures shall take place as follows:

1 Thoroughly wet structures prior to and during demolition activities, as needed, to avoid the generation of dust and/or debris emissions.

2 Breakup walls, foundation elements, underground tanks, piping, fixtures, large pieces of demolition debris into manageable pieces.

3 All salvageable material (e.g., HVAC systems, equipment, fixtures, machine and metal debris associated with facility operations) remaining at the site are property of Contractor for use or resale provided that such re-use is permitted under local, state and federal regulations.

4 Demolish all structures, including walls, based slabs, elevated slabs and appurtenances.

5 Load broken pieces into trucks for offsite transportation or temporary stockpile within the Limit of Work. Note: Contractor does not need to create separate stockpiles of different demolition material types.

6 Contractor shall not excavate any soil below grade without Engineer's prior approval.

7 Contractor shall remove the top 8 inches of soil (sand) from the infiltration beds and legally dispose of offsite prior to completing the demolition activities.

3.03 MATERIALS HANDLING AND DISPOSAL

A. Transportation for the legal disposal of removed solid materials shall be in accordance with Section 02 81 00 - Transportation and Disposal.

B. If stockpiling is required prior to disposal, demolition materials shall be temporarily stockpiled on-site by the Contractor within the Limit of Work.

C. Contractor shall police the site and remove all trash and debris from the Project Site prior to demobilization.

END OF SECTION

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SECTION 02 32 14

VIBRATION MONITORING

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PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish, install, maintain, monitor, and remove vibration monitoring equipment as specified and as indicated.

B. Monitor vibrations, and noise levels originating from demolition operations as indicated or specified. Specifically, monitor vibrations during concrete slab demolishing work for the compost shed at structures or buried utilities located within 150 feet from the vibration source.

C. Modify demolition operation procedures if existing operation creates vibration, or noise exceeding specified amounts.

1.02 QUALITY ASSURANCE

A. Retain the services of an independent vibration consulting firm with the following in-house personnel to conduct the following vibration monitoring requirements:

1. Preparation, signing and stamping of monitoring plans and daily reports, and overseeing monitoring and interpretation of monitoring equipment shall be performed by personnel with the following qualifications:

a. Be a Massachusetts Registered Professional Engineer.

b. Have a minimum of five (5) years experience in the vibration consulting field.

c. Have successfully completed at least five (5) projects with vibration-inducing operations, and noise levels equal to or more severe than those to be encountered.

2. Installation, monitoring and interpretation of monitoring equipment shall be performed by personnel with the following qualifications:

a. Have at least three (3) years of experience in the operation of monitoring equipment proposed for use and interpretation of records produced by such equipment.

b. Have installed, operated, monitored and interpreted equipment and records on at least three (3) projects with vibration-inducing operations, and noise levels from similar construction activities.

1.03 SUBMITTALS

A. Submit the following shop drawings in accordance with Section01 33 00 – Submittal Procedures.

1. Qualifications of the independent vibration consulting firm's Professional Engineer as specified in subparagraph 1.02B.1 including the names of the five (5) successful projects with names, current addresses, and telephone numbers of persons in charge of representing the owners or the owners at the time of monitored vibration-inducing operation, and noise levels.

2. Qualifications of the vibration consulting firm's personnel to install, operate and interpret the monitoring equipment as specified in subparagraph 1.02B.2 including the name of the personnel and the names of the three (3) projects per person which they installed, operated, monitored, and interpreted monitoring equipment with names, current addresses and telephone numbers of persons in charge of representing the owners or the owners at the time of monitored vibration-inducing operations, and noise levels.

3. Two weeks prior to commencement of vibration inducing operations, submit in writing the plan for monitoring operations and equipment to be used to assure compliance with the vibration, and noise limitation. As a minimum, this plan shall provide for the following:

   a. Recommended vibration limiting methods to meet the specified peak particle velocity limitations and locations for taking measurements.

   b. Manufacturer's brochures and written operation instructions for seismograph recording equipment intended to be used for each vibration occurrence.

4. Daily reports, while performing vibration-inducing operations, detailing each source of vibration, location of monitoring, and the vibration records highlighting peak particle velocities. All daily reports shall be stamped and signed by the Vibration Consulting Firm's Professional Engineer.

1.04 SITE CONDITIONS

A. Refer to the Section 01 11 00 – Summary of Work.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Provide a low frequency sensitive three-component seismic recording instrument with wave paper trace, variable trigger level setting, peak particle velocity memory operation (in inches/second) and sound level readout capability that meets the following criteria:

1. Seismic Frequency Range: 2 to 200 Hz (+/- 3 dB)

2. Acoustic Frequency Range: 2 to 200 Hz (+/- 1 dB)

3. Velocity Range: 0.02 to 4.0 inches per second.

4. Sound Range: 90 to 140 dB linear.

5. Transducer: Three mutually perpendicular axes: radial, transverse, and vertical.

6. Recording: Time-history of waveform capability.

B. Manufacturers:

1. Spregnether, St. Louis, MO.

2. Slope Indicator Co., Seattle, WA.

3. D&L Equipment Corp., Spoffard, NH.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Furnish specified instrumentation to be installed, operated and interpreted by the vibration consulting firm's personnel, as specified below and indicated.

B. Monitor vibrations and record the entire particle velocity wave train, not just peak velocities. Obtain accurate, legible seismometer records of monitored vibrations.

C. Perform all vibration-inducing operations so that vibrations reaching adjacent structures and facilities are within specified limits.

D. Monitor vibrations by measuring the peak particle velocity in the vicinity of work. Peak particle velocity is defined as a maximum vector sum of three velocity components, measured concurrently in mutually perpendicular directions at any point by an instrument. The peak particle velocity as measured by the vibration consulting firm's personnel on or at the location as specified in the submitted vibration monitoring plan, shall not exceed the limits specified below:

Type of Concrete	Age of concrete (hrs.)	Peak Particle Velocity (in./sec)
Mass Concrete (footings, mats, slab-on-grade, fill concrete, etc.)	0-10	1.0
	11 and over	2.0
Concrete Structures (walls, columns, elevated slabs, etc.)	0-11	0.5
	11-24	1.0
	24 and over	2.0
Existing Structures, residences or utilities	---	0.5

E. In the event any recordings indicate that vibration limits are being exceeded, immediately suspend all vibration-inducing operations and submit a report to the Engineer. Revise operations to reduce vibrations and submit a copy of the revised procedure to the Engineer at no additional cost to the Owner.

F. If evidence of displacement or damage to utilities, equipment, or structures is observed or reported, immediately notify the Engineer and discontinue operations creating the vibrations. Revise operation to reduce vibrations and submit a copy of the revised procedure to the Engineer.

G. Restore or replace utilities, equipment, or structures damaged by vibrations at no additional cost to the Owner.

3.02 CONTRACT CLOSEOUT

A. Provide in accordance with Section 01 77 00 – Closeout Procedures.

END OF SECTION

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SECTION 02 81 00

TRANSPORTATION AND DISPOSAL

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PART 1 – GENERAL

1.01 SUMMARY

A. Section includes transportation and disposal of all demolition materials, aboveground and underground piping and structures designated for removal, foundation walls, slabs, excavated soils and debris to specified waste management facility.

B. Contractor shall comply with applicable requirements of this Section even if the Transportation and Disposal are provided by others.

C. Contractor shall be solely responsible for proper loading of, and abiding by the load limits and weight limits for all vehicles leaving the Project site, and for any fines, taxes, penalties or judgments resulting from overweight or improperly loaded vehicles.

1.02 SUBMITTALS

A. Contractor shall provide a list of proposed waste haulers for approval by Engineer. Contractor shall submit copies of all necessary permits and certifications of listed waste haulers to Engineer before commencing the Work.

B. The Contractor shall submit written certification of proper transport of impacted materials and debris to Engineer within ten working days after receipt of the documentation. Contractor shall submit copies of all waste manifests, Weigh Tickets, and bills of lading.

C. Daily Construction Report shall include detailed documentation of all loading and transport activities as specified in Section 01 32 00 – Construction Progress Documentation.

1.03 COORDINATION WITH DESIGNATED WASTE MANAGEMENT FACILITIES

A. The Contractor shall be responsible for coordinating waste shipments with the designated waste management facility.

B. The Contractor shall only ship waste to a state approved waste management facility.

C. The Contractor shall obtain written approval from the Engineer before sending any waste to an off-site disposal facility.

1.04 DESIGNATED HAUL ROUTES

A. The Contractor's Technical Execution Plan shall include the designated haul route(s) to the approved waste disposal facilities, subject to approval by the Engineer.

1.05 SHIPPING DOCUMENTATION

A. Shipping documentation shall be performed consistent with federal, state, and local waste management and transportation requirements and the requirements of off-site disposal facilities.

B. The Contractor shall prepare necessary paperwork for transportation and disposal of all materials to the appropriate waste management facilities.

C. A non-hazardous/ hazardous waste manifest or other tracking document shall be provided by the Contractor for each individual load depending on material classification. Each manifest shall be signed by designated authorized agent of the Owner, the truck driver as a transporter, and by the disposal facility operator.

D. The Contractor shall not be paid for shipments with unsigned shipping documentation.

E. Daily Trucking Log:

1. The Contractor shall provide a Daily Trucking Log to the Engineer for approval providing information on each off-site shipment from the site, including trucking company, truck and trailer registration number, date, pre-characterization source ID, destination facility, estimated quantity, verification of decontamination, and Contractor personnel's initials.

2. The Contractor shall fill in the Daily Trucking Log for each shipment at the time it leaves the Site.

3. The Contractor shall submit the completed Daily Trucking Log to the Engineer electronically as specified in Sections 01 32 00 – Construction Progress Documentation and 01 33 00 – Submittal Procedures.

4. The Contractor shall not be paid for any shipment if there are discrepancies between Daily Trucking Logs and facility weigh tickets until the discrepancy is resolved, as determined by the Engineer.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 PREPARATION FOR TRANSPORT

A. Contractor shall coordinate Transportation Work to maintain production rates for completion of the Work in accordance with the Project Milestones. Slowing or stopping of excavation work by Contractor for reason of lack of transportation or availability of shipping containers will not be acceptable.

B. Loading operations and hours shall be coordinated with the operating hours of landfills or other designated off-site facilities. Loading shall be limited to the hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, or as otherwise specified or approved by the Engineer. Any vehicle loaded after disposal hours shall remain parked at the Project Site in a designated area of the Secured Zone until such time as that truck may reasonably proceed to the designated waste management facility. Cover any impacted material in truck beds to control odors. Contractor shall coordinate excavation, demolition, stockpiling, loading, and transportation, subject to the Engineer's approval, to efficiently utilize combined resources. Contractor's operations shall be coordinated to minimize standby time and minimize truck-waiting time, and to maximize excavation production and hauling production.

3.02 HAULING OF IMPACTED MATERIALS AND DEBRIS

A. Contractor shall furnish and operate all vehicles and containers for transportation of materials from the Project Site.

B. The Contractor shall load and transport all categories of materials and debris.

C. Drivers shall drive directly to disposal facility and shall not stop except in the event of an emergency.

D. Transportation of materials and debris shall be in compliance with all pertinent regulations.

E. Each truck bound for the off-site disposal facility shall be covered with a heavy duty tarpaulin secured to the top or sides of the container.

F. Contractor shall visually inspect each truck before it leaves the Site to ensure that the tailgate and tarp are secure. Contractor shall decontaminate vehicles as specified in Specifications 02 06 00 - Decontamination.

G. Haul trucks shall be decontaminated on site prior to re-use for hauling anything other than material from the Site.

H. In the event that a loaded truck is involved in an incident that results in a release of the transported materials, the cleanup shall follow local and State Department of Transportation spill response procedures.

I. Contractor shall promptly clean up any spills on haul routes, if they occur, with suitable equipment at no cost to the Project.

J. Contractor shall keep all haul routes and public rights of way free of any site materials due to the Contractor's operations. To this end, all Contractor trucks shall be covered, and all vehicles shall be carefully loaded to prevent site materials from coming in contact with the exterior truck surfaces.

K. The load weight shall be documented by the disposal facility scale Weigh Ticket. Contractor shall submit copies of all disposal facility scale Weigh Tickets to the Engineer. Unsigned scale Weigh Tickets will be rejected and the Contractor will not be paid based on these weights.

L. Contractor shall prevent the tracking of site materials onto public rights-of-way.

M. Loaded trucks shall not leave the Site unless they shall arrive at the designated waste management facility before it closes. Loaded trucks shall discharge their loads at the designated waste management facility the same day they are loaded.

N. Truck drivers shall be required to remain inside the truck cab with the windows and doors closed during loading and at all times when inside the Exclusion Zone. Drivers shall be instructed to proceed after loading through a decontamination area to a designated area outside the Exclusion Zone where they will be permitted to exit the truck cab to secure the tarpaulin over the load.

O. In the HASP, the Contractor shall address vehicular accidents and the possible release of transported materials.

3.03 MANIFESTS

A. The Contractor will prepare and sign manifests, and prepare necessary paperwork for transportation and disposal of impacted materials and debris.

B. A non-hazardous waste manifest or other tracking document will be provided by the Contractor for each individual load. Each manifest shall be signed by designated authorized agent of the Owner, the truck driver as a transporter, and by the waste management facility operator.

C. The Contractor will not be paid for shipments with unsigned manifests.

3.04 TRANSPORTATION

A. Contractor shall obtain all required transportation permits for shipment of impacted materials and debris.

B. Transportation of impacted materials and debris shall be in accordance with applicable state, RCRA, USDOT, and other applicable regulations including: 40 CFR 261, 262, 263 and 49 CFR 171 through 179.

C. Truck drivers using routes other than the routes listed in the TEP or found upon investigation to be at fault of causing an accident associated with this project will be barred from working on the Site.

3.05 PERMITS

A. Contractor shall obtain all required transportation permits for shipment of impacted materials and debris.

END OF SECTION

SECTION 02 95 00
HYDROSEEDING

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PART 1 - GENERAL

1.01 DESCRIPTION OF THE WORK

A. Work specified in this Section includes all labor, materials, and equipment necessary to prepare disturbed areas for seeding to establish a protective vegetative cover as indicated on the Drawings and as specified herein.

1.02 QUALITY ASSURANCE

A. The Contractor shall cover all disturbed areas with Engineer approved topsoil prior to placing hydroseed.

1.03 SUBMITTALS

A. Shop Drawings: Submit five (5) sets of proposed seed mixture in accordance with Specifications Section 01 33 00 – Submittal Procedures for review prior to construction.

B. If the Contractor proposes use of a hydro seeding operation, the following items must be provided:

1. A certified statement shall be furnished, prior to start of work, to the Engineer by the Contractor as to the number of pounds of limestone, fertilizer and grass seed per 100 gallons of water.

2. The statement should also specify the number of square yards of seeding that can be covered with the solution specified above. If the results of the spray operation are unsatisfactory, the Contractor will be required to abandon this method and to apply the lime, fertilizer, and grass seed by other methods.

1.04 WARRANTY

A. Seed Mix:

1. The Contractor shall guarantee the germination and growth of the permanent seed mix for a period of one year. The Contractor shall guarantee that the seed mix will be free on any noxious or invasive species. If after a year the seeding has not resulted in greater than 85 percent herbaceous cover, as determined by the Engineer, the Contractor shall re-seed the sparsely vegetated areas at no additional cost to the Owner or Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Topsoil:

1. Topsoil shall consist of natural loam topsoil, obtained from naturally well-drained areas which have not been previously stripped. Suitable material stripped from the site in areas not requiring top soil will be acceptable. The Contractor shall free the topsoil of stones, roots, brush, litter or other unsuitable materials and remove them from the premises, and the suitable material shall be properly stockpiled on site. Suitable material shall be of uniform quality, free from hard clods, still clay, hardpan, sods, and undesirable inorganic materials and conform to the following requirements.

a. Organic matter – 8% organic carbon contents (by weight) or 15% organic matter content.

b. Acidity Range - pH 5.8 to pH 6.0.

c. Topsoil previously removed and stockpiled shall be used in the work. Topsoil shall be free from subsoil, litter, and other objectionable material.

d. Sources of any topsoil used to restore grades will be inspected by Engineer for overall suitability and for the presence of invasive species prior to installation.

B. Lime:

1. Lime shall be standard commercial ground limestone containing at least 50 percent total oxides (calcium oxide and magnesium oxide), and 50 percent of the material must pass through a No. 100 mesh sieve with 98 percent passing a No. 2 mesh sieve.

C. Fertilizer:

1. Fertilizer (other than that used in hydroseed) shall be commercial fertilizer, 10-10-10 fertilizer mixture containing at least 40 percent of organic nitrogen. It shall be delivered to the site in the original sealed containers, each showing the manufacturer's guaranteed analysis. Store fertilizer so that when used it shall be dry and free flowing.

2. Fertilizer shall be applied in the slurry mix for hydroseeding and shall have an analysis conforming to the following, with a minimum application rate of 14 pounds/1,000 square feet:

Constituent	% Passinq by Weight
Nitrogen (N)	13
Phosphorous (P)	13
Potassium (K)	13

3. Fertilizer shall be delivered in manufacturer's standard container printed with manufacturer's name, material, weight, and guaranteed analysis.

4. If permanent seeding is conducted in the spring or fall, topdressing is required. Topdressing may consist of slow release nitrogen (38-0-0) applied at a rate of 300 pounds/acre applied during seeding - OR - a later application (8/15 – 11/11 for fall planting; 3/1 - 5/15 for spring planting) of 10-10-10 applied at a rate of 400 pounds/acre.

D. Seed:

I. Grass seed mixture shall conform to the following requirements.

	Weight in Mixture (lbs.)	Minimum % Purity	Minimum % Germination
Tall Fescue	40	95	90
Barverdi Annual Rye	35	95	90
Perennial Ryegrass	15	95	90
Creeping Red Fescue	5	95	90
Kentucky Bluegrass	5	95	90

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

A. After approval of rough grading, topsoil shall be placed on areas affected by the Contractor's operations. Topsoil shall be at least 6 inches compacted thickness. Topsoil material should be handled only when it is dry enough to work without damaging the soil structure.

B. Fertilizer shall be applied at the rate of 1,000 pounds per acre.

C. Topsoil shall be worked a minimum of 3 inches deep, thoroughly incorporating the lime and fertilizer into the soil. The topsoil shall then be raked until the surface is finely pulverized and smooth and compacted with rollers, weighing not over 100 pounds per linear foot of tread, to an even surface conforming to the prescribed lines and grades. Minimum depth shall be 6-inches after completion as shown in the detail on the Construction Drawings. The final bulk density shall not exceed 1.6 g/cm3.

3.02 SEEDING

A. Permanent seeding shall be done when weather conditions are approved as suitable, in the periods between April 1 and May 15 or August 15 and October 1, unless otherwise approved by the Engineer.

B. If there is a delay in seeding during which soil is washed out, the Contractor shall replace the soil before sowing the seed without additional compensation. Surface preparation as described in 3.01 of this Specification must be reinitiated, if required by the Engineer.

C. Seed shall be sown at a minimum rate of 90 lbs/acre with the mix as specified in Paragraph 2.01D, on a calm day by machine or by spray machine as specified in 3.5. Water seeding will be permitted if approved by the Engineer.

D. One half the seed shall be sown in one direction and the other half at right angles to the first half. Except in the case of hydroseeding, seed shall be raked lightly into the soil to a depth of 1/4 to 1/2 inch. After seeding, soil shall be firmed using a technique suitable to the Engineer.

E. The surface shall be kept moist by a fine spray until the grass shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than 3 sq. ft., the Contractor shall reseed, roll, and water as necessary to obtain proper germination.

3.03 SEEDING BY SPRAY MACHINE

A. The application of lime fertilizer, grass seed and mulch may be accomplished in one operation by the use of an approved spraying machine. The materials shall be mixed with water in the machine and kept in an agitated state in order to keep materials uniformly suspended in the water. The spraying equipment shall be so designed that when the solution is sprayed over an area, the resulting deposits of lime, fertilizer and grass seed shall be equal to the specified quantities.

END OF SECTION

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DIVISION 31

EARTHWORK

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SECTION 31 22 00

FILL, BACKFILL AND GRADING

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PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes placement and compaction of backfill material.

1.02 REFERENCES

A. ASTM D 1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (Modified Proctor).

B. ASTM D2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

C. ASTM D2922, Standard Test Methods for Density of Soil and Soil-Aggregate In Place by Nuclear Methods.

D. ASTM D3017, Standard Test Methods for Water Content of Soil and Soil-Rock In Place by Nuclear Methods.

1.03 SUBMITTALS

A. Contractor shall submit written documentation showing conformance of the materials and constructed work with the specifications within five days after test results are obtained.

B. For common fill/backfill and topsoil, Contractor shall submit written certification, signed by the material supplier, stating that the material meets or exceeds the specified requirements. Information shall be submitted to Engineer for review and approval no less than fourteen calendar days prior to scheduled delivery of specified material to the Site.

C. Contractor shall submit samples of imported Common Backfill and Topsoil material to Engineer for chemical analyses. At least one sample shall be submitted for each borrow source at least three weeks prior to being needed on site.

1.04 QUALITY CONTROL

A. Contractor shall retain the services of an approved independent Quality Control (QC) Firm licensed in the State of Massachusetts to document conformance of material type of backfill materials with the Specifications.

B. Testing (by Contractor's QC Firm) of on-site backfill, common fill and aggregate subbase from off-site borrow sources, shall include:

1. Soil Classification (ASTM D2487) – Minimum of one test for each visible change in material, at least one test for every borrow source, and at least one test for every 5,000 tons of common fill and re-compacted subgrade. One test for the on-site backfill material placed.

2. Standard Proctor Moisture - Density Curve (ASTM D 1557) – Minimum of one test for each visible change in material, at least one test for every borrow source, and at least one test for every 5,000 tons of common fill, and re-compacted subgrade, if less than 30 percent by weight is retained on the ¾-inch sieve) placed. One test for the on-site backfill material placed.

C. During performance of the Work, Contractor shall employ all equipment and services necessary for control of depths, lines, and grades within required tolerances.

D. The Contractor is responsible for any additional survey required to ensure the grades and limits shown on the Drawings are achieved. As-built survey will be used to obtain quantities for measurement and payment. The Owner may conduct an independent survey to confirm measurement and payment quantities.

1.05 PROJECT CONDITIONS

A. Work shall be performed in a manner that does not disturb existing utilities, structures, or other facilities not indicated to be removed within the project limits.

1.06 LABORATORY CHEMICAL ANALYSIS OF EARTH MATERIALS

A. Work shall be performed in a manner that does not disturb existing utilities, structures, or other facilities not indicated to be removed within the project limits.

B. Analytical results to include:

1. Asbestos by USEPA method 600/R-93/116

2. Total petroleum hydrocarbons (ETPH)

3. Polychlorinated biphenyls by USEPA method 8082 including soxhlet extraction method 3540c

4. Metals by USEPA method 6020/7471

5. Volatile organic compounds (VOCs) by USEPA method 5035/8260b

6. Polycyclic aromatic hydrocarbons (PAHs) by USEPA method 8270

7. Pesticides by USEPA method 8080 and free (physiologically available)

8. Cyanide by USEPA method 9012.

C. Imported fill and topsoil shall be obtained from approved natural deposits and unprocessed except for the removal deleterious materials and stones larger than the maximum size permitted.

PART 2 – PRODUCTS

2.01 COMMON FILL

A. Imported common fill shall be hard durable sand and gravel and shall be free from ice, snow, roots, sod, rubbish, and other deleterious or organic matter. It shall be free from chemical contamination. It shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3-inch	100
2-inch	90 -100
1-inch	70 - 90
No. 4	80 – 30
No. 200	0 – 10

B. On site excavated soil meeting the material and gradation requirements for imported common fill may be substituted for common fill.

2.02 TOP SOIL

A. Top Soil shall be fertile, friable, natural loam. It shall be free of any chemical contamination, debris, stumps, rocks, roots, and noxious weeds. It shall contain no substance that is potentially toxic to plant growth. It shall consist of the following, or equivalent approved by the Engineer:

Clay	10% - 30%
Silt	30% - 60%
Sand	10% - 70%
Organic Matter	>5%
% retained on two inch sieve	0%
pH	6.0 – 7.5

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL

A. The Contractor will perform surveying to record the final subgrade surface elevation with a Massachusetts State Registered Land Surveyor. The Contractor shall notify the Engineer when backfill is completed so the survey can be conducted without delaying subsequent Work. Final thickness of placed backfill shall vary no more than 10 percent from the specified thickness.

3.02 PREPARATION

A. Backfilling of excavations shall not proceed until Engineer has approved the completion of excavation in each area or sub-area of the Site.

B. Do not place backfill on frozen, wet, or spongy subgrade.

C. Do not place frozen or excessively wet fill or backfill.

D. Verify that subgrade has been accepted by the Engineer.

3.03 PLACEMENT OF FILL/BACKFILL

A. Areas where excavation has been completed, as determined by Engineer, shall be filled/backfilled as specified in the following paragraphs.

B. Common Fill:

C. Common fill shall be used to fill excavations to the bottom of the topsoil as shown on the Drawings.

D. Common fill shall be placed in uniform layers not exceeding 12 inches and compacted to a minimum of 90 percent of the material's maximum dry density, as determined by ASTM D 1557 with a minimum of three passes of a vibratory compactor or other approved equivalent.

E. Common fill shall be placed at moisture content adequate to allow effective compaction.

F. The Contractor shall minimize voids during placement.

G. Tolerance for placement – fill shall be placed within a tolerance of plus or minus 0.1 foot from the locations, elevations, and grades shown on the Drawings.

H. Perform inspection at least once daily to confirm lift thickness and compaction effort for entire fill area. Frequency of field density tests:

I. Roadways 1 per lift for each 250 linear feet (100 linear metre) of fill placed

J. Paved Areas 1 per lift for each 10,000 square feet (1000 square metres) of fill placed

K. Open Areas 1 per lift for each 25,000 square feet (2300 square metres) of fill placed

L. Top Soil

1. 6 inches of topsoil will be placed within the areas shown on the Drawings.

2. Topsoil shall not be placed while in a frozen or muddy condition, nor when the topsoil or subgrade is excessively wet.

3. Place topsoil in four-inch loose lifts and compact lightly to create a smooth surface. Over-compacted topsoil shall be loosened and re-rolled to a smooth surface.

3.04 SITE GRADING

A. During backfilling of excavations, Contractor shall grade the Site as specified in this paragraph.

B. Contractor shall grade areas to the contours indicated on the Drawings. The soil surface shall be shaped to provide a smooth transition to existing grade at the limits of the disturbed areas.

C. Contractor shall shape and compact fill with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.

D. Contractor shall smooth the finished surfaces for general site grading within tolerance of 0.1 foot above or below the required elevation.

3.05 MAINTENANCE

A. Contractor shall protect newly graded areas from traffic and erosion. The Work shall be sequenced to minimize disturbance of completed areas.

B. Where completed areas are disturbed by subsequent project operations or adverse weather, fill and reshape eroded areas until acceptance of the Work.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

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SECTION 32 31 00

CHAIN LINK FENCES AND GATES

PART 1 – GENERAL 1
1.01. SUMMARY 1
1.02. REFERENCES 1
1.03. SUBMITTALS 1
PART 2 – PRODUCTS 2
2.01. FABRIC 2
2.02. POSTS 2
2.03. TOP RAILS AND BRACE RAILS 2
2.04. GATES 2
2.05. CONCRETE FOR POST FOOTINGS 2
PART 3 – EXECUTION 2
3.01. PREPARATION 2
3.02. FENCE INSTALLATION 2
3.03. MAINTENANCE AND REMOVAL 3

PART 1 – GENERAL

1.01. SUMMARY

A. Contractor shall provide all necessary labor, materials, and equipment for placement, maintenance, and relocation of temporary chain link fencing, and gates as needed to complete the Scope of Work.

B. Contractor shall provide all necessary labor, materials and equipment for installation of privacy fabric as an dust control measure.

1.02. REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A 392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric

2. ASTM C 33, Standard Specification for Concrete Aggregates

3. ASTM C 150, Standard Specification for Portland Cement

4. ASTM F 567, Standard Practice for Installation of Chain-Link Fence

5. ASTM F 626, Standard Specifications for Fence Fittings

6. ASTM F 900, Standard Specification for Industrial and Commercial Swing Gates

1.03. SUBMITTALS

A. Contractor shall submit product data and shop drawings showing materials, finishes and dimensions for fencing and gates seven (7) days prior to relocation of fences and gates.

PART 2 – PRODUCTS

2.01. FABRIC

A. Height of fence fabric shall be six (6) feet minimum.

B. A woven geotextile made of 100% slit film yarns (US 2000 or equivalent) shall be used on the temporary fence.

2.02. POSTS

A. Posts shall consist of 2½" aluminum gate posts.

2.03. TOP RAILS AND BRACE RAILS

A. Rails shall consist of 1⅜" aluminum rail.

B. Furnish rails in manufacturer's longest length, with expansion type couplings, approximately six inches long, for each joint. Provide means for attaching the top rail and bottom rail securely to each gate, corner, pull, and end post.

2.04. GATES

A. Contractor shall use same fabric as for fence, unless otherwise indicated. Gates shall be located as necessary to facilitate manned exit and entry from the area, and to allow for truck traffic as necessary, and shall be complete with latches, stops, keepers, and hinges. Swing gates shall conform to ASTM F 900.

B. Vehicle Gates:

1 Minimum width is 20 ft to allow access for emergency vehicles.

2 Capable of manual operation by one person.

2.05. CONCRETE FOR POST FOOTINGS

A. Concrete shall consist of Type I Portland cement complying with ASTM C 150, aggregates complying with ASTM C 33, and clean water. Concrete mix shall be proportioned such that the 28-day compressive strength of moist-cured laboratory samples achieves not less than 3,000 pounds per square inch (psi).

PART 3 – EXECUTION

3.01. PREPARATION

A. Contractor shall establish required locations for fencing and gates.

B. The ground surface along the alignment of the fencing shall be graded as necessary to provide a relatively even surface for fence construction.

3.02. FENCE INSTALLATION

A. Fence shall be constructed in accordance with ASTM F 567, except as modified in this subsection, and in accordance with the fence manufacturer's recommendations.

B. Contractor shall provide all necessary hardware for a complete installation.

C. Contractor shall install temporary fencing as shown on the Drawings or where directed by the Engineer, unless otherwise directed by Engineer. Contractor shall install posts at spacing not greater than ten feet.

D. Contractor shall not install fence fabric until concrete has cured for a minimum of two days.

E. Drive posts, set in holes and backfill, or anchor in precast concrete blocks.

F. For soft and unstable ground conditions, cast concrete plug around post.

G. Posts over pavement: Use steel post plates or precast concrete blocks.

H. Gate posts: Use bracing or concrete footings to provide rigidity for accommodating size of gate.

3.03. MAINTENANCE AND REMOVAL

A. Maintain fencing in good condition. If damaged, immediately repair.

B. If Contractor provides a lock on this fence, the Contractor shall provide a copy of the key in the Fire Department's lock box located at the entrance of Overland Way.

C. Remove temporary fencing upon completion of Work or when no longer required for security or control. Backfill holes and compact. Holes in pavement shall be surfaced to match existing paving. Repair damage caused by installation of temporary fencing.

END OF SECTION

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January 25, 2017

ADDENDUM NO. 1

TO

DOCUMENTS AND SPECIFICATIONS

FOR

TRI-TOWN SEPTAGE TREATMENT FACILITY DEMOLITION

ORLEANS BREWSTER EASTHAM GROUNDWATER PROTECTION DISTRICT ORLEANS, MA

This Addendum No. 1 forms a part of the Contract Documents and modifies the Bidding Documents dated December 7, 2016 as noted below. Acknowledge receipt of this Addendum in the space provided in DOCUMENT 00410, FORM OF GENERAL BID. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of 4 pages and the following attachments for a total of 44 pages:

Documents: DOCUMENT 00410R – FORM OF GENERAL BID (10 pages)

DOCUMENT 00830 – STATE REGULATIONS (MASSACHUSETTS), ATTACHMENT A MINIMUM WAGE RATES (26 pages)

SECTION 01 21 00, ALLOWANCES (4 pages)

CHANGES TO BE MADE TO THE CONTRACT DOCUMENTS

1. SECTION 00100, ADVERTISEMENT FOR BIDS

   A. Page 00100-1, after the ninth paragraph add the following new paragraph:

   "The Contractor shall furnish a copy of a DCAMM Certificate for "Demolition" in their bid pursuant to M.G.L. Chapters 149, 149A, and 25A."

2. SECTION 00200, INSTRUCTIONS TO BIDDERS

   A. Page 00200-2, ARTICLE 1.05, OBLIGATION OF BIDDER, add the following as new Paragraph B:

   "B. The following is a list of Contractors who attended the mandatory pre-bid conference held of January 11, 2017:

   1. American Environmental, Inc., 18 Canal Street, Holyoke, MA 01040;
   2. Costello Dismantling Co., Inc., 45 Kings Highway, West Wareham, MA 02576;
   3. Envirotrac Ltd. 5 Old Dock Road, Yaphank, NY 11980;
   4. JDC Demolition Company, 60 Gerard Street, Boston, MA 02119;
   5. J.R. Vinagro Corporation, 2208 Plainfield Pike, Johnston, RI 02919;
   6. McConnell Enterprises, Inc., 60 Garden Park, Braintree, MA 02184;
   7. Ramco Survey Stakes, 685 North Main Street, West Bridgewater, MA 02379; and
   8. S&R Corporation, 706 Broadway Street, Lowell, MA 01854."

B. Page 00200-3, ARTICLE 1.08, TIME FOR COMPLETION, add the following as new Paragraph B:

"B. The bidders are notified that the bid award will be subject to affirmative votes for funding at the Town of Eastham, Town of Brewster, and Town of Orleans May 2017 Annual Town Meetings and Town Elections. Upon successful votes, it is the intent of the Owner to issue a bid award by mid-July 2017 with a mid-September 2017 on-site start of demolition. The period of time between the bid award and on-site start of demolition is to allow for the selected contractor to complete all pre-demolition activities such as but not limited to obtaining permits, submitting shop drawings and conducing pre-demolition site survey."

3. DOCUMENT 00410R, FORM OF GENERAL BID

A. Delete DOCUMENT 00410, FORM OF GENERAL BID in its entirety and replace with the attached new DOCUMENT 00410R, FORM OF GENERAL BID.

4. SECTION 00520, AGREEMENT, ATTACHMENT A

A. Page 00520A-1, add the following as new Paragraph F:

"F. DCAMM ELIGIBILITY CERTIFICATE AND DCAMM UPDATE STATEMENT FOR "DEMOLITION".

5. DOCUMENT 00830 – STATE REGULATIONS (MASSACHUSETTS), ATTACHMENT A

A. Add the attached Prevailing Wage Rates Issued by the Commonwealth of Massachusetts Department of Labor Standards date January 19, 2017.

6. DOCUMENT 00830 – STATE REGULATIONS (MASSACHUSETTS), ATTACHMENT B

A. Page 00830B, delete Section 40A, Excavations; notices, in its entirety and replace with the following:

"Section 40A. Excavations; notice

"No excavator installing a new facility or an addition to an existing facility or the relay or repair of an existing facility shall, except in an emergency, make an excavation, in any public or private way, any company right-of-way or easement or any public or privately owned land or way, unless at least 72 hours, exclusive of Saturdays, Sundays and legal holidays but not more than 30 days before the proposed excavation is to be made, such excavator has pre-marked not more than 500 feet of the proposed excavation and given an initial notice to the system. Such initial notice shall set forth a description of the excavation location in the manner as herein defined.

The notice requirements shall be waived in an emergency as defined herein; provided, however, that before such excavation begins or during a life-threatening emergency, notification shall be given to the system and the initial point of boring or excavation shall be pre-marked. The excavator shall ensure that the underground facilities of the utilities in the area of such excavation shall not be damaged or jeopardized.

In no event shall any excavation and/or demolition by blasting take place."

7. SECTION 01 11 00, SUMMARY OF WORK

A. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, add the following as new paragraph F.:

"F. The Owner will retain ownership of the following items:

1. 1987 GMC Brigadier Dump Truck, VIN 1GDP8C1Y0JV602118l;
2. Mitsubishi FG25 Cushion Tire Forklift, s/n AF17B-905-059;
3. Miller AIAD-200LE Welder;
4. Cyclone Sandblast Cabinet;
5. Three Fisher Snow Plows (6.5-foot, 8-foot and 9-foot);
6. Metal Storage Shelves and Tool Boxes with Contents;
7. Porta Power Set;

8. Portable Charge with Grease Gun and Work Bench;
9. Aluminum "A" Frame Gantry with Adjustable Height and Wheels;
10. New Electric Motor in Shipping Crate;
11. Stand-alone Drill Press;
12. Two Husqvarna 10530SBE Snow Blowers;
13. Two Stihl Weed Trimmers; and
14. Flat File Cabinet in the Plant Manager's Office.

B. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, add the following as new paragraph G.:

"G. Excavation of grade and/or demolition of existing structures by blasting is not allowed on this Project."

C. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, add the following as new paragraph H.:

"H. The use of demolition materials of any type including crushed concrete is not allows as backfill on this Project."

D. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, add the following as new paragraph I.:

"I. The intent of the restoration of the Project is to minimize the import/export of backfill materials. Therefore, some latitude will be given to Contractor with regards to the adjustment of the proposed finished grades. A new finished grading plan shall be prepared by the Contractor and approved by the Owner and Engineer prior to any activity occurring at the Project Site."

15. SECTION 01 21 00 - ALLOWANCES

A. Add the attached new SECTION 01 21 00, ALLOWANCES.

16. SECTION 01 27 00 - MEASUREMENT AND PAYMENT

A. Page 01 27 00 - 1, Table of Contents, Paragraph 1.05, add the following bid items:

"BID ITEM 12 HANDLING, REMOVAL AND LEGAL DISPOSAL OF REGULATED MATERIALS

BID ITEM 13 SEPTIC SYSTEM REMOVAL AND LEGAL DISPOSAL"

B. Page 01 27 00 - 9, delete "Alternate Bid Item 1 Septic System Removal and Disposal" in its entirety and replace with the following new bid items:

"BID ITEM 12 HANDLING, REMOVAL AND LEGAL DISPOSAL OF REGULATED MATERIALS

a. Description of Work: Work required to complete the Handling, Removal and Legal Disposal of Regulated Materials pay item includes, but is not limited to:

i. An allowance of $50,000 has been established for the Handling, Removal and Legal Disposal of Regulated Materials

ii. Handling, Removal and Legal Disposal of Regulated Materials from the site in accordance with Federal, State and Local rules and regulations.

b. Measurement for Handling, Removal and Legal Disposal of Regulated Materials shall be based on the actual paid invoices processed in accordance with SECTION 00830C – CHANGE ORDERS.

c. Payment for Handling, Removal and Legal Disposal of Regulated Materials will be made in accordance with the unit price for the actual cost incurred for the Bid item "Handling, Removal and Legal Disposal of Regulated Materials" listed in Section 00410 - Form of General Bid. Payment of the unit price for "Handling, Removal and Legal Disposal of Regulated Materials" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, legal disposal, and all other costs necessary to complete the Work.

BID ITEM 13 SEPTIC SYSTEM REMOVAL AND LEGAL DISPOSAL

a. The Description of Work: Work required to complete the Septic System Removal and Legal Disposal pay item includes, but is not limited to:

i. Inspect location of septic system with Engineer;

ii. Review any septic system drawings;

iii. Advance notification of Board of Health or any other approval authority necessary to obtain removal of system, and obtaining any permits for removal and disposal of septic system;

iv. Furnish all labor, equipment, materials necessary to pump septic system solids and liquids to on-site tank or truck. Assume 1,000 gallons of septic system solids and liquids will be pumped out.

v. Transportation and Disposal of septic system solids and liquids to an approved disposal facility;

vi. Removal, Transportation, and Legal Disposal of entire septic system to an approved disposal facility;

vii. Furnish, Placement, and Compaction of backfill material as necessary to match existing grade of the Site.

b. Septic System Removal and Legal Disposal will be measured for payment as one unit, complete as specified.

c. Payment of the lump sum price for "Septic System Removal and Legal Disposal" shall constitute full compensation, if discovered, for all tasks described herein including all, but not limited to, mobilization, temporary facilities, documentation, Permits (Local, State, and Federal), laboratory testing, disposal fees, labor, supervision, incidentals, and all other costs necessary to demolish structures encompassing the horizontal and vertical limits of these structures as shown in Appendix G."

CHANGES TO BE MADE TO THE CONTRACT DRAWINGS

None

END OF ADDENDUM NO. I

(See attachments)

SECTION 00410R

FORM OF GENERAL BID

Proposal of _____ (hereinafter called "Bidder")*

( ) a corporation, organized and existing under the laws of the State of _____

( ) a partnership

( ) a joint venture

( ) a limited liability company

( ) an individual doing business as _____

*Check corporation, partnership, joint venture, LLC or individual as applicable.

To the Orleans Brewster Eastham Groundwater Protection District (hereinafter called "Owner").

Gentlemen:

The Bidder, in compliance with your invitation for bids for Tri-Town Septage Treatment Facility Demolition having examined the plans and specifications with related documents and the site of the proposed work, attended the mandatory pre-bid conference, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all superintendence, labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, bailing, shoring, removal, and all other things necessary to construct the project in accordance with the contract documents, within the time set forth below, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this bid is a part.

The Bidder hereby agrees that if selected as the Contractor it will commence work under this contract on or before a date to be fixed in the written "Notice to Proceed" given by the Owner to the Contractor and to fully complete the project within 175 Consecutive calendar days of the start date fixed in the "Notice to Proceed" using no more than 120 working days. The Bidder further agrees to pay as liquidated damages the sum of $2,000.00 for each consecutive calendar day and/or working day thereafter during which the work as not been fully completed, as provided in the "Liquidated Damages" provisions of SECTION 00800 - SUPPLEMENTARY CONDITIONS.

Bidder acknowledges receipt of the following addenda:

No.	Dated

Bidder acknowledges attendance at the mandatory pre-bid conference: ( ) Yes ( ) No

Insert the name of the bidders representative who attended the mandatory pre-bid conference: _____

Item	Description	Quantity	Extended Total
1.	For Mobilization, as specified, the lump sum of (not to exceed five (5) percent of bid) Dollars ($) L.S.	1	
2..	For Temporary Facilities and Controls, as specified, the sum of Dollars ($) per L.S.	1	
3.	For Regulated Waste Removal, as specified, the sum of Dollars ($) per L.S.	1	
4.	For STF Pre-Demolition Activities, as specified, the sum of Dollars ($) per L.S.	1	
5.	For Compost Shed Demolition, as specified, the sum of Dollars ($) per L.S.	1	
6.	For STF Building Demolition, as specified, the sum of Dollars ($) per L.S.	1	
7.	For Excavate and Stage Material, as specified, the sum of Dollars ($) per c.y.	18,000	
8.	For Supply Common Fill From Off Site Source, as specified, the sum of Dollars ($) per Ton	5,250	
9.	For Backfill Placement, as specified, the sum of Dollars ($) per c.y.	18,000	
10.	For Restoration: Top Soil and Seeding, as specified, the sum of Dollars ($) per s.f.	133,500	
11.	For Site Restoration and Demobilizations, as specified, the sum of Dollars ($) per L.S.	1	

Item	Description	Quantity	Extended Total
12.	For handling, removal and legal disposal of regulated materials, as specified, the sum of Fifty Thousand Dollars ($50,000) Allowance	1	$50,000
13.	For Septic System Removal and Legal Disposal, as specified, the sum of Dollars ($) per L.S.	1	

TOTAL AMOUNT OF BID BASED ON ENGINEER'S ESTIMATE OF QUANTITIES:
(Total of Item 1 through Item 13, inclusive) - BASIS OF AWARD

Dollars ($)

Bidder agrees to perform all the work, including all incidental labor, materials and equipment necessary for the satisfactory completion of the work and in full compliance with the contents and intent of the Specifications and/or Drawings of the work.

All prices, except item totals, shall be stated in both words and figures. In the event of a discrepancy between the price in words and the price in figures, the words shall govern. In the event of a discrepancy between the total of the items and the total stated, the total of the items shall govern.

Interlineation, alteration or erasure may void the bid. All prices shall be typewritten or written by hand in ink.

The Owner reserves the right to withhold the fair market value for work not completed in addition to the retainage on work completed. Unbalanced bid items will specifically be subject to review and to this potential withholding from periodic payment applications.

The unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, engineering costs, etc., to cover the finished work of the several kinds called for. The Bidder understands that all bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including General Laws Chapter 30, Section 39M, as amended.

The contract will be awarded to the lowest responsible and eligible bidder.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn before June 30, 2017.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal agreement attached in SECTION - AGREEMENT and provide the requisite payment and performance bonds and certificates of insurance.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of SECTION 00200 - INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Owner in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract prices in accordance with SECTION 00610 - PERFORMANCE BOND, SECTION 00615 - PAYMENT BOND, and as stipulated in paragraph 5.01 of SECTION 00700 - GENERAL CONDITIONS of these specifications.

The undersigned offers the following information as evidence of its qualifications to perform the work as bid upon according to all the requirements of the plans and specifications.

1. Have been in business under present name for _____ years.

Project No. 1

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

Project No. 2

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

Project No. 3

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

Project No. 4

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

Project No. 5

Completion Date	Project Name	Contract Amount
Design Engineer	Reference Name	Telephone No.

2. The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as Principals, are as follows:

_____

_____

_____

_____

_____

_____

(Attach supplementary list if necessary)

3. The Bidder shall state below what work of a similar character to that included in the proposed contract it has done, and give references that will enable the Owner to judge its experience, skill and business standing (add supplementary page(s) if necessary).

Pursuant to M.G.L. CH. 62C, Sec 49A, the undersigned Bidder certifies under the penalties of perjury that it is in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

The undersigned Bidder hereby certifies that (1) it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; and (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity which sells materials, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof.

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of Section Twenty-Nine F of Chapter Twenty-Nine, Section 25C (10) of Chapter 152 (workers' compensation) or any other applicable debarment provisions of any other Chapter of the General Laws or any rule or regulations promulgated thereunder.

Respectfully submitted:

Date: _____ By: _____

(Signature)

_____

(Name – Typed or Printed)

_____

(Title)

_____

(Business Name)

_____

(Federal ID Number)

_____

(Business Address)

_____

(City and State)

_____

(Telephone Number)

(SEAL - if bid is by a corporation)

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SECTION 01 21 00
ALLOWANCES

PART 1 - GENERAL 1
1.01 SUMMARY 1
1.02 MEASUREMENT AND PAYMENT 1
1.03 DEFINITIONS 1
1.04 SUBMITTALS – Not Used 2
1.05 PRODUCT HANDLING – Not Used 2
1.06 ALLOWANCES FOR PRODUCTS 2
1.07 SELECTION OF PRODUCTS UNDER ALLOWANCES 2
1.08 ADJUSTMENT OF COSTS 3
PART 2 - PRODUCTS - Not Used 3
PART 3 - EXECUTION - Not Used 3

PART 1 - GENERAL

1.01 SUMMARY

A. Include all costs related to the scheduled allowances in the applicable bid item of DOCUMENT 00410, FORM OF GENERAL OF BID. Allowance amounts listed herein have been estimated. Actual paid invoice amounts shall be used for reimbursement purposes.

1.02 MEASUREMENT AND PAYMENT

A. Measurement and payment for work described in this section will be made in accordance with the provisions of SECTION 01 27 00, MEASUREMENT AND PAYMENT.

B. Include in the Contract Price, scheduled allowances included under the applicable Bid Item of DOCUMENT 00410, FORM OF GENERAL BID specified in the respective specification sections and listed below:

1.03 DEFINITIONS

A. Definitions shall be as specified in DOCUMENT 00700, GENERAL CONDITIONS.

B. As used in this section, the following terms are understood to have the following meanings:

1. "Furnish" shall mean purchase and deliver to the Project Site, complete with every necessary appurtenance and support.
2. "Install" shall mean unload at the delivery point at the Project Site and perform all Work necessary to establish proper location, secure mounting and operation in the Project.
3. "Provide" shall mean furnish and install.
4. "Work" shall mean all labor, materials, equipment, apparatus, controls, accessories, and all other items required for a proper and complete installation.
5. "Piping" shall mean, in addition to pipe or tubing, all fittings, flanges, unions, valves, strainers, specialties, drains, hangers and supports, and all other accessories relative to such pipe or tubing.
6. "Concealed" shall mean hidden from sight in chases, furred spaces, shafts, crawl spaces, embedded in construction, buried, and/or similar conditions.

7. "Exposed" shall mean not concealed as defined above.
8. "Furnished by others" shall mean materials or equipment purchased and set in place under other sections of the Contract and connected to the systems covered by this section of the Specifications by this trade Contractor.
9. "Coordinate" shall mean all Work provided under this section shall be correlated with the Work of other trades.

1.04 SUBMITTALS – Not Used

1.05 PRODUCT HANDLING – Not Used

1.06 ALLOWANCES FOR PRODUCTS

A. The amount of each allowance includes:
   1. The cost of the product for service.
   2. Applicable taxes.

B. In addition to the amount of each allowance, include, except as specified herein, in the Contract Sum the Contractor's costs for:
   1. Handling at the site, including unloading, uncrating, storage, and legal disposal.
   2. Protection from the elements and from damage.
   3. Labor for installation and finishing, except where labor is specified to be a part of the Allowance.
   4. Other expenses required to complete the installation.
   5. Contractor's and Subcontractor's overhead and profit.

C. The scheduled allowances are as follows:

SCHEDULED ALLOWANCES

Item Number	Description	Amount	Bid Item
1	Handling, Removal and Legal Disposal of Regulated Materials	$50,000	12

1.07 SELECTION OF PRODUCTS UNDER ALLOWANCES

A. Engineer's duties are as follows:
   1. Make selection in consultation with the Owner and obtain Owner's written decision.
   2. Transmit Owner's decision to the Contractor.
   3. Prepare Change Orders.

B. Contractor's duties are as follows:
   1. Obtain proposals from suppliers and installers when requested by the Engineer.
   2. Make appropriate recommendations for consideration by the Engineer.
   3. Notify the Engineer promptly of:
      a. Any reasonable objections the Contractor may have against any supplier, or party under consideration.
      b. Any effect on the construction schedule anticipated by selections under consideration.

1.08 ADJUSTMENT OF COSTS

A. Should the net cost be more or less than the specified amount of the allowance, the Contract Price shall be adjusted accordingly by Change Order. The amount of the Change Order will recognize any changes in handling costs at the Project Site, labor, installation costs, overhead, profit and other expenses caused by the selection under the allowance.

B. Submit any claims for anticipated additional costs at the Project Site, or other expenses caused by the selection under the allowance, prior to execution of the Work.

C. Submit documentation or actual additional costs at the Project Site, or other expenses caused by the selection under the allowance, within 60 days after completion of execution of the Work.

D. Failure to submit claims within the designated time will constitute a waiver of claims for additional costs.

E. At Contract closeout, reflect all approved changes in Contract Price in the final statement of accounting.

PART 2 - PRODUCTS - Not Used.

PART 3 - EXECUTION - Not Used.

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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: Orleans Brewster Eastham Groundwater Protection

Contract Number:

City/Town: ORLEANS

Description of Work: Demolition of the Tri-Town Septage Treatment Facility. The scope of work includes the complete demolition and legal disposal of the septage treatment plant equipment and structures.

Job Location: 29 Overland Way, Orleans, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.15	$10.91	$10.89	$0.00	$53.95
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.22	$10.91	$10.89	$0.00	$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.34	$10.91	$10.89	$0.00	$54.14
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	$90.51	$9.80	$18.17	$0.00	$118.48
AIR TRACK OPERATOR *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$33.15	$7.45	$12.65	$0.00	$53.25
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2016	$33.90	$11.50	$7.10	$0.00	$52.50
	06/01/2017	$34.90	$11.50	$7.10	$0.00	$53.50
	12/01/2017	$35.90	$11.50	$7.10	$0.00	$54.50
	06/01/2018	$36.90	$11.50	$7.10	$0.00	$55.50
	12/01/2018	$37.90	$11.50	$7.10	$0.00	$56.50
	06/01/2019	$38.90	$11.50	$7.10	$0.00	$57.50
	12/01/2019	$39.90	$11.50	$7.10	$0.00	$58.50
	06/01/2020	$40.90	$11.50	$7.10	$0.00	$59.50
	12/01/2020	$41.90	$11.50	$7.10	$0.00	$60.50
ASPHALT RAKER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$33.15	$7.45	$12.65	$0.00	$53.25
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2017	$42.92	$6.97	$16.21	$0.00	$66.10

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$27.90	$6.97	$10.54	$0.00	$45.41
2	65	$27.90	$6.97	$10.54	$0.00	$45.41
3	70	$30.04	$6.97	$11.35	$0.00	$48.36
4	75	$32.19	$6.97	$12.16	$0.00	$51.32
5	80	$34.34	$6.97	$12.97	$0.00	$54.28
6	85	$36.48	$6.97	$13.78	$0.00	$57.23
7	90	$38.63	$6.97	$14.59	$0.00	$60.19
8	95	$40.77	$6.97	$15.40	$0.00	$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (NEW BEDFORD)*	08/01/2016	$50.76	$10.18	$19.22	$0.00	$80.16
	02/01/2017	$50.76	$10.18	$19.79	$0.00	$80.73

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 New Bedford*

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.38	$10.18	$19.22	$0.00	$54.78
2	60	$30.46	$10.18	$19.22	$0.00	$59.86
3	70	$35.53	$10.18	$19.22	$0.00	$64.93
4	80	$40.61	$10.18	$19.22	$0.00	$70.01
5	90	$45.68	$10.18	$19.22	$0.00	$75.08

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.38	$10.18	$19.79	$0.00	$55.35
2	60	$30.46	$10.18	$19.79	$0.00	$60.43
3	70	$35.53	$10.18	$19.79	$0.00	$65.50
4	80	$40.61	$10.18	$19.79	$0.00	$70.58
5	90	$45.68	$10.18	$19.79	$0.00	$75.65

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$37.95	$7.45	$14.00	$0.00	$59.40
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.80	$7.45	$14.00	$0.00	$58.25
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.80	$7.45	$14.00	$0.00	$58.25
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	09/01/2016	$37.80	$9.90	$17.00	$0.00	$64.70
	03/01/2017	$38.77	$9.90	$17.00	$0.00	$65.67
	09/01/2017	$39.78	$9.90	$17.00	$0.00	$66.68
	03/01/2018	$40.78	$9.90	$17.00	$0.00	$67.68
	09/01/2018	$41.82	$9.90	$17.00	$0.00	$68.72
	03/01/2019	$42.85	$9.90	$17.00	$0.00	$69.75

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.90	$9.90	$1.63	$0.00	$30.43
2	60	$22.68	$9.90	$1.63	$0.00	$34.21
3	70	$26.46	$9.90	$12.11	$0.00	$48.47
4	75	$28.35	$9.90	$12.11	$0.00	$50.36
5	80	$30.24	$9.90	$13.74	$0.00	$53.88
6	80	$30.24	$9.90	$13.74	$0.00	$53.88
7	90	$34.02	$9.90	$15.37	$0.00	$59.29
8	90	$34.02	$9.90	$15.37	$0.00	$59.29

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.39	$9.90	$1.63	$0.00	$30.92
2	60	$23.26	$9.90	$1.63	$0.00	$34.79
3	70	$27.14	$9.90	$12.11	$0.00	$49.15
4	75	$29.08	$9.90	$12.11	$0.00	$51.09
5	80	$31.02	$9.90	$13.74	$0.00	$54.66
6	80	$31.02	$9.90	$13.74	$0.00	$54.66
7	90	$34.89	$9.90	$15.37	$0.00	$60.16
8	90	$34.89	$9.90	$15.37	$0.00	$60.16

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (NEW BEDFORD)*	01/01/2017	$45.67	$12.20	$19.41	$1.30	$78.58
	07/01/2017	$46.30	$12.20	$19.41	$1.30	$79.21
	01/01/2018	$46.54	$12.20	$19.41	$1.30	$79.45
	07/01/2018	$46.79	$12.20	$19.41	$1.30	$79.70
	01/01/2019	$47.03	$12.20	$19.41	$1.30	$79.94
	07/01/2019	$47.27	$12.20	$19.41	$1.30	$80.18
	01/01/2020	$47.52	$12.20	$19.41	$1.30	$80.43

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (New Bedford)*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.84	$12.20	$12.41	$0.00	$47.45
2	60	$27.40	$12.20	$14.41	$1.30	$55.31
3	65	$29.69	$12.20	$15.41	$1.30	$58.60
4	70	$31.97	$12.20	$16.41	$1.30	$61.88
5	75	$34.25	$12.20	$17.41	$1.30	$65.16
6	80	$36.54	$12.20	$18.41	$1.30	$68.45
7	90	$41.10	$12.20	$19.41	$1.30	$74.01

Effective Date - 07/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.15	$12.20	$12.41	$0.00	$47.76
2	60	$27.78	$12.20	$14.41	$1.30	$55.69
3	65	$30.10	$12.20	$15.41	$1.30	$59.01
4	70	$32.41	$12.20	$16.41	$1.30	$62.32
5	75	$34.73	$12.20	$17.41	$1.30	$65.64
6	80	$37.04	$12.20	$18.41	$1.30	$68.95
7	90	$41.67	$12.20	$19.41	$1.30	$74.58

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$46.38	$10.00	$15.25	$0.00	$71.63
	06/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
	12/01/2017	$48.38	$10.00	$15.25	$0.00	$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$31.17	$10.00	$15.25	$0.00	$56.42
	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.71	$7.85	$0.00	$0.00	$33.56
2	55	$28.28	$7.85	$3.66	$0.00	$39.79
3	60	$30.85	$7.85	$3.99	$0.00	$42.69
4	65	$33.42	$7.85	$4.32	$0.00	$45.59
5	70	$35.99	$7.85	$14.11	$0.00	$57.95
6	75	$38.56	$7.85	$14.44	$0.00	$60.85
7	80	$41.13	$7.85	$14.77	$0.00	$63.75
8	90	$46.27	$7.85	$15.44	$0.00	$69.56

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 2*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 2*	12/01/2015	$36.50	$7.45	$13.55	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
EMO: BURNERS *ABORERS - ZONE 2*	12/01/2015	$36.25	$7.45	$13.55	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 2*	12/01/2015	$36.50	$7.45	$13.55	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 2*	12/01/2015	$36.25	$7.45	$13.55	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 2*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$60.34	$9.80	$18.17	$0.00	$88.31
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$43.10	$9.80	$18.17	$0.00	$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$64.65	$9.80	$18.17	$0.00	$92.62
For apprentice rates see "Apprentice- PILE DRIVER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 2)*	08/01/2015	$90.51	$9.80	$18.17	$0.00	$118.48
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN *ELECTRICIANS LOCAL 223*	09/01/2016	$39.21	$8.90	$11.51	$0.00	$59.62

Apprentice - *ELECTRICIAN - Local 223*

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$15.68	$0.00	$0.47	$0.00	$16.15
2	42	$16.47	$0.00	$0.49	$0.00	$16.96
3	45	$17.64	$8.90	$0.53	$0.00	$27.07
4	48	$18.82	$8.90	$3.42	$0.00	$31.14
5	50	$19.61	$8.90	$3.55	$0.00	$32.06
6	55	$21.57	$8.90	$3.83	$0.00	$34.30
7	60	$23.53	$8.90	$4.12	$0.00	$36.55
8	65	$25.49	$8.90	$4.39	$0.00	$38.78
9	70	$27.45	$8.90	$4.68	$0.00	$41.03
10	75	$29.41	$8.90	$4.96	$0.00	$43.27

Notes:
Steps are 750 hours

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2017	$55.86	$15.28	$15.71	$0.00	$86.85

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.93	$15.28	$0.00	$0.00	$43.21
2	55	$30.72	$15.28	$15.71	$0.00	$61.71
3	65	$36.31	$15.28	$15.71	$0.00	$67.30
4	70	$39.10	$15.28	$15.71	$0.00	$70.09
5	80	$44.69	$15.28	$15.71	$0.00	$75.68

Notes:
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2017	$39.10	$15.28	$15.71	$0.00	$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2016	$41.37	$10.00	$15.15	$0.00	$66.52
	05/01/2017	$42.25	$10.00	$15.15	$0.00	$67.40
	11/01/2017	$42.98	$10.00	$15.15	$0.00	$68.13
	05/01/2018	$43.69	$10.00	$15.15	$0.00	$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2016	$42.82	$10.00	$15.15	$0.00	$67.97
	05/01/2017	$43.71	$10.00	$15.15	$0.00	$68.86
	11/01/2017	$44.44	$10.00	$15.15	$0.00	$69.59
	05/01/2018	$45.16	$10.00	$15.15	$0.00	$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2016	$21.98	$10.00	$15.15	$0.00	$47.13
	05/01/2017	$22.51	$10.00	$15.15	$0.00	$47.66
	11/01/2017	$22.93	$10.00	$15.15	$0.00	$48.08
	05/01/2018	$23.36	$10.00	$15.15	$0.00	$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 223*	09/01/2016	$39.21	$8.90	$11.51	$0.00	$59.62
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING *ELECTRICIANS LOCAL 223*	09/01/2016	$33.33	$8.90	$9.78	$0.00	$52.01
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$37.65	$10.00	$15.25	$0.00	$62.90
	06/01/2017	$38.49	$10.00	$15.25	$0.00	$63.74
	12/01/2017	$39.32	$10.00	$15.25	$0.00	$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 2*	12/01/2016	$20.50	$7.45	$12.65	$0.00	$40.60
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE II*	03/01/2016	$39.82	$9.80	$17.62	$0.00	$67.24

Apprentice - *FLOORCOVERER - Local 2168 Zone II*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.91	$9.80	$1.79	$0.00	$31.50
2	55	$21.90	$9.80	$1.79	$0.00	$33.49
3	60	$23.89	$9.80	$12.25	$0.00	$45.94
4	65	$25.88	$9.80	$12.25	$0.00	$47.93
5	70	$27.87	$9.80	$14.04	$0.00	$51.71
6	75	$29.87	$9.80	$14.04	$0.00	$53.71
7	80	$31.86	$9.80	$15.83	$0.00	$57.49
8	85	$33.85	$9.80	$15.83	$0.00	$59.48

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$31.17	$10.00	$15.25	$0.00	$56.42
	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 1333*	06/01/2016	$35.58	$10.70	$8.25	$0.00	$54.53

Apprentice - *GLAZIER - Local 1333*

Effective Date - 06/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$17.79	$10.70	$1.00	$0.00	$29.49
2	56	$20.01	$10.70	$1.00	$0.00	$31.71
3	63	$22.24	$10.70	$1.50	$0.00	$34.44
4	69	$24.46	$10.70	$1.50	$0.00	$36.66
5	75	$26.69	$10.70	$2.00	$0.00	$39.39
6	81	$28.91	$10.70	$2.00	$0.00	$41.61
7	88	$31.13	$10.70	$8.00	$0.00	$49.83
8	94	$33.36	$10.70	$8.00	$0.00	$52.06

Notes:

Apprentice to Journeyworker Ratio:1:3

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$24.96	$10.00	$0.00	$0.00	$34.96
2	60	$27.23	$10.00	$15.25	$0.00	$52.48
3	65	$29.50	$10.00	$15.25	$0.00	$54.75
4	70	$31.77	$10.00	$15.25	$0.00	$57.02
5	75	$34.04	$10.00	$15.25	$0.00	$59.29
6	80	$36.30	$10.00	$15.25	$0.00	$61.55
7	85	$38.57	$10.00	$15.25	$0.00	$63.82
8	90	$40.84	$10.00	$15.25	$0.00	$66.09

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$25.51	$10.00	$0.00	$0.00	$35.51
2	60	$27.83	$10.00	$15.25	$0.00	$53.08
3	65	$30.15	$10.00	$15.25	$0.00	$55.40
4	70	$32.47	$10.00	$15.25	$0.00	$57.72
5	75	$34.79	$10.00	$15.25	$0.00	$60.04
6	80	$37.10	$10.00	$15.25	$0.00	$62.35
7	85	$39.42	$10.00	$15.25	$0.00	$64.67
8	90	$41.74	$10.00	$15.25	$0.00	$66.99

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - B*	04/01/2016	$35.60	$10.70	$14.79	$1.83	$62.92
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 223*	09/01/2016	$39.21	$8.90	$11.51	$0.00	$59.62
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - B*	04/01/2016	$35.60	$10.70	$14.79	$1.83	$62.92
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PLUMBERS & PIPEFITTERS LOCAL 51*	03/01/2016	$37.38	$11.00	$16.10	$0.00	$64.48
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PLUMBERS & PIPEFITTERS LOCAL 51*	03/01/2016	$37.38	$11.00	$16.10	$0.00	$64.48
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 2*	12/01/2016	$33.15	$7.45	$12.65	$0.00	$53.25
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2016	$45.09	$11.75	$14.20	$0.00	$71.04
	09/01/2017	$47.09	$11.75	$14.20	$0.00	$73.04
	09/01/2018	$49.34	$11.75	$14.20	$0.00	$75.29
	09/01/2019	$51.84	$11.75	$14.20	$0.00	$77.79

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston*

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.55	$11.75	$10.45	$0.00	$44.75
2	60	$27.05	$11.75	$11.20	$0.00	$50.00
3	70	$31.56	$11.75	$11.95	$0.00	$55.26
4	80	$36.07	$11.75	$12.70	$0.00	$60.52

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.55	$11.75	$10.45	$0.00	$45.75
2	60	$28.25	$11.75	$11.20	$0.00	$51.20
3	70	$32.96	$11.75	$11.95	$0.00	$56.66
4	80	$37.67	$11.75	$12.70	$0.00	$62.12

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 37*	03/16/2016	$34.71	$7.70	$16.00	$0.00	$58.41

Apprentice - *IRONWORKER - Local 37*

Effective Date - 03/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	70	$24.30	$7.70	$16.00	$0.00	$48.00
2	75	$26.03	$7.70	$16.00	$0.00	$49.73
3	80	$27.77	$7.70	$16.00	$0.00	$51.47
4	85	$29.50	$7.70	$16.00	$0.00	$53.20
5	90	$31.24	$7.70	$16.00	$0.00	$54.94
6	95	$32.97	$7.70	$16.00	$0.00	$56.67

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 2*	12/01/2016	$32.40	$7.45	$12.65	$0.00	$52.50

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 2*

Effective Date - 12/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$19.44	$7.45	$12.65	$0.00	$39.54
2	70	$22.68	$7.45	$12.65	$0.00	$42.78
3	80	$25.92	$7.45	$12.65	$0.00	$46.02
4	90	$29.16	$7.45	$12.65	$0.00	$49.26

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER *LABORERS - ZONE 2*	12/01/2016	$32.40	$7.45	$12.65	$0.00	$52.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 2*	12/01/2016	$32.40	$7.45	$12.65	$0.00	$52.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 2*	12/01/2015	$31.35	$7.45	$12.60	$0.00	$51.40
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 2*	12/01/2016	$32.40	$7.45	$12.65	$0.00	$52.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 2*	12/01/2016	$32.40	$7.45	$12.65	$0.00	$52.50
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER".						
LASER BEAM OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2016	$38.78	$10.18	$17.78	$0.00	$66.74
	02/01/2017	$38.78	$10.18	$18.24	$0.00	$67.20

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.39	$10.18	$17.78	$0.00	$47.35
2	60	$23.27	$10.18	$17.78	$0.00	$51.23
3	70	$27.15	$10.18	$17.78	$0.00	$55.11
4	80	$31.02	$10.18	$17.78	$0.00	$58.98
5	90	$34.90	$10.18	$17.78	$0.00	$62.86

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.39	$10.18	$18.24	$0.00	$47.81
2	60	$23.27	$10.18	$18.24	$0.00	$51.69
3	70	$27.15	$10.18	$18.24	$0.00	$55.57
4	80	$31.02	$10.18	$18.24	$0.00	$59.44
5	90	$34.90	$10.18	$18.24	$0.00	$63.32

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2016	$50.80	$10.18	$19.22	$0.00	$80.20
	02/01/2017	$50.80	$10.18	$19.79	$0.00	$80.77

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.40	$10.18	$19.22	$0.00	$54.80
2	60	$30.48	$10.18	$19.22	$0.00	$59.88
3	70	$35.56	$10.18	$19.22	$0.00	$64.96
4	80	$40.64	$10.18	$19.22	$0.00	$70.04
5	90	$45.72	$10.18	$19.22	$0.00	$75.12

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.40	$10.18	$19.79	$0.00	$55.37
2	60	$30.48	$10.18	$19.79	$0.00	$60.45
3	70	$35.56	$10.18	$19.79	$0.00	$65.53
4	80	$40.64	$10.18	$19.79	$0.00	$70.61
5	90	$45.72	$10.18	$19.79	$0.00	$75.69

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) *MILLWRIGHTS LOCAL 1121 - Zone 2*	04/01/2015	$34.69	$9.80	$16.21	$0.00	$60.70

Apprentice - *MILLWRIGHT - Local 1121 Zone 2*

Effective Date - 04/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$19.08	$9.80	$4.48	$0.00	$33.36
2	65	$22.55	$9.80	$13.36	$0.00	$45.71
3	75	$26.02	$9.80	$14.18	$0.00	$50.00
4	85	$29.49	$9.80	$14.99	$0.00	$54.28

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$22.96	$10.00	$15.25	$0.00	$48.21
	06/01/2017	$23.47	$10.00	$15.25	$0.00	$48.72
	12/01/2017	$23.99	$10.00	$15.25	$0.00	$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$26.94	$10.00	$15.25	$0.00	$52.19
	06/01/2017	$27.54	$10.00	$15.25	$0.00	$52.79
	12/01/2017	$28.15	$10.00	$15.25	$0.00	$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.71	$7.85	$0.00	$0.00	$33.56
2	55	$28.28	$7.85	$3.66	$0.00	$39.79
3	60	$30.85	$7.85	$3.99	$0.00	$42.69
4	65	$33.42	$7.85	$4.32	$0.00	$45.59
5	70	$35.99	$7.85	$14.11	$0.00	$57.95
6	75	$38.56	$7.85	$14.44	$0.00	$60.85
7	80	$41.13	$7.85	$14.77	$0.00	$63.75
8	90	$46.27	$7.85	$15.44	$0.00	$69.56

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2017	$42.31	$7.85	$16.10	$0.00	$66.26

* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.16	$7.85	$0.00	$0.00	$29.01
2	55	$23.27	$7.85	$3.66	$0.00	$34.78
3	60	$25.39	$7.85	$3.99	$0.00	$37.23
4	65	$27.50	$7.85	$4.32	$0.00	$39.67
5	70	$29.62	$7.85	$14.11	$0.00	$51.58
6	75	$31.73	$7.85	$14.44	$0.00	$54.02
7	80	$33.85	$7.85	$14.77	$0.00	$56.47
8	90	$38.08	$7.85	$15.44	$0.00	$61.37

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$40.37	$7.85	$16.10	$0.00	$64.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.19	$7.85	$0.00	$0.00	$28.04
2	55	$22.20	$7.85	$3.66	$0.00	$33.71
3	60	$24.22	$7.85	$3.99	$0.00	$36.06
4	65	$26.24	$7.85	$4.32	$0.00	$38.41
5	70	$28.26	$7.85	$14.11	$0.00	$50.22
6	75	$30.28	$7.85	$14.44	$0.00	$52.57
7	80	$32.30	$7.85	$14.77	$0.00	$54.92
8	90	$36.33	$7.85	$15.44	$0.00	$59.62

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 2*	12/01/2016	$32.40	$7.45	$12.65	$0.00	$52.50

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.46	$7.85	$0.00	$0.00	$28.31
2	55	$22.50	$7.85	$3.66	$0.00	$34.01
3	60	$24.55	$7.85	$3.99	$0.00	$36.39
4	65	$26.59	$7.85	$4.32	$0.00	$38.76
5	70	$28.64	$7.85	$14.11	$0.00	$50.60
6	75	$30.68	$7.85	$14.44	$0.00	$52.97
7	80	$32.73	$7.85	$14.77	$0.00	$55.35
8	90	$36.82	$7.85	$15.44	$0.00	$60.11

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2017	$38.97	$7.85	$16.10	$0.00	$62.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.49	$7.85	$0.00	$0.00	$27.34
2	55	$21.43	$7.85	$3.66	$0.00	$32.94
3	60	$23.38	$7.85	$3.99	$0.00	$35.22
4	65	$25.33	$7.85	$4.32	$0.00	$37.50
5	70	$27.28	$7.85	$14.11	$0.00	$49.24
6	75	$29.23	$7.85	$14.44	$0.00	$51.52
7	80	$31.18	$7.85	$14.77	$0.00	$53.80
8	90	$35.07	$7.85	$15.44	$0.00	$58.36

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2012	$30.28	$9.07	$8.00	$0.00	$47.35
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 2)* For apprentice rates see "Apprentice- PILE DRIVER"	09/01/2013	$37.01	$9.80	$18.17	$0.00	$64.98
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 2)*	09/01/2013	$37.01	$9.80	$18.17	$0.00	$64.98

Apprentice - *PILE DRIVER - Local 56 Zone 2*

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$0.00	$0.00	$0.00	$0.00

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1$50.05/2$54.25/3$58.46/4$60.56/5$62.66/6$62.66/7$66.87/8$66.87

Apprentice to Journeyworker Ratio:1:3

PIPELAYER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
PLUMBER & PIPEFITTER *PLUMBERS & PIPEFITTERS LOCAL 51*	03/01/2016	$37.38	$11.00	$16.10	$0.00	$64.48

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PLUMBER/PIPEFITTER - Local 51*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$14.95	$11.00	$1.50	$0.00	$27.45
2	50	$18.69	$11.00	$1.50	$0.00	$31.19
3	60	$22.43	$11.00	$7.85	$0.00	$41.28
4	70	$26.17	$11.00	$11.66	$0.00	$48.83
5	80	$29.90	$11.00	$14.20	$0.00	$55.10

Notes:

Steps 2000hrs. Prior 9/1/05; 40/40/45/50/55/60/65/75/80/85

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) *PLUMBERS & PIPEFITTERS LOCAL 51*	03/01/2016	$37.38	$11.00	$16.10	$0.00	$64.48
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER *LABORERS - ZONE 2*	12/01/2016	$33.40	$7.45	$12.65	$0.00	$53.50
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$31.17	$10.00	$15.25	$0.00	$56.42
	06/01/2017	$31.86	$10.00	$15.25	$0.00	$57.11
	12/01/2017	$32.55	$10.00	$15.25	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 59*	06/01/2008	$19.00	$5.10	$4.21	$0.00	$28.31
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) *CARPENTERS -ZONE 2 (Residential Wood)*	06/01/2016	$25.32	$9.80	$16.82	$0.00	$51.94

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RESIDENTIAL WOOD FRAME CARPENTER **	10/01/2016	$25.69	$7.07	$7.18	$0.00	$39.94
** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. *CARPENTERS -ZONE 2 (Residential Wood)*	04/01/2017	$26.31	$7.07	$7.18	$0.00	$40.56
	10/01/2017	$26.93	$7.07	$7.18	$0.00	$41.18
	04/01/2018	$27.35	$7.07	$7.18	$0.00	$41.60
	10/01/2018	$27.77	$7.07	$7.18	$0.00	$42.02
	04/01/2019	$28.20	$7.07	$7.18	$0.00	$42.45
	10/01/2019	$28.63	$7.07	$7.18	$0.00	$42.88

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Apprentice - *CARPENTER (Residential Wood Frame) - Zone 2*

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$15.41	$7.07	$0.00	$0.00	$22.48
2	60	$15.41	$7.07	$0.00	$0.00	$22.48
3	65	$16.70	$7.07	$7.18	$0.00	$30.95
4	70	$17.98	$7.07	$7.18	$0.00	$32.23
5	75	$19.27	$7.07	$7.18	$0.00	$33.52
6	80	$20.55	$7.07	$7.18	$0.00	$34.80
7	85	$21.84	$7.07	$7.18	$0.00	$36.09
8	90	$23.12	$7.07	$7.18	$0.00	$37.37

Effective Date - 04/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$15.79	$7.07	$0.00	$0.00	$22.86
2	60	$15.79	$7.07	$0.00	$0.00	$22.86
3	65	$17.10	$7.07	$7.18	$0.00	$31.35
4	70	$18.42	$7.07	$7.18	$0.00	$32.67
5	75	$19.73	$7.07	$7.18	$0.00	$33.98
6	80	$21.05	$7.07	$7.18	$0.00	$35.30
7	85	$22.36	$7.07	$7.18	$0.00	$36.61
8	90	$23.68	$7.07	$7.18	$0.00	$37.93

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 2*	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	08/01/2016	$41.11	$11.00	$13.00	$0.00	$65.11
	02/01/2017	$42.26	$11.00	$13.00	$0.00	$66.26
	08/01/2017	$43.36	$11.00	$13.00	$0.00	$67.36
	02/01/2018	$44.51	$11.00	$13.00	$0.00	$68.51
	08/01/2018	$45.61	$11.00	$13.00	$0.00	$69.61
	02/01/2019	$46.76	$11.00	$13.00	$0.00	$70.76

Apprentice - *ROOFER - Local 33*

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.56	$11.00	$3.44	$0.00	$35.00
2	60	$24.67	$11.00	$13.00	$0.00	$48.67
3	65	$26.72	$11.00	$13.00	$0.00	$50.72
4	75	$30.83	$11.00	$13.00	$0.00	$54.83
5	85	$34.94	$11.00	$13.00	$0.00	$58.94

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.13	$11.00	$3.44	$0.00	$35.57
2	60	$25.36	$11.00	$13.00	$0.00	$49.36
3	65	$27.47	$11.00	$13.00	$0.00	$51.47
4	75	$31.70	$11.00	$13.00	$0.00	$55.70
5	85	$35.92	$11.00	$13.00	$0.00	$59.92

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	08/01/2016	$41.36	$11.00	$13.00	$0.00	$65.36
	02/01/2017	$42.51	$11.00	$13.00	$0.00	$66.51
	08/01/2017	$43.61	$11.00	$13.00	$0.00	$67.61
	02/01/2018	$44.76	$11.00	$13.00	$0.00	$68.76
	08/01/2018	$45.86	$11.00	$13.00	$0.00	$69.86
	02/01/2019	$47.01	$11.00	$13.00	$0.00	$71.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - B*	04/01/2016	$35.60	$10.70	$14.79	$1.83	$62.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 17-B*

Effective Date - 04/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$14.24	$10.70	$3.51	$0.87	$29.32
2	45	$16.02	$10.70	$3.95	$0.94	$31.61
3	50	$17.80	$10.70	$9.33	$1.15	$38.98
4	55	$19.58	$10.70	$9.33	$1.21	$40.82
5	60	$21.36	$10.70	$12.08	$1.32	$45.46
6	65	$23.14	$10.70	$12.31	$1.38	$47.53
7	70	$24.92	$10.70	$12.54	$1.44	$49.60
8	75	$26.70	$10.70	$12.77	$1.51	$51.68
9	80	$28.48	$10.70	$12.99	$1.57	$53.74
10	85	$30.26	$10.70	$13.22	$1.63	$55.81

Notes:

Apprentice to Journeyworker Ratio:1:3

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.44	$10.91	$10.89	$0.00	$54.24
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.73	$10.91	$10.89	$0.00	$54.53
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section B) Zone 2*	01/01/2017	$49.57	$8.77	$17.20	$0.00	$75.54
	03/01/2017	$50.47	$8.77	$17.20	$0.00	$76.44

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SPRINKLER FITTER - Local 550 (Section B) Zone 2*

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$17.35	$8.77	$8.70	$0.00	$34.82
2	40	$19.83	$8.77	$8.70	$0.00	$37.30
3	45	$22.31	$8.77	$8.70	$0.00	$39.78
4	50	$24.79	$8.77	$8.70	$0.00	$42.26
5	55	$27.26	$8.77	$8.70	$0.00	$44.73
6	60	$29.74	$8.77	$10.20	$0.00	$48.71
7	65	$32.22	$8.77	$10.20	$0.00	$51.19
8	70	$34.70	$8.77	$10.20	$0.00	$53.67
9	75	$37.18	$8.77	$10.20	$0.00	$56.15
10	80	$39.66	$8.77	$10.20	$0.00	$58.63

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$17.66	$8.77	$8.70	$0.00	$35.13
2	40	$20.19	$8.77	$8.70	$0.00	$37.66
3	45	$22.71	$8.77	$8.70	$0.00	$40.18
4	50	$25.24	$8.77	$8.70	$0.00	$42.71
5	55	$27.76	$8.77	$8.70	$0.00	$45.23
6	60	$30.28	$8.77	$10.20	$0.00	$49.25
7	65	$32.81	$8.77	$10.20	$0.00	$51.78
8	70	$35.33	$8.77	$10.20	$0.00	$54.30
9	75	$37.85	$8.77	$10.20	$0.00	$56.82
10	80	$40.38	$8.77	$10.20	$0.00	$59.35

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 223*	09/01/2016	$33.33	$8.90	$9.78	$0.00	$52.01

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 223*

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$0.00	$0.00	$0.00	$0.00

Notes: See Electrician Apprentice Wages
Steps are 750hrs
Telecom Apprentice Wages shall be the same as the Electrician Apprentice Wages

Apprentice to Journeyworker Ratio:2:3

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	08/01/2016	$49.70	$10.18	$19.22	$0.00	$79.10
	02/01/2017	$49.70	$10.18	$19.79	$0.00	$79.67

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.85	$10.18	$19.22	$0.00	$54.25
2	60	$29.82	$10.18	$19.22	$0.00	$59.22
3	70	$34.79	$10.18	$19.22	$0.00	$64.19
4	80	$39.76	$10.18	$19.22	$0.00	$69.16
5	90	$44.73	$10.18	$19.22	$0.00	$74.13

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.85	$10.18	$19.79	$0.00	$54.82
2	60	$29.82	$10.18	$19.79	$0.00	$59.79
3	70	$34.79	$10.18	$19.79	$0.00	$64.76
4	80	$39.76	$10.18	$19.79	$0.00	$69.73
5	90	$44.73	$10.18	$19.79	$0.00	$74.70

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$38.20	$7.45	$14.00	$0.00	$59.65
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.92	$7.45	$14.00	$0.00	$58.37
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$36.80	$7.45	$14.00	$0.00	$58.25
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2016	$44.94	$10.00	$15.25	$0.00	$70.19
	06/01/2017	$45.93	$10.00	$15.25	$0.00	$71.18
	12/01/2017	$46.92	$10.00	$15.25	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$33.02	$10.91	$10.89	$0.00	$54.82
TUNNEL WORK - COMPRESSED AIR *BORERS (COMPRESSED AIR)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$49.08	$7.45	$14.40	$0.00	$70.93
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$51.08	$7.45	$14.40	$0.00	$72.93
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$41.15	$7.45	$14.40	$0.00	$63.00
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$43.15	$7.45	$14.40	$0.00	$65.00
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2016	$32.44	$10.91	$10.89	$0.00	$54.24
WAGON DRILL OPERATOR *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2016	$32.65	$7.45	$12.65	$0.00	$52.75
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4* For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2016	$45.38	$10.00	$15.25	$0.00	$70.63
	06/01/2017	$46.38	$10.00	$15.25	$0.00	$71.63
	12/01/2017	$47.38	$10.00	$15.25	$0.00	$72.63
WATER METER INSTALLER *PLUMBERS & PIPEFITTERS LOCAL 51* For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"	03/01/2016	$37.38	$11.00	$16.10	$0.00	$64.48
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	08/28/2016	$26.61	$7.50	$1.80	$0.00	$35.91
	09/03/2017	$27.14	$7.75	$1.81	$0.00	$36.70
CABLEMAN (Underground Ducts & Cables) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	08/28/2016	$37.70	$7.50	$8.87	$0.00	$54.07
	09/03/2017	$38.45	$7.75	$9.53	$0.00	$55.73
DRIVER / GROUNDMAN CDL *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	08/28/2016	$31.05	$7.50	$8.89	$0.00	$47.44
	09/03/2017	$31.66	$7.75	$9.44	$0.00	$48.85
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	08/28/2016	$24.39	$7.50	$1.73	$0.00	$33.62
	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
EQUIPMENT OPERATOR (Class A CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	08/28/2016	$37.70	$7.50	$12.95	$0.00	$58.15
	09/03/2017	$38.45	$7.75	$13.61	$0.00	$59.81
EQUIPMENT OPERATOR (Class B CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	08/28/2016	$33.26	$7.50	$9.63	$0.00	$50.39
	09/03/2017	$33.92	$7.75	$10.21	$0.00	$51.88
GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	08/28/2016	$24.39	$7.50	$1.73	$0.00	$33.62
	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
GROUNDMAN -Inexperienced (<2000 Hrs.) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$19.96	$7.50	$1.60	$0.00	$29.06
	09/03/2017	$20.35	$7.75	$1.61	$0.00	$29.71

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	08/28/2016	$44.35	$7.50	$15.83	$0.00	$67.68
	09/03/2017	$45.23	$7.75	$16.61	$0.00	$69.59

Apprentice - *LINEMAN (Outside Electrical) - East Local 104*

Effective Date - 08/28/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.61	$7.50	$3.30	$0.00	$37.41
2	65	$28.83	$7.50	$3.36	$0.00	$39.69
3	70	$31.05	$7.50	$3.43	$0.00	$41.98
4	75	$33.26	$7.50	$5.00	$0.00	$45.76
5	80	$35.48	$7.50	$5.06	$0.00	$48.04
6	85	$37.70	$7.50	$5.13	$0.00	$50.33
7	90	$39.92	$7.50	$7.20	$0.00	$54.62

Effective Date - 09/03/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$27.14	$7.75	$3.31	$0.00	$38.20
2	65	$29.40	$7.75	$3.38	$0.00	$40.53
3	70	$31.66	$7.75	$3.45	$0.00	$42.86
4	75	$33.92	$7.75	$5.02	$0.00	$46.69
5	80	$36.18	$7.75	$5.09	$0.00	$49.02
6	85	$38.45	$7.75	$5.15	$0.00	$51.35
7	90	$40.71	$7.75	$7.22	$0.00	$55.68

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$28.98	$4.25	$3.12	$0.00	$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/01/2016	$27.31	$4.25	$3.07	$0.00	$34.63
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$18.51	$3.55	$0.00	$0.00	$22.06

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the ntility company's eqnipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

TREE TRIMMER GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$16.32	$3.55	$0.00	$0.00	$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the ntility company's eqnipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Additional Apprentice Information:

imum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the
nmissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L.
c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

January 26, 2017

ADDENDUM NO. 2

TO

DOCUMENTS AND SPECIFICATIONS

FOR

TRI-TOWN SEPTAGE TREATMENT FACILITY DEMOLITION

ORLEANS BREWSTER EASTHAM GROUNDWATER PROTECTION DISTRICT ORLEANS, MA

This Addendum No. 2 forms a part of the Contract Documents and modifies the Bidding Documents dated December 7, 2016 as noted below. Acknowledge receipt of this Addendum in the space provided in DOCUMENT 00410, FORM OF GENERAL BID. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of a total of 2 pages:

CHANGES TO BE MADE TO THE CONTRACT DOCUMENTS

1. SECTION 01 11 00, SUMMARY OF WORK

   A. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, replace paragraph f with the following paragraph F.:

      "F. The Owner will retain ownership of the following items:

         1. 1987 GMC Brigadier Dump Truck, VIN 1GDP8C1Y0JV6021181;
         2. Mitsubishi FG25 Cushion Tire Forklift, s/n AF17B-905-059;
         3. Miller AIAD-200LE Welder;
         4. Cyclone Sandblast Cabinet;
         5. Three Fisher Snow Plows (6.5-foot, 8-foot and 9-foot);
         6. Metal Storage Shelves and Tool Boxes with Contents;
         7. Porta Power Set;
         8. Portable Charge with Grease Gun and Work Bench;
         9. Aluminum "A" Frame Gantry with Adjustable Height and Wheels;
         10. New Electric Motor in Shipping Crate;
         11. Stand-alone Drill Press;
         12. Two Husqvarna 10530SBE Snow Blowers;
         13. Two Stihl Weed Trimmers;
         14. Flat File Cabinet in the Plant Manager's Office;
         15. 400 kW Diesel Generator Set with Fuel Tank and Enclosure;
         16. 125 kW Diesel Generator Set with Enclosure;
         17. 1988 Trojan Model 1500Z Wheel Loader; and
         18. 1999 Chevrolet Truck."

CHANGES TO BE MADE TO THE CONTRACT DRAWINGS

None

END OF ADDENDUM NO. 2

February 7, 2017

ADDENDUM NO. 3

TO

DOCUMENTS AND SPECIFICATIONS

FOR

TRI-TOWN SEPTAGE TREATMENT FACILITY DEMOLITION

ORLEANS BREWSTER EASTHAM GROUNDWATER PROTECTION DISTRICT ORLEANS, MA

This Addendum No. 3 forms a part of the Contract Documents and modifies the Bidding Documents dated December 7, 2016 as noted below. Acknowledge receipt of this Addendum in the space provided in DOCUMENT 00410, FORM OF GENERAL BID. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of 2 pages and the following attachments for a total of 3 pages:

Documents: Main Building, Laboratory, List of Hazardous Waste Chemicals (Photo No. 1766) – (1 page)

CHANGES TO BE MADE TO THE CONTRACT DOCUMENTS

1. SECTION 00100, ADVERTISEMENT FOR BIDS

   A. Page 00100-1, third paragraph, second line, delete the words "February 8, 2017" and replace with the words "February 15, 2017".

2. SECTION 00200,INSTRUCTION TO BIDDERS

   A. Page 00200-1, ARTICLE 1.01, RECEIPT AND OPENING OF BIDS, paragraph B, second line, delete the words "February 8, 2017" and replace with the words "February 15, 2017".

3. SECTION 01 11 00, SUMMARY OF WORK

   A. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, delete paragraph H and replace with the following as new paragraph H.:

      "H. The use of demolition materials of any type is not allows as backfill on this project. This includes the use of crushed concrete as backfill due to the impact on neighbors from the noise and dust generation that occurs during the concrete crushing operation. The retention of portions of any basement concrete walls and/or concrete slabs is not allowed."

   B. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, add the following as new paragraph J.:

      "J. All available information regarding the size of underground storage tanks is included in the record plans for the facility that were included as Appendix A and Appendix B of the Contract Documents."

   C. Page 01 11 00, PART 1 - GENERAL, PARAGRAPH 1.03 – SUMMARY OF WORK, add the following as new paragraph k.:

      "k. All underground pipe, conduits and the like shall be removed and legally disposed of except where the pipe, conduits and the like are located outside of the Limits of Demolition Boundary (LOD) shown on the drawings. This includes pipe, conduits and the like that are located within the existing paved roadways to remain that are located outside of the Limits of Demolition Boundary (LOD)."

4. SECTION 01 27 00 - MEASUREMENT AND PAYMENT

   A. Page 01 27 00 - 9, BID ITEM 12 - HANDLING, REMOVAL AND LEGAL DISPOSAL OF REGULATED MATERIALS, paragraph a, add the following as new subparagraph iii:

      "iii. The Contractor is responsible to clean the interior of all tanks and legally dispose of the liquid and/or solid materials. As part of the legal disposal in accordance with Federal, State and Local rules and regulations, the Contractor shall conduct the necessary testing in order to determine if whether or not the materials are classified as Regulated Materials and therefore where the materials can be legally disposal of. The use of this allowance will be utilized to compensate the Contractor if it is determined through testing that the materials are classified as Regulated Materials."

   B. Page 01 27 00 - 9, BID ITEM 12 - HANDLING, REMOVAL AND LEGAL DISPOSAL OF REGULATED MATERIALS, paragraph a, add the following as new subparagraph iv:

      "iv. If Regulated Materials, such as asbestos containing materials, that were not previously known from existing records and site investigations, are identified on the site during demolition, the Contractor shall Handle, Remove and Legally Dispose of Regulated Materials from the site in accordance with Federal, State and Local rules and regulations. The use of this allowance will be utilized to compensate the Contractor if it is determined through testing that the materials are classified as Regulated Materials."

CHANGES TO BE MADE TO THE CONTRACT DRAWINGS

None

END OF ADDENDUM NO. 3

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1766	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Laboratory, List of Hazardous Waste Chemicals

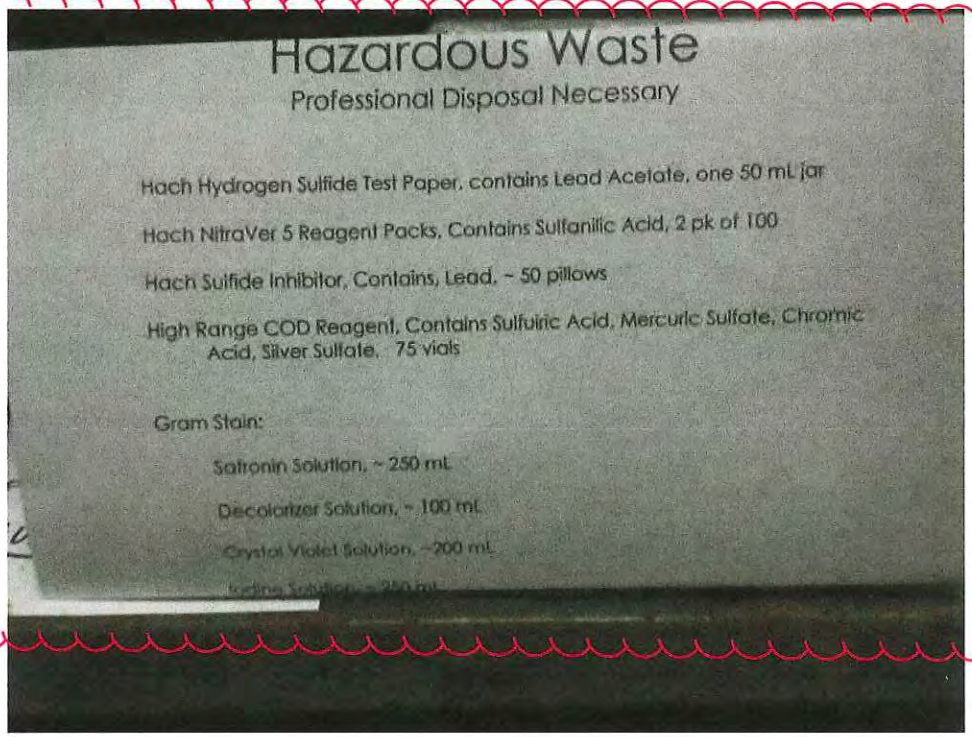

Photo No.	Date:
1767	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Laboratory, List of Hazardous Waste Chemicals

APPENDIX A

AS-BUILT DRAWINGS – LEA (1985)

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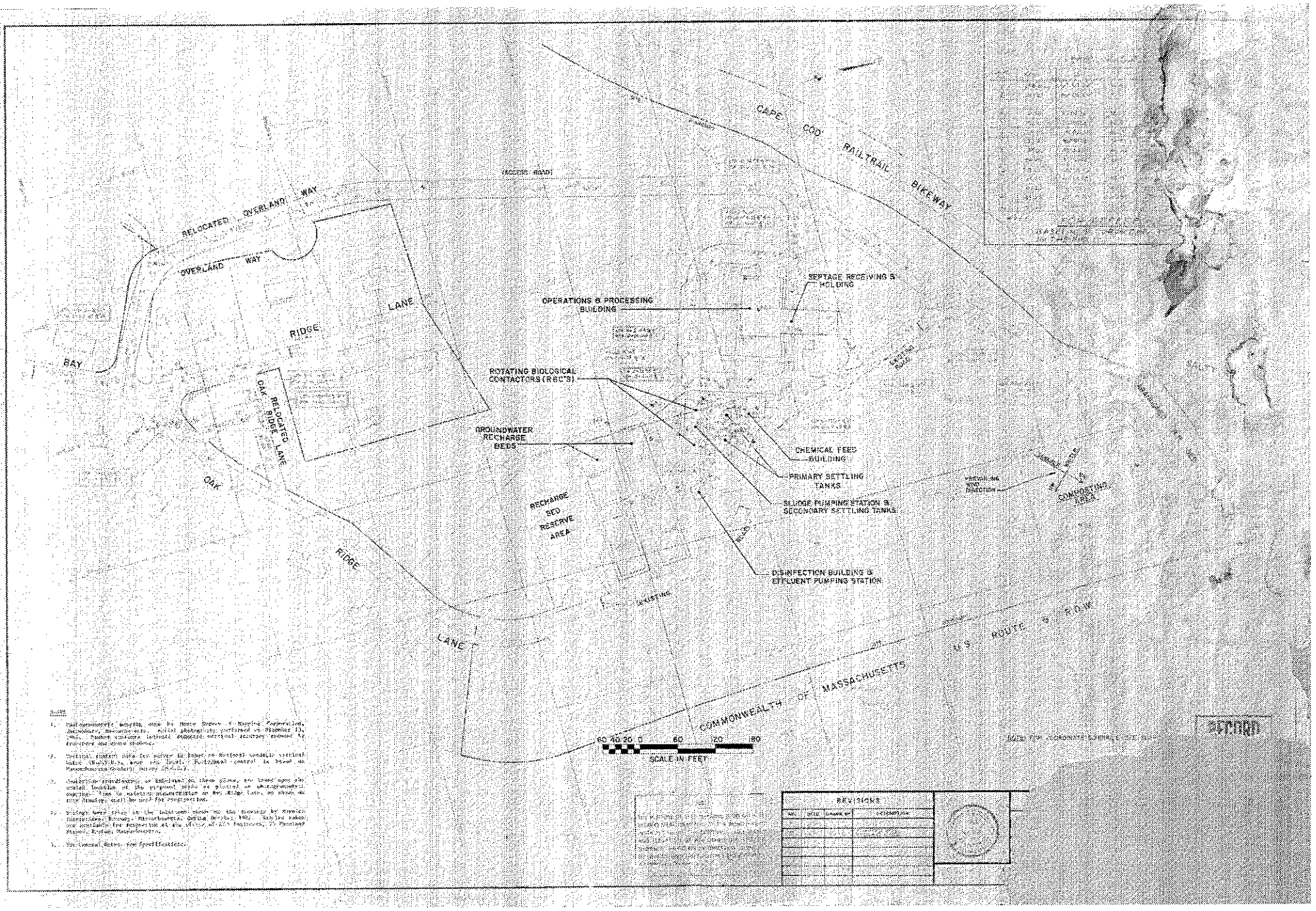
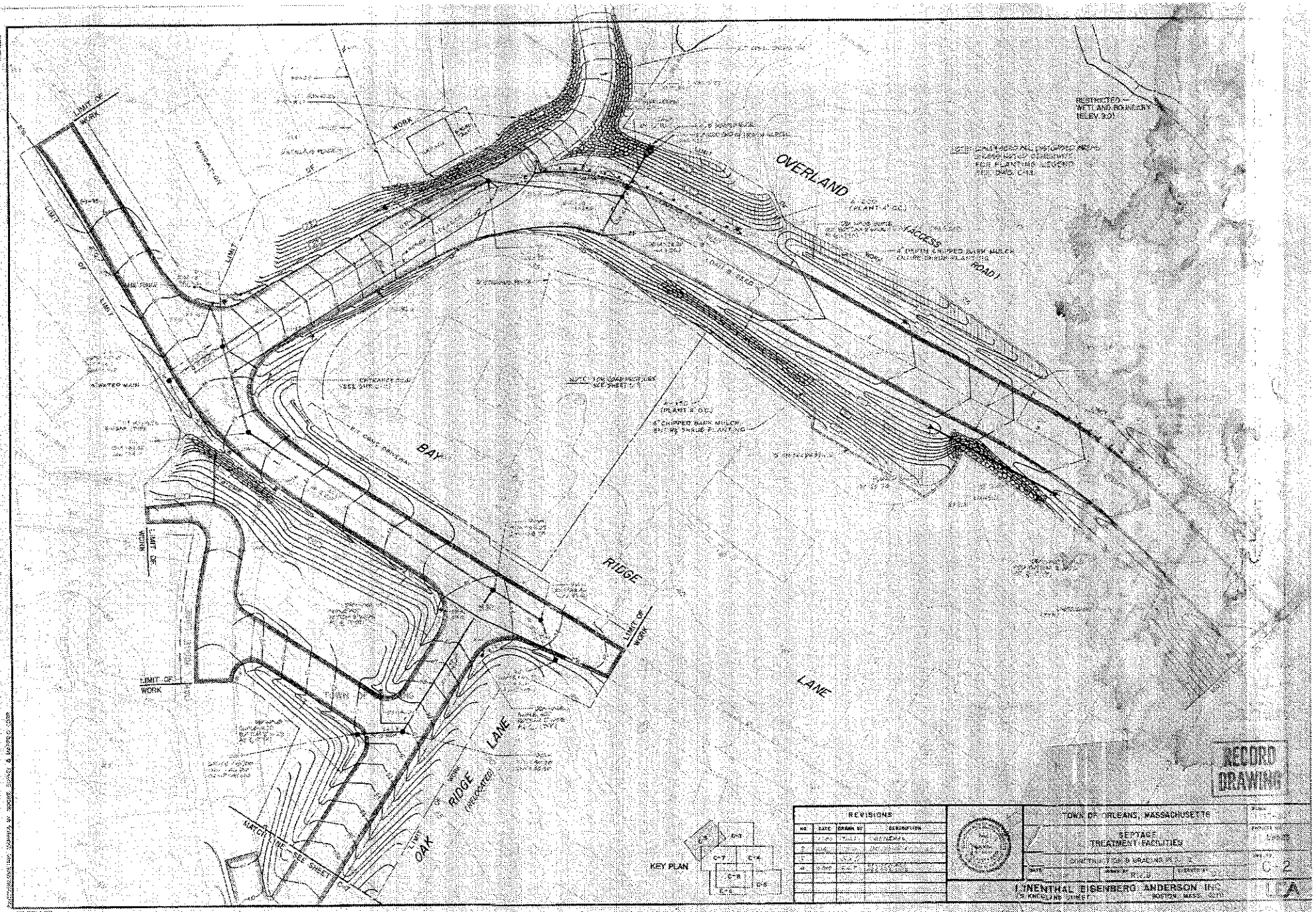
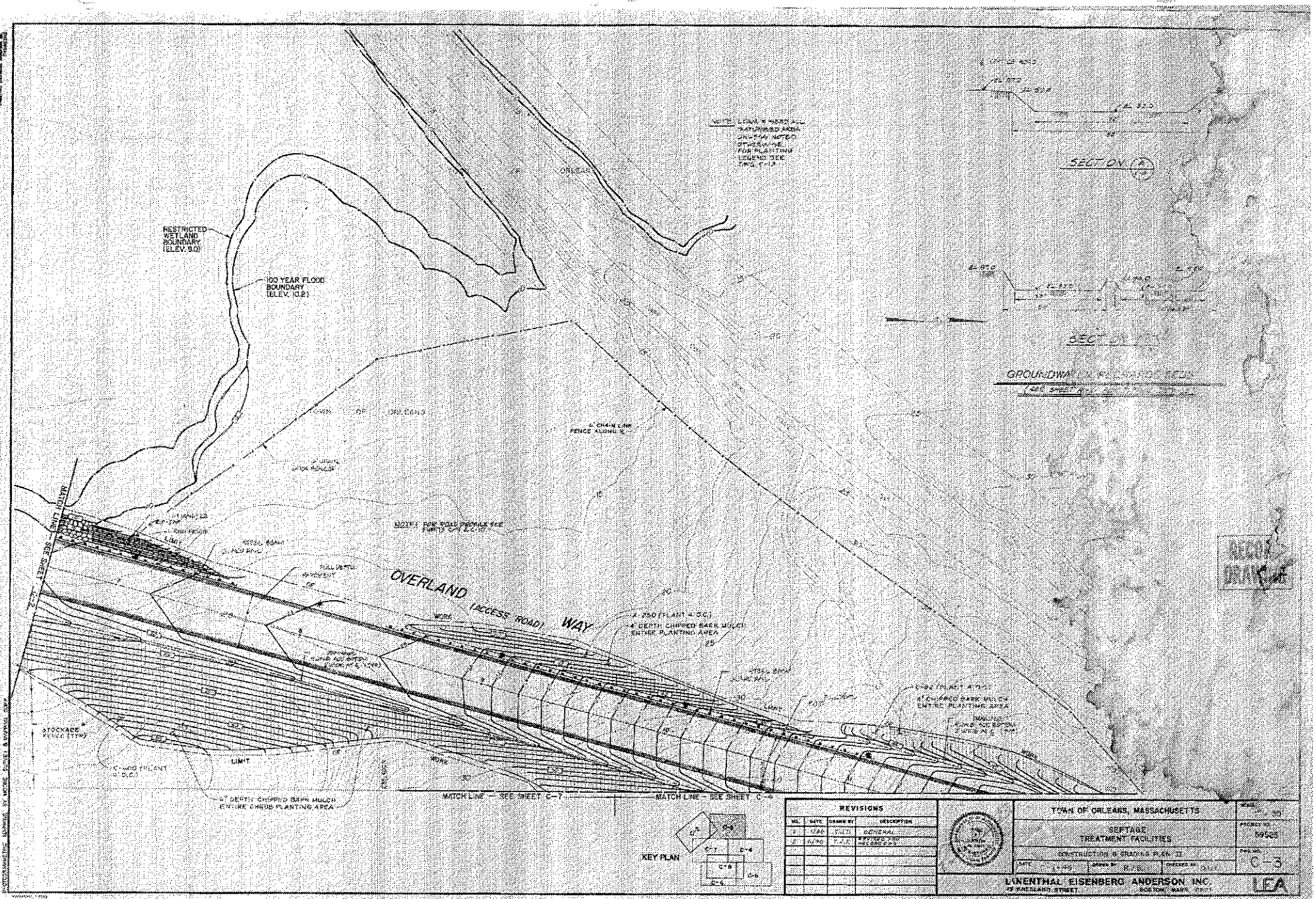

CAPE COD RAILTRAIL BIKEWAY
(ACCESS ROAD)
RELOCATED OVERLAND WAY
OVERLAND WAY
LANE
RIDGE
BAY
OAK
RELOCATED OAK RIDGE LANE
OPERATIONS & PROCESSING BUILDING
SEPTAGE RECEIVING & HOLDING
ROTATING BIOLOGICAL CONTACTORS (RBC'S)
GROUNDWATER RECHARGE BEDS
CHEMICAL FEED BUILDING
PRIMARY SETTLING TANKS
SLUDGE PUMPING STATION & SECONDARY SETTLING TANKS
DISINFECTION BUILDING & EFFLUENT PUMPING STATION
RECHARGE BED RESERVE AREA
COMPOSTING AREA
EXISTING
PROPOSED
COMMONWEALTH OF MASSACHUSETTS
U.S. ROUTE 6 R.O.W.
60 40 20 0 60 120 180
SCALE IN FEET
REVISIONS


LIMIT OF WORK
OVERLAND
ACCESS ROAD
RESTRICTED WETLAND BOUNDARY (ELEV 3.2)
BAY
RIDGE
LANE
OAK RIDGE LANE (UNACCEPTED)
LIMIT OF WORK
KEY PLAN
RECORD DRAWING
REVISIONS
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
SHEET TITLE & GRADING PLAN
C-2
LEA
LINENTHAL EISENBERG ANDERSON INC.
9 KINGSTON STREET BOSTON, MASS. 02111



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	11/86	T.L.S.	ORIGINAL
2	6/87	T.L.S.	REVISED PER PLANNING BD.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

CONSTRUCTION GRADING PLAN II

DATE 1/86 | DRAWN BY S.C. | CHECKED BY

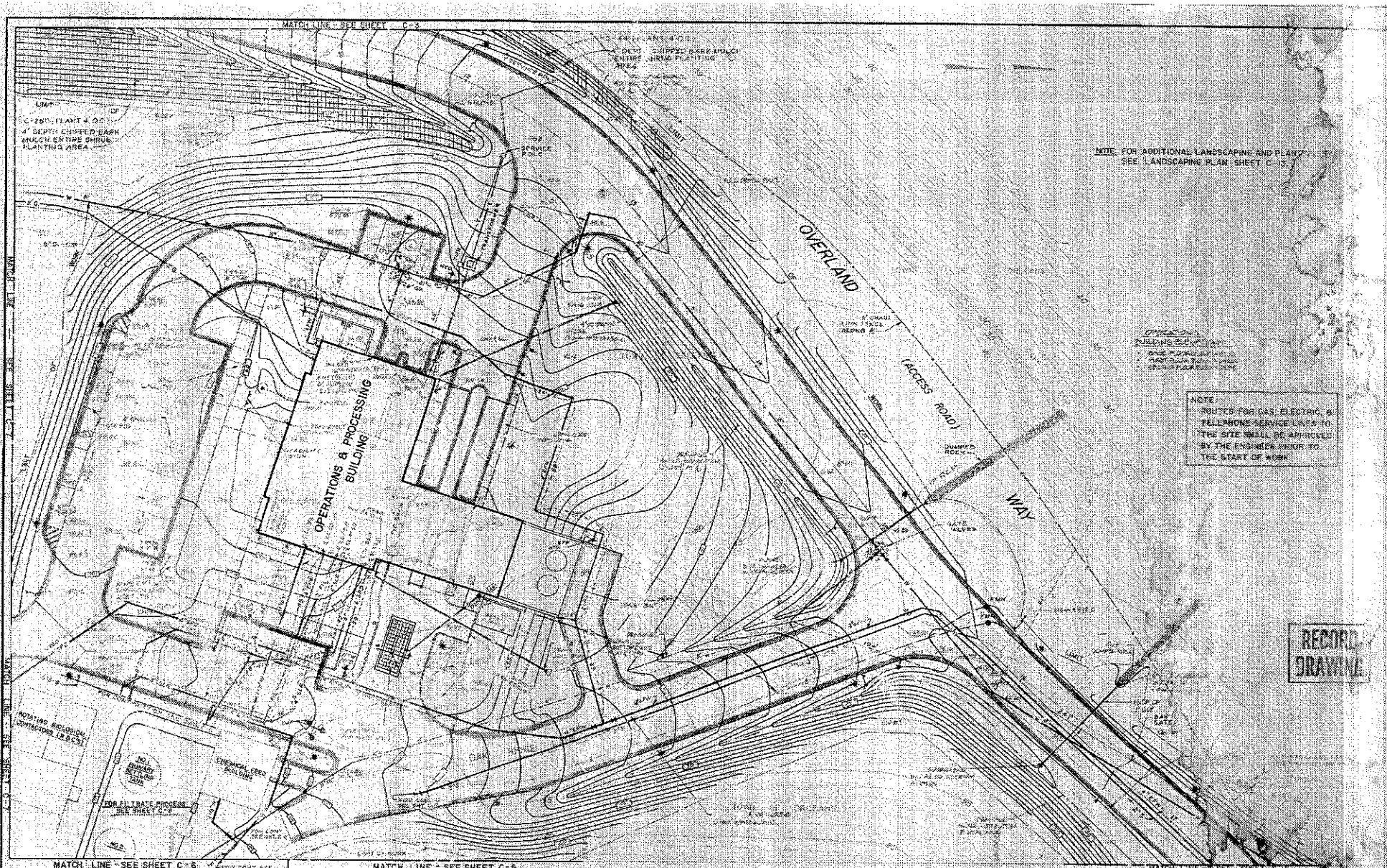
PROJECT NO. 5952B

DWG. NO. C-3

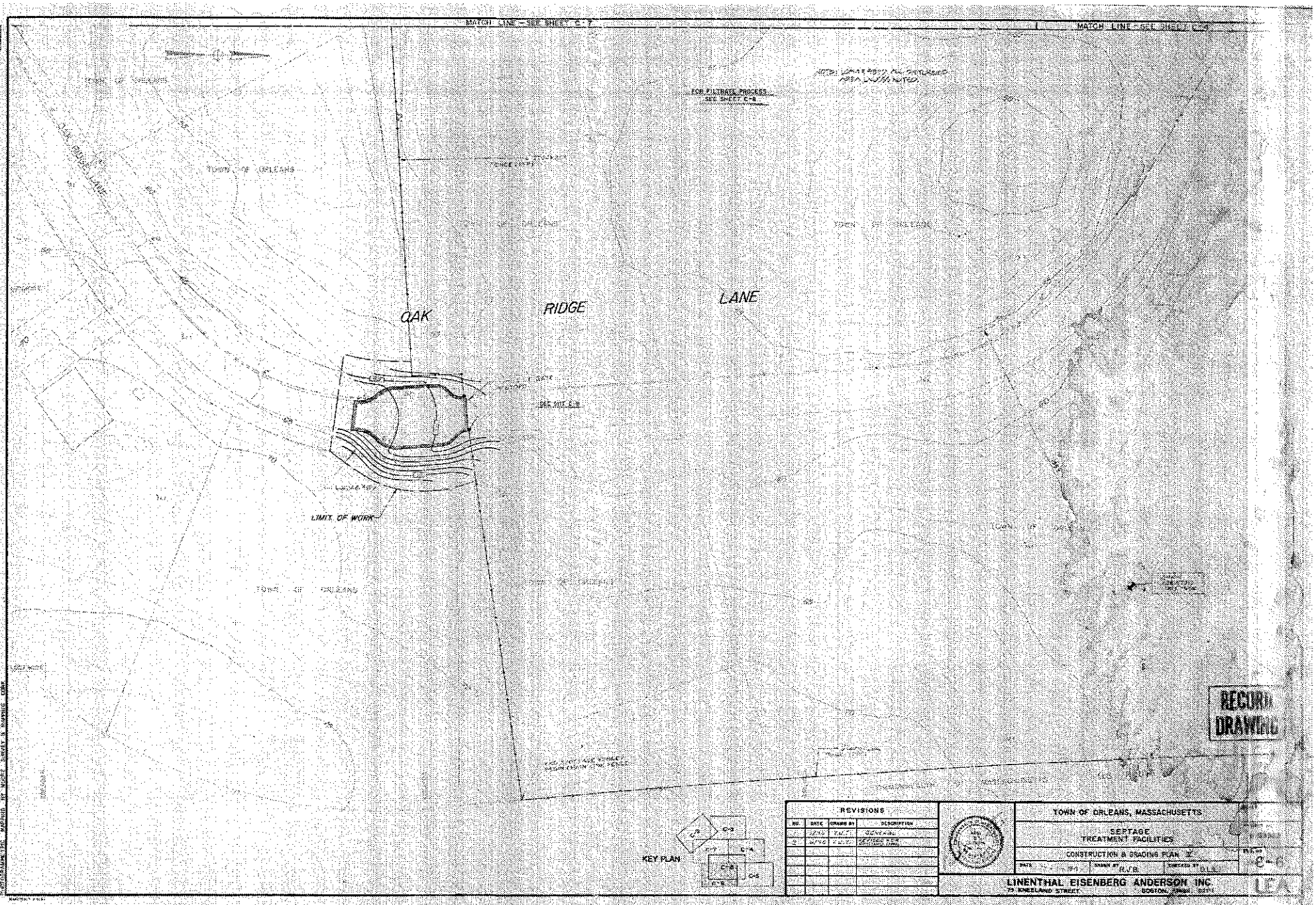
LANDSCAPE ARCHITECTS PLANNERS

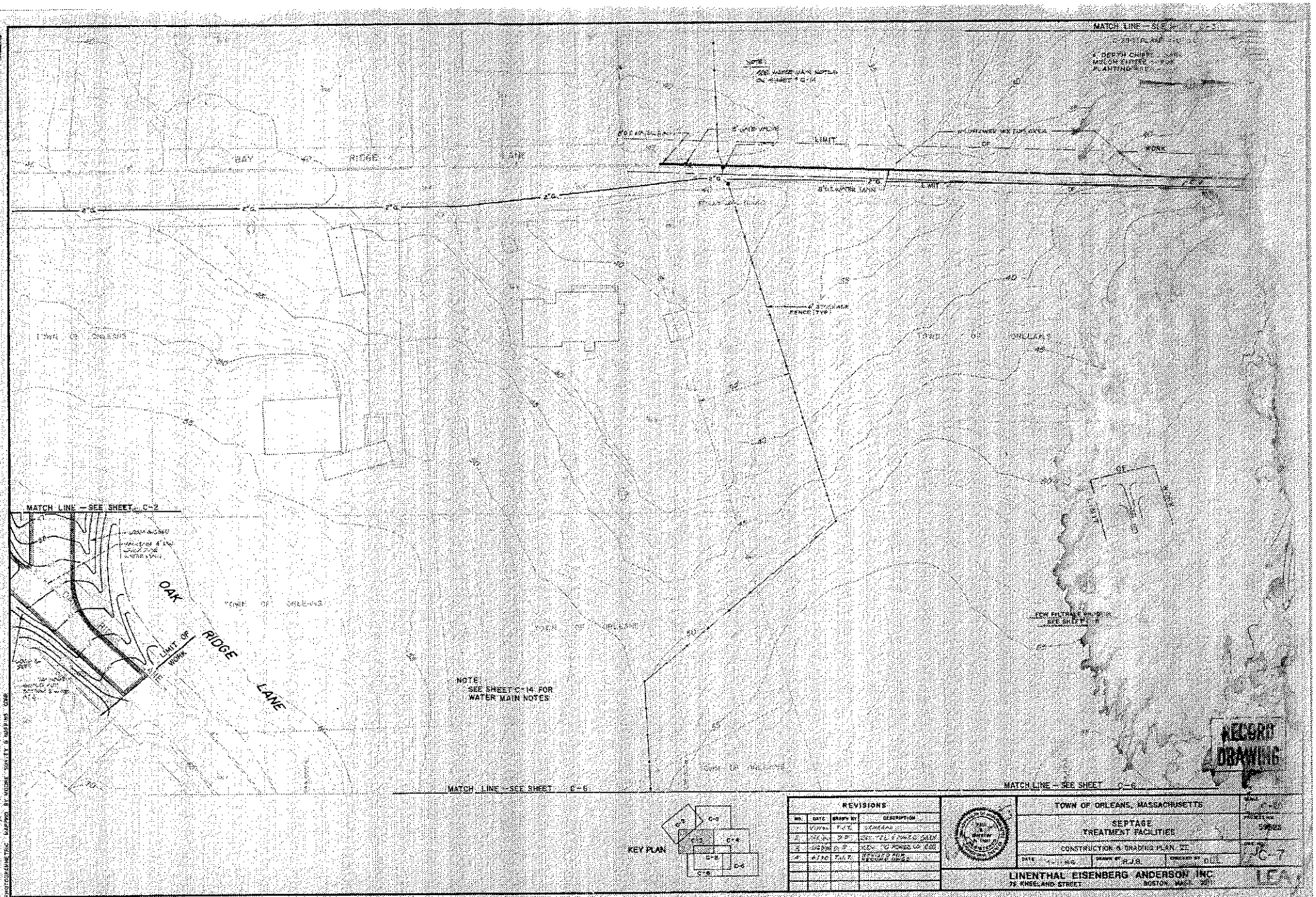
LANDSCAPE ARCHITECTS PLANNERS

LANDSCAPE ARCHITECTS PLANNERS


MATCH LINE - SEE SHEET C-5
OVERLAND (ACCESS ROAD) WAY
OPERATIONS & PROCESSING BUILDING
NOTE: FOR ADDITIONAL LANDSCAPING AND PLANTS SEE LANDSCAPING PLAN SHEET C-10
NOTE: ROUTES FOR GAS, ELECTRIC & TELEPHONE SERVICE LINES TO THE SITE SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE START OF WORK
RECORD DRAWING
ROTATING BIOLOGICAL CONTACTORS (RBC'S)
CHEMICAL FEED BUILDING
NO. BUILDING DATA
FOR FILTRATE PROCESS SEE SHEET C-8
MATCH LINE - SEE SHEET C-6 (SEE SHEET C-8)
MATCH LINE - SEE SHEET C-5 (SEE SHEET C-6)
MATCH LINE - SEE SHEET C-5
KEY PLAN
REVISIONS
NO. DATE DRAWN BY DESCRIPTION
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
CONSTRUCTION & GRADING PLAN
DRAWN BY R.J.B.
CHECKED BY
LINENTHAL EISENBERG ANDERSON INC.
75 KINGSLAND STREET BOSTON, MASS. 02111
C-4

MATCH LINE - SEE SHEET C-4
FOR FILTRATE PROCESS SEE SHEET C-5
MATCH LINE - SEE SHEET C-3
NEW WOODCHIP STORAGE AREA
MIXING BUILDING
COMPOSTING PAD (COVERED)
COMPOST CURING AREA
REVISED DRAWING
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
CONSTRUCTION & GRADING PLAN
LINENTHAL EISENBERG AND
75 KNEELAND STREET


MATCH LINE - SEE SHEET C-7
MATCH LINE - SEE SHEET C-5
FOR FILTRATE PROCESS SEE SHEET C-8
QAK
RIDGE
LANE
LIMIT OF WORK
TOWN OF ORLEANS
KEY PLAN
REVISIONS
NO. DATE DRAWN BY DESCRIPTION
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
CONSTRUCTION & GRADING PLAN 'A'
DRAWN BY R.V.B.
CHECKED BY D.L.S.
LINENTHAL EISENBERG ANDERSON INC.
79 SHELAND STREET BOSTON, MASS. 02111
RECORD DRAWING



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
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2	12/94	T.J.T.	ADD TITLE & CONTROL DATUM
3	02/95	T.J.T.	ADD TOWN OF ORLEANS SEAL
4	4/95	T.J.T.	REVISED PER ORLEANS COMMENTS

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

CONSTRUCTION & GRADING PLAN

DATE 11-1-94 | DRAWN BY R.J.S. | CHECKED BY D.L.E.

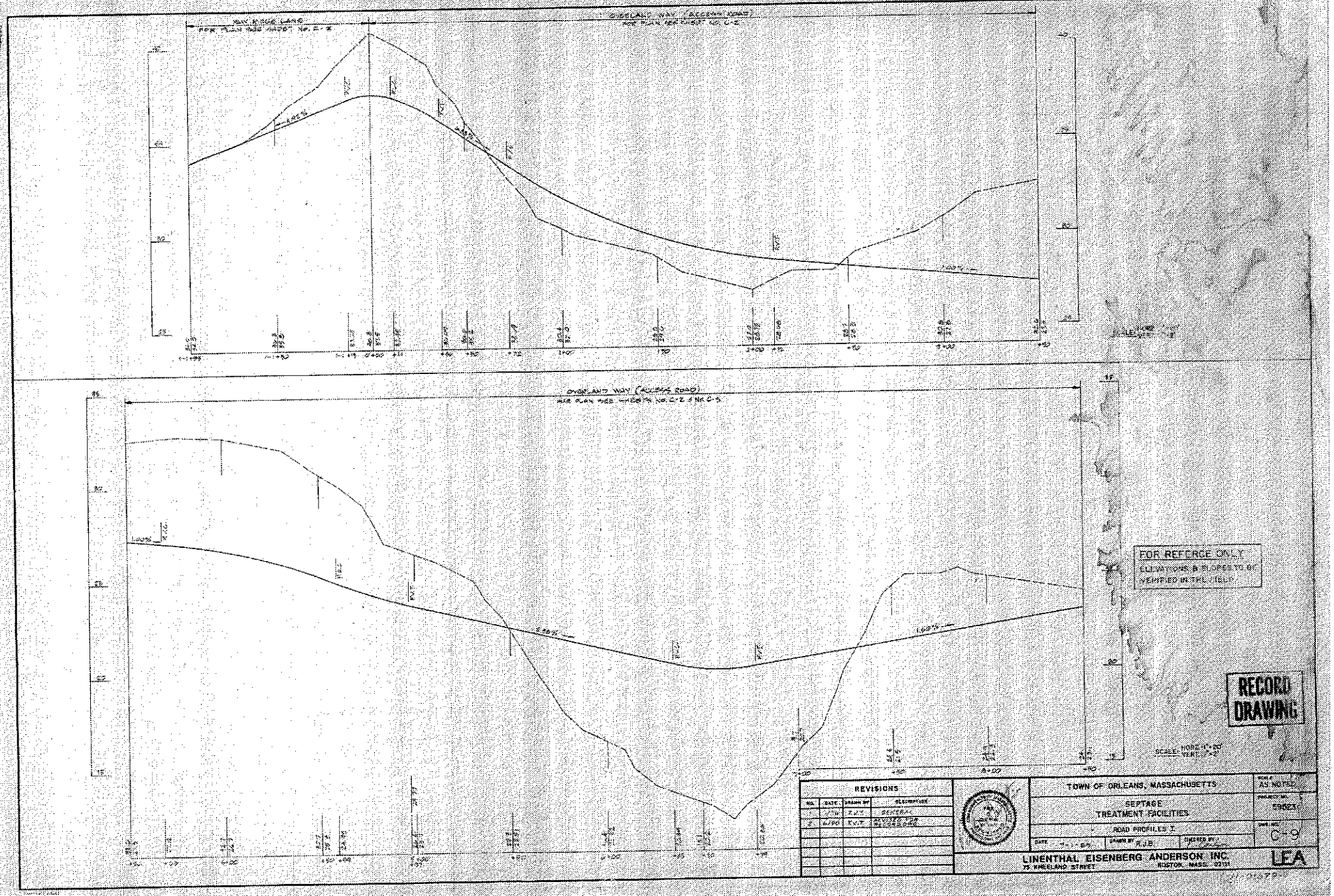
SHEET C-7

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

ENV 95523 C-7

LSA

DIGITIZED ELECTRONICALLY IMAGED BY WORKFLOW SOLUTIONS, INC.



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	7/78	R.V.T.	REVISED
2	8/780	R.V.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

ROAD PROFILES 'Y'

SCALE AS NOTED

PROJECT NO. 59523

SHEET NO. C-9

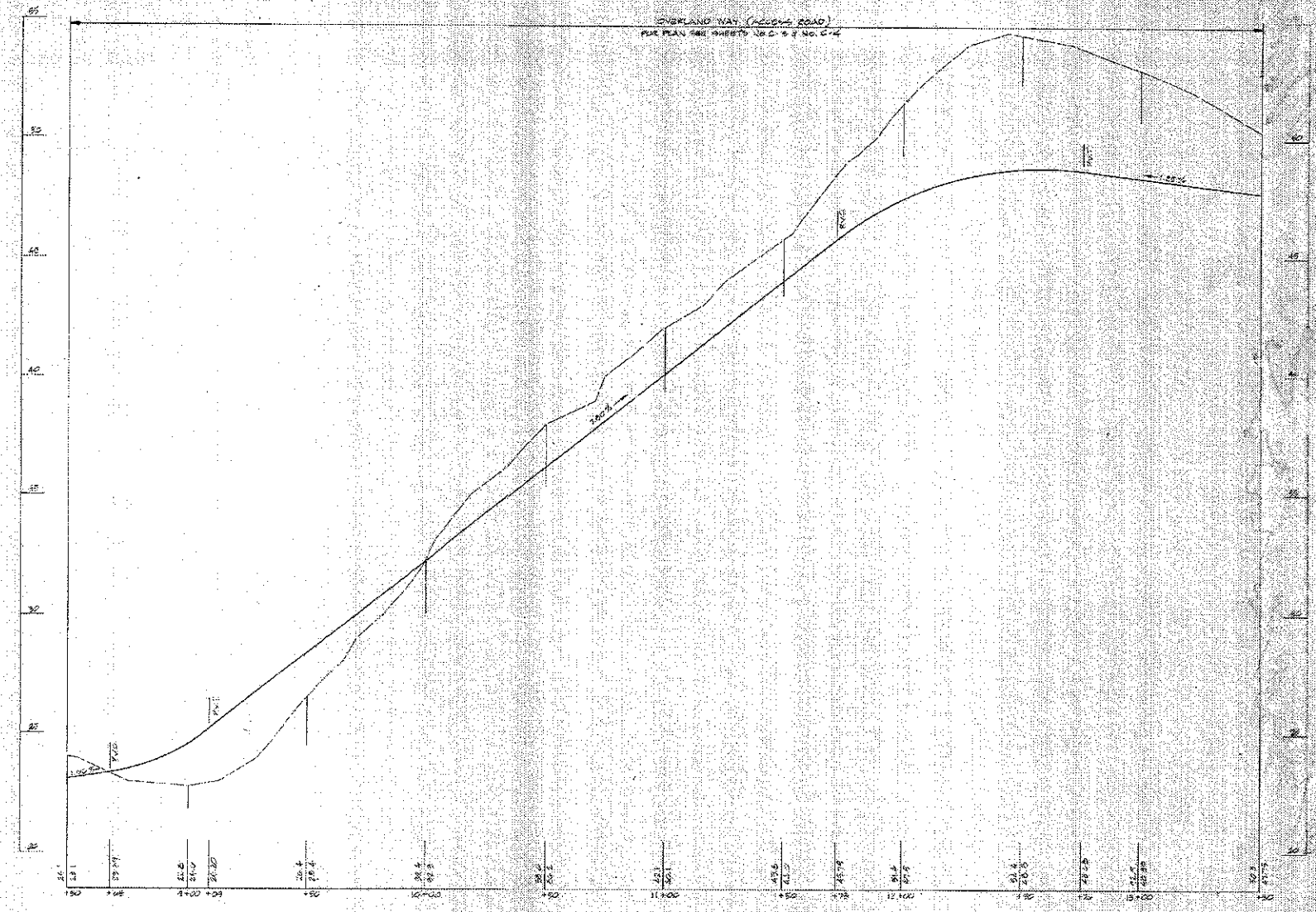
DATE 7-78 DRAWN BY R.V.B. CHECKED BY

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

DWG. 59523 C-8

P/N: 9823 C-9



SCALE: HORZ. 1"=20'
VERT. 1"=4'

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	7/84	E.M.T.	GENERAL
2	8/90	T.V.T.	REVISED PER PLANNING BOARD

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

ROAD PROFILES "I"

SCALE: AS NOTED

PROJECT NO. 9823

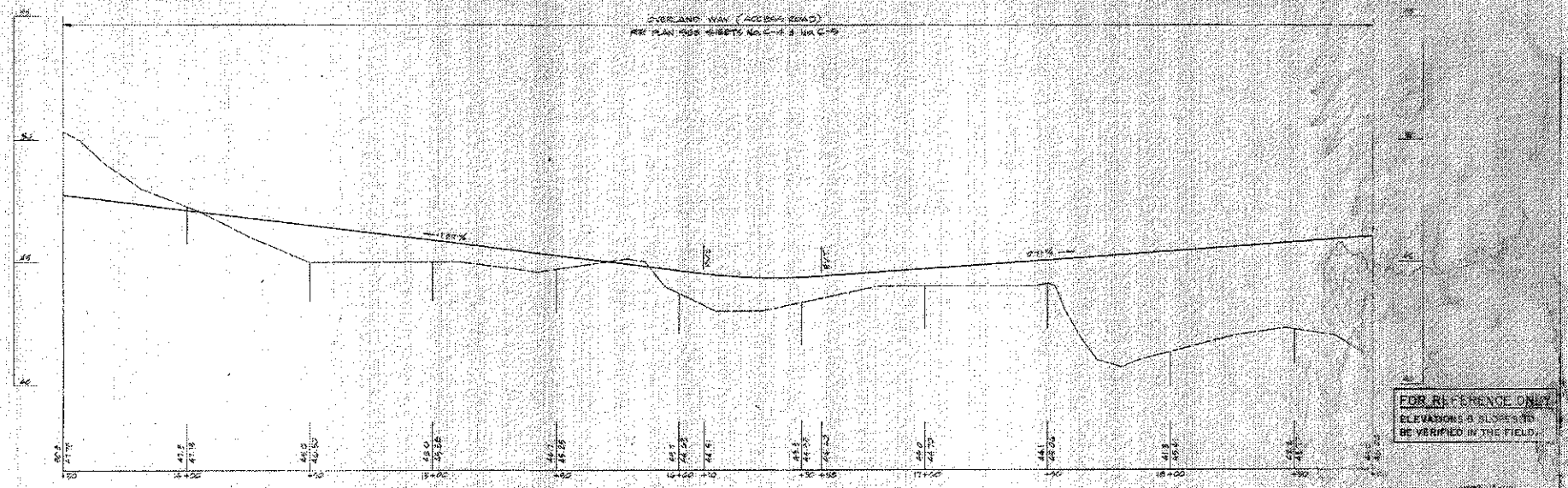
SHEET NO. C-10

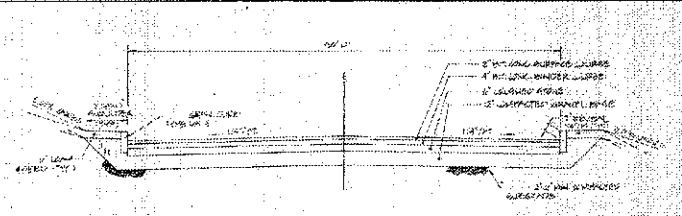
DATE: 4-24-89 DRAWN BY: R.J.B. CHECKED BY:

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON MASS. 02111

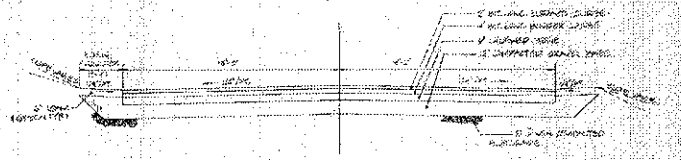
LEA

PRN 89023 C-10 LEA



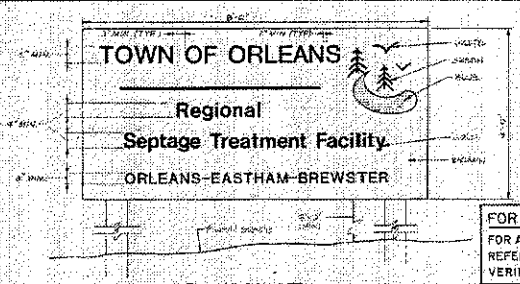


TYPICAL PAVEMENT SECTION W/ GRANITE CURB
SCALE: 1" = 4'

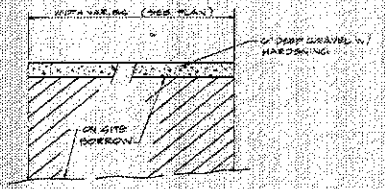


TYPICAL PAVEMENT SECTION
SCALE: 1" = 4'

TYPICAL DRIVEWAY SECTION
SCALE: 1" = 4'



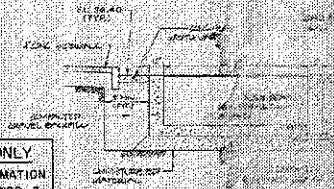
ENTRANCE SIGN DETAIL

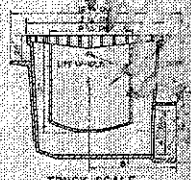


GRAVEL SURFACE ROAD DETAIL
NOT TO SCALE

NOTES:

1. Frames and covers for sewer and drain manholes shall be heavy duty Model No. EX 1130 manufactured by E.L. Lebaron Foundry Co., Needham, Massachusetts, or equal. Covers shall have the word "Sewer" or "Drain", as appropriate, cast in 3-in. raised letters.
2. Catchbasin frames and grates shall be Model No. EX 131 manufactured by E.L. Le Baron Foundry Co., Boynton, Massachusetts, or equal.
3. For General Notes, See specifications.





TRUCK SCALE FLOOR DRAIN DETAIL
NOT TO SCALE

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	C.L.L.	REVISIONS
2	6/90	F.J.S.	REVISIONS PER ARCHIVIST DWG

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

ROAD PROFILES III, DETAILS & SECTIONS

SCALE: AS NOTED

PROJECT NO. 89023

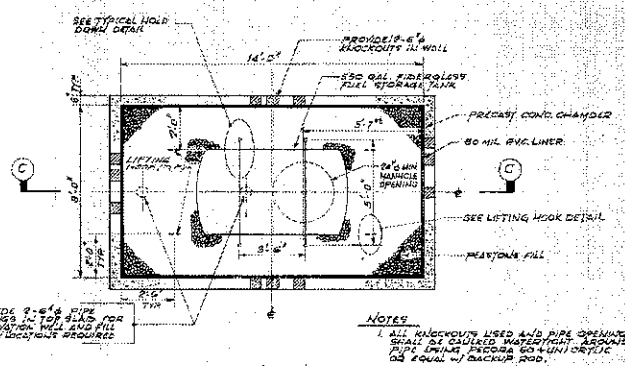
DWG NO. C-11

DATE: 1-84 DRAWN BY: R.J.D. CHECKED BY: C.L.L.

LINENTHAL EISENBERG ANDERSON INC
75 KNEELAND STREET BOSTON, MASS. 02111

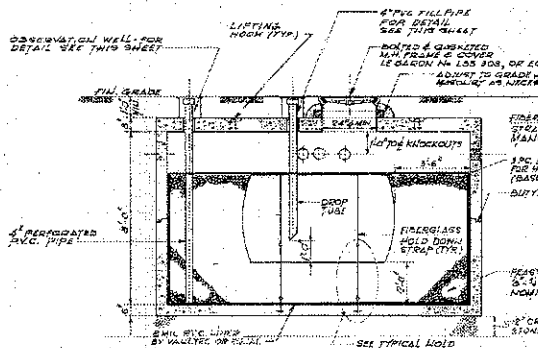
LEA

C.W. 56623 C-11 LEA

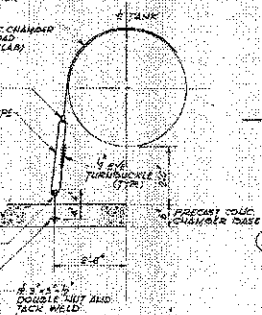


PLAN

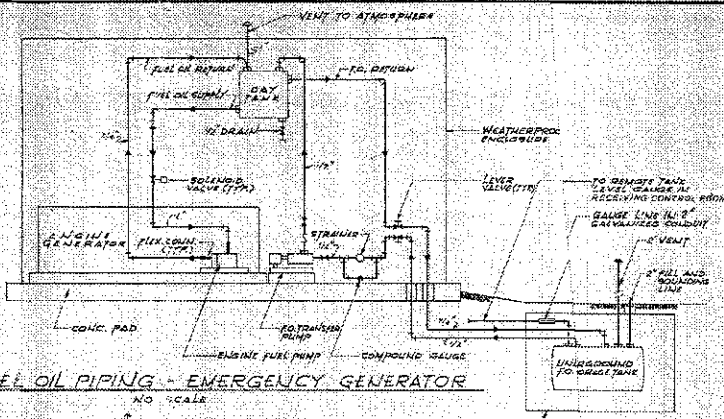
NOTES
1. ALL KNOCKOUTS USED AND PIPE OPENINGS SHALL BE CAULKED WATERTIGHT AROUND PIPE WITH PRIOR'S CO-LINK ORTEX OR EQUAL W/ BACKUP ROD.
2. TERMINATE VENT AS DIRECTED W/FLAME ARRESTOR VENT CAP.



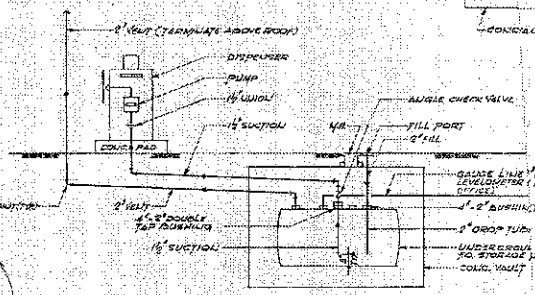
SECTION C-C
DIESEL FUEL STORAGE TANK DETAIL
NO SCALE



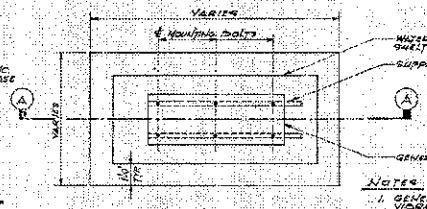
TYPICAL HOLD-DOWN DETAIL
UNDERGROUND FUEL OIL TANK
NO SCALE



FUEL OIL PIPING - EMERGENCY GENERATOR
NO SCALE

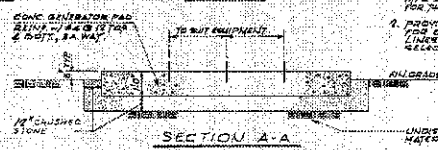


FUEL OIL PIPING - VEHICLE FUEL DEPOT
NO SCALE



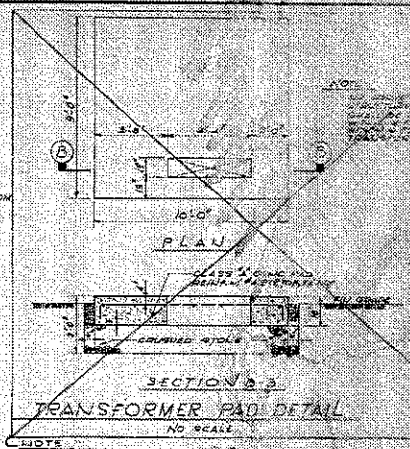
PLAN

NOTES
1. GENERATOR MOUNTING AND VIBRATION ISOLATORS TO BE IN ACCORDANCE WITH THE MFGR'S RECOMMENDATIONS FOR THE EXACT EQUIPMENT.
2. PROVIDE OPENINGS IN PAD FOR ELECTRICAL, FUEL LINES AS REQUIRED FOR SELECTED EQUIPMENT.



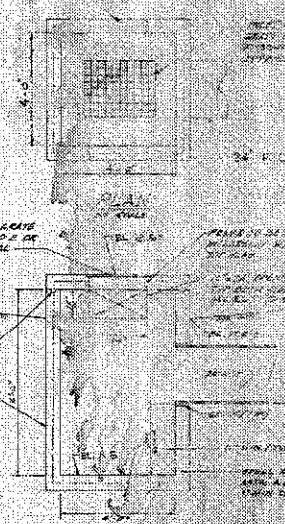
SECTION A-A

ENGINE GENERATOR PAD DETAIL
NO SCALE

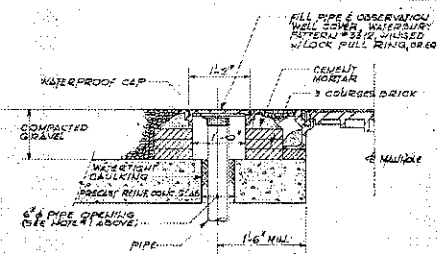


TRANSFORMER PAD DETAIL
NO SCALE

NOTE
FOR PAD MOUNTED TRANSFORMER DETAIL SEE SHT. C-9 ⚠

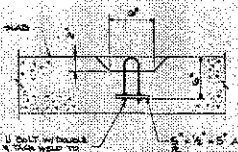


INLET DRAINAGE STRUCTURE
STA. C-58 ACCESS ROAD
NO SCALE



DETAIL AT
OBSERVATION WELL & FILL PIPE
NO SCALE

NOTE
TANK HOLD-DOWN DETAILS SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE TANK MANUFACTURER.



LIFTING HOOK DETAIL
NO SCALE

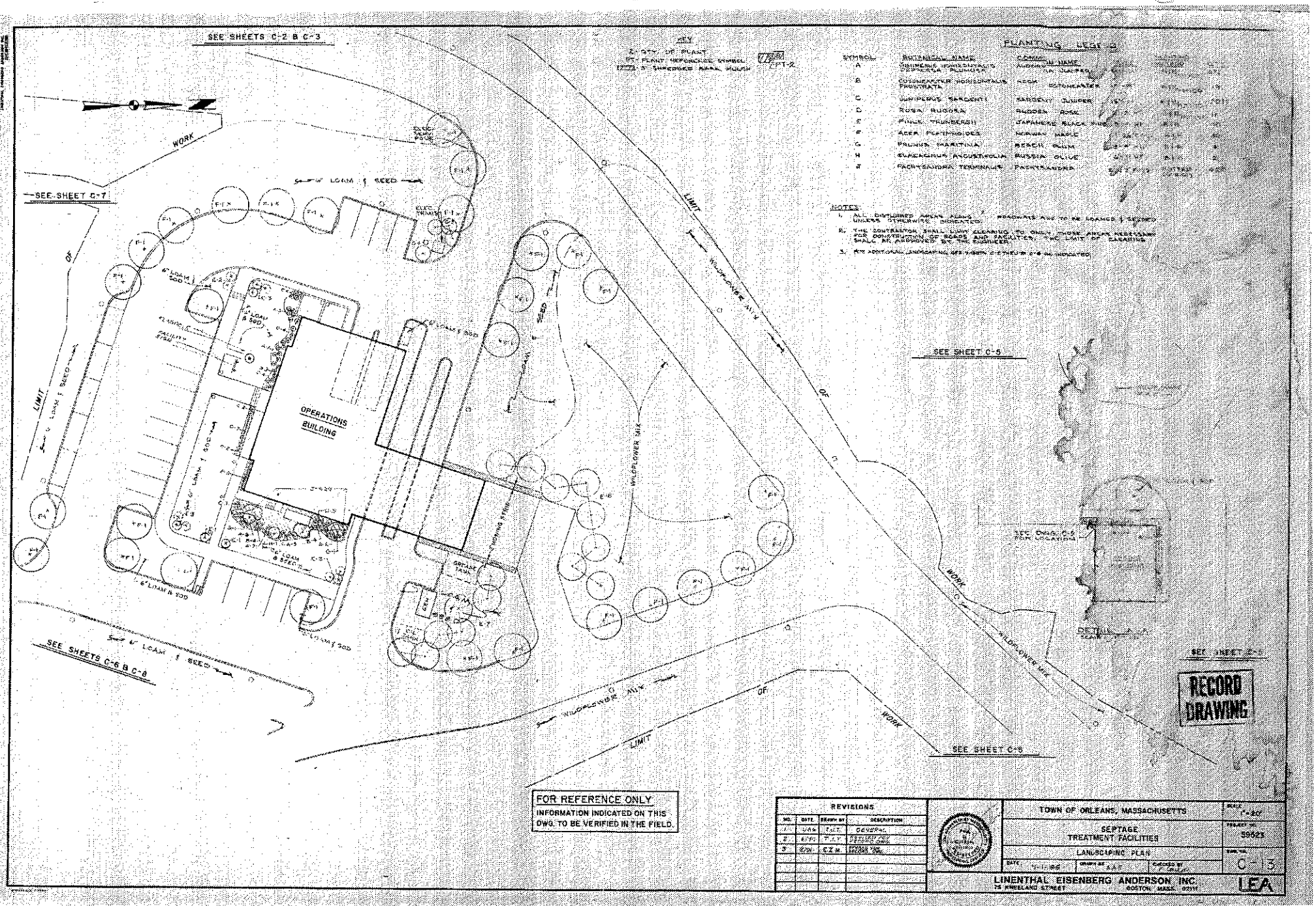
OR REFERENCE ONLY
OR ADDITIONAL INFORMATION EFER TO THE SHOP DWGS. & ERIFY IN THE FIELD.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	[illegible]	[illegible]	[illegible]
2	01/96	D.E.	DELETED "HIGH" PAD
3	[illegible]	[illegible]	ADD ESE TYP. AS
4	[illegible]	[illegible]	[illegible]
5			
6			

TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
MISCELLANEOUS DETAILS
DATE 7-1-94 DRAWN BY MS CHECKED BY
SCALE: NO SCALE
PROJECT NO. 56623
DWG. NO. C-12

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111


SEE SHEETS C-2 & C-3
KEY
QTY. OF PLANT
PT. PLANT REFERENCE SYMBOL
EXIST. & SHRUBBERY AREA, MULCH
PT-2
PLANTING LEGEND
SYMBOL
BOTANICAL NAME
COMMON NAME
A
JUNIPERUS HORIZONTALIS 'DOUGLASII' PLUMOSA
WILTONII OR JUNIPER
B
COTONEASTER HORIZONTALIS PROSTRATA
ROCK COTONEASTER
C
JUNIPERUS SARGENTII
SARGENT JUNIPER
D
ROSA RUGOSA
RUGOSA ROSE
E
PINUS THUNBERGII
JAPANESE BLACK PINE
F
ACER PLATANOIDES
NORWAY MAPLE
G
PRUNUS MARITIMA
BEACH PLUM
H
ELAEAGNUS ANGUSTIFOLIA
RUSSIA OLIVE
I
PACHYSANDRA TERMINALIS
PACHYSANDRA
NOTES:
1. ALL DISTURBED AREAS ALONG ROADWAYS ARE TO BE LOAMED & SEEDED UNLESS OTHERWISE INDICATED.
2. THE CONTRACTOR SHALL FLAG AND/OR FENCE TO CHECK THOSE AREAS NECESSARY FOR CONSTRUCTION OF ROADS AND FACILITIES. THE LIMIT OF CLEARING SHALL BE APPROVED BY THE ENGINEER.
3. FOR ADDITIONAL LANDSCAPING SEE SHEETS C-2 THRU C-6 AS INDICATED.
SEE SHEET C-7
SEE SHEET C-5
SEE SHEETS C-6 & C-8
SEE SHEET C-5
SEE SHEET C-5
SEE DWG. C-5 FOR DETAILS
DETAIL
WORK
LIMIT
OF
WILDFLOWER MIX
6" LOAM & SEED
OPERATIONS BUILDING
GREASE TRAP
ELEC. TRANSF. PAD
FACILITY FENCE
RECORD DRAWING
FOR REFERENCE ONLY
INFORMATION INDICATED ON THIS DWG. TO BE VERIFIED IN THE FIELD.
REVISIONS
NO. | DATE | DRAWN BY | DESCRIPTION
1 | 1/94 | T.L.T. | GENERAL
2 | 6/94 | T.L.T. | REVISED PER REVISED DWG.
3 | 8/94 | C.Z.M. | REVISED PER REVISED DWG.
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
LANDSCAPING PLAN
SCALE 1"=40'
PROJECT NO. 39523
DRAWING NO. C-13
DATE 11-1-93
DRAWN BY A.A.F.
CHECKED BY
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02114
LEA

V. 69523 C-13

LEA

COORDINATE SCHEDULE

BASELINE CONSTRAINT EXCHANGE
BASELINE "MA"

REF. NO.	N	E	DESCRIPTION
1	287,972.800	1,002,122.200	STA. 0+00 BL "A" & "B" & INT. & "C"
2	287,741.382	1,002,377.513	PC Curve #1 BL "A"
4	287,804.050	1,002,936.645	PT Curve #1 BL "A"
5	288,072.361	1,003,412.036	PC Curve #2 BL "A"
7	288,184.805	1,003,915.012	PT Curve #2 BL "A"
8	288,765.559	1,003,020.172	PC Curve #3 BL "A"
10	288,786.135	1,002,110.287	On Curve #3 & INT. BL "B"
11	288,824.373	1,002,144.412	PT Curve #3 BL "A"
12	288,935.480	1,002,294.615	PC Curve #10 BL "A"
14	288,972.015	1,002,338.196	On Curve #10 & INT. BL "B"
15	289,314.938	1,002,576.467	PT Curve #10 BL "A"
16	289,328.947	1,002,586.179	PC Curve #11 BL "A"
18	289,134.307	1,002,532.109	PT Curve #11 BL "A"
19	289,134.838	1,002,561.598	STA 18+38.59 BL "A" INT. BL "C"
20	289,115.938	1,002,606.095	STA 18+83.19 END BL "A"
	BASELINE "B"		
10	288,786.125	1,002,116.297	STA. 0+00 BL "B" & INT. BL "A"
30	288,733.822	1,002,204.691	ANGLE POINT BL "B" & INT BL "D"
31	288,665.726	1,002,198.726	PC Curve #4 BL "B"
33	288,592.088	1,002,196.768	PT Curve #4 BL "B"
34	288,543.562	1,002,351.964	ANGLE POINT BL "B"
35	288,532.439	1,002,385.696	STA. 5+98.24 BL "B" & INT. BL "C"
36	288,729.867	1,002,448.233	PC Curve #9 BL "B"
38	288,777.863	1,002,496.836	PT Curve #9 BL "A"
39	288,827.015	1,002,534.096	STA 7+87.60 END OF "B" & INT. BL "A"
44	288,980.988	1,002,364.085	STA 8+82.04 BL "B" & INT. BL
	BASELINE "C"		
3A	287,562.986	1,002,062.699	STA. 0+00 BL "C"
1	287,672.800	1,002,122.200	PC Curve #4 BL "C" & INT. BL "A"
41	287,746.323	1,002,184.975	PT Curve #4 BL "C"
42	287,865.317	1,002,182.675	STA 2+48.14 BL "C" & INT. BL "B"
43	287,941.173	1,002,142.116	STA 4+14.00 END BL "C"
	BASELINE "D"		
42	287,865.317	1,002,142.675	STA. 0+00 BL "D" & INT BL "C"
44	287,899.174	1,002,227.671	STA. 0+85.00 BL "D" & INT BL "E"
45	287,887.001	1,002,309.683	PC Curve #3 BL "D"
47	287,908.617	1,002,404.446	PT Curve #3, STA 2+71.09 END BL "D"
	BASELINE "E"		
46	287,886.175	1,002,322.871	STA. 0+00 BL "E" & INT BL "D"
48	287,747.859	1,002,228.084	STA. 1+18.32 END BL "E" & INT. BL "B"
	BASELINE "F"		
52	287,767.406	1,002,269.733	STA. 0+00 BL "F", PC Curve #1
58	287,741.894	1,002,239.969	ON CURVE #1 & INT BL "E"
51	287,731.470	1,002,196.913	END of Curve #1 BL "F"
53	287,711.151	1,002,189.635	PT Curve #2 BL "F"
54	287,686.036	1,002,204.966	STA. 1+26.00 END BL "F"
	BASELINE "G"		
55	286,693.474	1,002,496.896	STA. 0+00 BL "G" & INT BL "A"
60	286,717.492	1,002,322.044	STA. 1+82.00 END BL "G"
	BASELINE "H"		
61	286,251.832	1,002,284.071	STA 0+00 BL "H" INT BL "G"
62	286,224.492	1,002,284.042	STA 2+84.00 END BL "H"
	BASELINE "I"		
13	289,174.036	1,002,541.598	STA. 0+00 BL "I" & INT BL "A"
21	289,181.835	1,002,561.058	PC Curve #12 BL "I"
23	289,254.282	1,002,605.596	PT Curve #12 BL "I"
24	289,234.681	1,002,684.573	PC Curve #13 BL "I"
69	289,224.281	1,002,688.613	PRC & Curve #13 & #14 BL "I"
28	289,217.742	1,002,684.675	PT Curve #14 BL "I"
29	289,219.980	1,002,805.468	STA. 9+17.29 END BL "I"
	BASELINE "J"		
64	286,389.958	1,002,344.851	STA. 0+00 BL "J" & INT BL "A"
65	286,358.909	1,002,432.285	STA. 0+93.76 BL "J" & INT BL "K"
66	286,334.963	1,002,462.743	ANGLE POINT BL "J"
67	286,482.227	1,002,518.192	STA. 2+79.21 END BL "J"
	BASELINE "K"		
95	286,358.409	1,002,432.288	STA. 0+00 BL "K" & INT. BL "J"
68	286,369.704	1,002,529.226	STA. 0+98 BL "K"
93	286,806.532	1,002,448.987	STA. 4+37.85 END BL "K"

BASELINE TIE COORDINATES

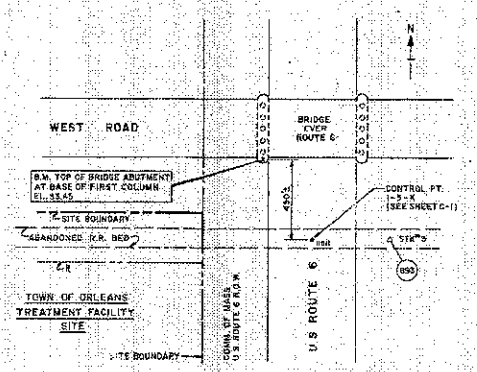
REF. NO.	N	E	DESCRIPTION
79	287,676.780	1,002,119.673	Westerly R.O.W. Bay Ridge Lane @ Int. BL "A"
81	287,774.860	1,002,136.722	Conc. Mon. P.C. Ridge Lane to Lot 13
91	288,172.926	1,002,142.667	Mon. N.H. Corner Lot 16

TOPOGRAPHIC BASE LINE COORDINATES

REF. NO.	N	E	DESCRIPTION
935	288,866.962	1,002,668.480	Stake #1
899	288,568.135	1,003,744.470	Stake #2
903	289,744.413	1,003,946.751	Stake #3
894	289,223.809	1,002,514.310	PK #5
895	288,982.526	1,003,142.818	PK #5
903	288,941.365	1,003,468.827	Stake #6
896	288,653.381	1,003,435.813	PK #7
897	288,873.288	1,003,656.465	PK #8
902	288,880.410	1,003,615.015	Stake #9
904	288,675.882	1,003,883.881	Stake #10
905	288,873.548	1,003,764.269	Stake #91
907	288,992.228	1,003,713.884	Stake #92

STRUCTURE COORDINATES

REF NO.	STRUCTURE	N	E
58	Operations Building	288,936.393	1,002,382.695
73	Composting Pad & Mixing bldg.	289,138.337	1,002,605.725
88	Sludge Pumping Station	288,968.384	1,002,434.205
90	Centerline Primary Settling Tank No. 2	289,071.315	1,002,457.051
91	Centerline Primary Settling Tank No. 1	289,182.514	1,002,419.245
92	Centerline Primary Distribution Box	289,605.734	1,002,446.786
94	Chemical Feed Building	289,482.572	1,002,627.956
96	Disinfection Building	288,518.886	1,002,610.293



B.M. LOCATION PLAN

NO SCALE

WATER MAIN NOTES

1. WATER MAINS SHALL BE DUCTILE IRON PIPE, CLASS 50, AWWA SPECIFICATION C151-76 (ANSI A21. 51-1976) RUBBER GASKET JOINTS WITH CEMENT LINING INSIDE THE DIAMETER OF ASSET A21.4-1964 AND TO BE ASPHALT SEAL-COATED INSIDE, OUTSIDE OF PIPE TO BE BITUMINOUS COATED. ASPHALT SEAL COAT TO BE SUCH AS NOT TO IMPART TASTE OR ODOR TO THE WATER CONTAINED HEREIN.
2. 1½-IN. AND 2-IN. SERVICES SHALL BE COPPER TUBE SIZE PLASTIC WITH COMPRESSION CORPORATION STOPS AND CURB STOPS. TYPE K COPPER PIPE SHALL BE USED WHERE SERVICES ENTER BUILDINGS.
3. METERS SHALL BE THE SIZE INDICATED ON THE DRAWINGS AND SHALL BE ROCKWELL OR METERS COMPATIBLE WITH THOSE USED BY THE OWNER.

SIGN SCHEDULE

STANDARD TRAFFIC SIGNS — SPECIALTY SIGNS

SIGN CONTROL NUMBER	SIGN SIZE (WIDTH)	SIGN SIZE (HEIGHT)	TEXT	MOUNTING HEIGHT	POST SIZE & WEIGHT	SIGN MATERIAL	POST OR OTHER SUPPORT	SPECIALTY SIGNS TEXT
R1-1	30"	30"	STOP	7'	#5	WHITE	WOOD	↑ COMPOSTING AREA
R2-1	24"	30"	SPEED LIMIT 20	7'	#5	WHITE	WOOD	COMPOSTING AREA →
						WHITE	WOOD	← COMPOSTING AREA
R5-1	24"	30"	DO NOT ENTER	7'	#5	WHITE	WOOD	↑ SEPTAGE RECEIVING
W1-6	18"	24"	ONE WAY	7'	#5	WHITE	WOOD	SEPTAGE RECEIVING →
R7-8	12"	18"	RESERVED PARKING	7'	#5	WHITE	WOOD	NO ENTRANCE TO TREATMENT PLANT
						WHITE	WOOD	OPERATIONS BLDG. →
W1-6R	30"	30"		7'	#5	WHITE	WOOD	← OPERATIONS BLDG.
W1-6L	30"	30"		7'	#5	WHITE	WOOD	← SCREENING CHAMBER
W1-6L	30"	30"	NO OUTLET	7'	#5	WHITE	WOOD	← OFFICE
D3-1	24"	9"	OAK RIDGE LN.	7'	#5	WHITE	WOOD	↑ END
D3-1A	24"	9"	NO. ★ & NO. ★	7'	#5	WHITE	WOOD	EXIT →
D3-1	24"	9"	BAY RIDGE LN.	7'	#5	WHITE	WOOD	← END
D3-1	24"	9"	OVERLAND WAY	7'	#5	WHITE	WOOD	AUTHORIZED PERSONNEL ONLY →
						WHITE	WOOD	VISITORS →

1. STANDARD TRAFFIC SIGN SIZES, BACKGROUND COLOR, BORDER AND LEGEND SIZE AND COLOR SHALL BE AS NOTED IN THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' FOR 1979.
2. STANDARD TRAFFIC SIGNS SHALL BE REFLECTORIZED.
3. FOR SPECIALTY SIGNS (S-SERIES) ADDITIONAL INFORMATION SEE SPECIFICATIONS SECTION 1040.
★ TO BE FURNISHED BY THE ENGINEER.

FOR REFERENCE ONLY
INFORMATION INDICATED ON THIS SHEET TO BE CROSS-CHECKED WITH ALL FIELD MEASUREMENTS AND REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.

LEGEND

■	C.B.	CATCH BASIN	
●	D.M.H.	DRAIN MANHOLE	
●	E.M.H.	ELECTRIC MANHOLE	
●	T.M.H.	TELEPHONE MANHOLE	
▲	EFF hyd.	YARD HYDRANT	
✦	HYD.	HYDRANT	
⋈	G.V.	GATE VALVE	
⋈	W.G.	WATER GATE	
W		EXISTING WATER MAIN	
W		PROPOSED WATER MAIN	
FM		PROPOSED FORCE MAIN	
EFF		PROPOSED EFF.	
F		PROPOSED FILTRATE	
D		PROPOSED DRAIN	

	FENCE
	GUARD RAIL
	LIGHT
	SIGN
	BORING NO.
	COORDINATE REFERENCE
	BASELINE CURVE NO.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	4/80	[illegible]	GENERAL
2	6/80	[illegible]	ADDED P&D

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

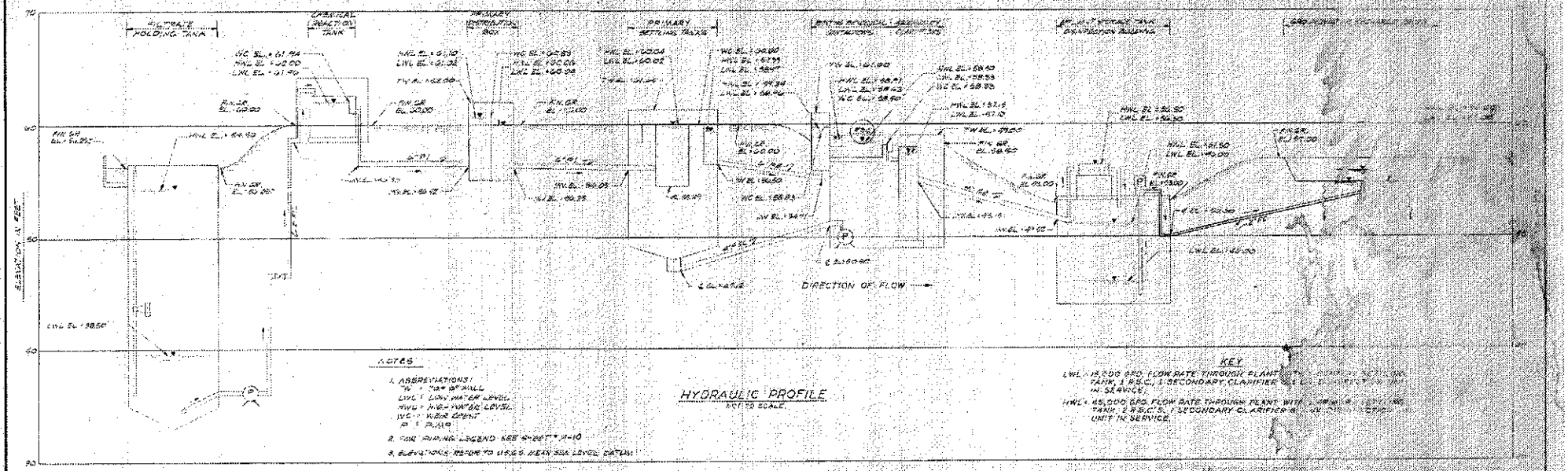
LEGEND & SCHEDULES

DATE 7-1-80 | DRAWN BY RJB | CHECKED BY GLL

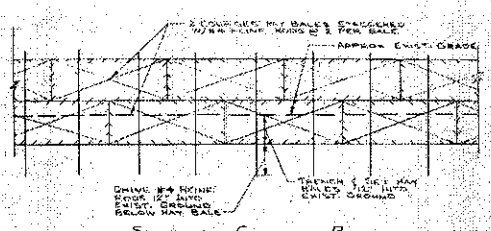
SCALE: NO SCALE | PROJECT NO. 69523 | DWG. NO. C-14

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

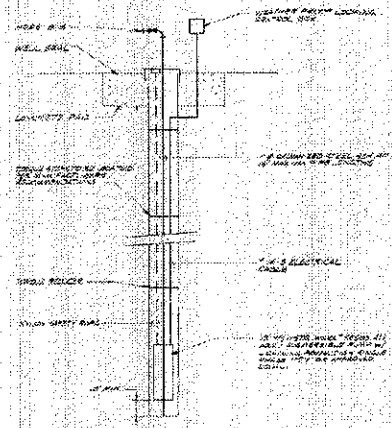


HYDRAULIC PROFILE
NOT TO SCALE

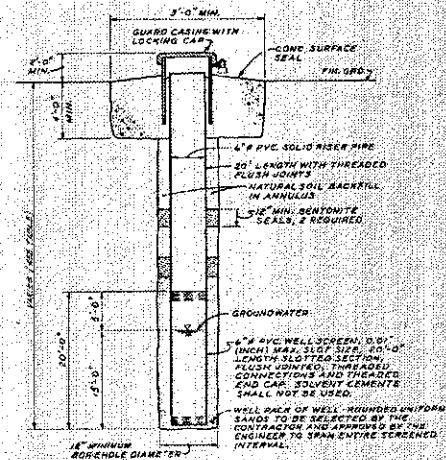


SILTATION CONTROL BARRIER
NTS

FOR REFERENCE ONLY
INFORMATION INDICATED ON THIS DWG. TO BE VERIFIED IN THE FIELD & AGAINST THE SHOP DWGS.



GROUNDWATER PUMP DETAIL
NOT TO SCALE



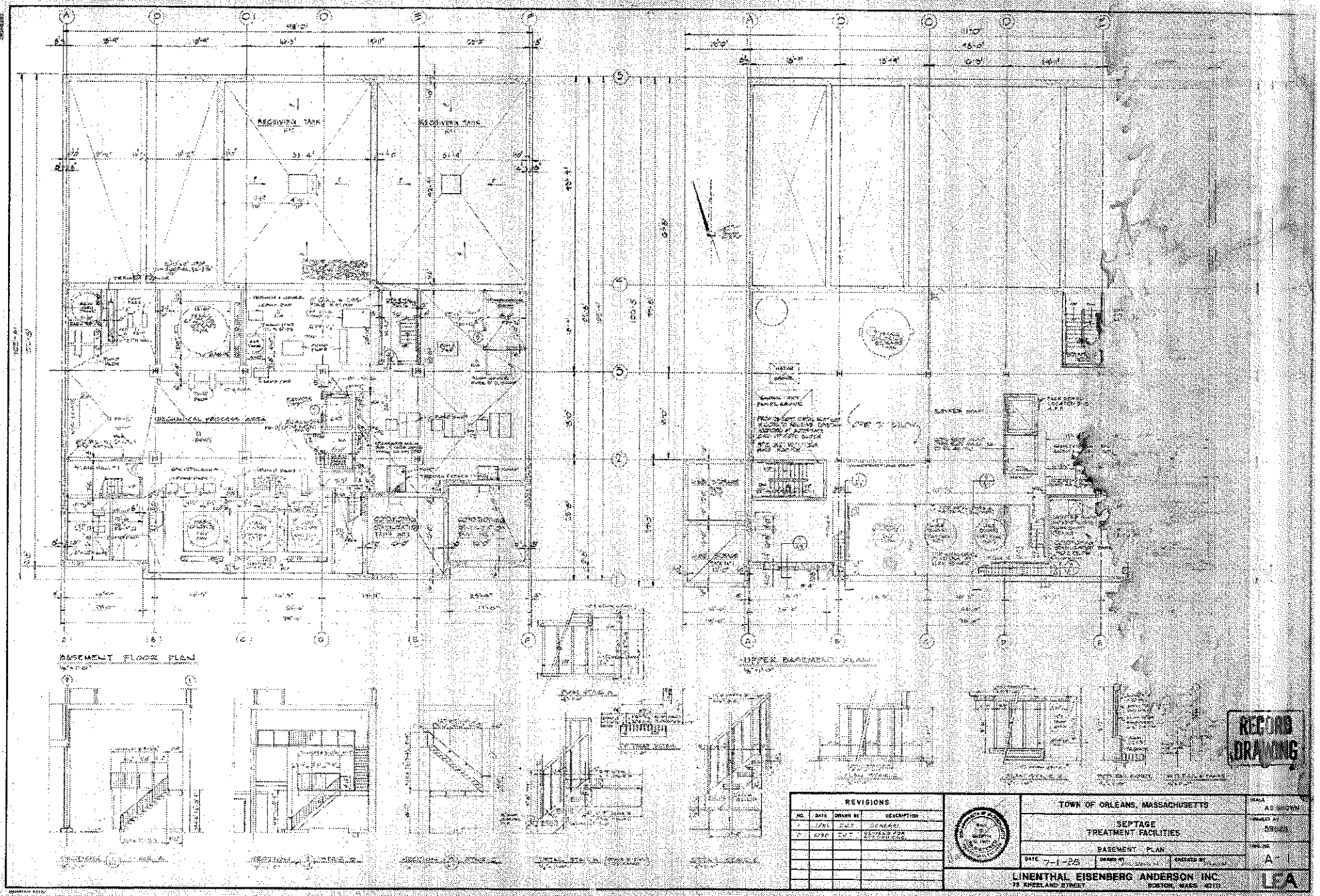
GROUNDWATER MONITORING WELL DETAIL
NOT TO SCALE
NOTE: TEFLON OR STAINLESS STEEL WILL BE ACCEPTABLE SUBSTITUTES FOR PVC.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/66	THT	ORIGINAL
2	6/70	THT	REVISED TANK

TOWN OF ORLEANS, MASSACHUSETTS
SCALE: AS SHOWN
SEPTAGE TREATMENT FACILITIES
PROJECT NO. 6663
HYDRAULIC PROFILE AND DETAILS
DRAWING NO. C-15
DATE: 1-1-66
DRAWN BY:
CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	12/01	DWT	GENERAL
2	6/02	DWT	REVISED FOR BIDDING

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

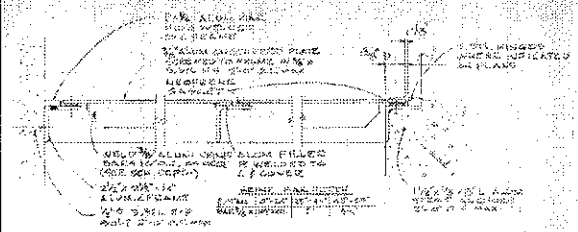
BASEMENT PLAN

SCALE	AS SHOWN
DRAWN BY	DWT
DRAWING NO.	A-1
DATE	7-1-98

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

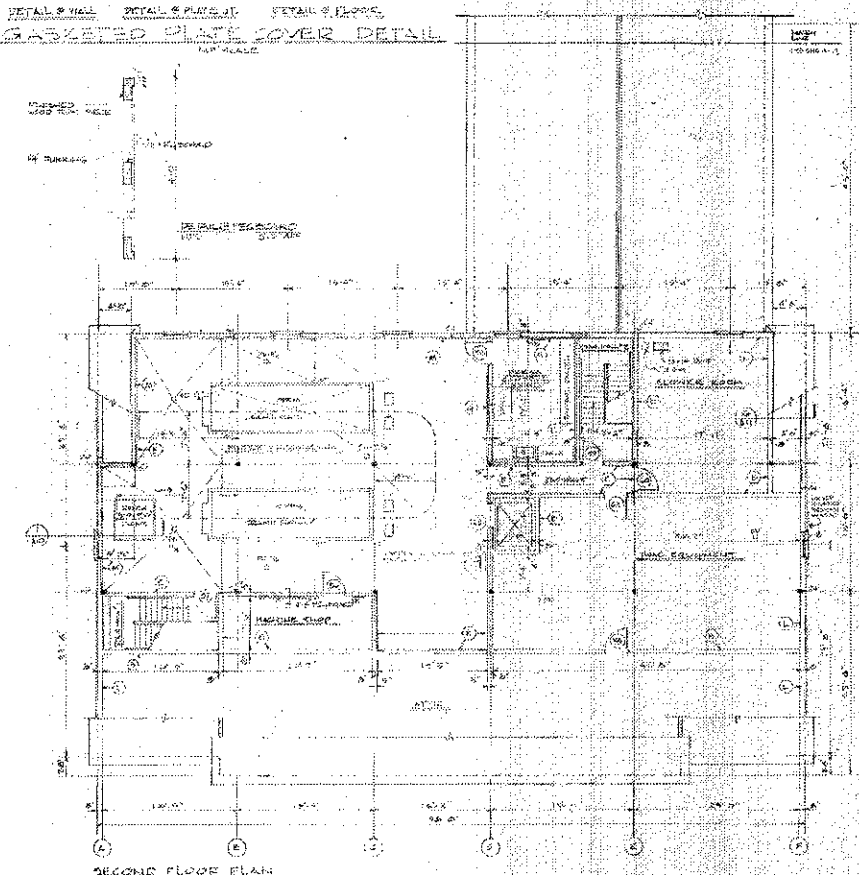
LEA

DWG. 59523 A-2 LEA

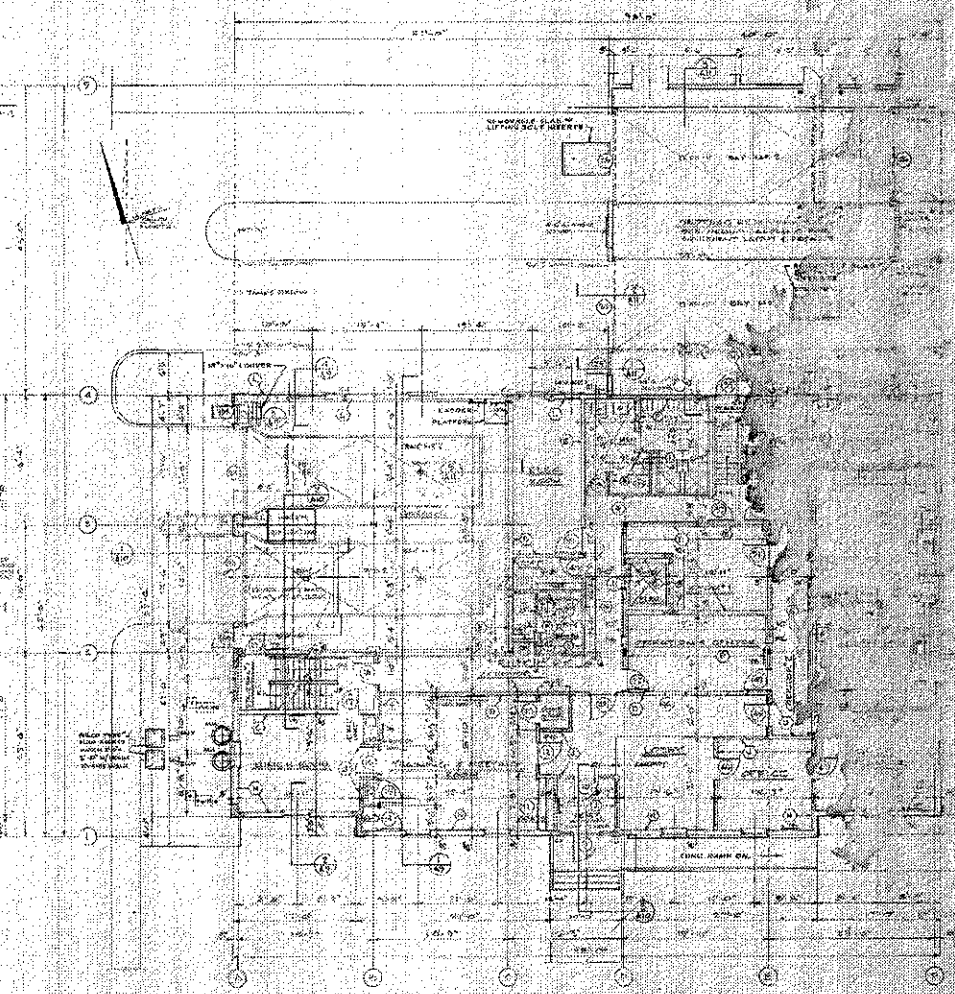


DETAIL @ WALL DETAIL @ PLATE JT. DETAIL @ FLOOR

GASKETED PLATE COVER DETAIL



SECOND FLOOR PLAN



FIRST FLOOR PLAN

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.T.	GENERAL
2	4/90	T.J.T.	COVER & FLOOR GASKETING

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

FIRST & SECOND FLOOR PLANS

SCALE: AS SHOWN

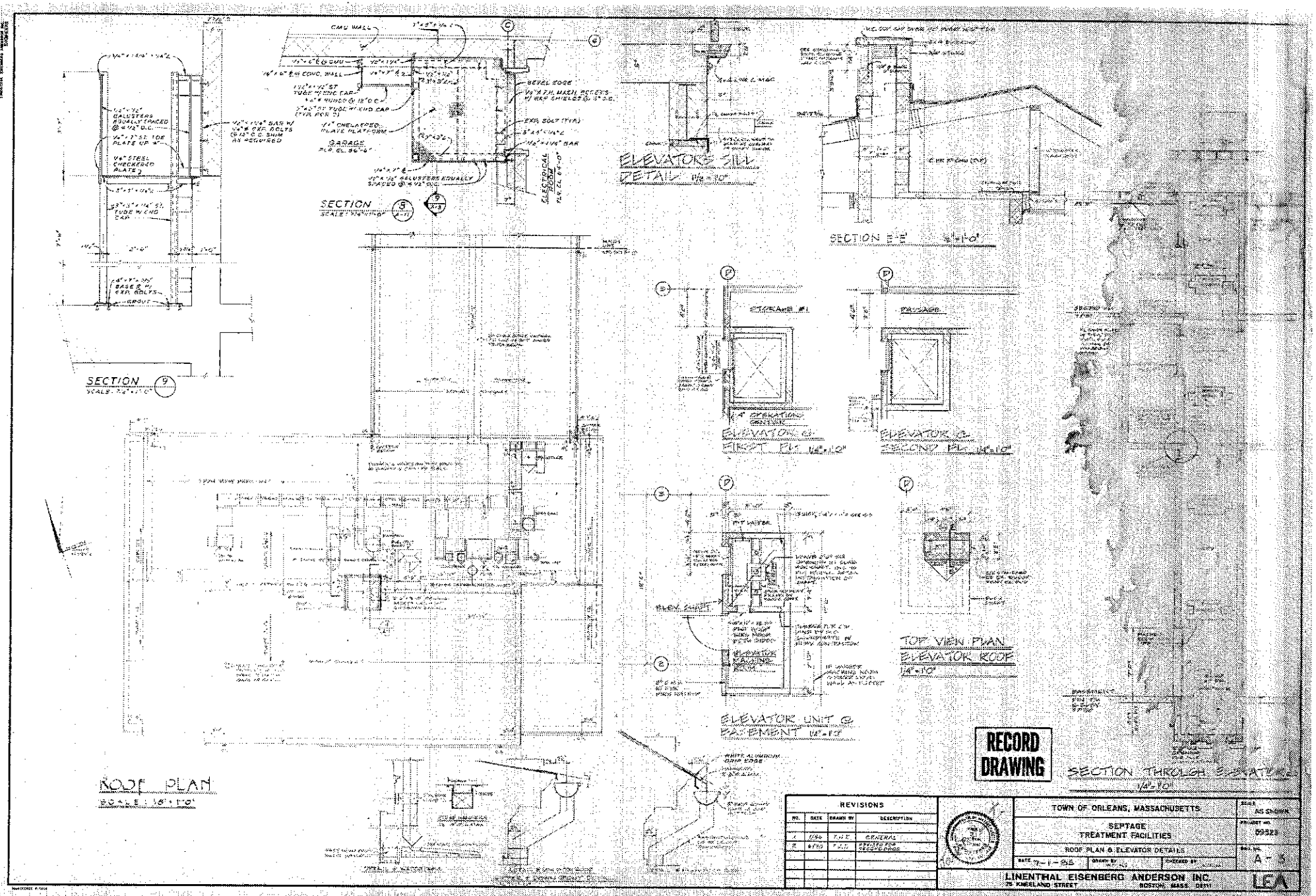
PROJECT NO. 59523

DWG. NO. A-2

DATE 7-1-85 DRAWN BY DRAWN BY CHECKED BY

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.H.E.	GENERAL
2	6/90	T.H.E.	REVISED FOR RECORD DWGS.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

ROOF PLAN & ELEVATOR DETAILS

SCALE: AS SHOWN

PROJECT NO. 89523

SHEET NO. A-5

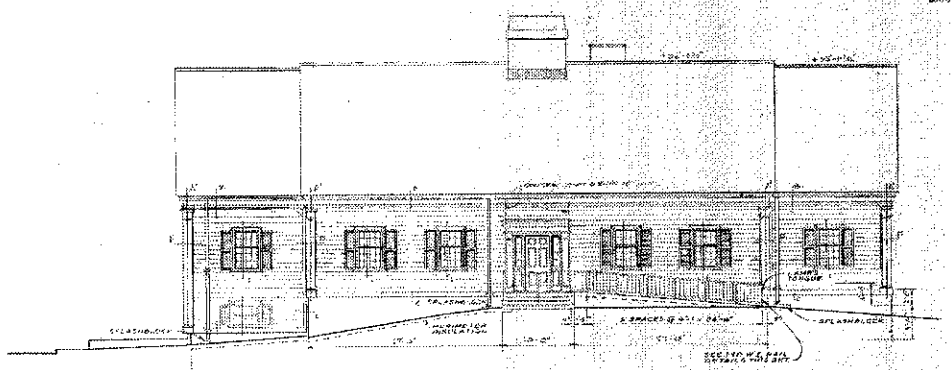
DATE: 7-1-88 DRAWN BY: CHECKED BY:

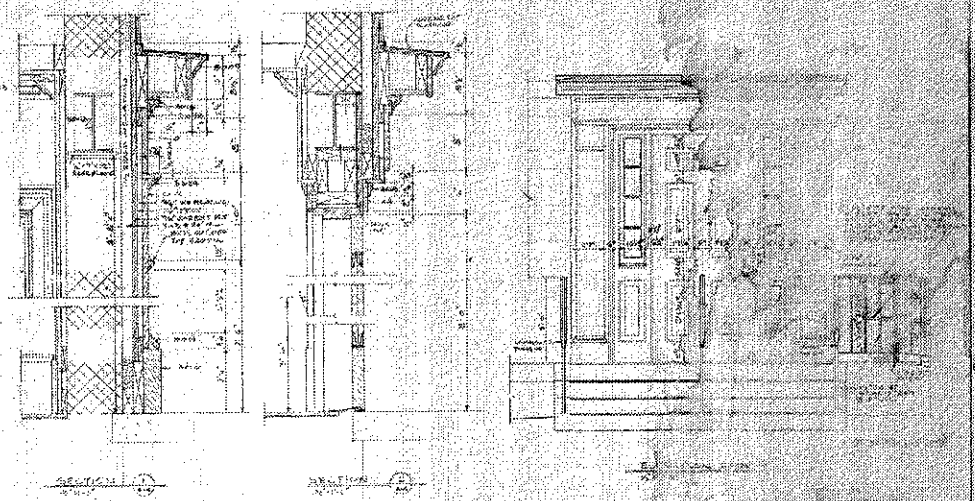
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

PROJECT NO. 89523 A-5

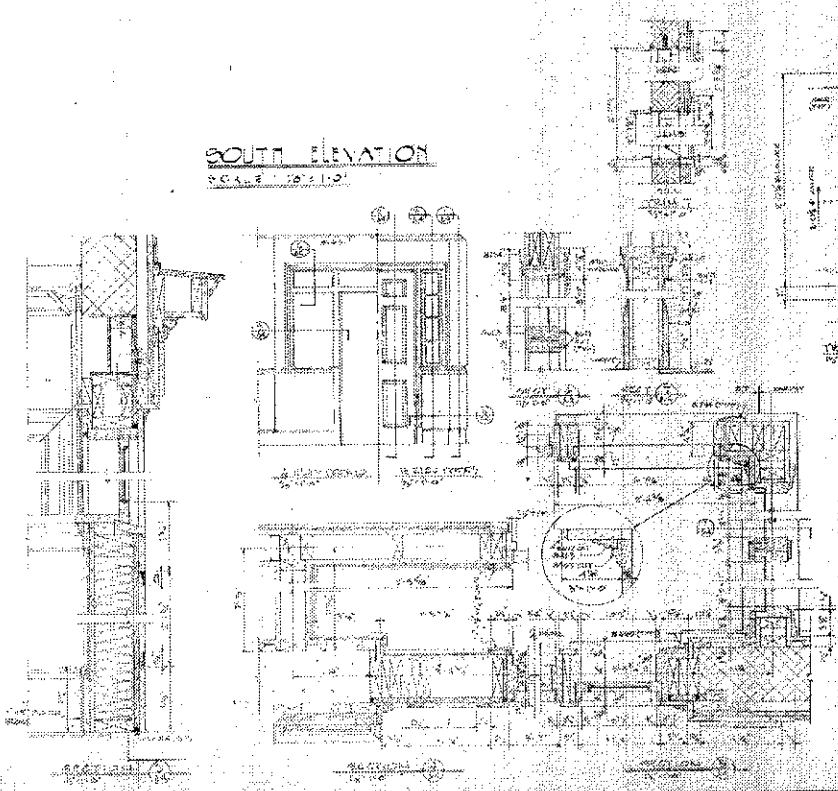
E.V. 59523 A-4 LEA

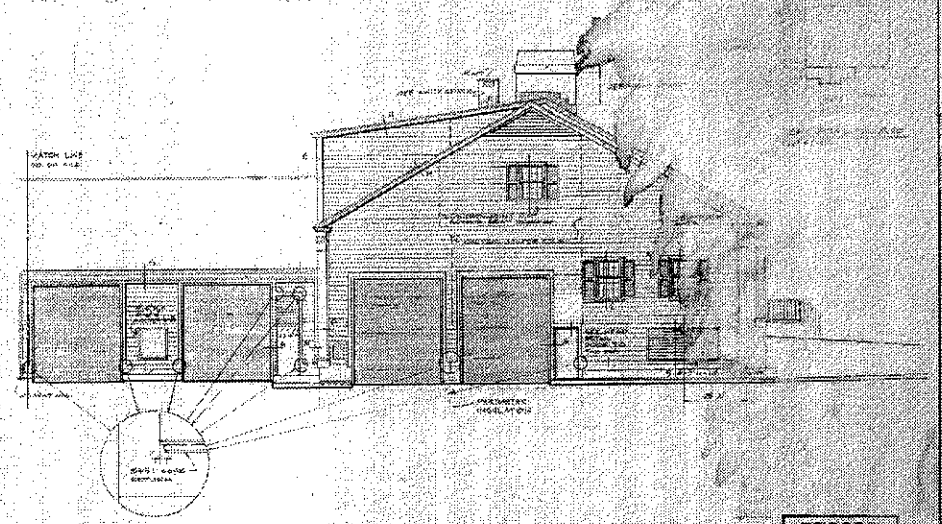




SOUTH ELEVATION

SCALE: 1/8"=1'-0"





WEST ELEVATION

SCALE: 1/8"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	F.J.K.	GENERAL
2	6/90	F.J.K.	REFLECTIVE CEILING DATA

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SOUTH & WEST ELEVATIONS & DETAILS

SCALE: AS SHOWN

PROJECT NO. 59523

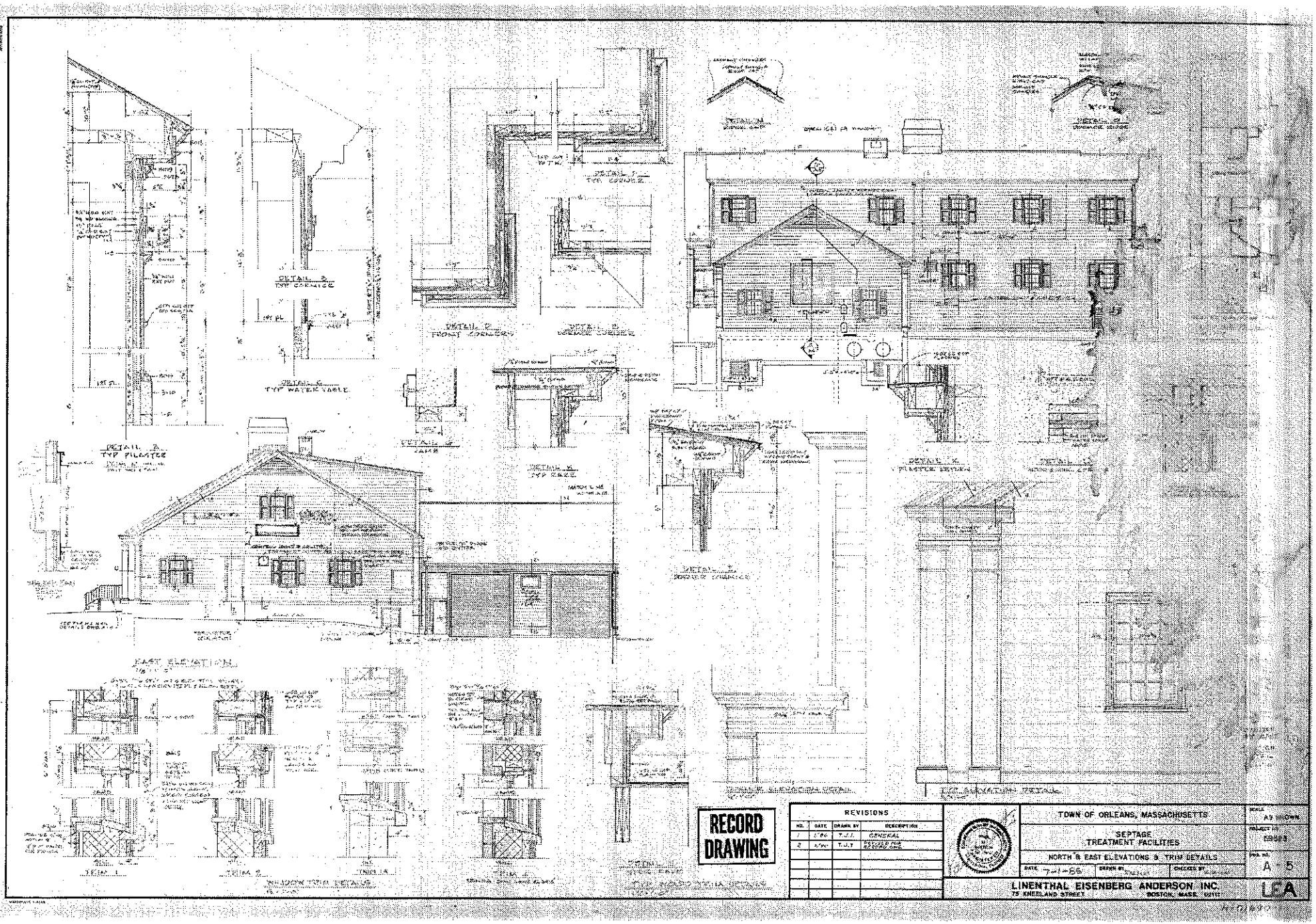
DWG. NO. A-4

DATE: 7-1-86 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KINGSLAND STREET BOSTON, MASS. 02111

LEA

ORLEANS



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.T.	GENERAL
2	5/86	T.J.T.	PER OUR FIELD REVIEW

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

NORTH & EAST ELEVATIONS & TRIM DETAILS

DATE 7-21-86 | DRAWN BY | CHECKED BY

SCALE AS SHOWN

PROJECT NO. 8958

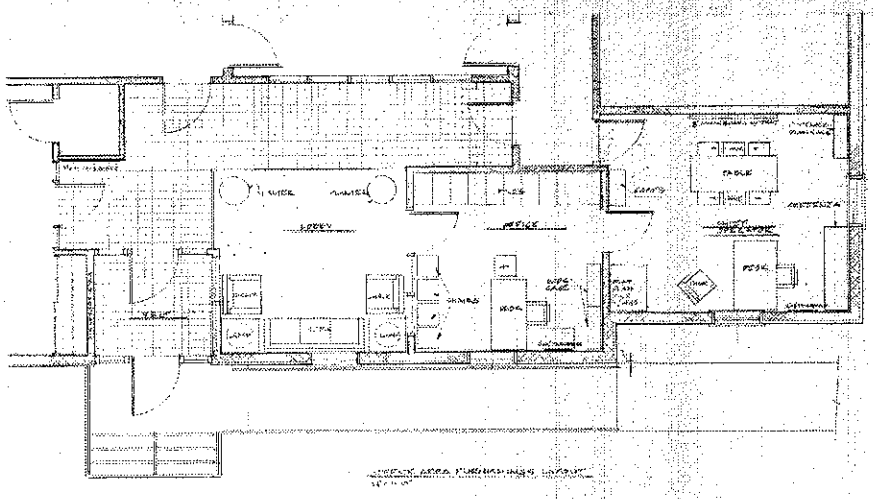
DWG. NO. A-5

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

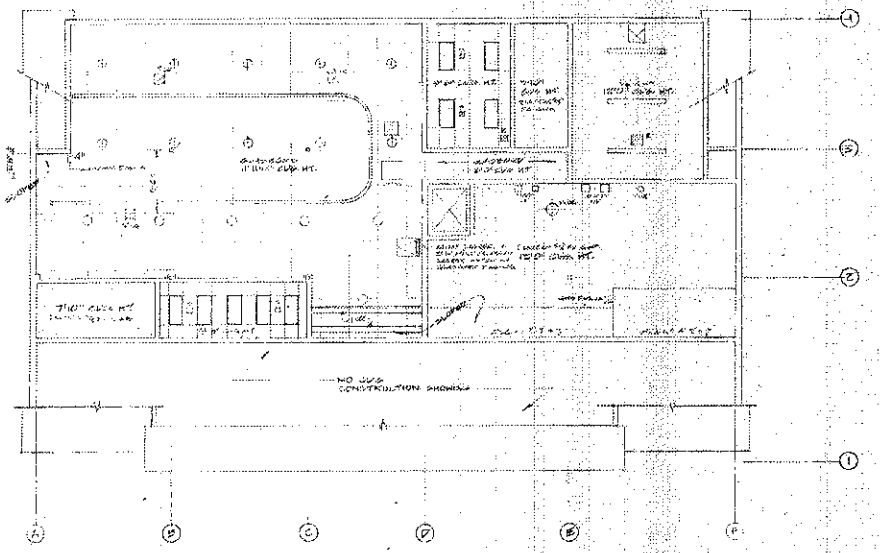
LEA

Env. 59523 A-5
LEA

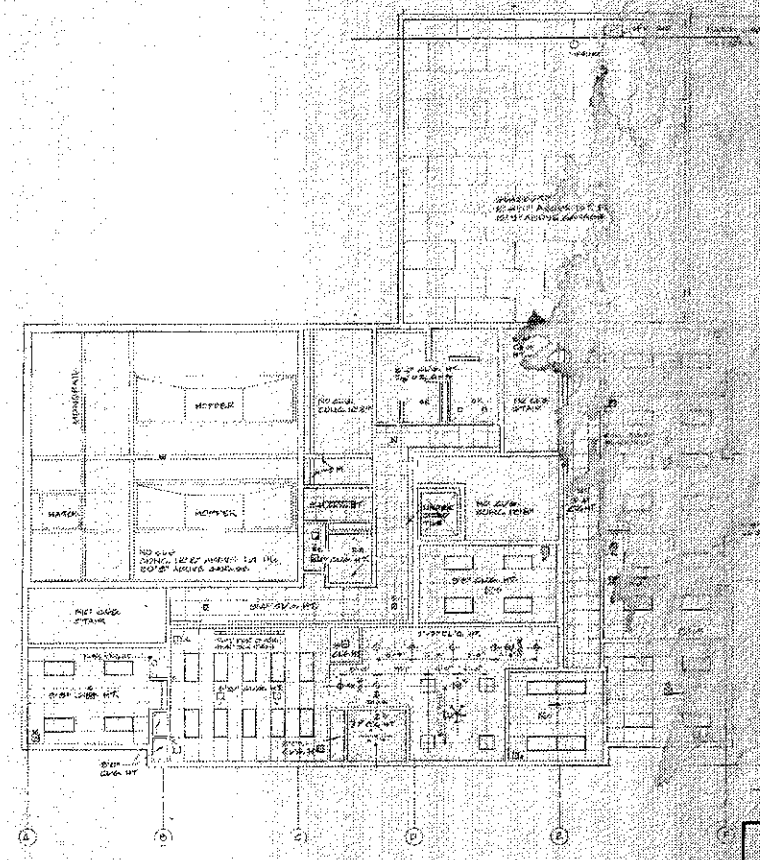
PW. 59523 A-6
LEA



OFFICE AREA FURNISHINGS LAYOUT



REFLECTED CEILING PLAN GROUND FLOOR



REFLECTED CEILING PLAN SECOND FLOOR

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.T.	GENERAL
2	6/90	T.J.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

REFLECTED CEILING PLANS & OFFICE LAYOUT

SCALE: AS SHOWN

PROJECT NO.: 59523

DWG. NO.: A-6

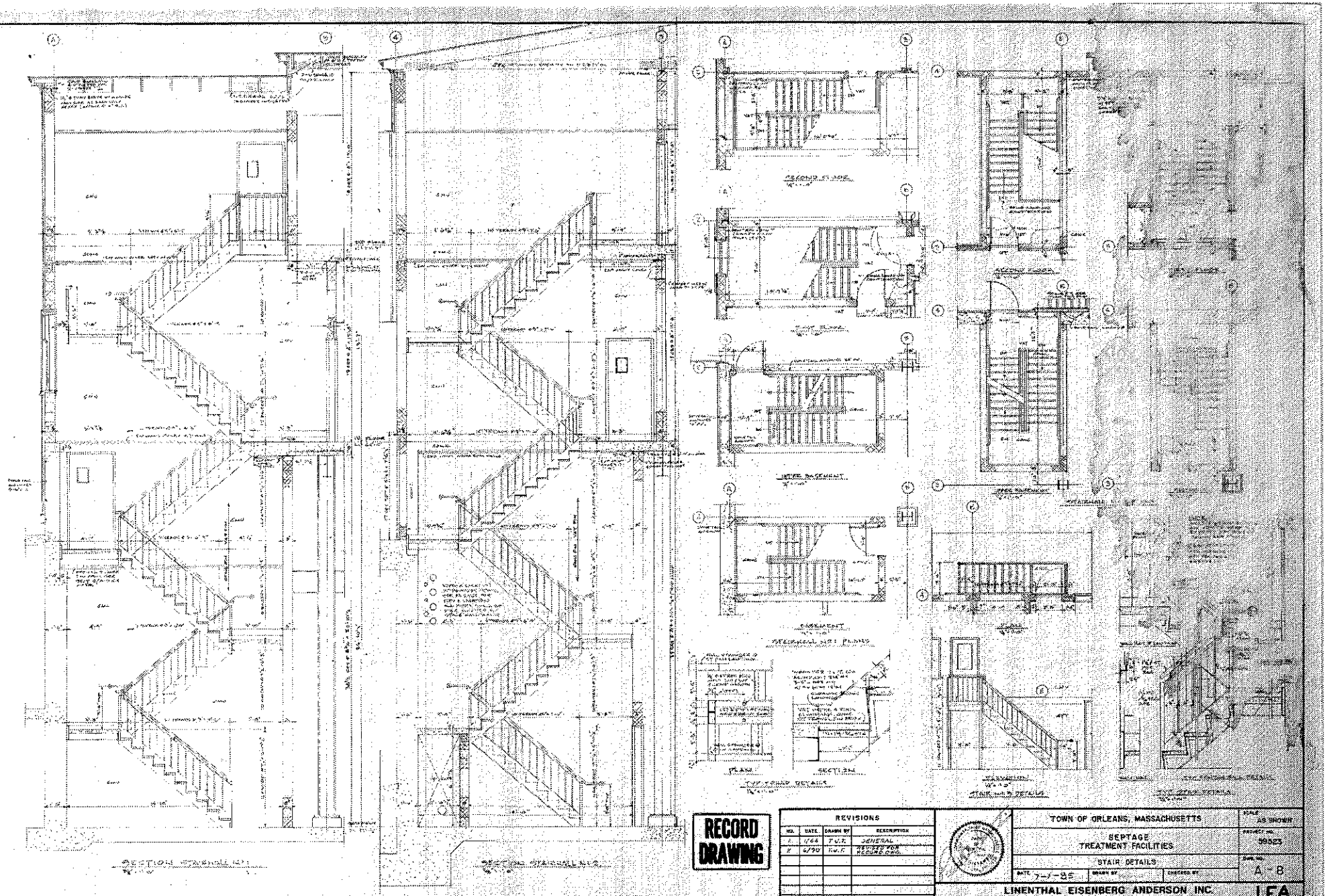
DATE: 7-1-89 DRAWN BY: [illegible] CHECKED BY: [illegible]

LINENTHAL EISENBERG ANDERSON INC.
76 KNEELAND STREET BOSTON, MASS. 02111

LEA

DOOR SCHEDULE

AREA	DOOR NO.	DOOR WIDTH	DOOR HEIGHT	DOOR THICK	DOOR MAT	DOOR LABEL	WALL MAT	WALL THICK	FRAME MAT	FRAME ELEV	FRAME JAMB	FRAME HEAD	FRAME SILL	WEATH STRIP	HDWE SET NO	DOOR SWING	HDWE KEMARKS



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	T.V.T.	GENERAL
2	6/90	T.V.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

STAIR DETAILS

SCALE: AS SHOWN

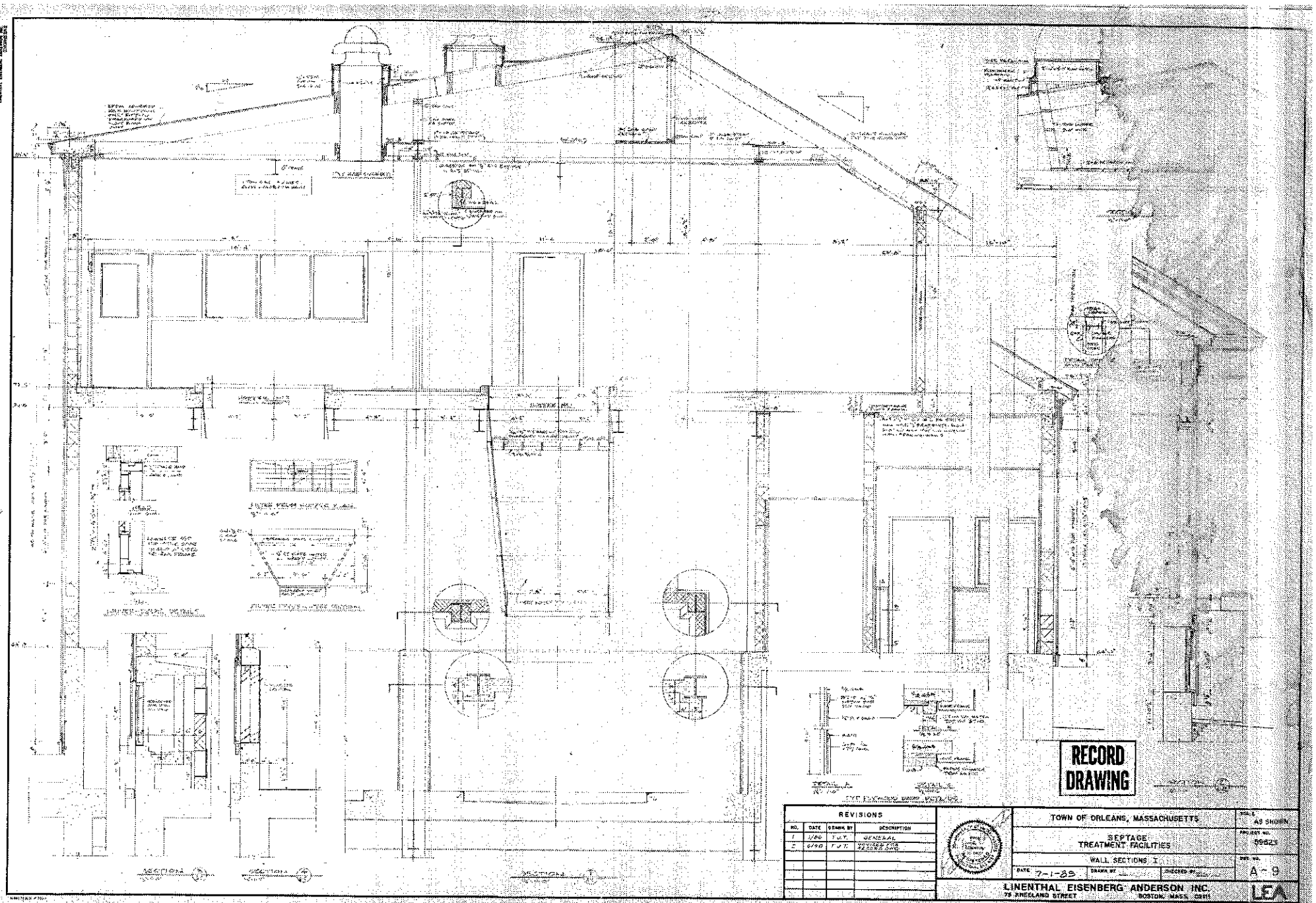
PROJECT NO.: 9552.03

DWG. NO.: A-8

DATE: 7-1-85 | DRAWN BY: | CHECKED BY:

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.V.T.	GENERAL
2	6/90	T.V.T.	REVISED FOR AS-BUILT DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

WALL SECTIONS I

SCALE: AS SHOWN

PROJECT NO. 5962S

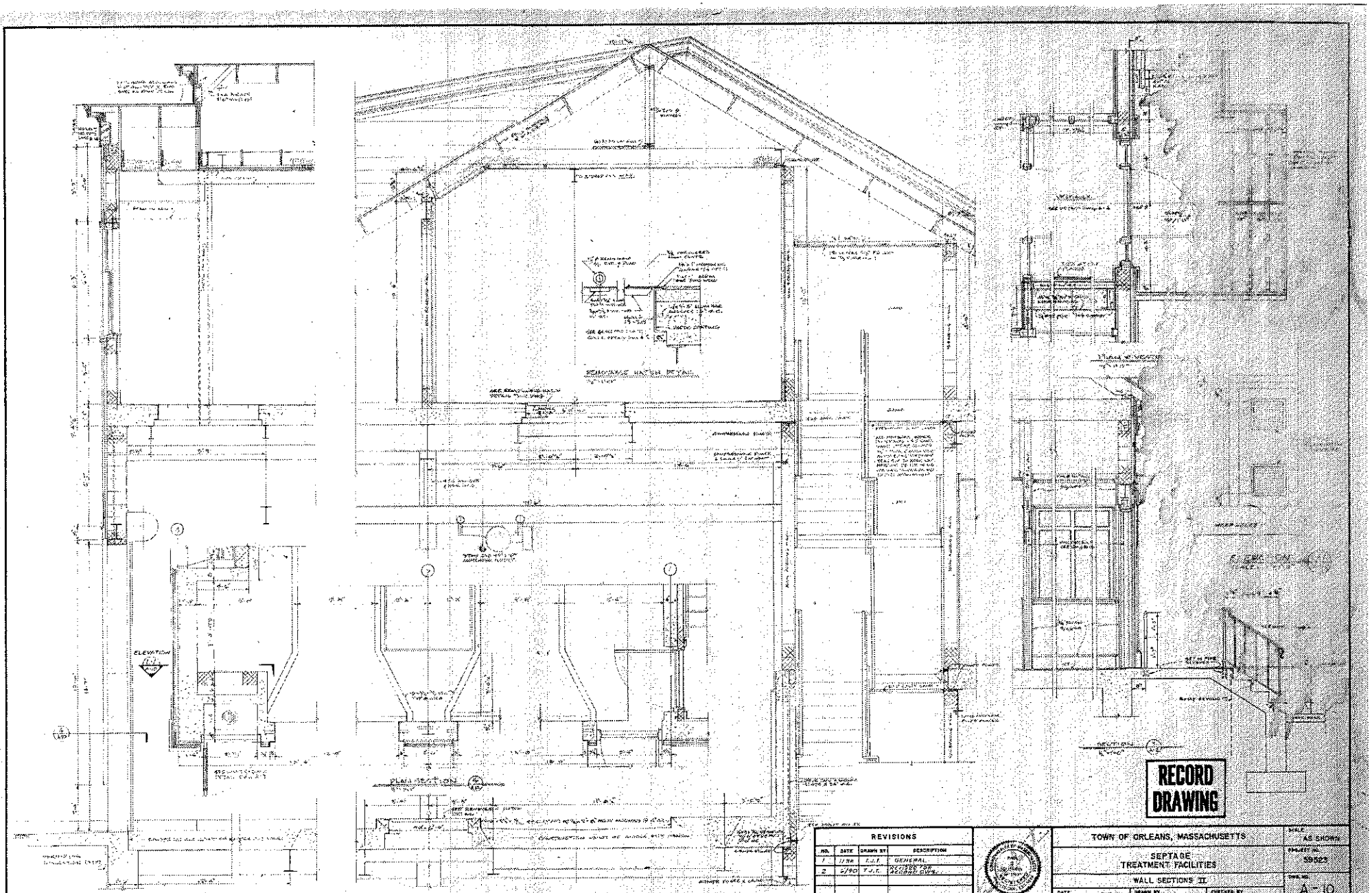
DWG. NO. A-9

DATE: 7-1-89 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 59523 A-10 LEA



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/88	T.J.T.	GENERAL
2	6/90	T.J.T.	REVISED FOR RECORD DWGS.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

WALL SECTIONS II

SCALE: AS SHOWN

PROJECT NO.: 59523

DWG. NO.: A-10

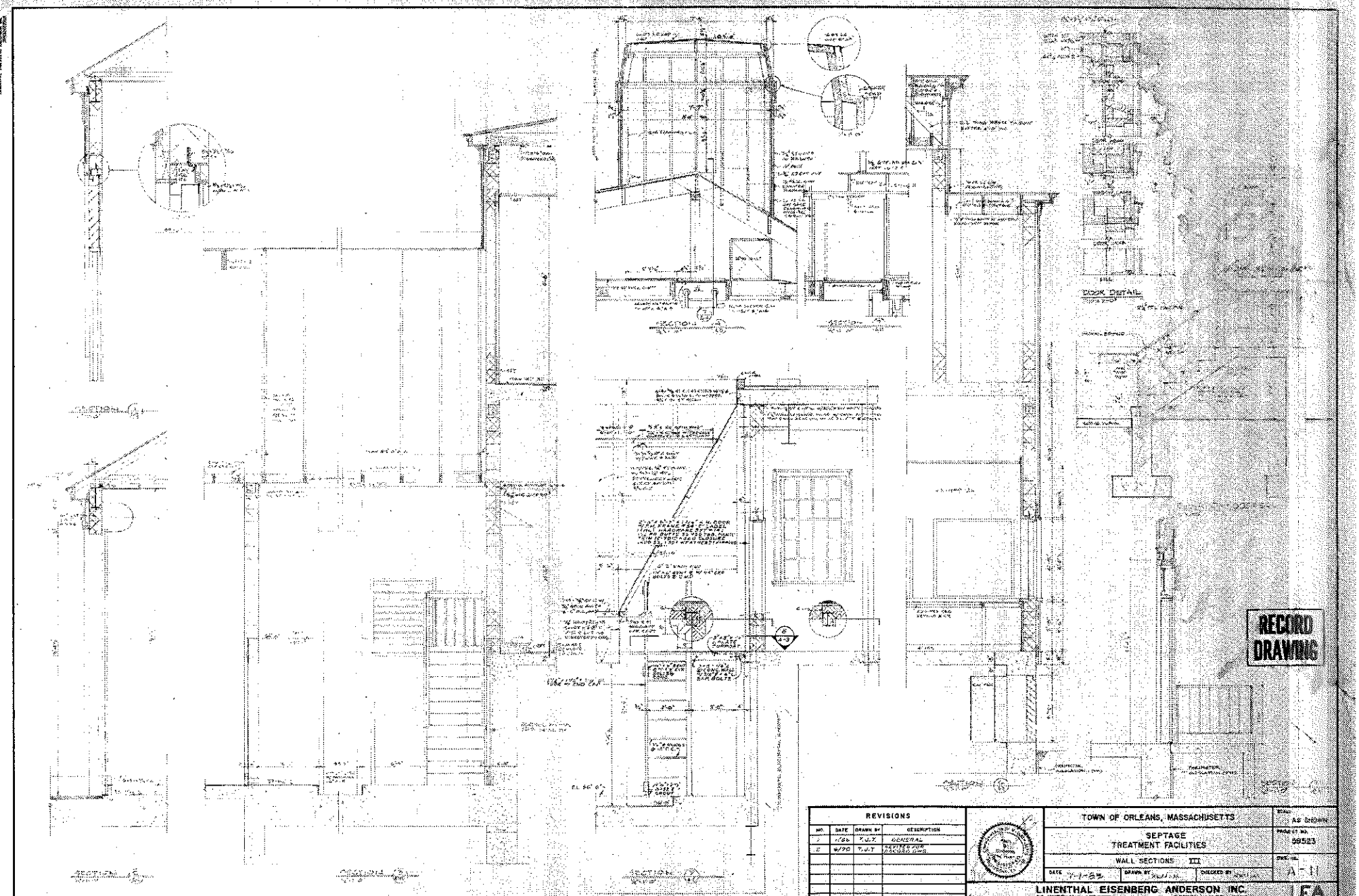
DATE: 7-1-85 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-016-90-1

ENV. 59523 A-11
LEA



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	Y.J.T.	ADDENDA
2	9/20	Y.J.T.	REVISED PER RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

WALL SECTIONS III

SCALE: As Shown

PROJECT NO. 59523

DWG. NO. A-11

DATE 4-1-83 DRAWN BY [illegible] CHECKED BY [illegible]

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 89523 A-12

LEA

PLANS & ELEVATIONS
TOILET AREAS @ FIRST FL.

LABORATORY LAYOUT & ELEVATIONS

PRESS CONTROL ROOM @ SECOND FL.

TRAINING & MEETING/LUNCH ROOMS @ FIRST FL.

SECTIONAL OVERALL SHOWN LAYOUT & ELEVATIONS

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	7/84	T.V.Y.	GENERAL
2	6/90	T.V.Y.	REVISED FOR EXTENDED OVAL

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

TOILET, INTERIOR ELEVATIONS & MISCELLANEOUS DETAILS

SCALE AS SHOWN

PROJECT NO. 89523

DWG. NO. A-12

DATE 7-1-85

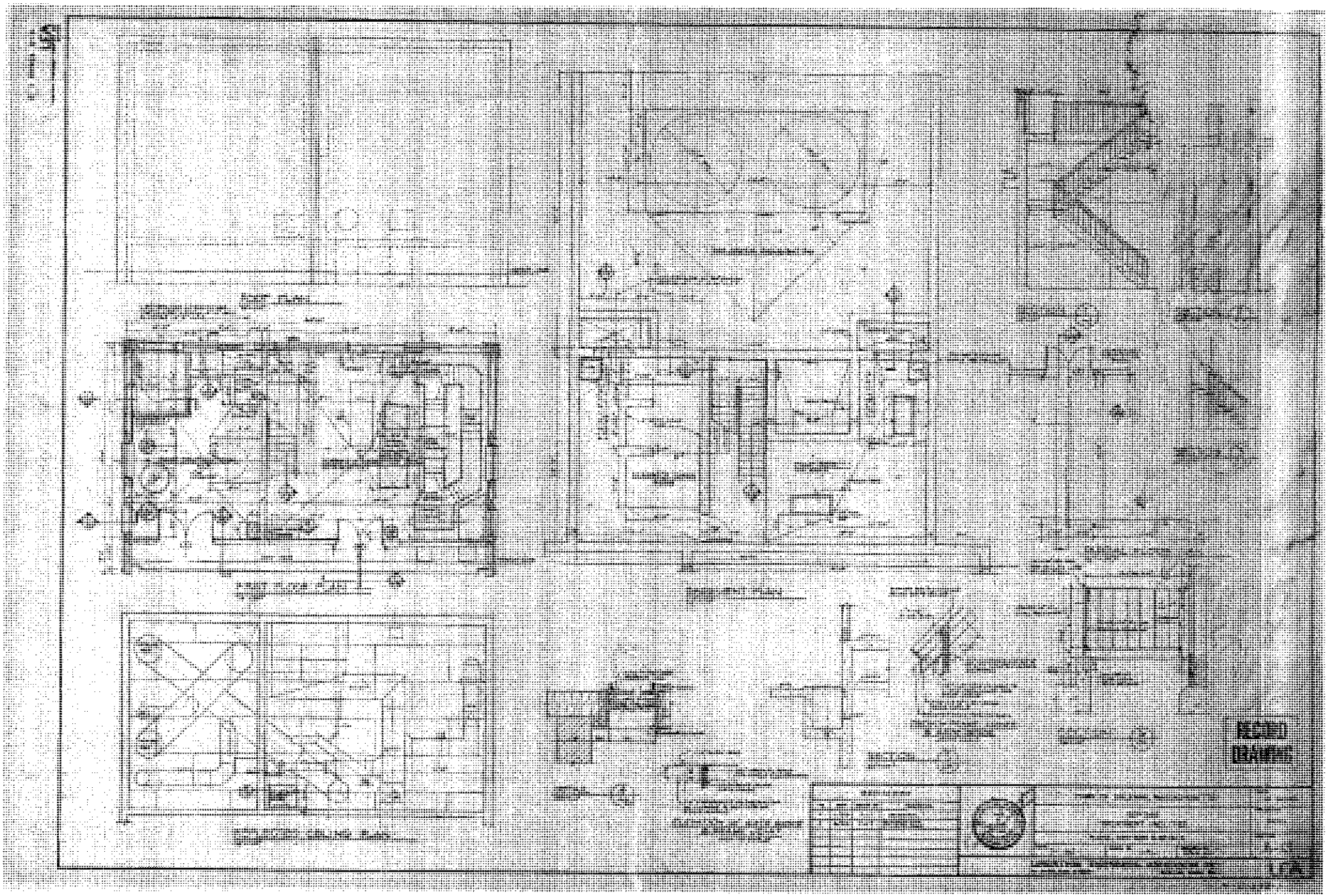
DRAWN BY

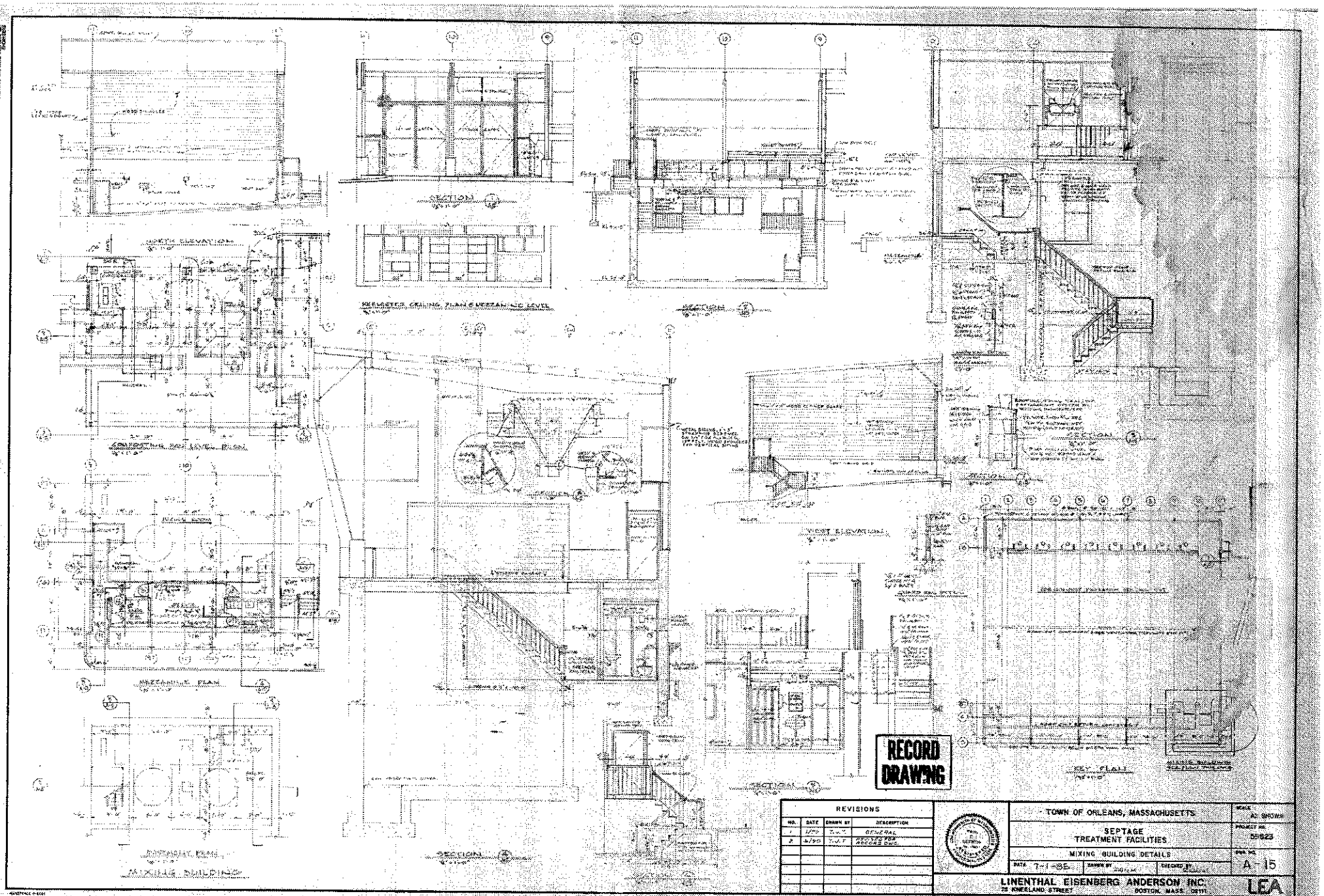
CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-01-89523-1





REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
-	3/85	T.H.T.	GENERAL
2	6/85	T.H.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

MIXING BUILDING DETAILS

SCALE: AS SHOWN

PROJECT NO. 59823

DWG. NO. A-15

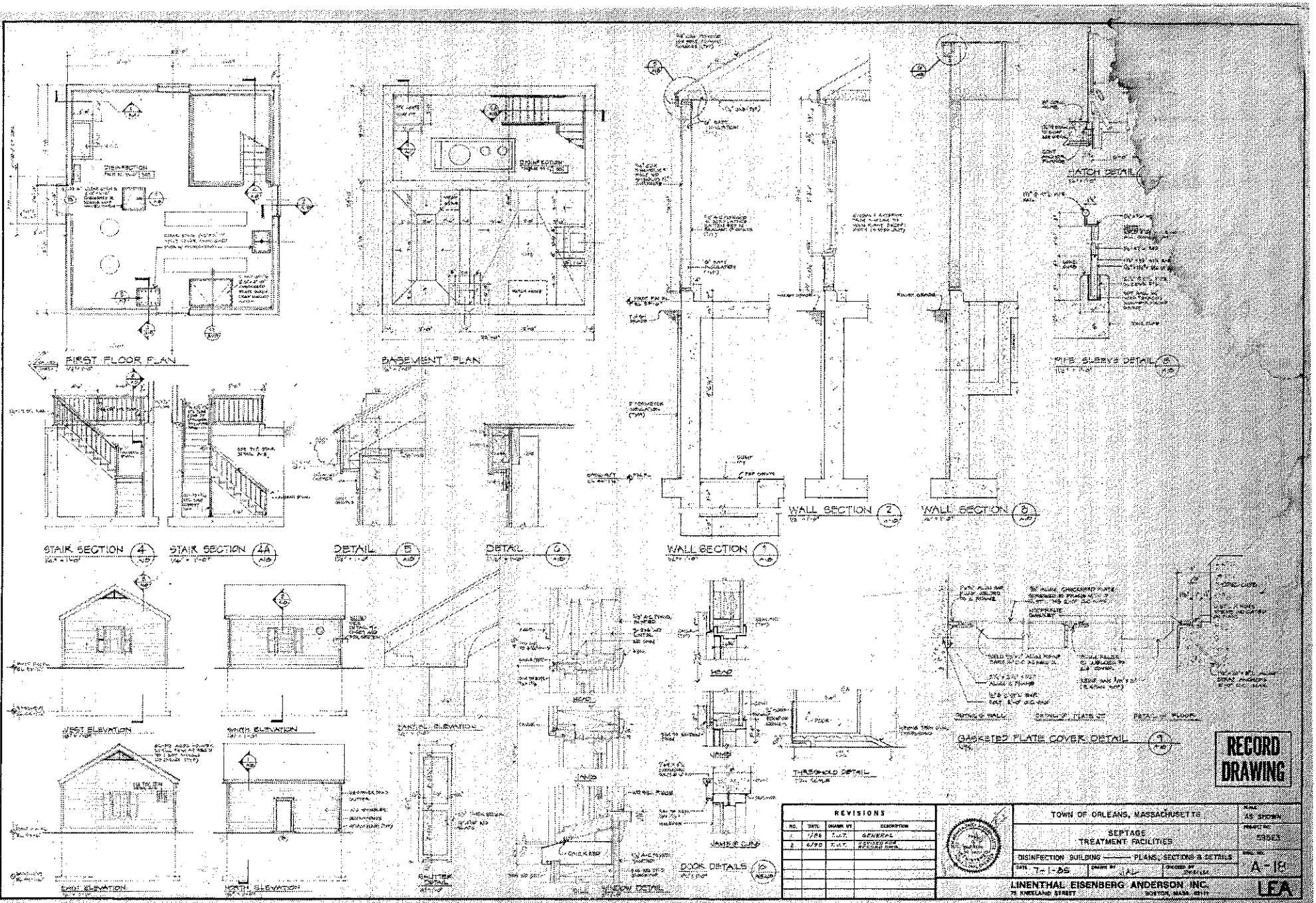
DATE 7-1-85 DRAWN BY CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

FNV. 59823 A-15

ENV. 59563 A-16
LEA
ORIGINAL DRAWING ARCHIVED



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.W.F.	GENERAL
2	6/90	T.W.F.	DISINFECTION BUILDING

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

DISINFECTION BUILDING ——— PLANS, SECTIONS & DETAILS

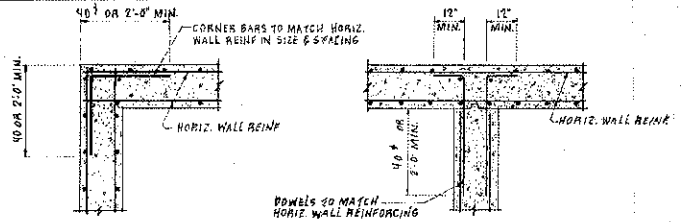
SCALE: AS SHOWN
PROJECT NO. 59563
DWG. NO. A-18
DATE 7-1-85
DRAWN BY J.A.L.
CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KINGSLAND STREET BOSTON, MASS. 02111

LEA

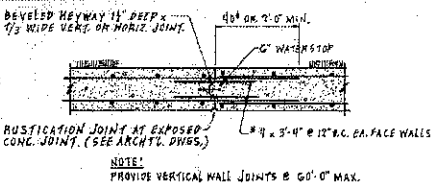
H-0703-1

ENV. 89523 S-1 LEA

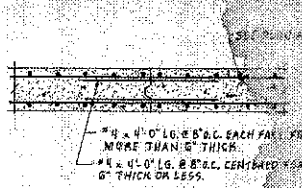


AT CORNER INTERSECTION

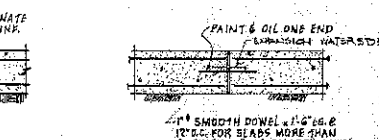
TYP. WALL HORIZONTAL REINFORCING DETAILS



CONSTRUCTION JOINT

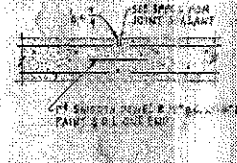


CONSTRUCTION JOINT - STRUCTURAL SLAB



CONTROL JOINT (VERT. ONLY)

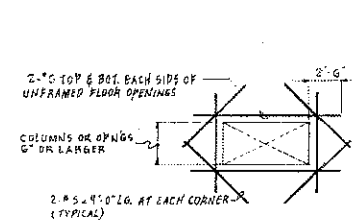
CONSTR. JT. - SLAB ON GRADE



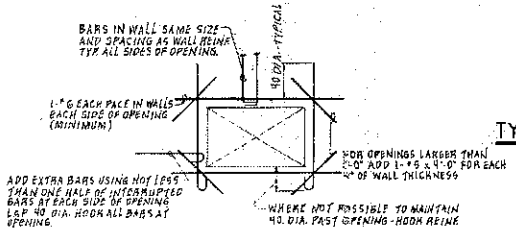
CONTROL JT. SLAB ON GRADE

TYP. FOUNDATION WALL JOINT DETAILS

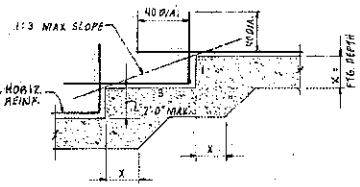
TYPICAL SLAB JOINT DETAILS



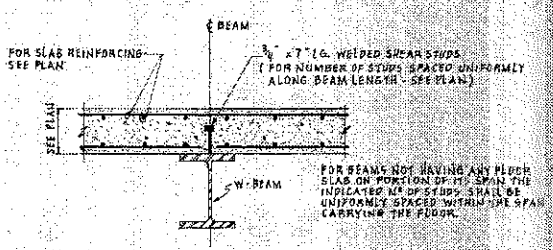
FLOOR OPENINGS, COLS & DEPRESSIONS



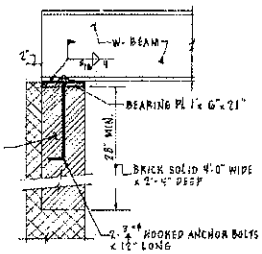
TYPICAL REINFORCING AT OPENINGS IN WALLS



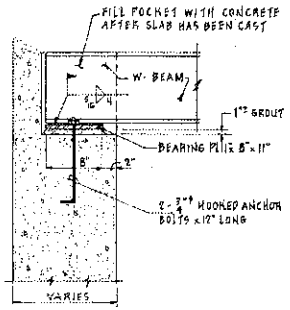
TYPICAL STEPPED FOOTING DETAIL



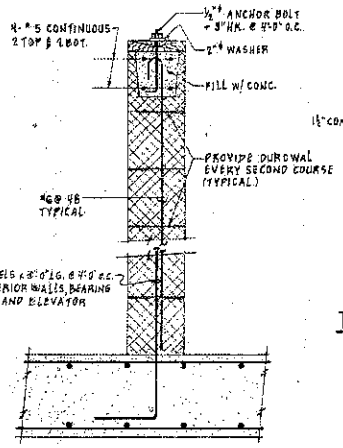
TYP. STUD ARRANGEMENT (UNLESS NOTED)



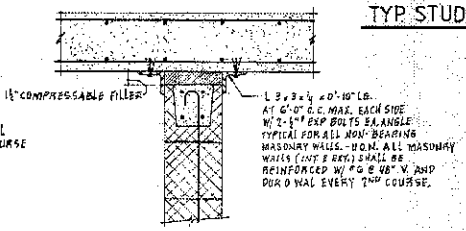
TYP. BEARING PL. DETAIL FOR BEAM ON BLOCK



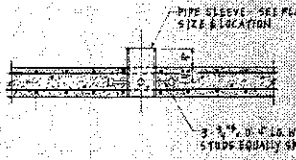
TYP. POCKET DETAIL FOR BEAM ON CONC.



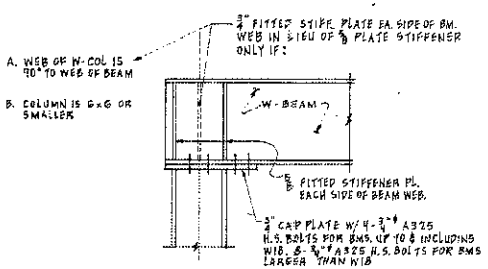
TYPICAL MASONRY WALL DETAIL



TYPICAL INTERIOR NON-BEARING MASONRY WALL DETAIL



TYPICAL PIPE SLEEVE AT FLOOR



TYPICAL BEAM OVER COL. CONNECTION DETAIL

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
-	1/85	T.M.Y.	TENTATIVE
1	6/85	T.M.Y.	REVISED FOR ACCEPTANCE

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

TYPICAL DETAILS I

DATE 7-1-85 DRAWN BY R. ELLIOTT CHECKED BY

SCALE NO SCALE

PROJECT NO. 85-105

SHEET NO. S1

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 69523 S-2 LEA

NOTES

A. FOUNDATIONS: (Unless otherwise noted)
1. The bottom of all footings shall bear on natural undisturbed granular material with a minimum allowable bearing pressure of 2 tons/sq.ft.
2. Bearing shall be inspected by Linenthal Eisenberg Anderson, Inc. before placement.
3. The bottom of footings shall extend at least 6'-0" below finish exterior grade and shall be at the elevations shown on the plans. Continuous footings shall be stepped where necessary, but not steeper than 1 vertically in 2 horizontally.
4. Concrete shall be placed "in the dry" only, and no concrete shall be placed on frozen ground.
5. Special care shall be taken in backfilling walls, piers, and utility trenches to compact soil or domestic or different materials to provide a firm bed for slabs. Backfill material shall be compacted to 95% laboratory maximum density as determined by ASTM D-1557-70 Method C.
6. An 8" well compacted base course shall be placed under all slabs. There shall be no backfill larger than 6" over any underside cutter.
7. No forms, sheet piling, boxouts, etc. may be left in excavation.
8. Walls retaining earth shall not be backfilled unless walls are adequately braced.

B. CONCRETE: (Unless otherwise noted)
1. Concrete work shall conform to the latest ACI Building Code, Standards, Recommended Practices and Specifications except as modified by contract specifications.
2. All concrete shall be mixed to the specified proportions to give minimum compressive strength at the end of 28 days of f'_c = 3,000 psi except compost pad slabs on grade, septage receiving slabs and the garage slab which shall all have f'_c = 4,000 psi.
3. Construction joints in slabs and walls shall be vertical and in structural concrete shall be located in the middle third of the span or other approved location of minimum shear.
4. Add extra steel in construction joints as follows: (See details)
Walls: #6 @ 2'-4" & 1'-8" o.c. each face.
Slabs on grade: 1" Ø smooth dowel @ 1'-4" @ 12" o.c. for slabs 6" thick or less.
Structural slabs: #5 @ 1'-8" @ 8" o.c. @ 8" thick slabs more than 8" thick.
Structural slabs: #4 @ 1'-0" @ 8" o.c., centered for slabs 6" thick or less.
5. The length of concrete wall placement shall not exceed 60'-0" in any direction.
6. The area of concrete slab placement shall not exceed 1,000 ft² or 1'-0" in any direction and shall be placed when not have side faces which exceed 2:1. (This requirement may be waived at the heavily reinforced top and 2nd floor structural slabs at the Processing and Operations Facility.)

B. REINFORCING STEEL: (Unless otherwise noted)
1. All bars shall be high bond deformed bars meeting ASTM A-615, Grade 60.
2. Where rods splice, provide 60 Ø lap or 3'-0" minimum.
3. Clearance of reinforcing steel or welded wire mesh from adjacent surfaces shall be
a) Cast against and permanently exposed to earth: 3"
b) Exposed to earth or weather 2"
c) Beams, columns, pedestals, primary reinforcement, ties, stirrups 1-1/2"
d) Slabs and walls not exposed to weather 1"
4. Where openings occur in walls or slabs, provide 2 #6 on all sides of opening and extend 2'-6" beyond opening. Also provide #5 @ 1'-0" long diagonally at each corner.
5. Provide spacers, ties, chair bars, bolsters, high chairs and other accessories to hold steel securely in place.
6. Complete shop drawings and schedules of all reinforcing shall be made or the Contractor and approved by LEA before fabrication can begin. All accessories and large bars to appear on shop drawings. Notwithstanding shall be detailed in accordance with "Standard Practice for Detailing Concrete Structures" of the American Concrete Institute.

C. STRUCTURAL STEEL: (Unless otherwise noted)
1. All structural steel shall conform to the 1969 Specification for the Design, Fabrication and Erection of Structural Steel for Buildings of the American Institute of Steel Construction.
2. All structural steel including columns, beams, lintels, angles, plates, etc. used in the composting and processing facility (except tubular steel) shall conform to ASTM A-36. Grade 50 (Fy = 50 ksi).
3. All structural steel used in the composting facility shall conform to ASTM A-588 (Fy = 42 ksi).
4. Tubular steel shall conform to ASTM A-500, Grade B (Fy = 46 ksi) with ends ground smooth finished to provide smooth uniform bearing on cap and base plates and shall be welded construction.
5. All welding and preparation of surfaces for welding shall be done in strict accordance with the requirements of the structural welding code of the American Welding Society, as revised to date.
6. Shop connections may be made by welding or with bearing type A-325 high strength bolts. Field connections shall be made with 3/4" Ø A-325N high strength bolts bearing type connections.
7. Minimum seat other members bolted or welded unless of concrete shall have 7/16" x 7" x 3'-0" welded seating angles @ 2'-0" o.c. at masonry joints staggered from side to side except as shown. Shop bolts which would be on or at ends @ 2'-0" o.c. Columns and other members bolted or partially encased in concrete shall also be wrapped in 1 x 1 x #2.5 welded wire fabric.
8. Structural steel shall have two coats of shop paint as specified. Steel shall be scrubbed at friction connections. Where encased in concrete, where field welding is indicated or on top of upper flange of composite beams.
9. Steel framed openings in roof or floor shall be framed flush with tops of joists or other supporting members.
10. All lintels shall have 8" minimum on solid masonry. 6"c.c. Cmp.
11. All column base plates shall be set level on 7/16" leveling plates on 1"/16" of non-shrink grout.
12. At the Composting Mass base plates, provide 6 3/4" Ø hooked anchor bolts. At all columns on foundation walls, provide 2 3/4" Ø hooked anchor bolts.
13. Shear studs on composite beams shall be 3/4" Ø x 3" welded a shorter stud is required due to an obstacle condition.
14. Shop drawings of structural steel shall be prepared by fabricators and approved by LEA before fabrication can begin.

D. ALUMINUM: (Unless otherwise noted)
1. Structural aluminum work shall conform to "Specified Specifications for Structures of Aluminum Alloys 6061-T6 and 6063-T5" as reported by the Task Committee on Aluminum Alloys, Committee on Metals, Structural Division of the American Society of Civil Engineers.
2. All fasteners except as fabricated from alloy 6061-T6 with a minimum yield strength of 35 ksi.
3. Aluminum bolts used in structural heated in accordance with these specifications shall be of alloy 2024-T4 with a minimum tensile strength of 61 ksi and a minimum shear strength of 37 ksi. The use of rivets shall not be permitted. Welded connections shall be permitted only where the use of bolts is not feasible.
4. Aluminum members need not be painted unless specifically noted.
5. Where aluminum members are to be fastened to steel members or other dissimilar metal parts, the aluminum shall be first given three coats with each coat to be painting the adjacent with a zinc chromate primer and by painting the dissimilar metal with a bituminous paint followed by a coat of aluminum paint.
6. Shop drawings of aluminum fabrications shall be submitted to LEA and approved by them before fabrication can begin.

E. WOOD: (Unless otherwise noted)
1. Materials and workmanship for wood construction shall conform to the National Forest Products Association Construction Standards.
2. Plates and nailers shall be Douglas Fir or [illegible] with F_b = 1,000 psi for 4 inches members and F_b = [illegible] moisture content of 19%.
3. Nailers on steel beams and girders shall be sized [illegible] o.c. Nailers to bond beams shall be sized [illegible] 2'-8" wide, bottom and widths 4" at ends.
4. All joists shall have 1 x 3 cross bridging or solid [illegible] each end of members.
5. Minimum bearing shall be 4". Bearing bearing on beams [illegible] Joists shall be a 3/4" air space left around the [illegible]
6. Provide roof anchorage for full height of building [illegible] connection.
7. All rafters shall have solid 2x blocking at maximum [illegible]

F. METAL DECK: (UNLESS OTHERWISE NOTED)
The deck shall be [illegible] and 3" structural slab in the compost pad and storage building shall be of the [illegible] deck shall be welded to bearing supports at side [illegible] 4'-0" o.c. [illegible] Side laps shall be welded to adjacent units at [illegible] to intervals. Shop drawings shall be approved by LEA before any welding equipment is [illegible] 4" slab 6" deep and a wooden bulkhead to close ends should be set at [illegible] 4" slab. Welding washers 2" [illegible] 1/8" thick shall be [illegible] welds. Weld appearance and size [illegible] Shop drawings shall indicate [illegible] Roof Deck to [illegible] 1-1/2" x 1-1/2" should be provided by the fabricator and approved by the Engineer before work begins.

G. MISCELLANEOUS: (Unless otherwise noted)
1. Refer to Architectural Documents, Mechanical Drawings and Electrical Drawings for sleeves, inserts, openings and anchors not shown on the Structural Drawings. The location of these items shall be approved by LEA.
2. Where the word "typical" is used, it shall mean "similar, except as otherwise noted".
3. See Architectural Specifications for use and location of expansion, control joints, anchors, curing and protection for architectural purposes, and which are not indicated on Structural Drawings.
4. NOTHING SHALL BE HUNG FROM THE METAL ROOF DECK.

H. All openings, elevations, etc. not specifically detailed on the Structural Drawings must be approved by the Architect or LEA. Holes larger than 3" shall not be formed or cut in any bearing wall unless the exact size, location and Force Details have been submitted to writing to LEA and approved by them.

I. Vertical CMU wall reinforcing shall be #5 @ 48" typ. Concrete and masonry walls shall have walls of bays each side of any opening. Bar size shall extend for the full unsupported height of the wall. Form bond beam outer, wall reinforcing shall extend or face the bond beam. Bond beams and lintels in all masonry walls except those non-bearing walls which are completely unsupported by weather or concrete shall be reinforced to CMU wall using continuous vertical reinforcing and grout.

J. Horizontal masonry wall reinforcing shall be standard Dur-O-Wal at the appropriate width installed in every second course typically and more frequently at openings and end joints. See specifications for details.

K. Roofs are designed for a live load of 20 psf except where snow may drift, where higher loads were considered. Operations and Processing Facility slabs were designed for a live load of 100 psf. Catwalks were designed for a total load of 75 psf, but not to exceed 300 plf. Tarpaulin loads of 21 psf were used to represent a 90 mph wind.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/89	T.L.F.	GENERAL
2	6/90	T.L.F.	REVISED FOR SECOND UNIT

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

GENERAL NOTES

SCALE: NO SCALE | PROJECT NO.: 69523 | DWG. NO.: S 2

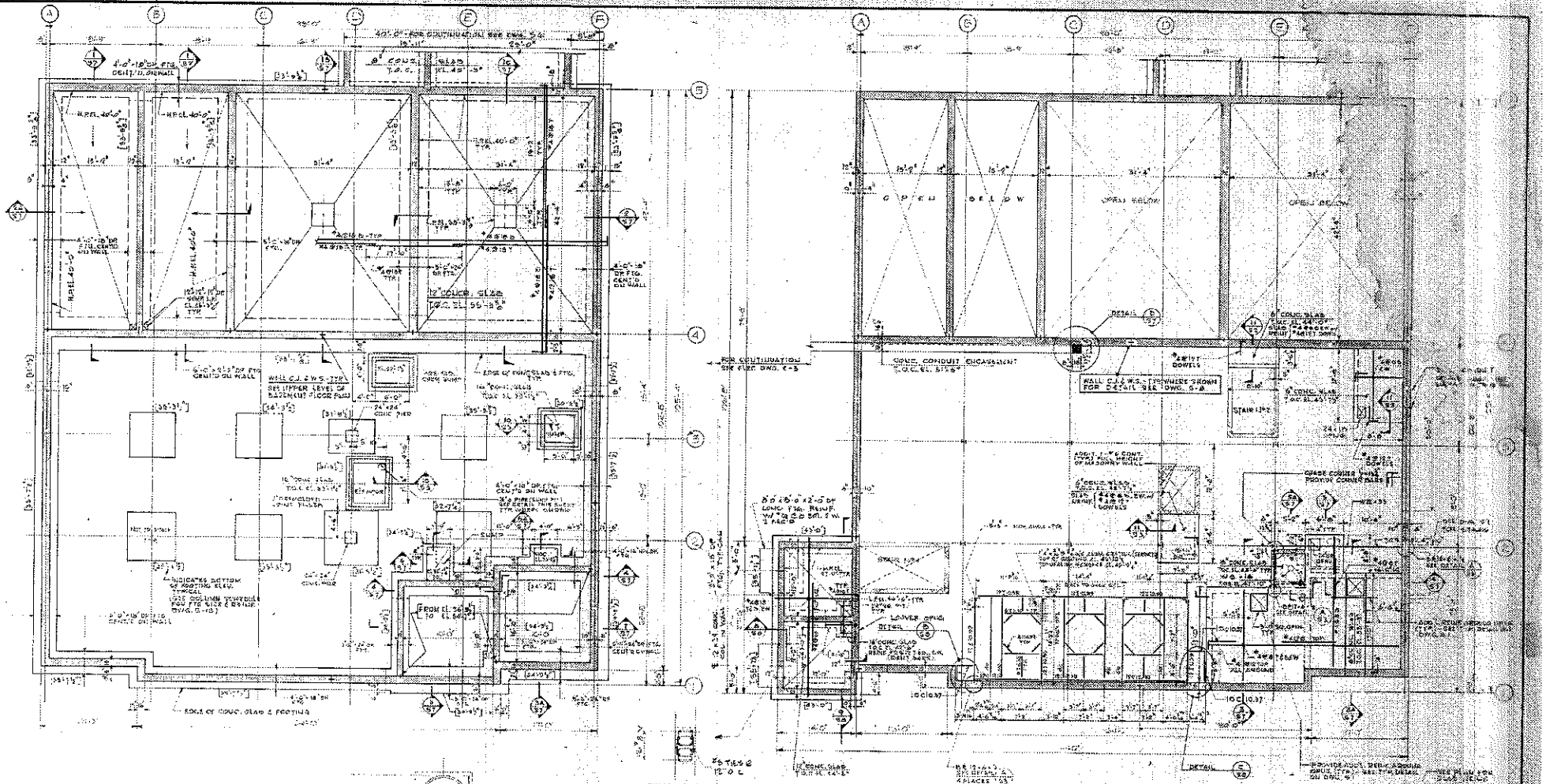
DATE: 3-7-89 | DRAWN BY: R. ELLIOTT | CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

P-01766-1

ENV. 89523 S-3 LEA



FOUNDATION PLAN

UPPER LEVEL OF BASEMENT FLOOR PLAN

DETAIL

16" DIAM. SUMP PIT DETAIL

SECTION

FOUNDATION WALL PARTIAL ELEVATION AT CONDUIT OPNG.

SECTION

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	6/86	T.L.E.	GENERAL
2	6/16	T.L.E.	ATTORNEY GEN. RELEASE DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE AND WASTEWATER TREATMENT FACILITIES

FOUNDATION & UPPER LEVEL BASEMENT FLOOR PLANS

SCALE: AS SHOWN

PROJECT NO. 89523

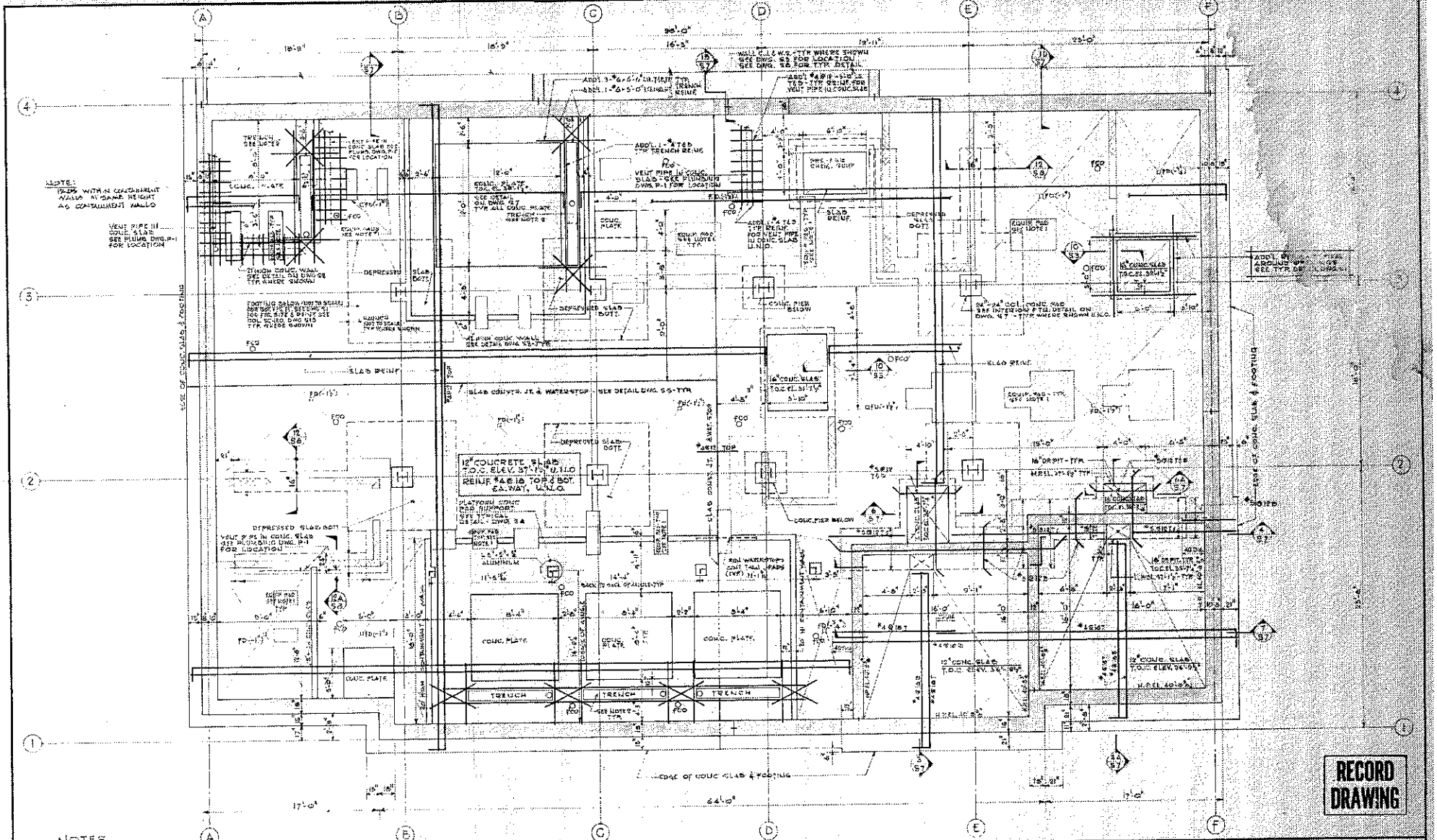
DWG. NO. S3

DATE 7-3-85 DRAWN BY K.B. DESIGNED BY

LINENTHAL EISENBERG ANDERSON INC.
79 KNEELAND STREET BOSTON, MASS. 02111

LEA

M-01286-1



NOTES

1. EQUIPMENT PADS ARE SHOWN FOR REFERENCE ONLY. ACTUAL SIZE AND LOCATION SHALL BE COORDINATED WITH THE MECHANICAL SUPPLIERS AND CONTRACTORS.
2. TRENCH DRAINS SHALL BE COORDINATED WITH THE PLUMBING CONTRACTORS AND SUPPLIERS FOR SIZE & LOCATION.

BASEMENT FLOOR PLAN

1/4" = 1'-0"

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	7/85	M.T.	GENERAL
2	6/90	M.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

BASEMENT LEVEL FLOOR PLAN

SCALE: 1/4" = 1'-0"

PROJECT NO. 59523

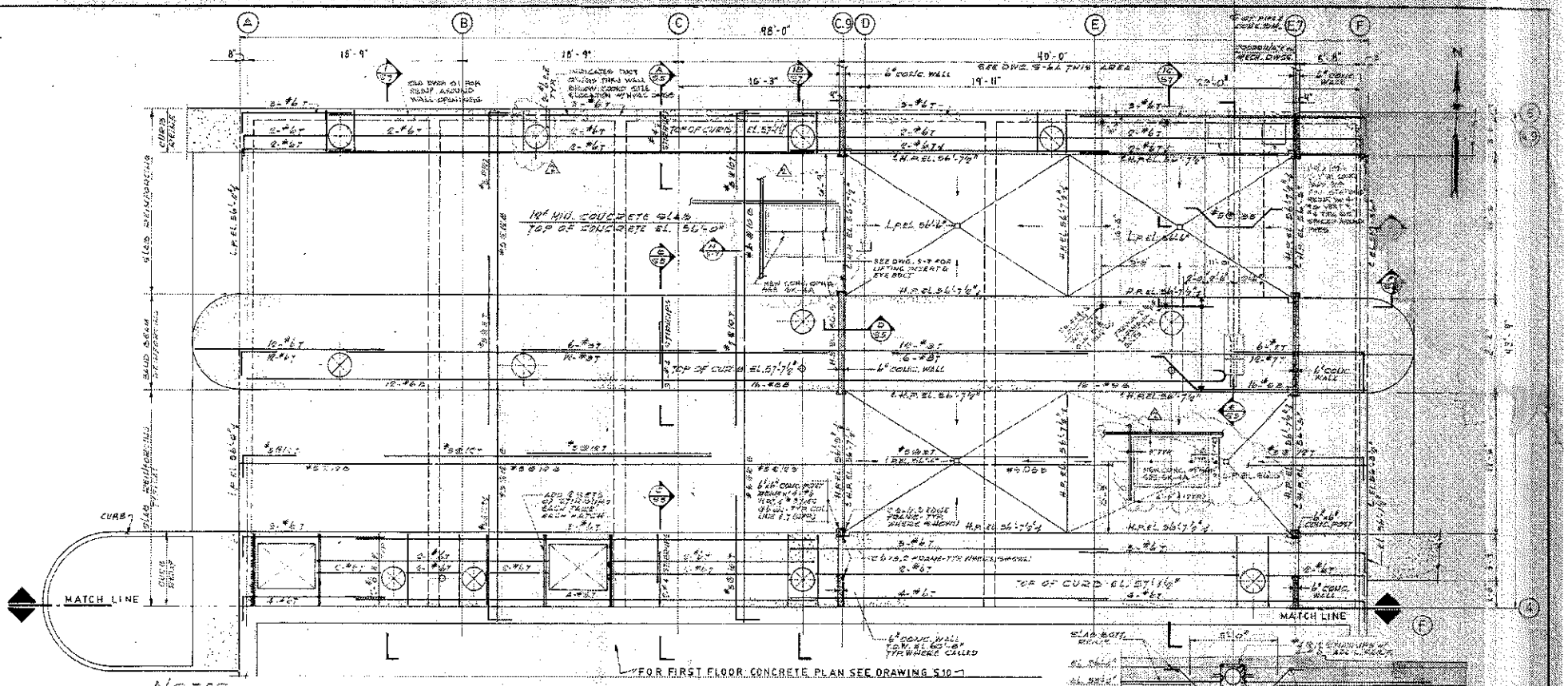
DWG. NO. S4

DATE 7-1-85 DRAWN BY M.G. CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-01707-1

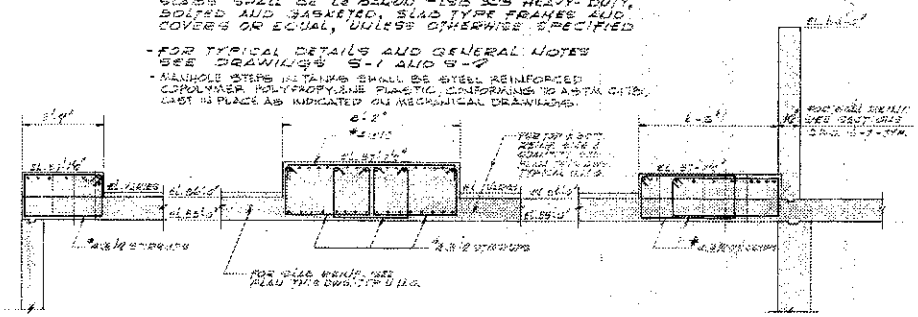


NOTES

- MANHOLE FRAMES AND COVERS IN CONCRETE SLABS SHALL BE LE BAROIL #1660 SCS HEAVY DUTY, BOLTED AND GASKETED, SLAB TYPE FRAMES AND COVERS OR EQUAL, UNLESS OTHERWISE SPECIFIED
- FOR TYPICAL DETAILS AND GENERAL NOTES SEE DRAWINGS S-1 AND S-2
- MANHOLE STEPS IN TANKS SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC CONFORMING TO ASTM D1761, CAST IN PLACE AS INDICATED ON MECHANICAL DRAWINGS.

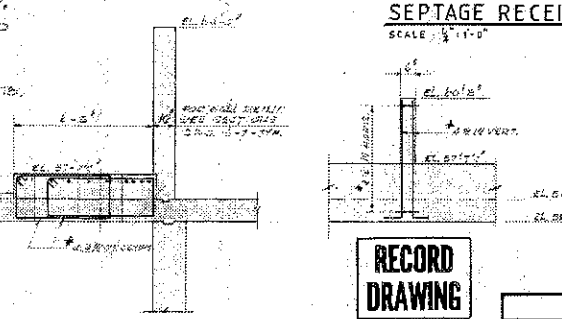
SEPTAGE RECEIVING FLOOR PLAN

SCALE: 1/4"=1'-0"



SECTION A S5 — 1/2"=1'-0"

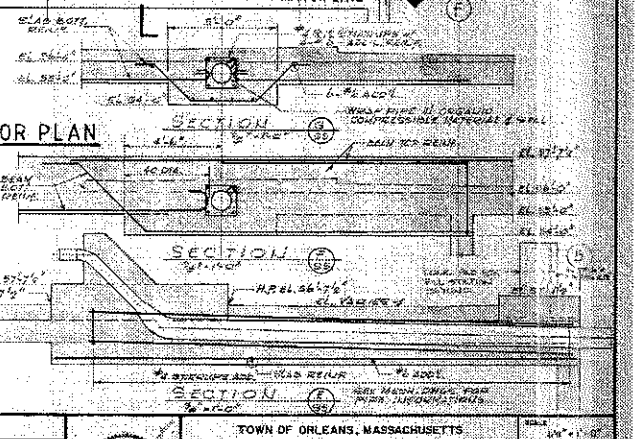
SECTION B S5 — 1/2"=1'-0"



SECTION C S5 — 1/2"=1'-0"

SECTION B S5 — 1/2"=1'-0"

RECORD DRAWING



SECTION D S5 — 1/2"=1'-0"

SECTION E S5 — 1/2"=1'-0"

SECTION F S5 — 1/2"=1'-0"

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.E.	GENERAL
2	1/87	D.H.	GATE VALVE RELOCATED
3	6/90	T.J.E.	AS-BUILT DATA

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

RECEIVING BUILDING FLOOR PLAN

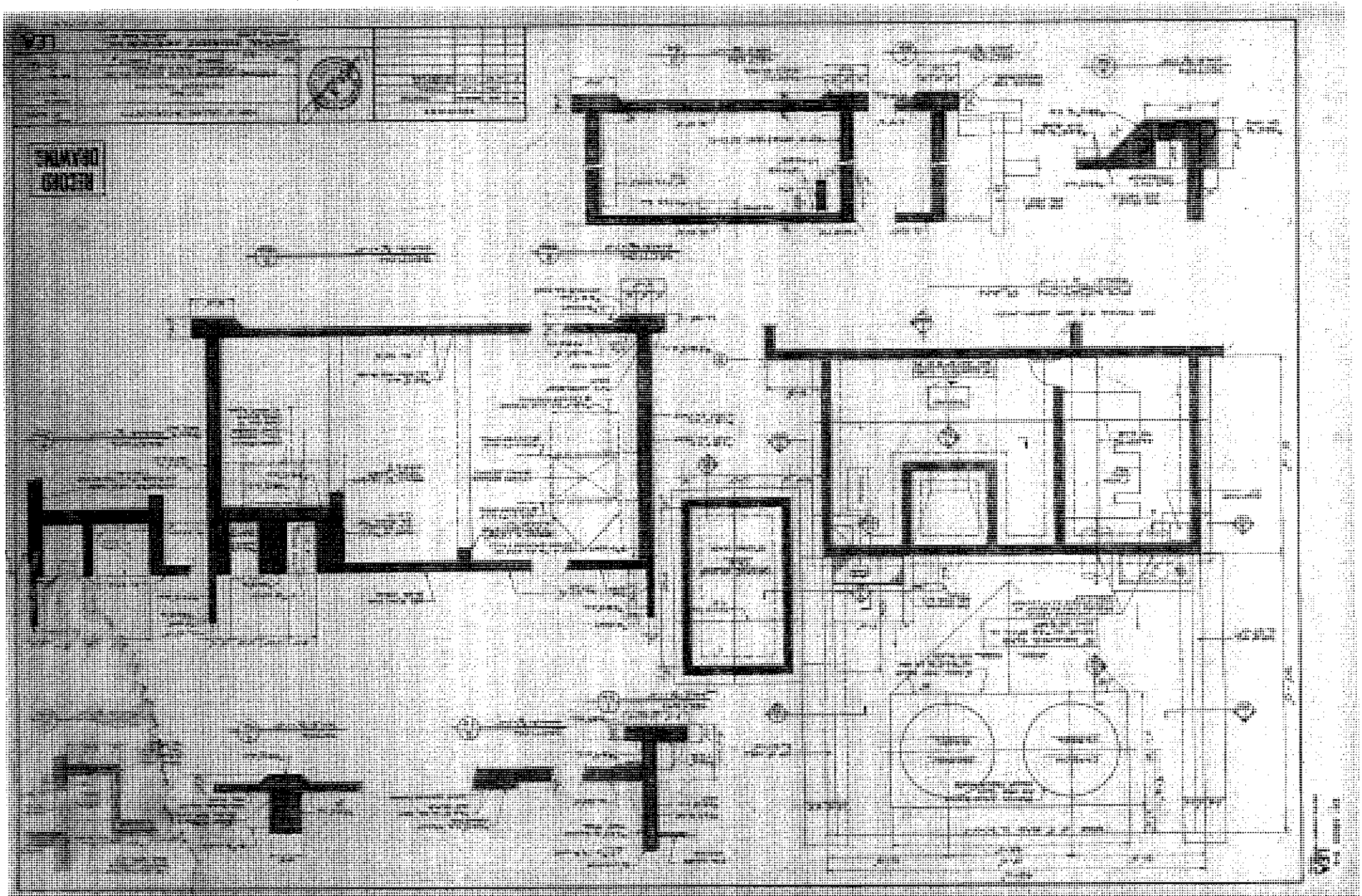
SCALE 1/4"=1'-0" | PROJECT NO. 59523 | DWG. NO. S5

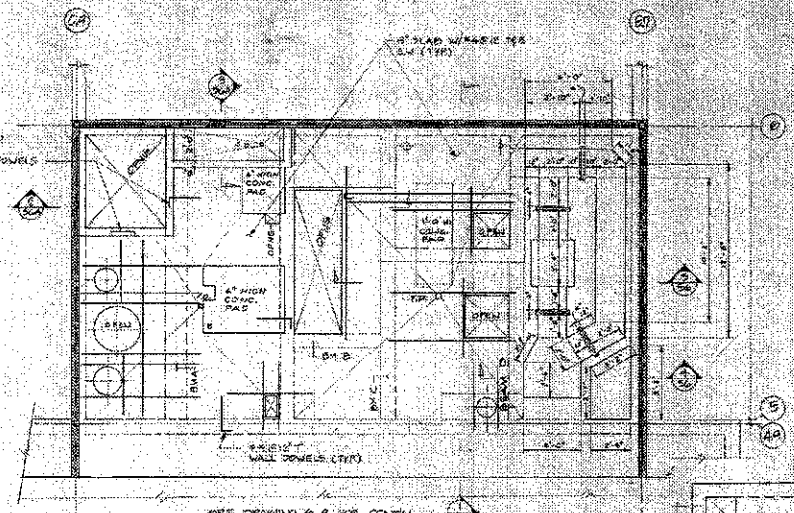
DATE 7-1-85 | DRAWN BY R. ELLIOTT | CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

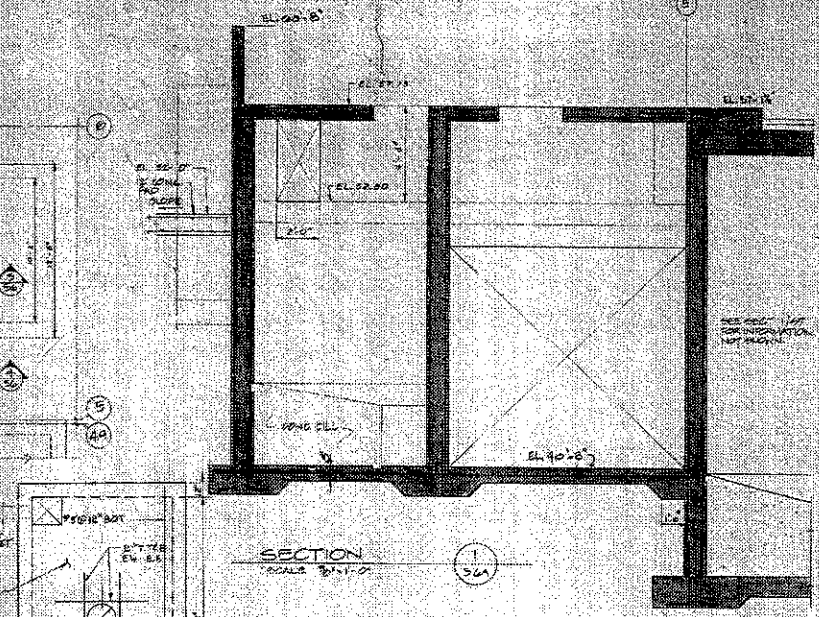
LEA

M-017-16-7

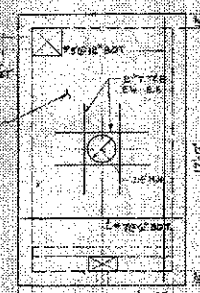




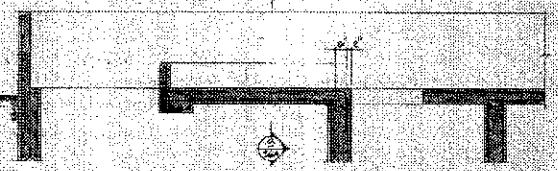
FIRST FLOOR PLAN
SCALE: 1/4"=1'-0"



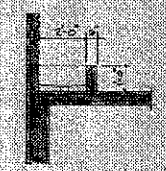
SECTION
SCALE: 3/4"=1'-0"
1/S4



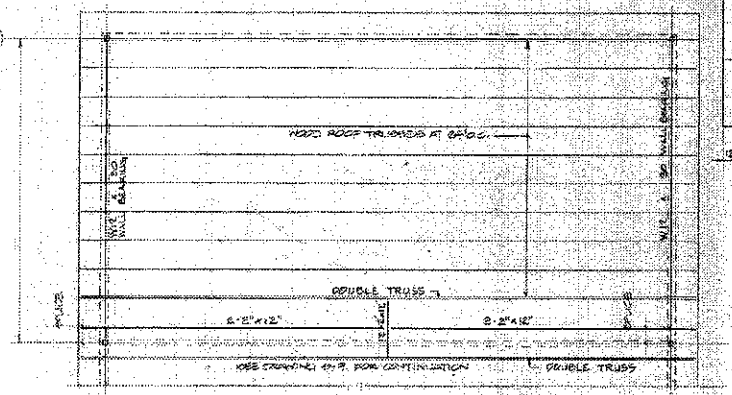
GREASE HOLDING TANK



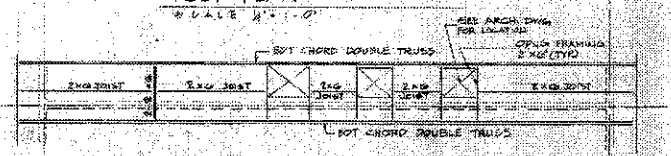
SECTION
SCALE: 3/4"=1'-0"
2/S4



SECTION
SCALE: 3/4"=1'-0"
3/S4



ROOF PLAN
SCALE: 1/4"=1'-0"



FRAMING PLAN AT BOT CHORD
SCALE: 1/4"=1'-0"

BEAM A	BEAM B	BEAM C	BEAM D
18"x12"	15"x12"	18"x 20"	12" x 24"
2-#6T	2-#7T	2-#6T	4-#6T
4-#7B	2-#7 STRP	2-#7B	4-#6B
#3 @ 6"	#3 @ 12"	#3 @ 5" & 10"	#4 @ 12"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/89	P.J.T.	ORIGINAL
2	6/90	P.J.T.	ADDED FOR BIDDING

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SCREENING/GRIT REMOVAL & FLOOR DRAINS BUILDING
FRAMING PLANS & SECTIONS

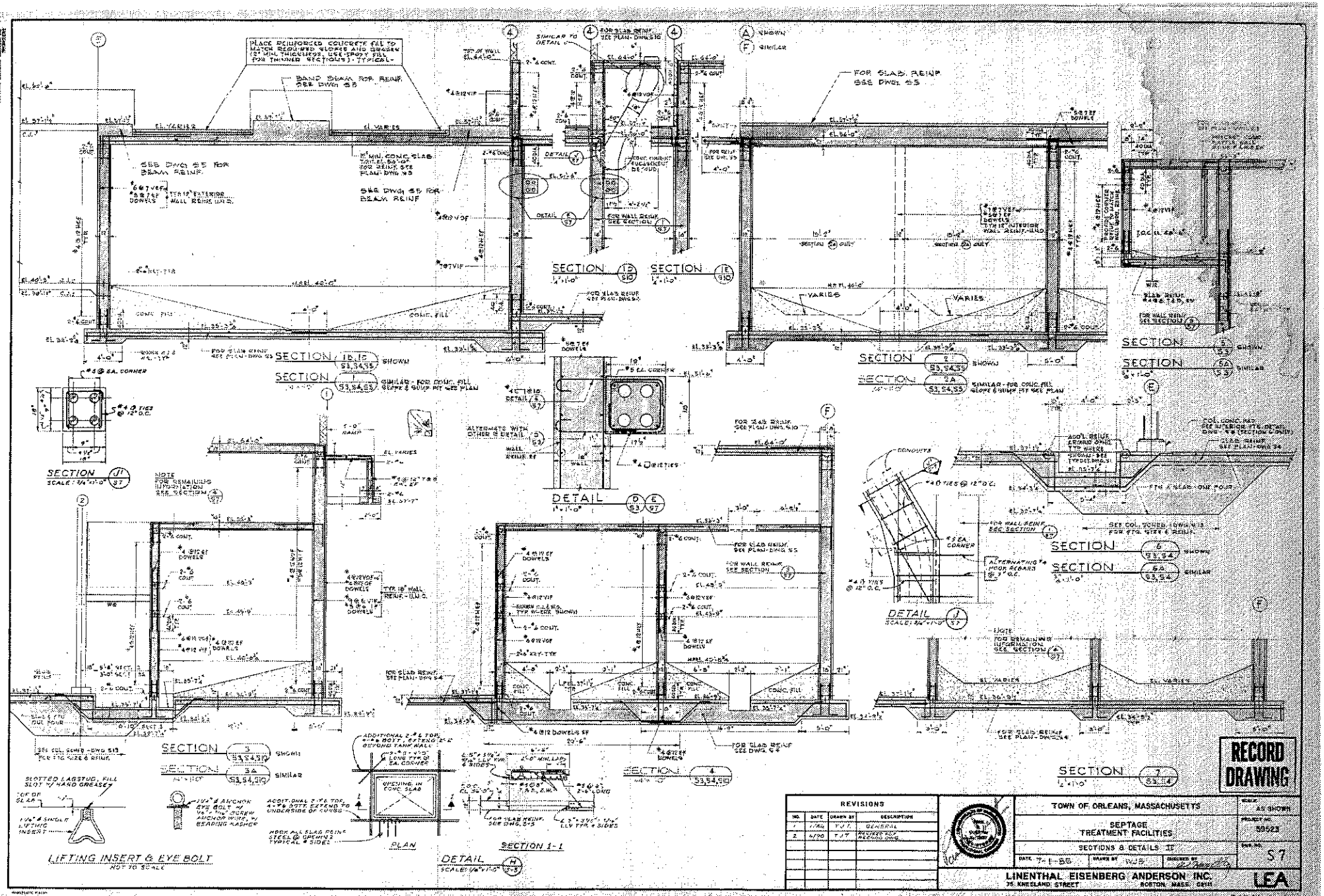
DATE: 7-11-89 | DRAWN BY: BLG | CHECKED BY: PP

SHEET S-6A

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

EF. 59623 S-6A



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	TJT	GENERAL
2	4/90	TJT	ADDED SOIL BEARING DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SECTIONS & DETAILS II

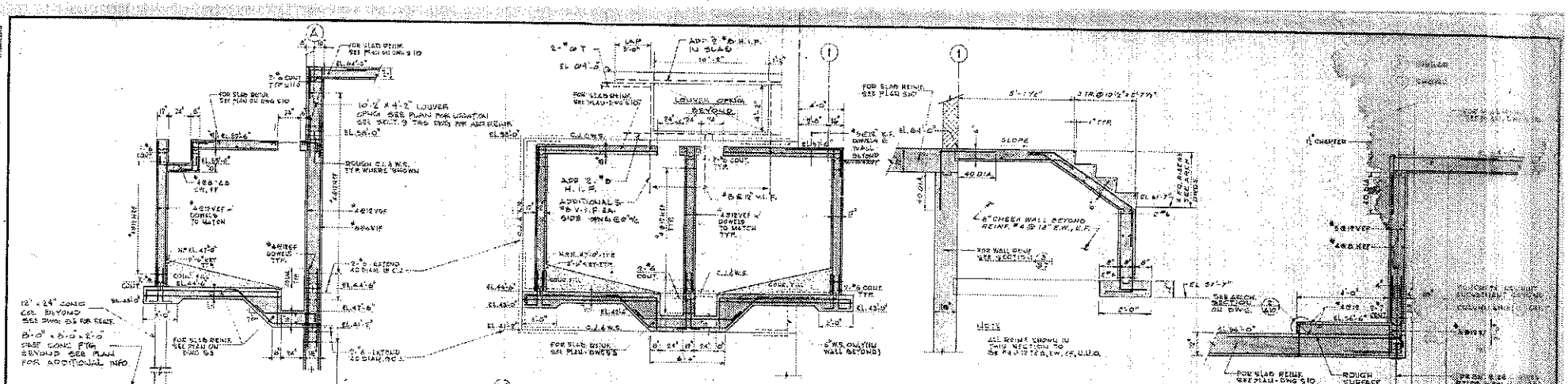
SCALE: AS SHOWN | PROJECT NO. 59523 | DWG. NO. S7

DATE: 7-1-86 | DRAWN BY: WJS | CHECKED BY: R. Barrett

LINENTHAL EISENBERG ANDERSON INC.
35 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 59523 S-7

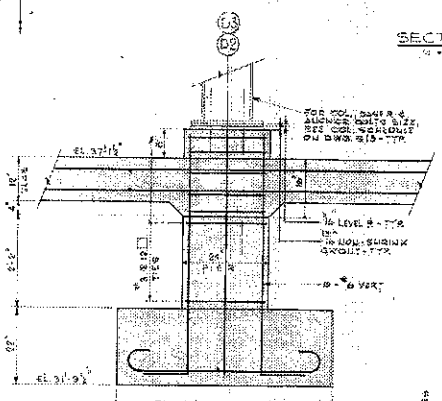


SECTION (A) 3/4"=1'-0" (S5, S10)

SECTION (B) 3/4"=1'-0" (S5, S10)

SECTION (1) 1/2"=1'-0" (S10)

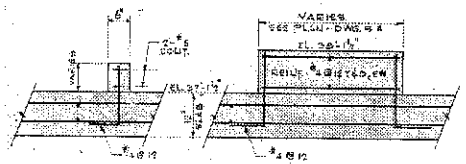
SECTION (2) 1/2"=1'-0" (S10)



AT CONCRETE PIER

SECTION (12) (S4) SHOWN

SECTION (12A) (S4) SIMILAR AS NOTED

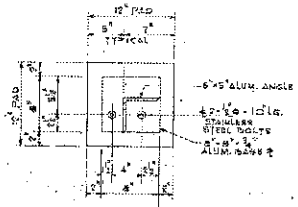


TYPICAL CONC CURB DETAIL

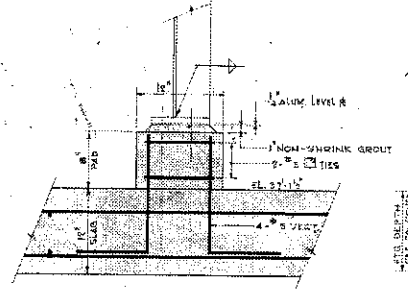
3/4"=1'-0"

TYPICAL CONCRETE PLATFORM DETAIL

NO SCALE



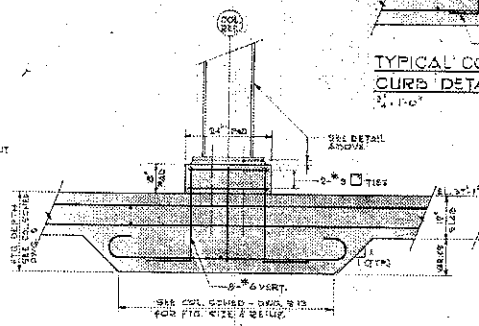
PLAN



SECTION

TYPICAL CONCRETE PAD PLATFORM SUPPORT DETAIL

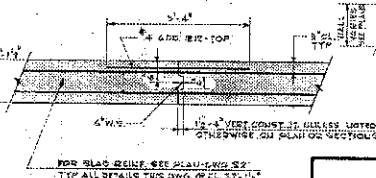
1/2"=1'-0"



AT CONCRETE PAD

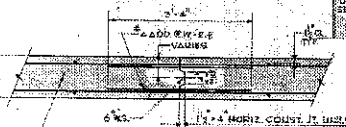
TYPICAL INTERIOR FOOTING DETAILS

NO SCALE



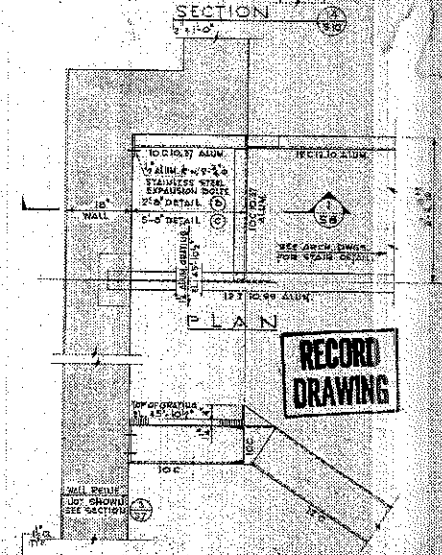
TYPICAL SLAB CONST. JOINT AND WATERSTOP DETAIL

3/4"=1'-0"



TYPICAL WALL CONST. JOINT AND WATERSTOP DETAIL

NO SCALE



PLAN

SECTION (1) (S8)

DETAIL (B) (S3) SHOWN

DETAIL (C) (S3) SIMILAR AS NOTED

3/4"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.V.T.	GENERAL
2	6/90	T.V.T.	REVISED FOR SECOND SWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SECTIONS & DETAILS III

SCALE: AS SHOWN

PROJECT NO. 59523

DRAWING NO. S8

DATE 7-1-85 DRAWN BY CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.

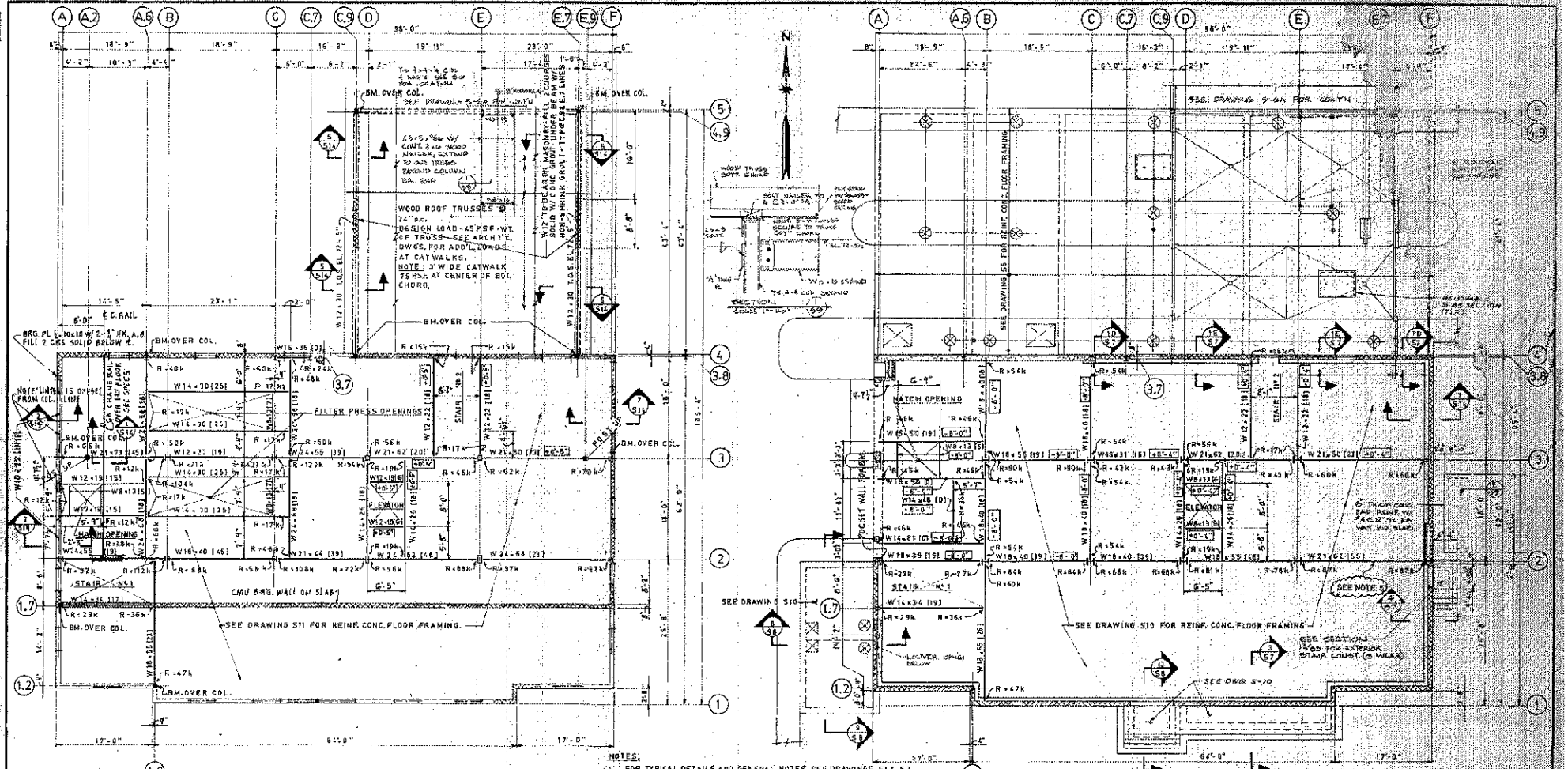
95 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-0179-1

(W. 59523 S-8) LEA

DEC 59523 S-9
LEA



SECOND FLOOR FRAMING PLAN

SCALE 1/8"=1'-0"

FINISH FLOOR AT ELEVATION 77'-9" U.O.N. ON PLAN
TOP OF STEEL EL. 76'-8" UNLESS OTHERWISE NOTED [00'-0"]
SEE DRAWING S11 FOR CONCRETE PLAN.

FIRST FLOOR FRAMING PLAN

SCALE 1/8"=1'-0"

FINISH FLOOR AT ELEVATION 64'-0" U.O.N. ON PLAN
TOP OF STEEL EL. 63'-0" UNLESS OTHERWISE NOTED [00'-0"]
SEE DRAWING S10 FOR CONCRETE FLOOR PLAN.

LINTEL SCHEDULE FOR NON-BEARING WALLS	
OPENING SIZE	1 ANGLE PER 4" OF WALL THICKNESS
NOT OVER 5'-0" WIDE	ANGLE 3½ × 3½ × 5/16
NOT OVER 7'-0" WIDE	ANGLE 4 × 3½ × 5/16 (LLV)
NOT OVER 10'-0" WIDE	ANGLE 5 × 3½ × 5/16 (LLV)

NOTE 1. STEEL LINTEL SCHEDULE TYPICAL UNLESS OTHERWISE NOTED.
2. LINTELS SHALL BEAR A MINIMUM OF 8 ON EACH SIDE OF OPENING.
3. THESE LINTELS ARE FOR NON BEARING WALL ONLY.
4. WHERE LINTELS ARE NOT CALLED OUT PROVIDE L6×3½×⅜ FOR SPANS UP TO 9'-0".
5. FOR LINTELS IN BEARING WALLS, SEE ARCHITECTURAL DRAWINGS A7 ETC.
6. WHEN LINTEL ABUTS COLUMN PROVIDE CONNECTION AS REQUIRED.

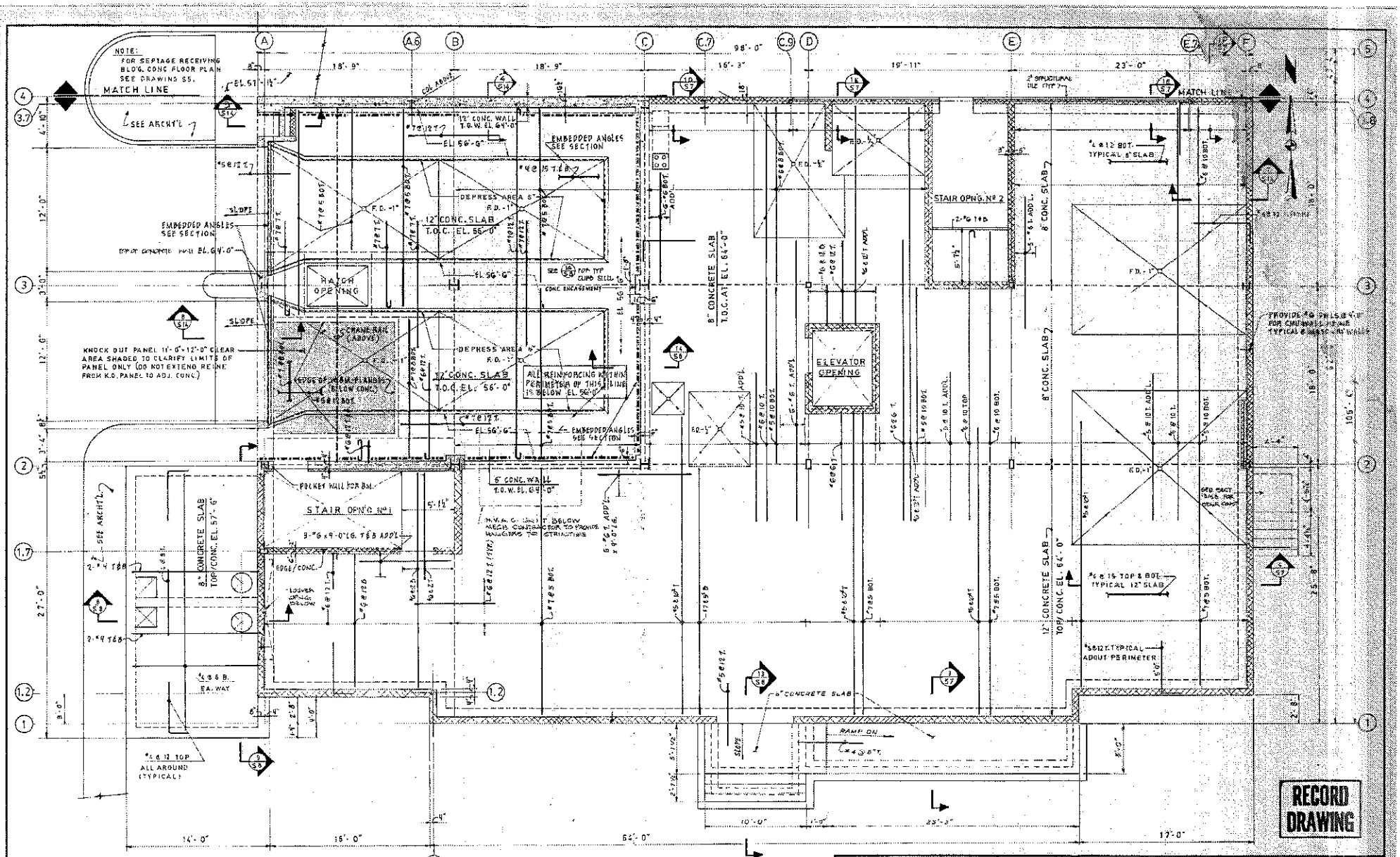
NOTES:
1. FOR TYPICAL DETAILS AND GENERAL NOTES SEE DRAWINGS S1 & S2
2. NOTATION (16) AFTER BEAM SIZE DENOTES NUMBER OF (HEADED) WELDED STUDS UNIFORMLY SPACED ALONG BEAM LENGTH, SEE TYPICAL DETAIL DRAWING FOR STUD ARRANGEMENT. STUD SPACING TYPICALLY 5"OR 12"o.c.
3. WHERE THERE ARE BEAMS SUPPORTING EQUIPMENT, ETC. THE CONTRACTOR SHALL VERIFY ALL BEAM LOCATIONS WITH THE EQUIPMENT VENDORS BEFORE SUBMITTING SHOP DRAWINGS OR FABRICATION OF MATERIAL.
4. WHERE WEB OF BEAM INTERRUPTS BOND BEAM REINFORCING FIELD WELD OR PROVIDE 15/16" HOLES THRU WEB FOR BARS.
5. BEAM W21X62 [55] WAS FURNISHED AS GR 36 IN LIEU OF GR 50. BOTTOM FLANGE WAS REINFORCED WITH A 7"x1/2" PLATE 15' LONG TO BRING BEAM UP TO DESIGN STRENGTH. RANDOM TESTING WAS CONDUCTED ON OTHER BEAMS TO ENSURE THAT THE PROPER GRADE STEEL WAS FURNISHED.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	D.J.K.	GENERAL
2	6/85	D.J.K.	ADDED PIPE SUPPORTS
3	3/91	G.E.M.	GENERAL

TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
FIRST & SECOND FLOOR FRAMING PLANS
SCALE 1/8"=1'-0"
PROJECT NO. 59523
DWG. NO. S9
DATE 7-1-86 DRAWN BY R. ELLIOTT CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA



NOTES:

1. FINISH FLOOR AT ELEVATION 64'-0" U.O.N. ON PLAN
2. FOR ADDITIONAL REINFORCING AT OPNGS & COLUMNS SEE TYPICAL DETAIL SHEET S1.
3. PROVIDE #4@15, TEMPERATURE BARS IN TOP & BOTTOM OF ALL ONE-WAY 12" REINFORCED SLABS U.O.N. #5@12 TEMPERATURE BARS IN BOTTOM OF ALL 8" ONE-WAY REINFORCED SLABS U.O.N.
4. SEE ARCHITECTURAL PLANS FOR FLOOR TILE LOCATIONS AND CORRESPONDING SLAB DEPRESSIONS.
5. S.C. SHALL SUBMIT PLAN OF CONSTRUCTION JOINTS FOR APPROVAL PRIOR TO POURING SLABS.

FIRST FLOOR CONCRETE PLAN

SCALE 1/4" = 1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/89	T.L.T.	GENERAL
2	1/90	T.L.T.	INTERIOR MODIFICATIONS

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

FIRST FLOOR CONCRETE PLAN

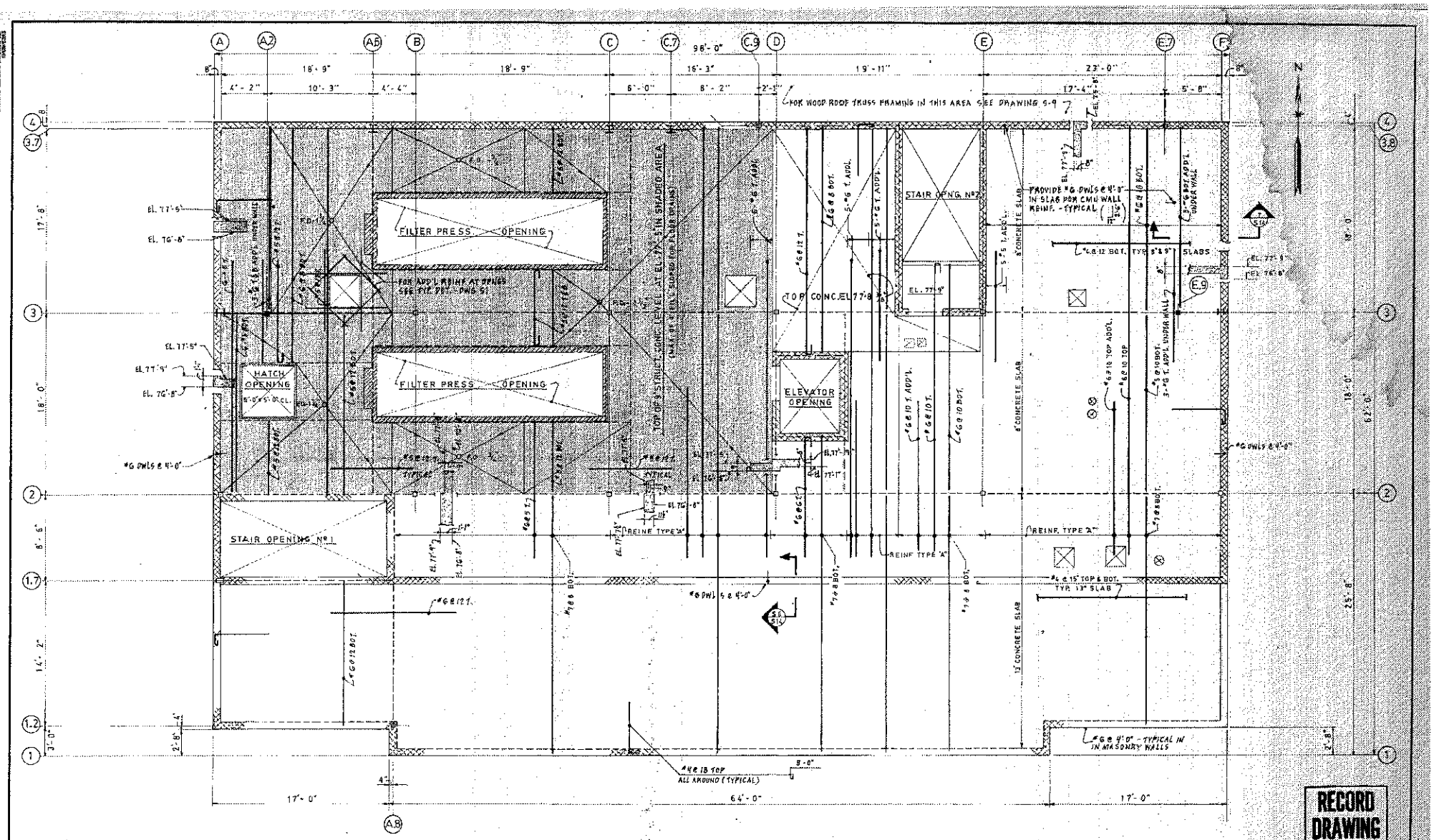
SCALE 1/4" = 1'-0" | PROJECT NO. 59523 | DWG. NO. S 10

DATE 7-17-85 | DRAWN BY R.E.L. | CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 59523 S-10



RECORD DRAWING

SECOND FLOOR CONCRETE PLAN

SCALE: AS NOTED

NOTES:
1. FINISH FLOOR AT ELEVATION 77'-9" U.O.N. ON PLAN.
2. FOR ADDITIONAL REINFORCING AT OPENINGS IN FLOOR SEE TYPICAL DETAIL DRAWING S1.
3. PROVIDE #4 @ 15, TEMPERATURE BARS IN TOP & BOTTOM OF ALL ONE-WAY 12" OR 13" REINFORCED SLABS U.O.N. #6 @ 12, TEMPERATURE BARS IN BOTTOM OF ALL 8" OR 9" ONE-WAY REINFORCED SLABS U.O.N.
4. FOR LINTELS SEE DRAWING S6.

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	11/84	J.M.Y.	GENERAL

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SECOND FLOOR CONCRETE PLAN

SCALE: 1/4" = 1'-0"

PROJECT NO. 59523

DWG NO. S 11

DATE 9-1-85 DRAWN BY R. ELLIOTT CHECKED BY

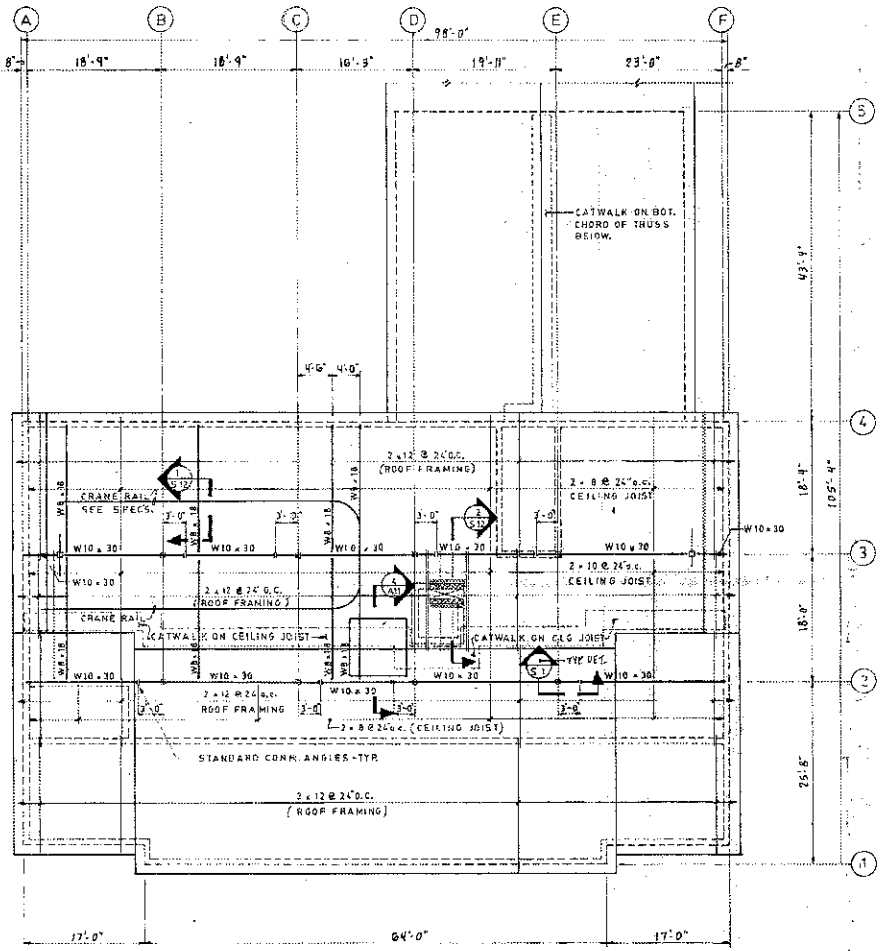
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 59523 S-11

H-01115-1

ENV. 59523 S-12
LEA

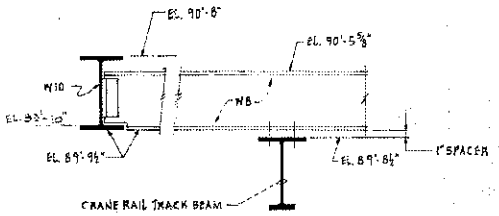


ROOF FRAMING PLAN

SCALE $\frac{1}{8}$" = 1'-0" T.O.S. EL. 90'-8" U.O.N.

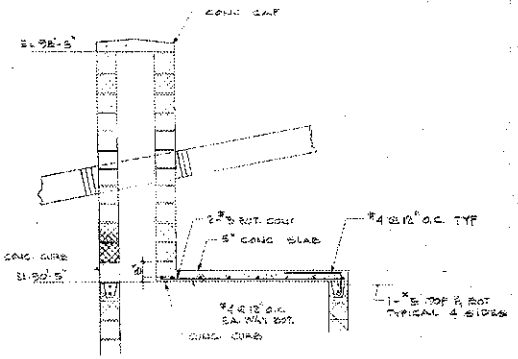
NOTE:

1. ROOF MEMBERS SHALL NOT BE FASTENED TO AIR VENT OVER ELEVATOR. CEILING JOIST SHALL NOT BEAR ON INTERIOR MASONRY PARTITIONS EXCEPT AT ELEVATOR SHAFT AND STAIRWAY N°1 DOUBLE HEADERS AND DOUBLE TRIMMERS ARE REQUIRED AT ALL OPENINGS WHICH INTERRUPTS ROOF RAFTERS OR CEILING JOISTS.
2. FOR PENETRATIONS THRU ROOF SEE ARCHITECTURAL DRAWING A3, MECH'L. DRAWINGS ETC.
3. SEE ARCHITECTURAL DWGS. FOR LOCATIONS OF NAILERS & BLOCKING.



SECTION 1

NO SCALE



SECTION 2

SCALE $1\frac{1}{2}$" = 1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/30	T.J.F.	GENERAL
2	5/13	T.J.F.	AS BUILT CONDITIONS REVISED ONLY

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

ROOF & CEILING FRAMING PLANS

SCALE: AS NOTED
PROJECT NO. 59523
DWG. NO. S 12
DATE 7-1-80 DRAWN BY R. ELLIOTT CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

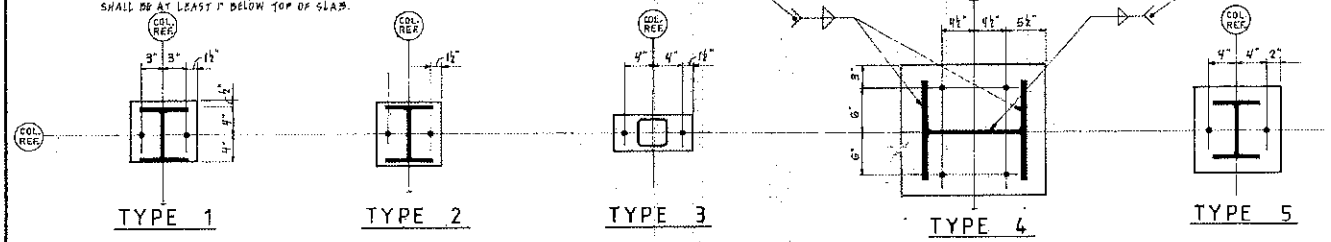
H-01714-1

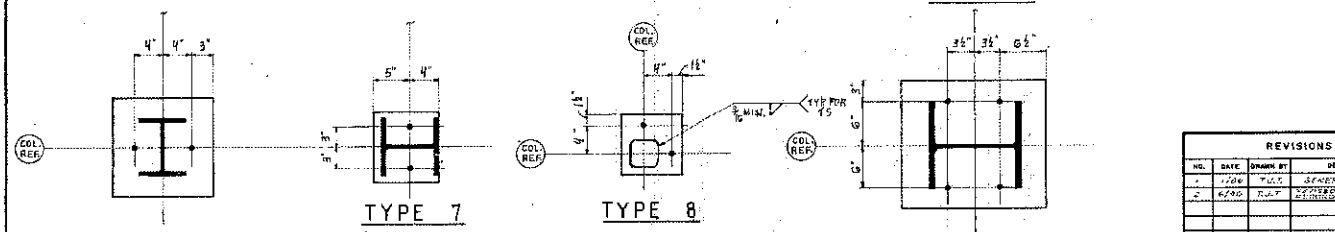
ENV. 55823 9-13 LEA

COLUMN SCHEDULE

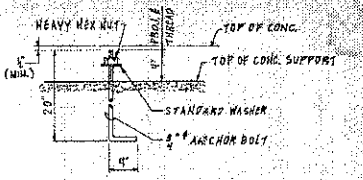
COLUMN MARK	D,2	D,3	B,2	C,2	E,2	B,3	C,3	E,3	F,2	A,2	A,B,1.2	A,6,3.7	A,1,7	A,3	C,7,3.7	F,3	C,3.7	C,9,3.8	E,7,3.8	A,2,3	E,9,3	C,9,4.9	E,7,4.9
FIN. SECOND FLOOR EL. 77'-9"	15 4x4x¼	15 4x4x¼	15 4x4x¼	15 4x4x¼	15 4x4x¼	15 4x4x¼	15 4x4x¼	15 4x4x¼	15 4x4x¼	15 4x4x¼										15 4x4x¼	15 4x4x¼		
FIN. FIRST FLOOR EL. 64'-0"	15 12x61/2	15 6x6.1*	W12x53	W10x49	15 6x10½	W12x58	W12x65	15 6x6.1*	W8x31	W8x31	15 4x4x⅜	W8x24	15 8x4x⅜	W8x31	W8x24	W8x24	W8x24	15 4x4x¼	15 8x4x⅜			15 4x4x¼	15 4x4x⅜
TOP/ CONC. EL. 56'-0"																							
FIN. BASEMENT FL. EL. 37'-11"	W14x90	W14x90	W14x90	W14x90	W12x106	W14x90	W14x90	W14x90															
TOP/ CONC. PIER EL.																							
BASE PLATE TYPE*	4	4	4	4	9	4	4	4	6	7	8	1.	10.	2	2	5	1	3	3			3	3
BOT / BASE PLATE EL																							
BASE PLATE SIZE	1x20x18	1x20x18	1x20x18	1x20x18	⅝x20x18	1x20x18	1x20x18	1x20x18	¾x14x14	¾x9x10	1x18x18	¾x20x9	¾x20x11	¾x10x10	¾x9x9	1x12x12	¾x18x9	¾x5x11	¾x5x11	—	—	¾x5x11	¾x5x11
ANCHOR BOLT TYPE	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	—	—	A	A
FOOTING SIZE	7'-0"x9'-0" x22"DP	6'-8"x10'-0" x24"DP	7'-6"x9'-6" x24"DP	9'-0"x9'-0" x22"DP	9'-6"x9'-6" x36"DP	9'-0"x9'-0" x22"DP	9'-0"x9'-0" x22"DP	8'-0"x8'-0" x20"DP															
FOOTING REINF.	13-#6 B.E.W.	20-#5 B.E.W. 13-#5 B.E.W.	15-#6 B.E.W.	13-#6 B.E.W.	15-#6 B.E.W.	13-#6 B.E.W.	13-#6 B.E.W.	15-#5 B.E.W.															
REMARKS	BASE IS ON PIER	BASE IS ON PIER																					

"*" NOTE: 1. THE FIRST BASE PLATE SIZE DIMENSION (AFTER THICKNESS) IS PARALLEL TO THE COLUMN WEB.
2. AT PERIMETER COLUMNS, BOTTOM OF BASE PLATE SHALL BE 1" ABOVE WALL AND TOP OF ANCHOR BOLTS SHALL BE AT LEAST 1" BELOW TOP OF SLAB.

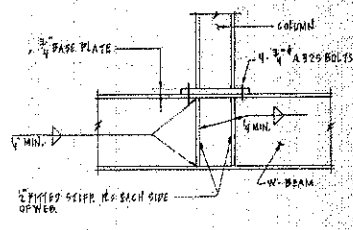




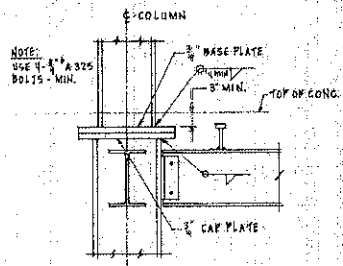
TYPICAL BASE PLATE TYPES



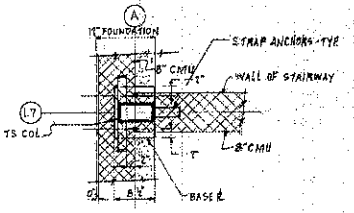
ANCHOR BOLT-TYPE "A"



TYP. COL. POST ON BM. DETAIL



COLUMN SPLICE DETAIL



TYPE 10

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	11/86	T.W.T.	GENERAL
2	6/90	R.W.T.	EXPANDED FOR SEPTAGE BLDG

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

COLUMN SCHEDULE

DATE 7-1-85 DRAWN BY K. ELLIOTT CHECKED BY

SCALE: NO SCALE

PROJECT NO. 59523

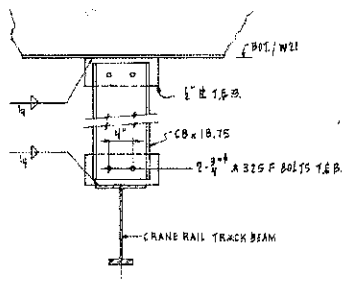
DWG. NO. S-13

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

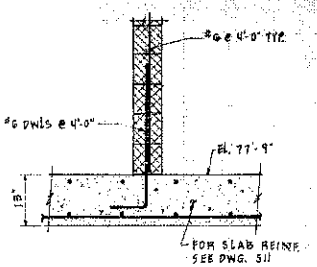
LEA

M-0777-1

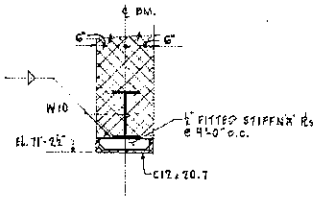
W. 59823 S-14 LEA



SECTION - 1
NO SCALE



SECTION 6
SCALE 3/4" = 1'-0"



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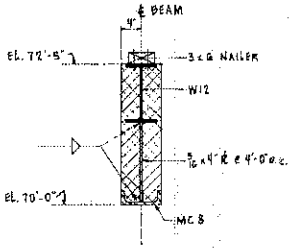

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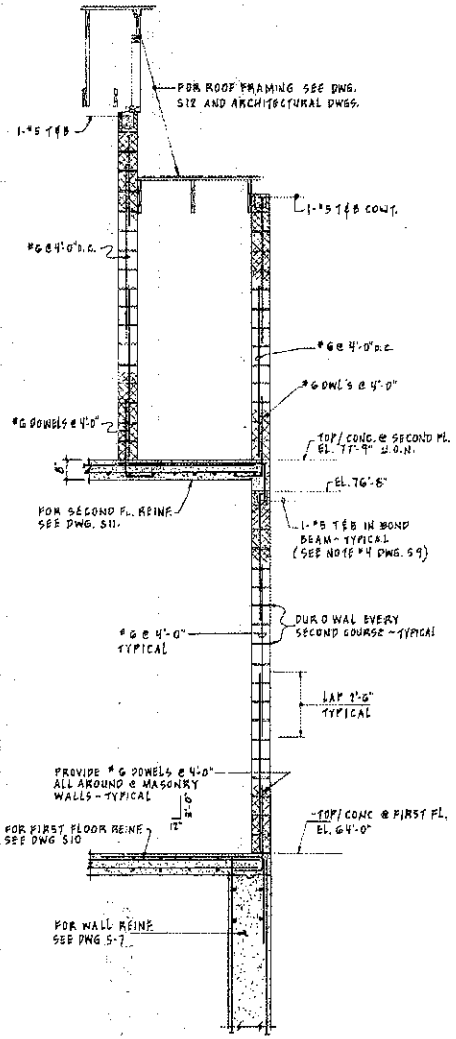

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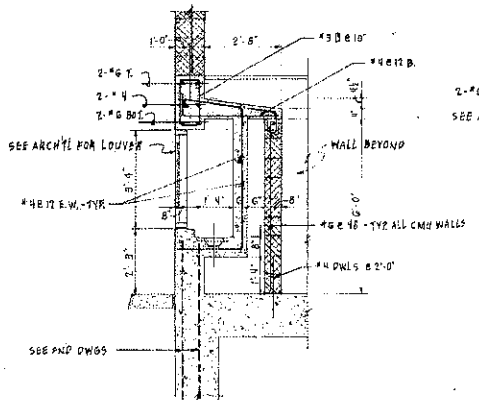
SCALE ½" = 1'-0"



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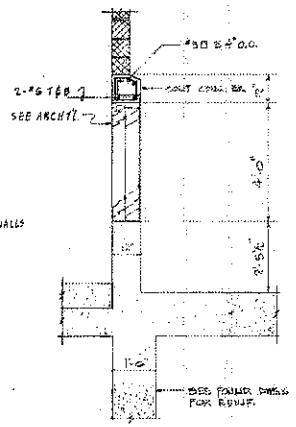
SCALE ½" = 1'-0"



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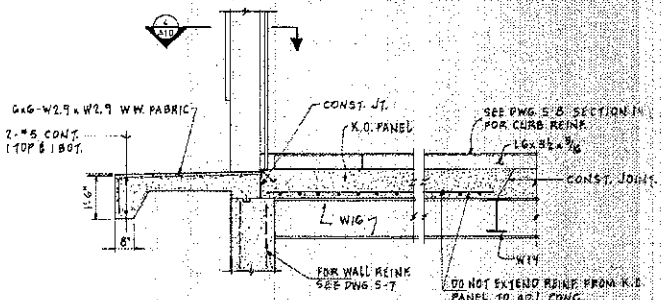
SCALE ½" = 1'-0"



SECTION 8
SCALE ½" = 1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	4/86	J.J.C.	GENERAL
2	4/87	J.J.C.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SECTIONS & DETAILS IV

SCALE: AS NOTED

PROJECT NO. 59823

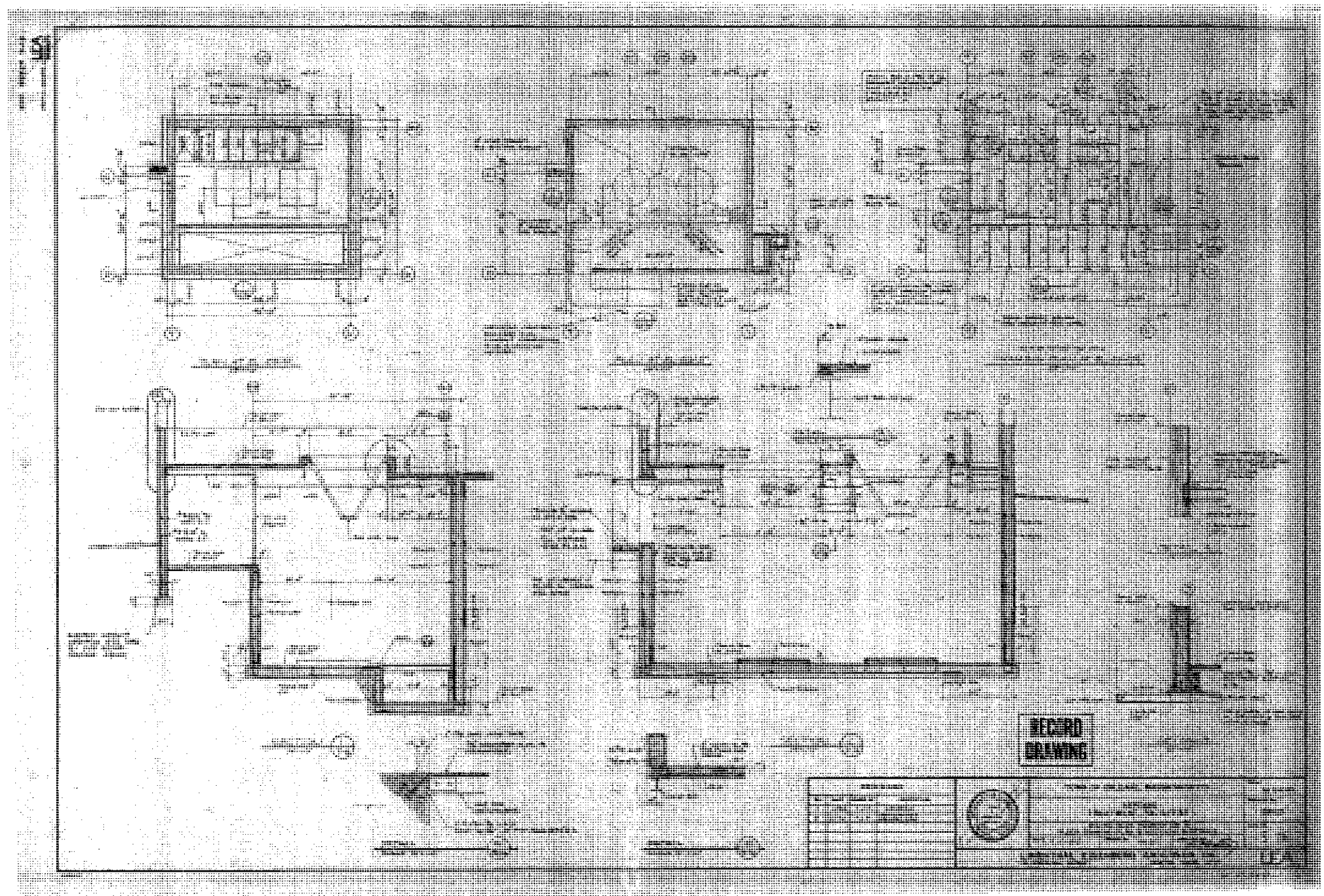
DWG. NO. S 14

DATE 3-1-88 DRAWN BY R. ELLIOTT CHECKED BY

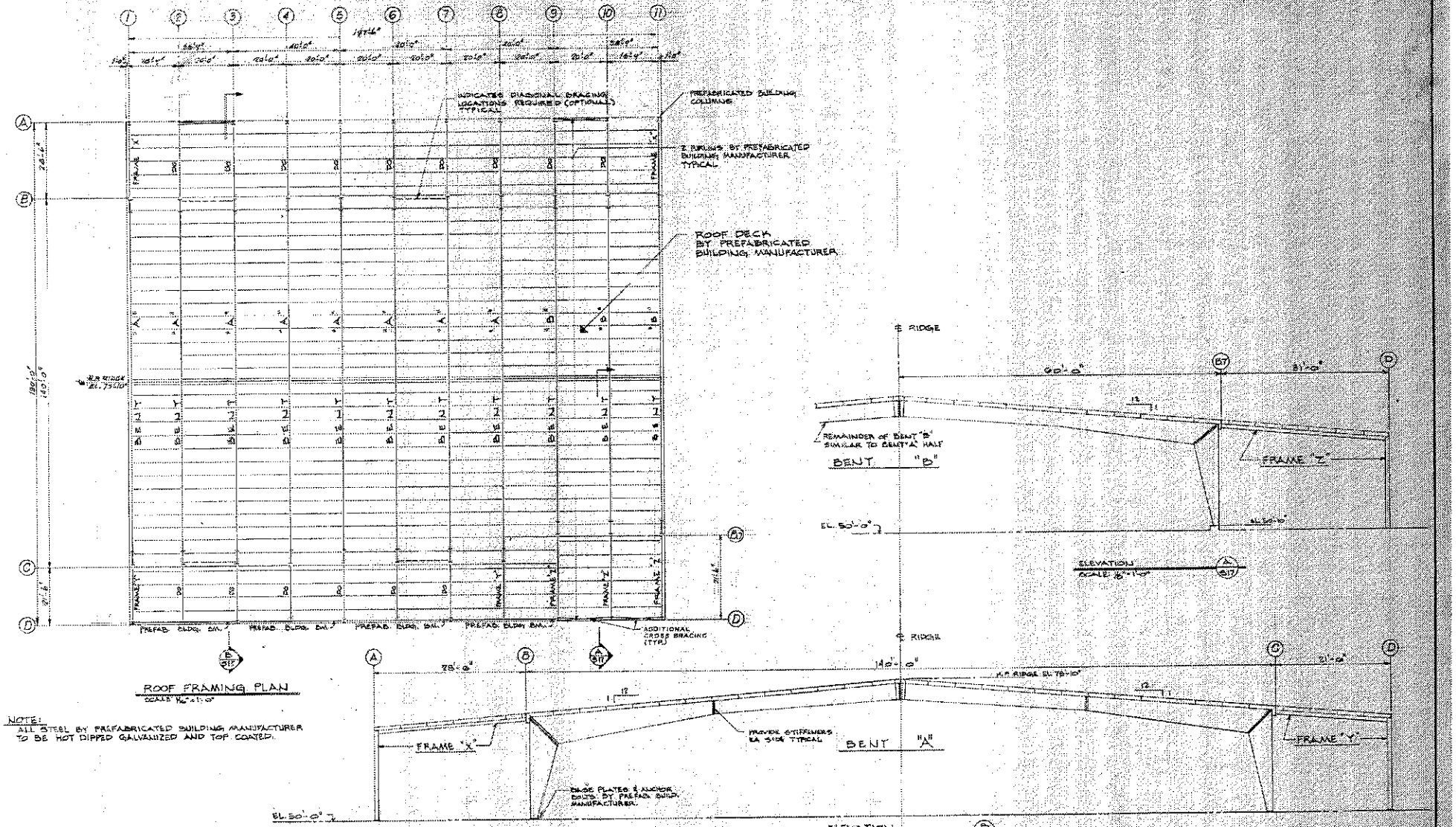
LINENTHAL EISENBERG ANDERSON INC.
75 KINGSLAND STREET BOSTON, MASS. 02111

LEA

H-01-18-1


RECORD
DRAWING

ENV. 59523 S-17 LEA



NOTE:
ALL STEEL BY PREFABRICATED BUILDING MANUFACTURER TO BE HOT DIPPED GALVANIZED AND TOP COATED.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/96	T.U.T.	GENERAL
2	6/96	T.U.T.	ADDENDUM #2

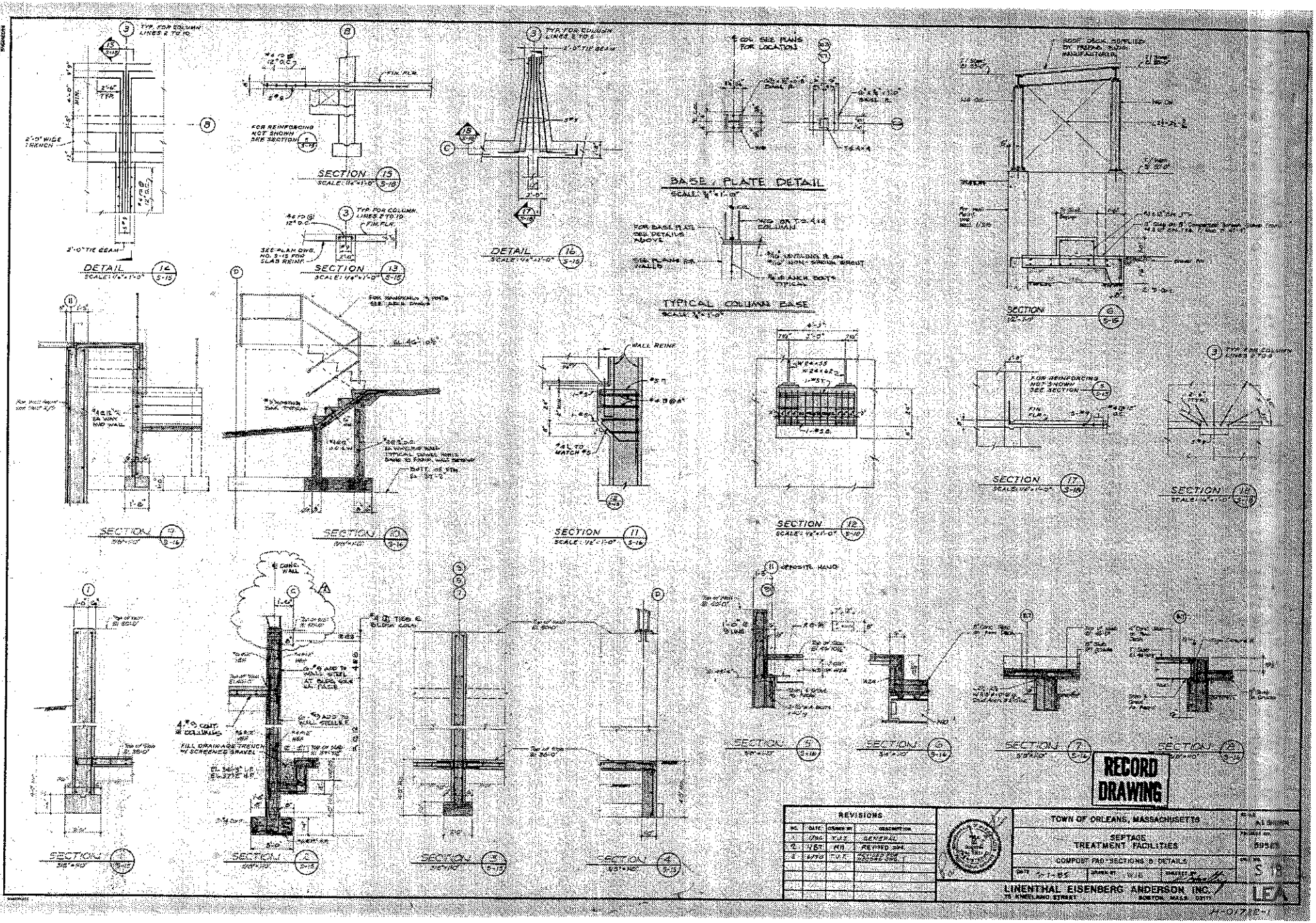
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
COMPOST PAD - ROOF FRAMING PLAN & ELEVATIONS
DATE 7-1-95 DRAWN BY R.J.K. CHECKED BY
SCALE AS SHOWN
PROJECT NO. 59523
DWG. NO. S-17

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA

P-0176/2

ENV# 59523 S-16

LEA



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/94	Y.K.S.	GENERAL
2	1/95	MR	REVISED SHT.
3	6/95	Y.K.S.	REVISED SHT.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

COMPOST PAD - SECTIONS & DETAILS

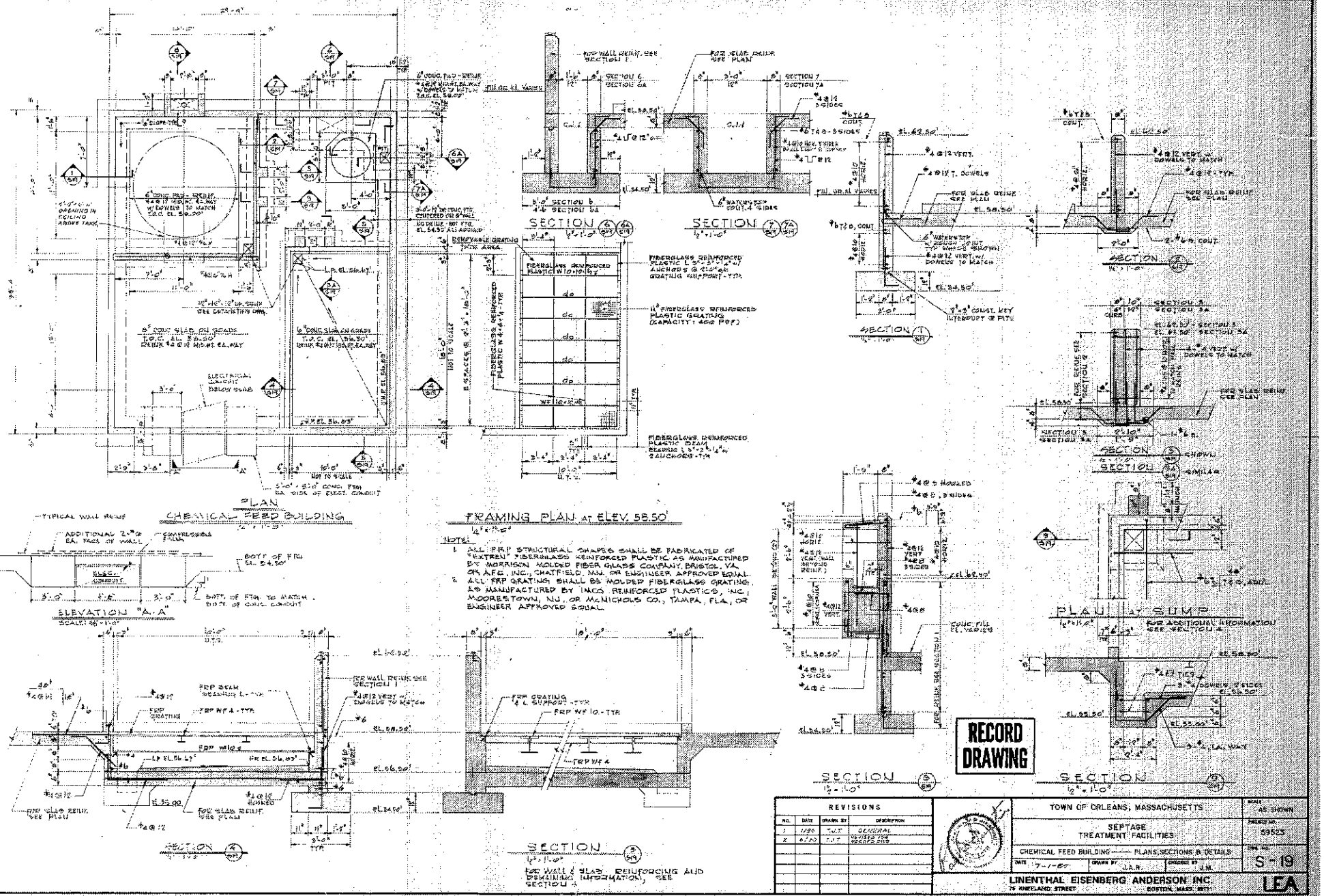
DATE 5-1-95 | DRAWN BY W.E. | CHECKED BY

AS SHOWN | PROJECT NO. 59523 | DRAWING NO. S 16

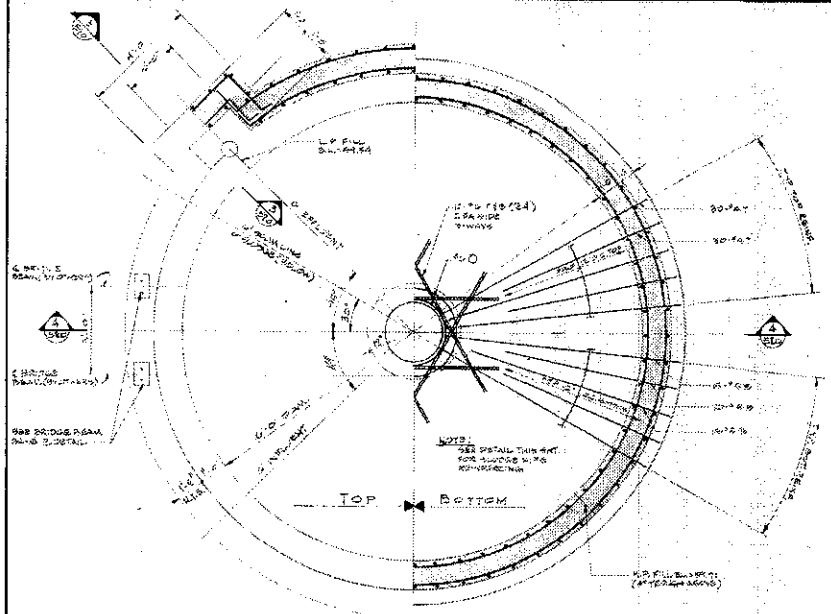
LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

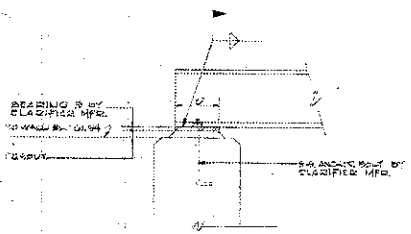
H-01718-1


PLAN
CHEMICAL FEED BUILDING
FRAMING PLAN at ELEV. 58.50'
NOTES:
1. ALL FRP STRUCTURAL SHAPES SHALL BE FABRICATED OF "EXTREN" FIBERGLASS REINFORCED PLASTIC AS MANUFACTURED BY MORRISON MOLDED FIBER GLASS COMPANY, BRISTOL, VA. OR AFC, INC., CHATTSCO, MN. OR ENGINEER APPROVED EQUAL.
2. ALL FRP GRATING SHALL BE MOLDED FIBERGLASS GRATING AS MANUFACTURED BY INCO REINFORCED PLASTICS, INC., MOORESTOWN, NJ., OR MENICHOLS CO., TAMPA, FLA., OR ENGINEER APPROVED EQUAL.
SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 6
SECTION 7
ELEVATION "A-A"
PLAN AT SUMP
RECORD DRAWING
REVISIONS
NO. DATE DRAWN BY DESCRIPTION
1 1/80 T.W.T. GENERAL
2 6/80 T.W.T. REVISED FOR BIDDING
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
CHEMICAL FEED BUILDING —— PLANS, SECTIONS & DETAILS
DATE 7-1-80 DRAWN BY J.A.R. CHECKED BY J.M.
SCALE AS SHOWN
PROJECT NO. 59503
DWG. NO. S-19
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA

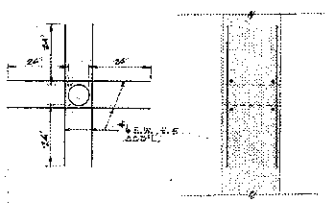
ENV. 59523 S-20 LEA



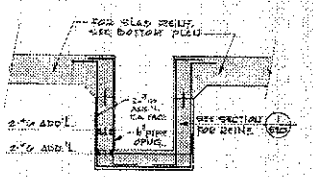
TOP & BOTTOM PLAN
PRIMARY SETTLING TANK NO.1
(NO.2 OPP HAND)



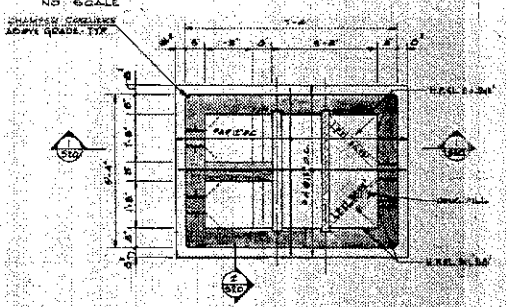
BRIDGE BEAM BASE & DETAIL



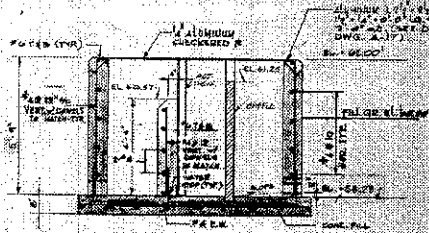
ADDITIONAL REINF. @ WALL PENETRATIONS
NO SCALE



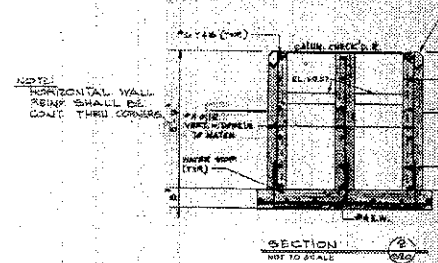
DETAIL 8"ø SLUDGE PIPE
NO SCALE



PLAN
PRIMARY DISTRIBUTION BOX



SECTION



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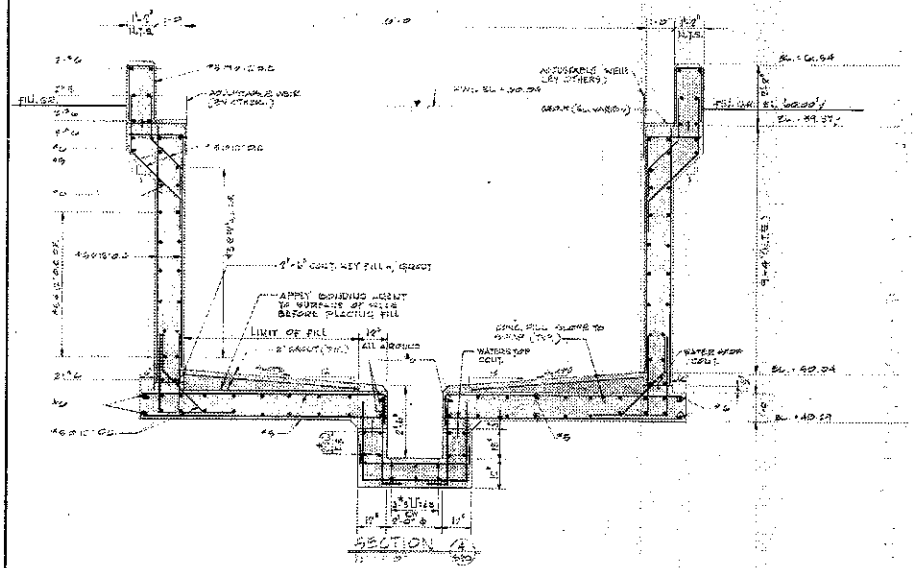

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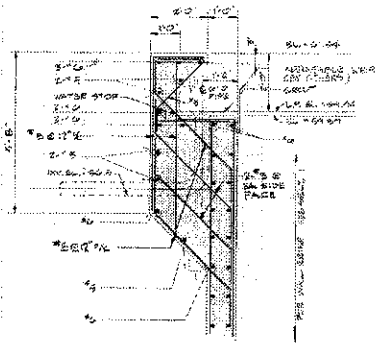


SECTION

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.T.	GENERAL
2	6/90	T.J.T.	ADDITIONAL RAIL, ACCESS DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

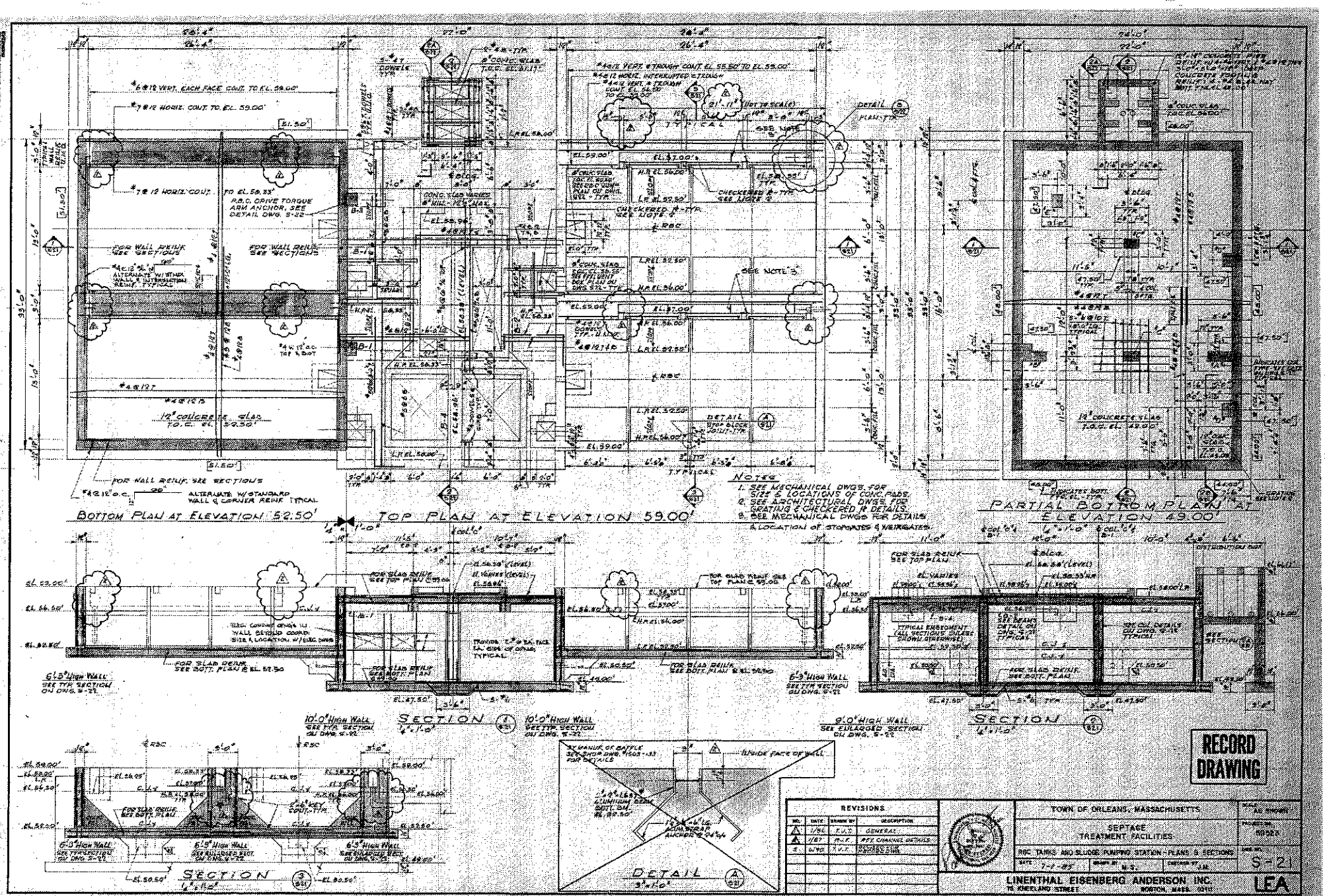
PRIMARY SETTLING TANKS — PLANS, SECTIONS & DETAILS

SCALE: AS SHOWN
PROJECT NO.: 59523
DRAWING NO.: S-20
DATE: 12-1-86 DRAWN BY: J.A.R. CHECKED BY: J.M.

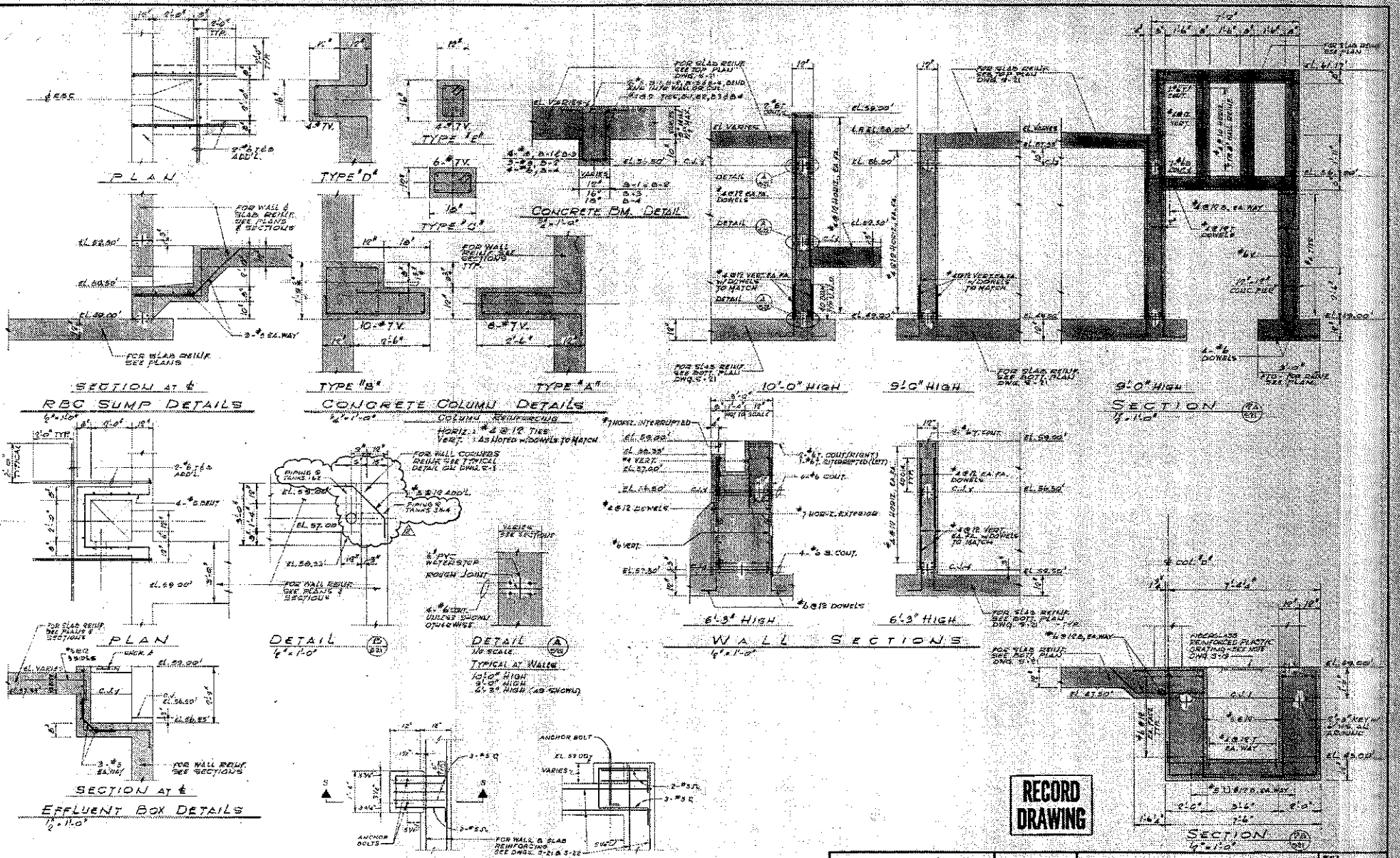
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

11-01724-1


BOTTOM PLAN AT ELEVATION 52.50'
TOP PLAN AT ELEVATION 59.00'
PARTIAL BOTTOM PLAN AT ELEVATION 49.00'
NOTES
1. SEE MECHANICAL DWGS. FOR SIZE & LOCATIONS OF CONC. PADS.
2. SEE ARCHITECTURAL DWGS. FOR GRATING & CHECKERED PL DETAILS.
3. SEE MECHANICAL DWGS FOR DETAILS & LOCATION OF STOPGATES & WEIRGATES
SECTION
SECTION
SECTION
DETAIL
RECORD DRAWING
REVISIONS
TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
RBC TANKS AND SLUDGE PUMPING STATION - PLANS & SECTIONS
LINENTHAL EISENBERG ANDERSON, INC.
S-21

ENV. 35523 S-22 LEA



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	T.H.T.	GENERAL
2	1/87	R.E.	REV. CHANNEL DETAIL
3	4/90	L.J.T.	REVISED RBC SECTION & DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

RBC TANKS AND SLUDGE PUMPING STATION - SECTIONS & DETAILS

DATE 7-1-85 | DRAWN BY N.S. | CHECKED BY

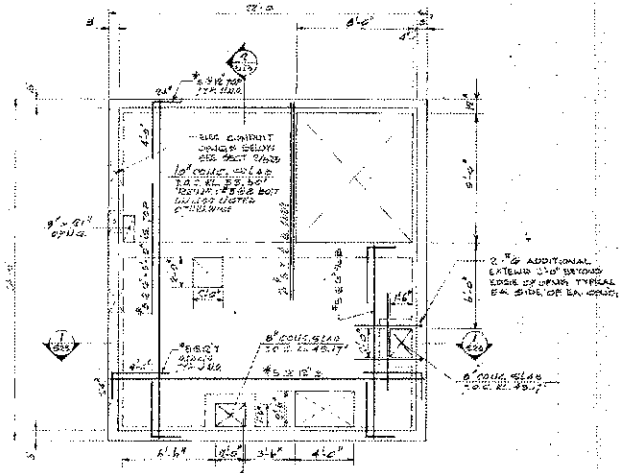
SCALE AS SHOWN | PROJECT NO. 85523 | DWG. NO. S-22

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

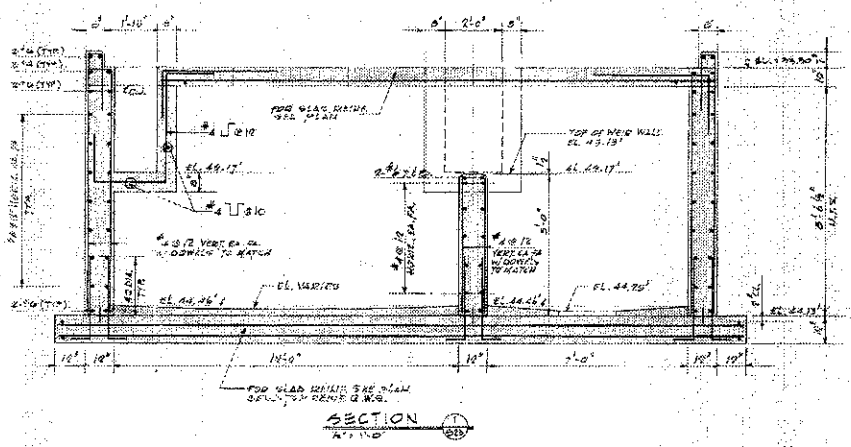
LEA

H-0172-1

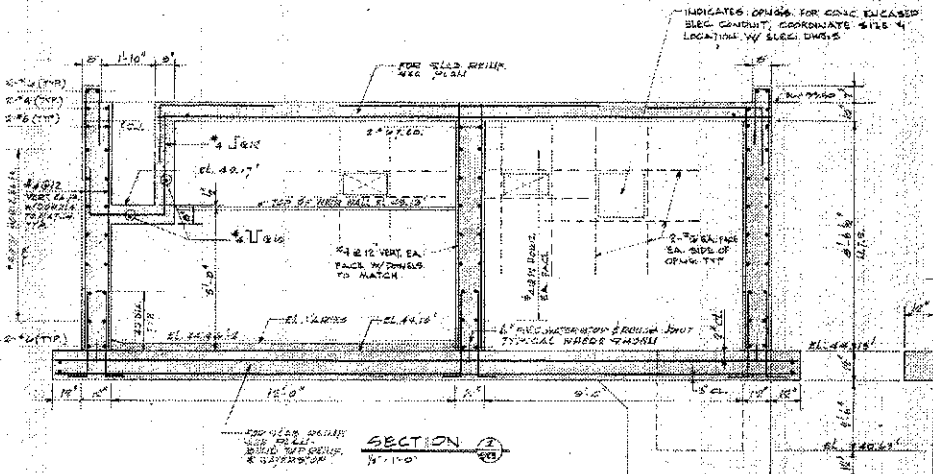
F.N.V. 59523 S-23 LEA



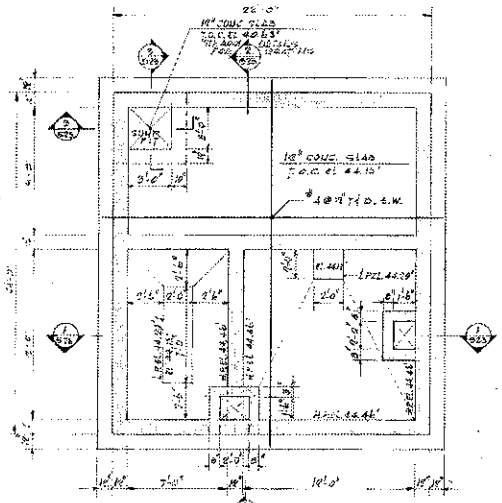
FIRST FLOOR PLAN
J.V. DISINFECTION BUILDING



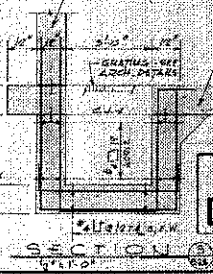
SECTION



SECTION



BASEMENT FOUNDATION PLAN
J.V. DISINFECTION BUILDING



SECTION

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.M.T.	GENERAL
2	6/90	T.M.T.	REVISED FOR RECORD DWGS.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

DISINFECTION BUILDING — PLANS, SECTIONS & DETAILS

SCALE: AS SHOWN

PROJECT NO. 59523

DWG. NO. S-23

DATE 9-1-85 | DRAWN BY J.A.R. | CHECKED BY J.M.

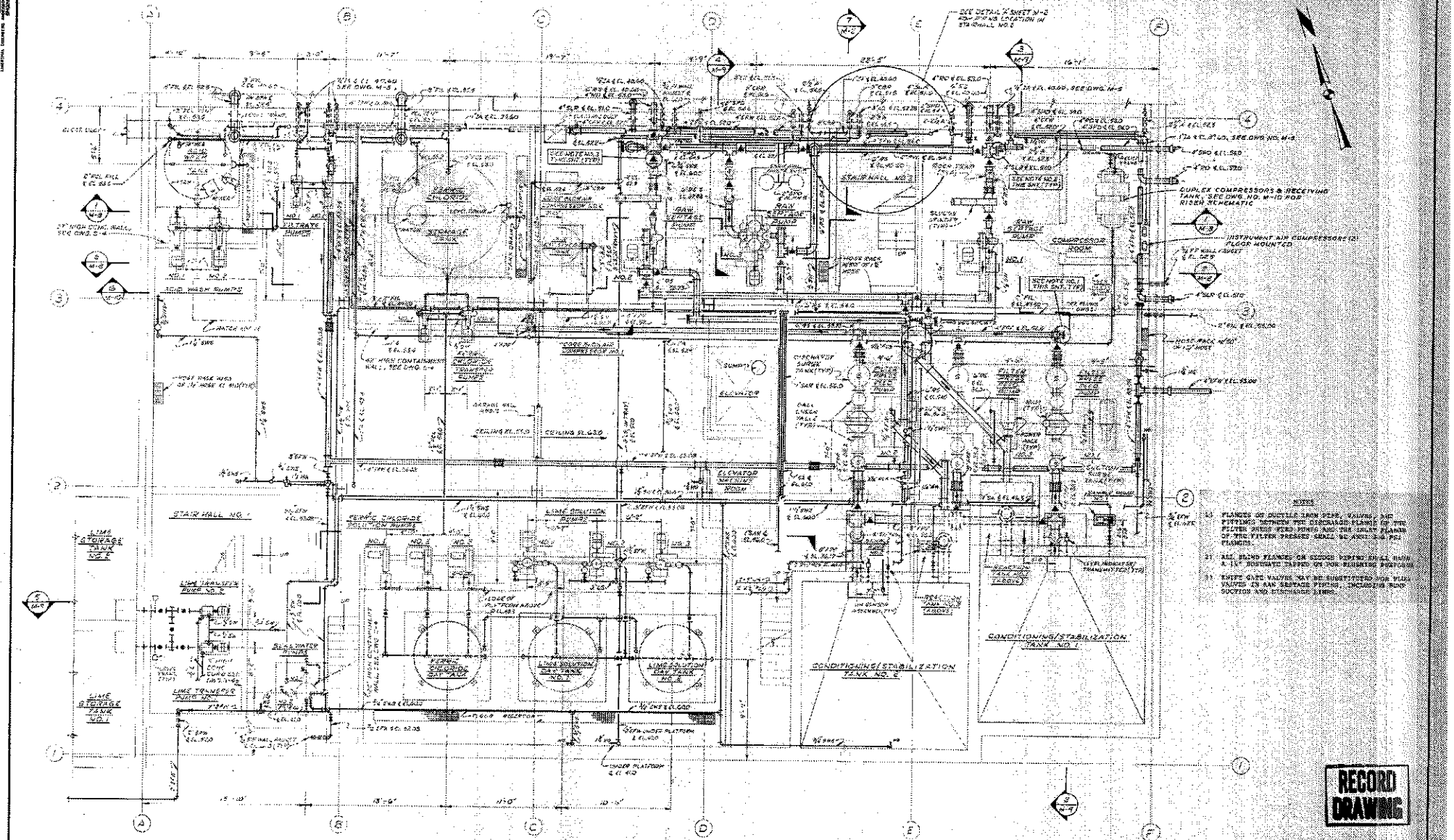
LINENTHAL EISENBERG ANDERSON INC.
73 KNEELAND STREET BOSTON, MASS. 02111

LEA

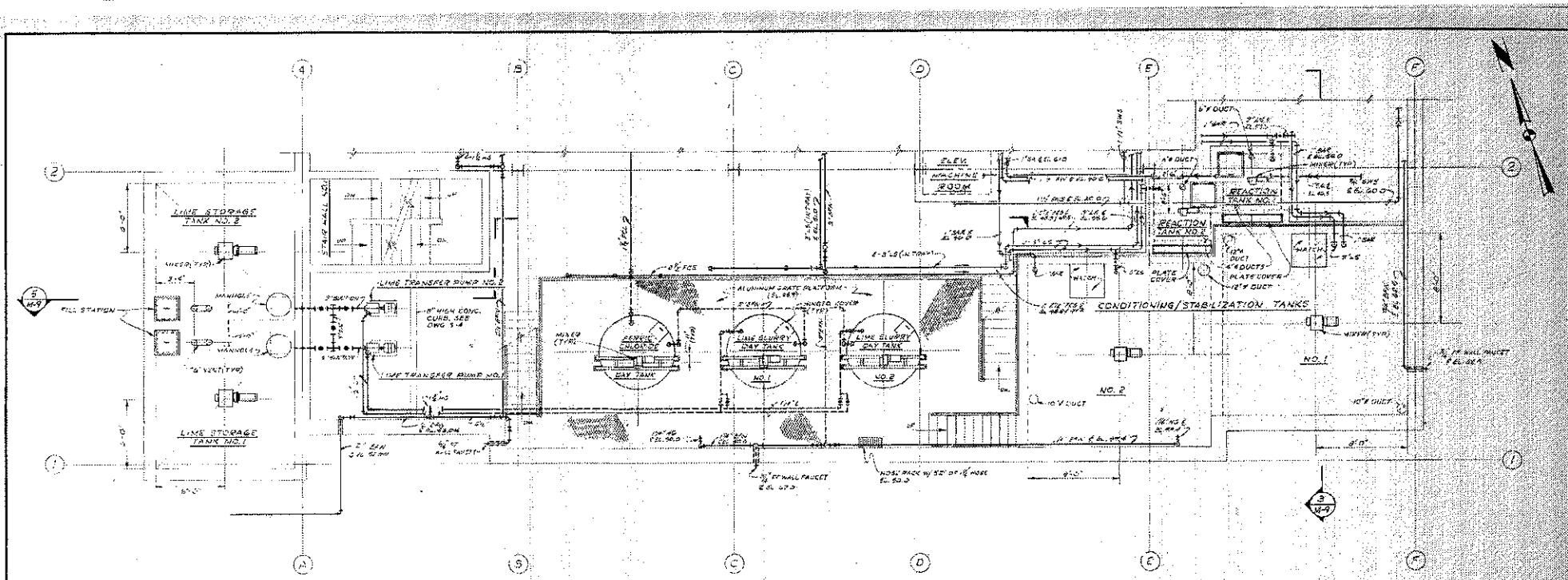
H-01727-1

ENV. 59823 M-1

LEA

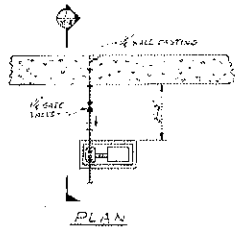

STAIR HALL NO. 1
STAIR HALL NO. 2
COMPRESSOR ROOM
ELEVATOR MACHINE ROOM
LIME STORAGE TANK NO. 2
LIME STORAGE TANK NO. 1
CONDITIONING/STABILIZATION TANK NO. 2
CONDITIONING/STABILIZATION TANK NO. 1
SCALE WASH SUMPS
SCALE WATER SUMP
ELEVATOR SUMP
SEPTAGE RECEPTION
SEPTAGE SCREENING EQUIPMENT
SEPTAGE GRINDER
SEPTAGE SCREENINGS CONTAINER
SEPTAGE SCREENINGS CONVEYOR
SEPTAGE SCREENINGS HOPPER
SEPTAGE SCREENINGS DISPOSAL CHUTE
SEPTAGE SCREENINGS DISPOSAL CONTAINER
SEPTAGE SCREENINGS DISPOSAL CONVEYOR
SEPTAGE SCREENINGS DISPOSAL

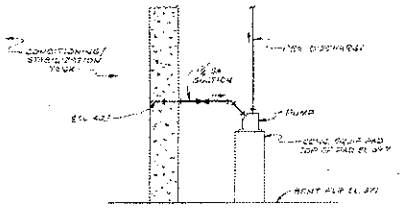
ENV. 59523 M-2 LEA



UPPER LEVEL OF BASEMENT FLOOR PLAN

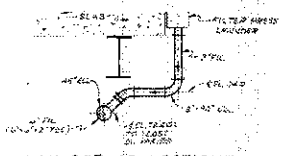
SCALE: 1/8"=1'-0"





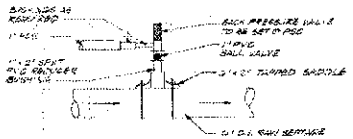
SAMPLE PUMP DETAILS

SCALE: 1"=1'-0"



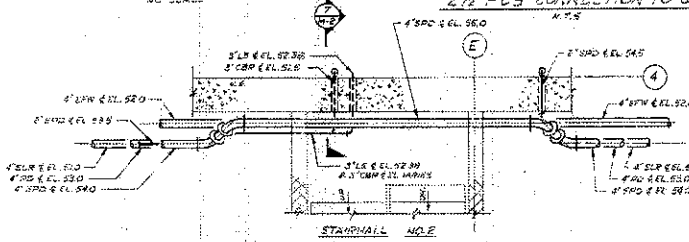
LAUNDER CONNECTIONS

NO SCALE



DETAIL 2½" FCS CONNECTION TO G/RS

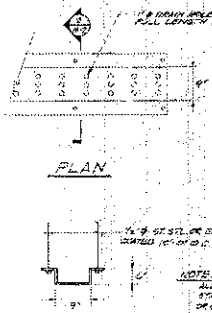
N.T.S.



STAIRHALL NO. 2

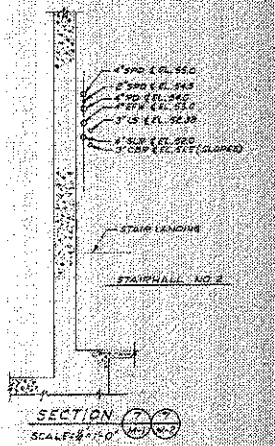
DETAIL "A"

SCALE: 3/8"=1'-0"



LIME SLURRY PIPING TRAY DETAIL

NO SCALE



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/80	T.V.T.	GENERAL
2	6/20	T.V.T.	REVISED FOR RECORD DRWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

UPPER LEVEL BASEMENT FLOOR PLAN

SCALE: 1/8"=1'-0"

PROJECT NO. 59523

DWG. NO. M-2

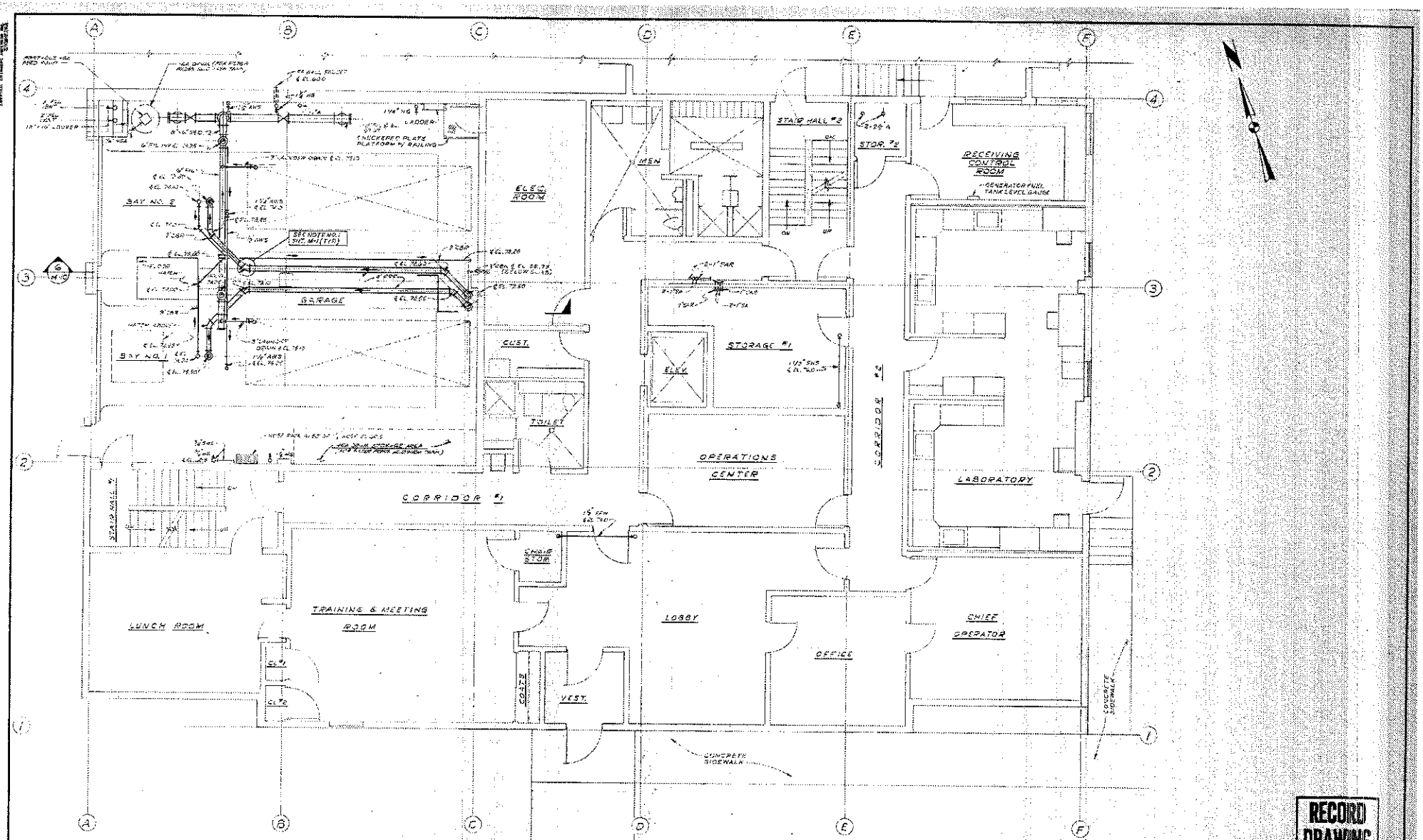
DATE: 1-1-85 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

4-0172-1

ENV. 59523 M-3 LEA



FIRST FLOOR PLAN

SCALE: 1/4"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/89	L.J.Y	GENERAL
2	6/90	L.J.C	SEPTAGE FOR SPECIFIC END

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

FIRST FLOOR PLAN

SCALE: 1/4"=1'-0"

PROJECT No. 59523

DWG. NO. M - 3

DATE: 1-4-55

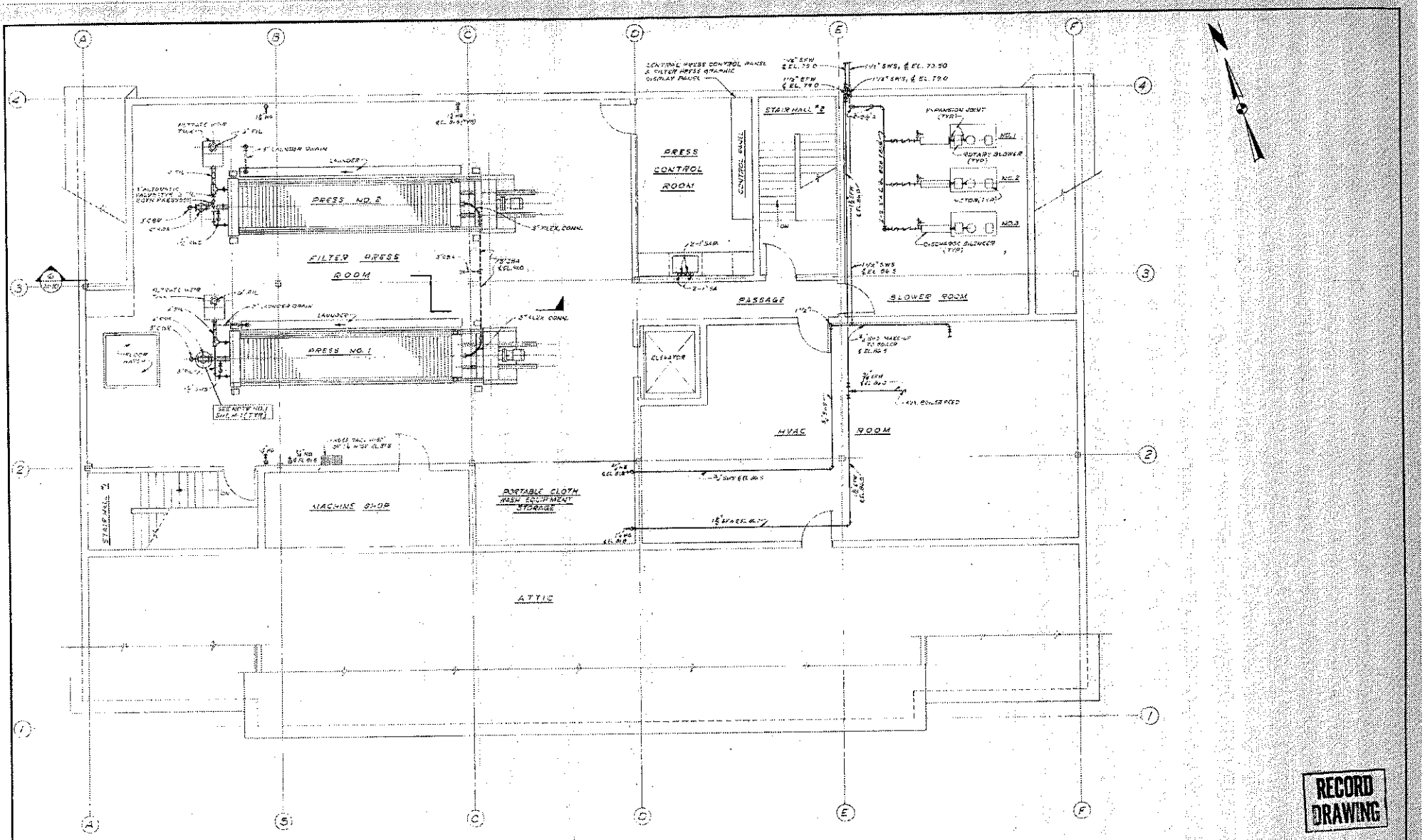
DRAWN BY:

CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

11-0170-1



SECOND FLOOR PLAN

SCALE: 1/4"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1-86	T.J.T.	GENERAL
2	6-86	T.J.T.	CONTRACT #2 CLEARANCES

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SECOND FLOOR PLANS

SCALE: 1/4"=1'-0"

PROJECT NO. 59523

DWG. NO. M-4

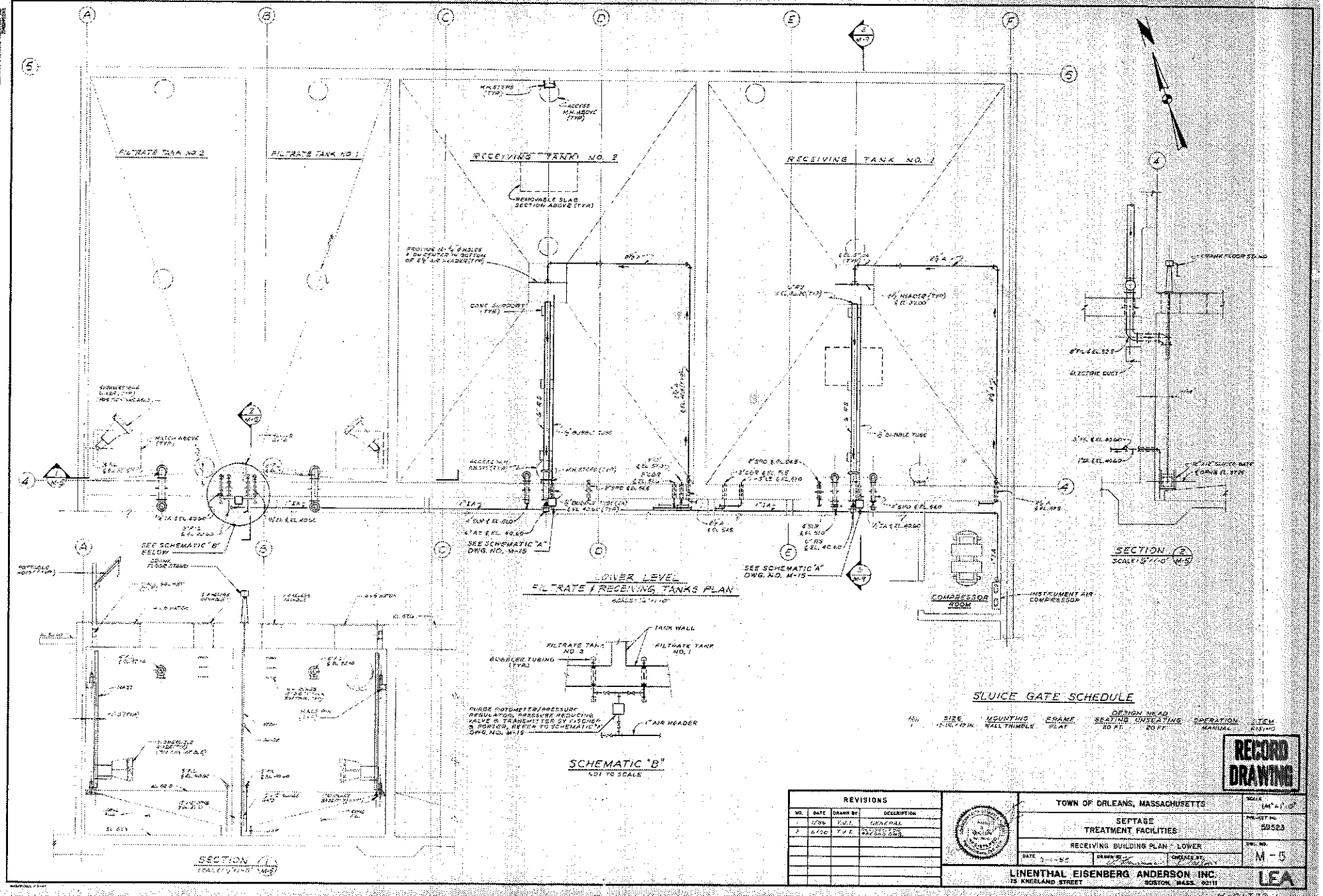
DATE: 1-17-86 DRAWN BY: T.J.T. CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
79 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 59523 M-4

LEA



SLUICE GATE SCHEDULE

NO.	SIZE	MOUNTING	FRAME	DESIGN HEAD SEATING 10 FT.	DESIGN HEAD UNSEATING 20 FT.	OPERATION	STEM
1	12"W. x 12"H.	WALL THIMBLE	FLAT			MANUAL	RISING

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/56	V.J.I.	GENERAL
2	6/56	T.J.E.	ADDED SLUICE GATE SCHEDULE

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

RECEIVING BUILDING PLAN - LOWER

SCALE: 1/4"=1'-0"

PROJECT NO. 5052a

DWG. NO. M-5

DATE 1-1-56 DRAWN BY [illegible] CHECKED BY [illegible]

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

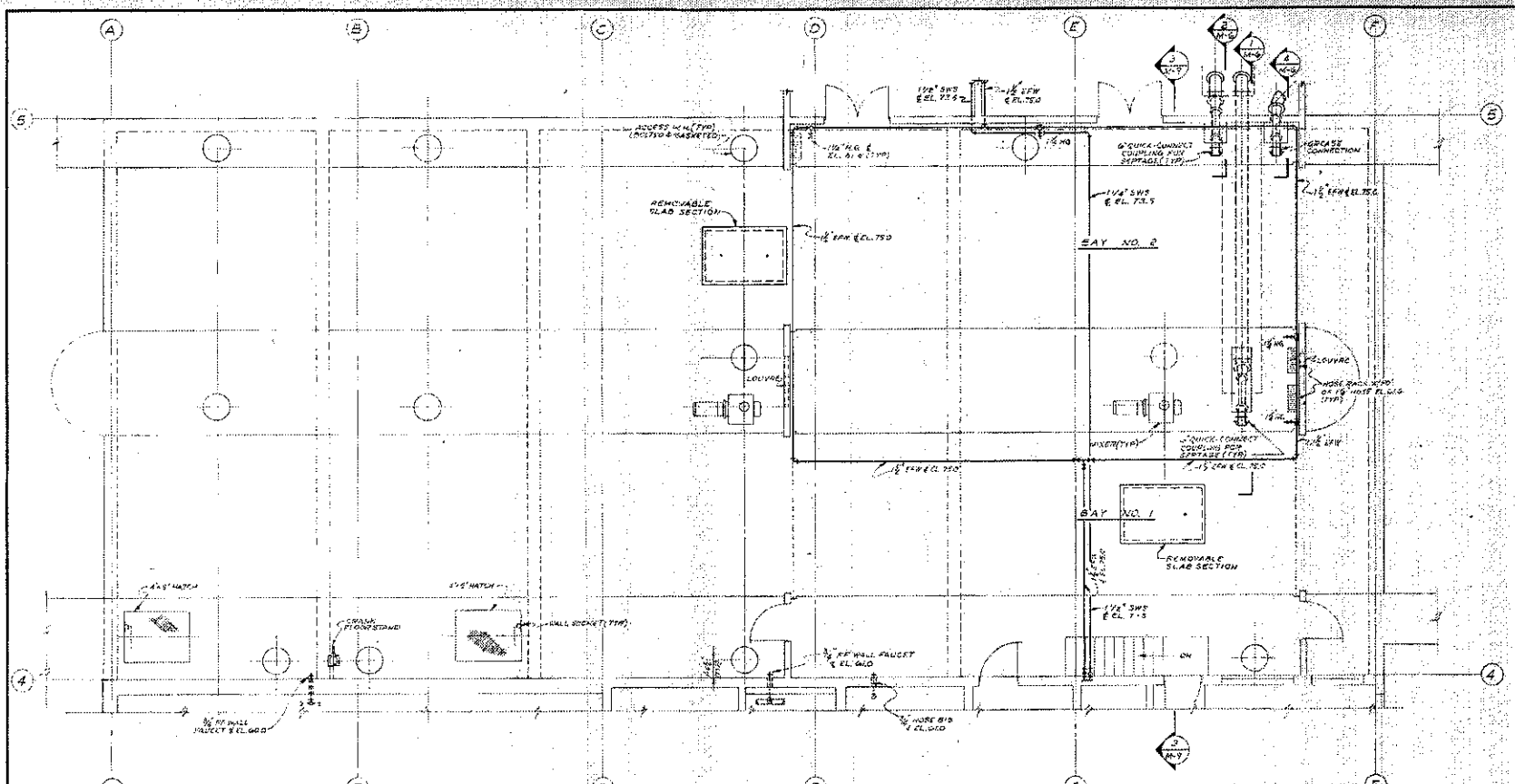
M-01732-1

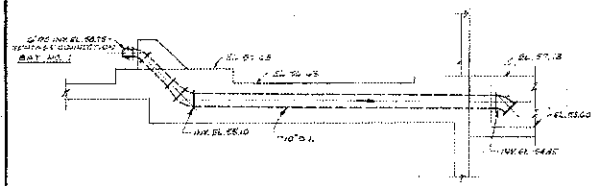
ENV. 59523 M-5

ENV. 59523 M-6

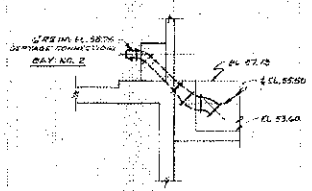
LEA

LINENTHAL EISENBERG ANDERSON INC.

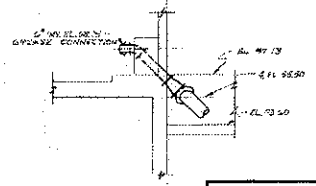




SECTION 1
SCALE ¾"=1'-0" M-6



SECTION 2
SCALE ¾"=1'-0" M-6



SECTION 4
SCALE ¾"=1'-0" M-6

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/76	T.J.T.	GENERAL
2	6/80	T.J.T.	UPDATED AND RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

RECEIVING BUILDING PLAN – UPPER

SCALE: 1/4"=1'-0"

PROJECT NO. 59523

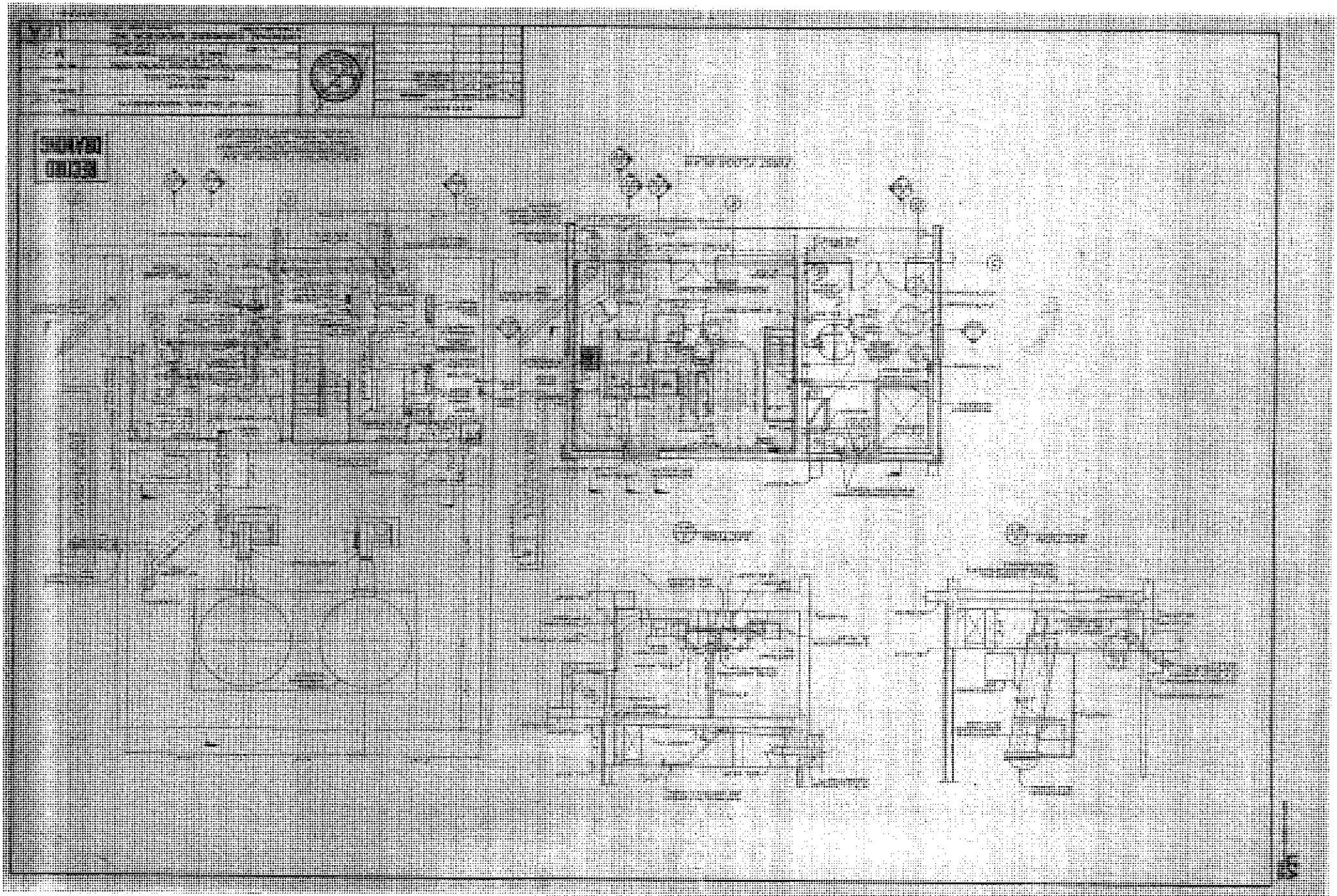
DWG. NO. M-6

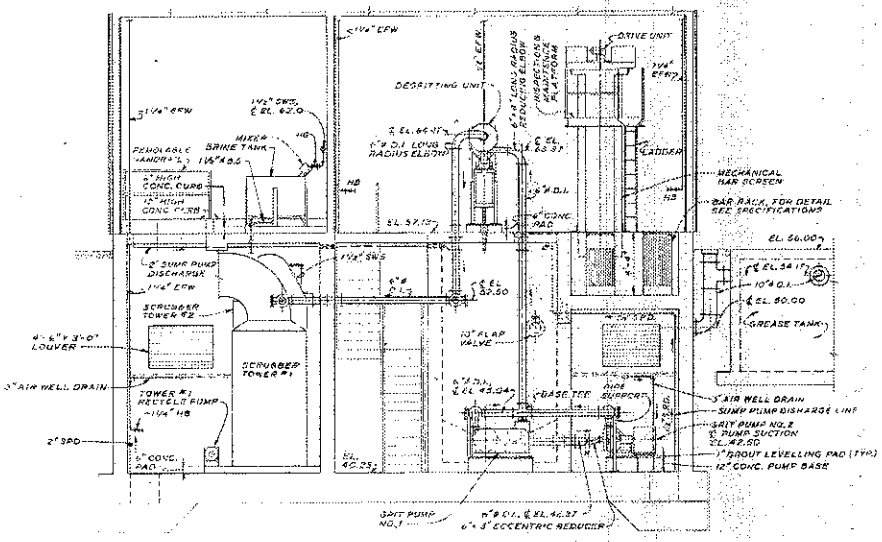
DATE 7-1-80 DRAWN BY [illegible] CHECKED BY [illegible]

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

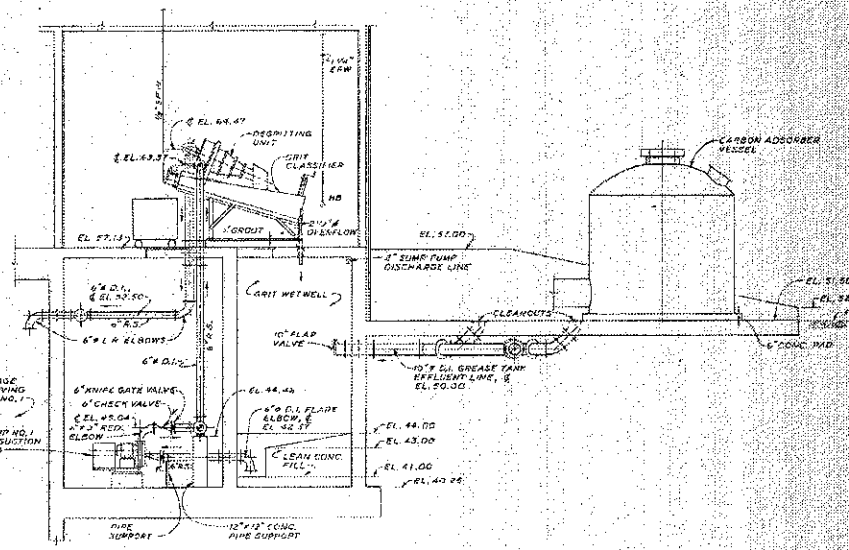
LEA

H-01733-1

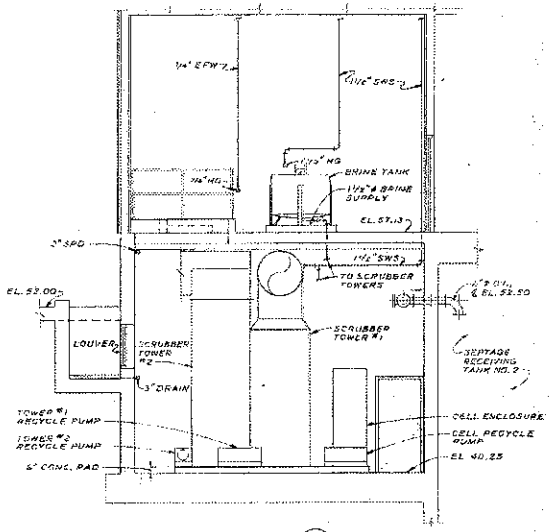




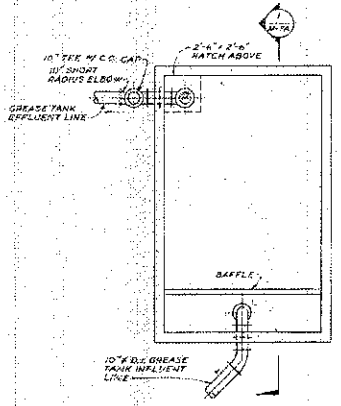
SECTION 1 (M-7A)



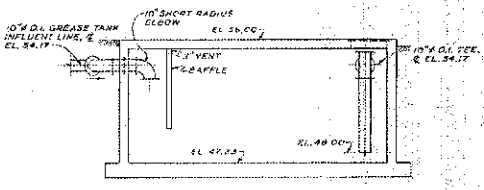
SECTION 3 (M-7)



SECTION 2 (M-7)



PLAN



GREASE TANK

SECTION 1 (M-7A)

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/94	T.J.T.	GENERAL
2	6/95	T.J.T.	ADDED GAS RECORD DRG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SCREENING / DEGRITTING / ODOR CONTROL ROOMS SECTIONS

SCALE: 1/4"=1'-0"

PROJECT NO. 89523

DRG. NO. M-7A

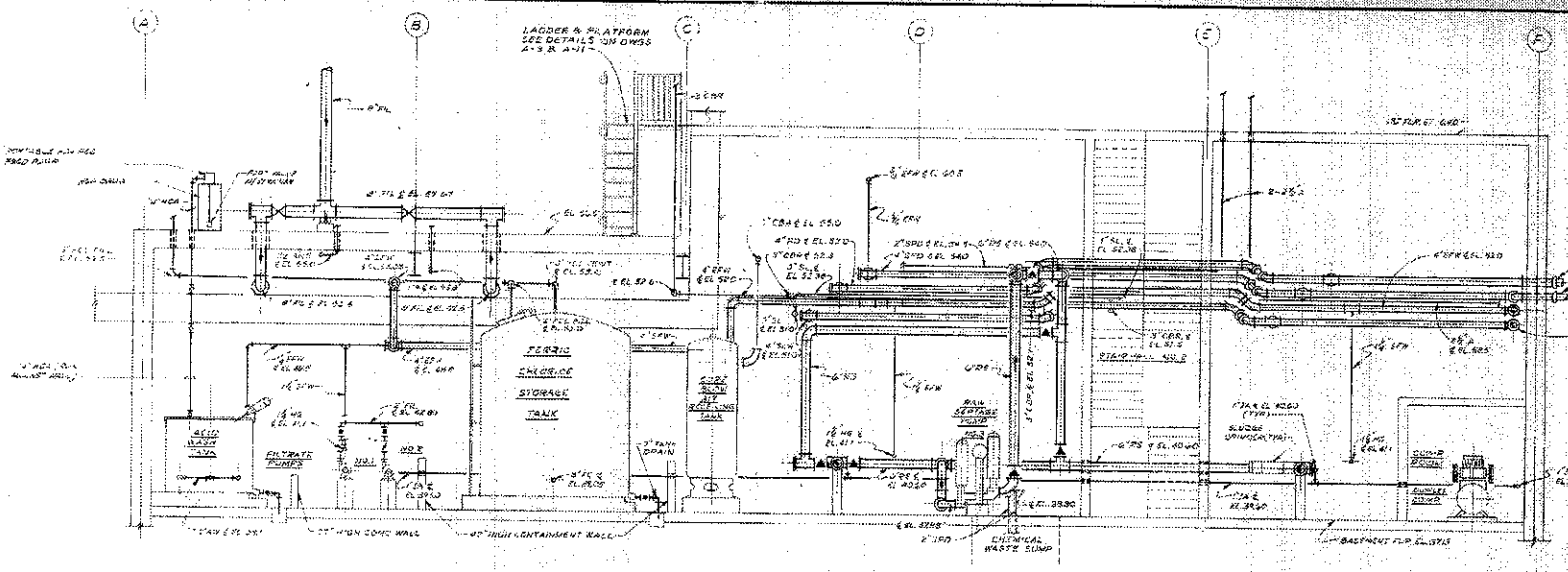
DATE: 7-1-95 | DRAWN BY: T.J.T. | CHECKED BY: G.C. Wilson

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

M-01735-1

ENV. 59623 M-8


LADDER & PLATFORM SEE DETAILS ON DWGS A-3 & A-11
FERRIC CHLORIDE STORAGE TANK
FILTRATE PUMPS
ACID WASH TANK
CHEMICAL WASTE SUMP
BASEMENT FLR EL 97.5
STAIR HALL NO. 2
RAIL LOADING PUMP
SLUDGE GRINDER (TYP.)
CURB EL 92.0
CURB EL 97.5
CURB EL 82.0
CURB EL 90.0
CURB EL 95.0
CURB EL 93.0
CURB EL 97.0
CURB EL 98.0
CURB EL 99.0
CURB EL 100.0
CURB EL 101.0
CURB EL 102.0
CURB EL 103.0
CURB EL 104.0
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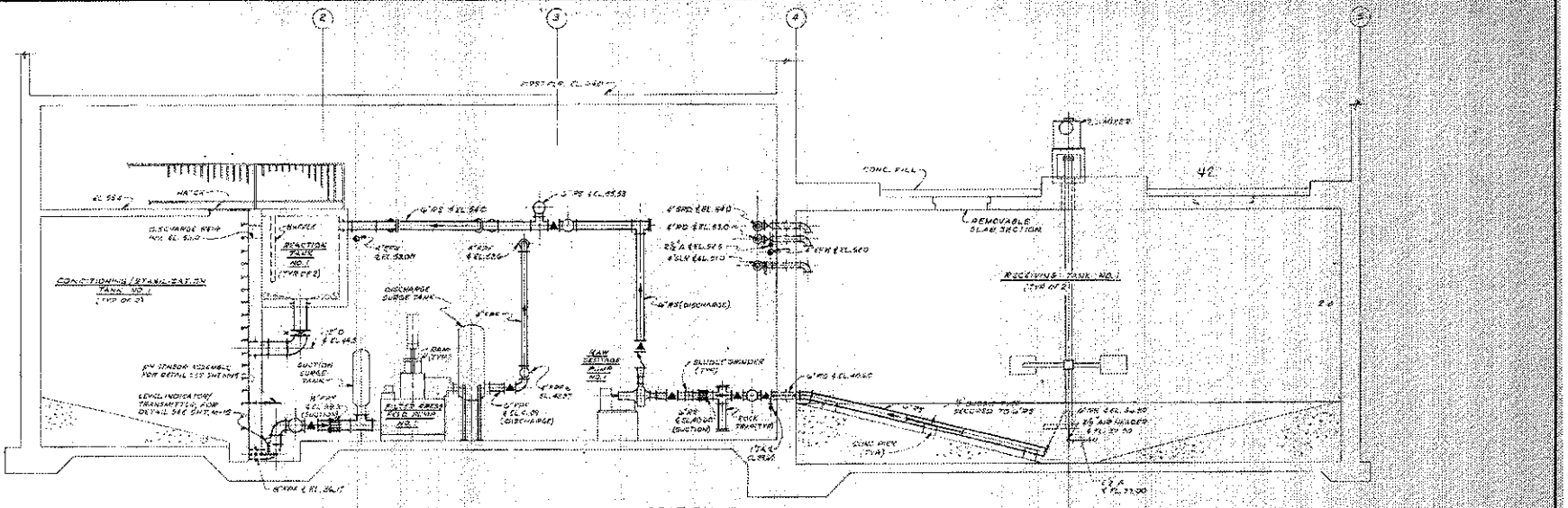
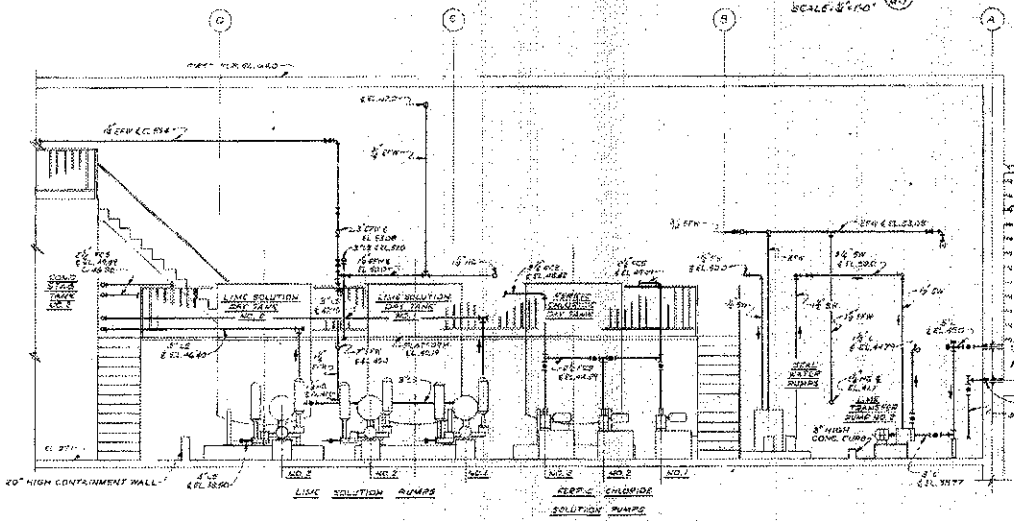
CURB EL 106.0
CURB EL 107.0
CURB EL 108.0
CURB EL 109.0
CURB EL

ENV. 59523 M-9

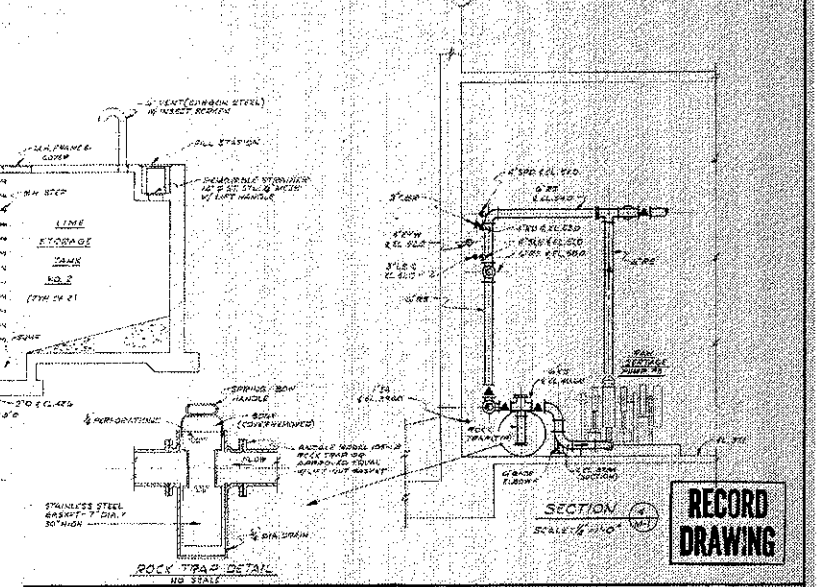
LEA



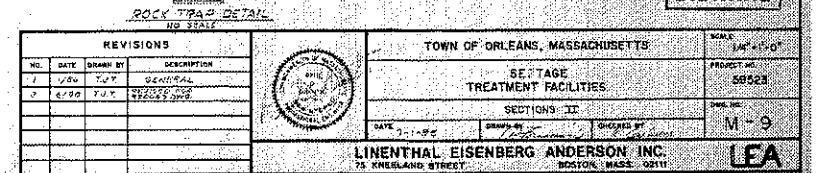
SECTION 3 M-1
SCALE: 3/4"=1'-0"



SECTION 5 M-1
SCALE: 3/4"=1'-0"



SECTION 4 M-1
SCALE: 3/4"=1'-0"



ROCK TRAP DETAIL
NO SCALE

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	T.J.Y.	GENERAL
2	6/90	T.J.Y.	OFFICES (DPW)

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SECTIONS III

SCALE: 1/4"=1'-0"

PROJECT NO. 59523

DWG. NO. M-9

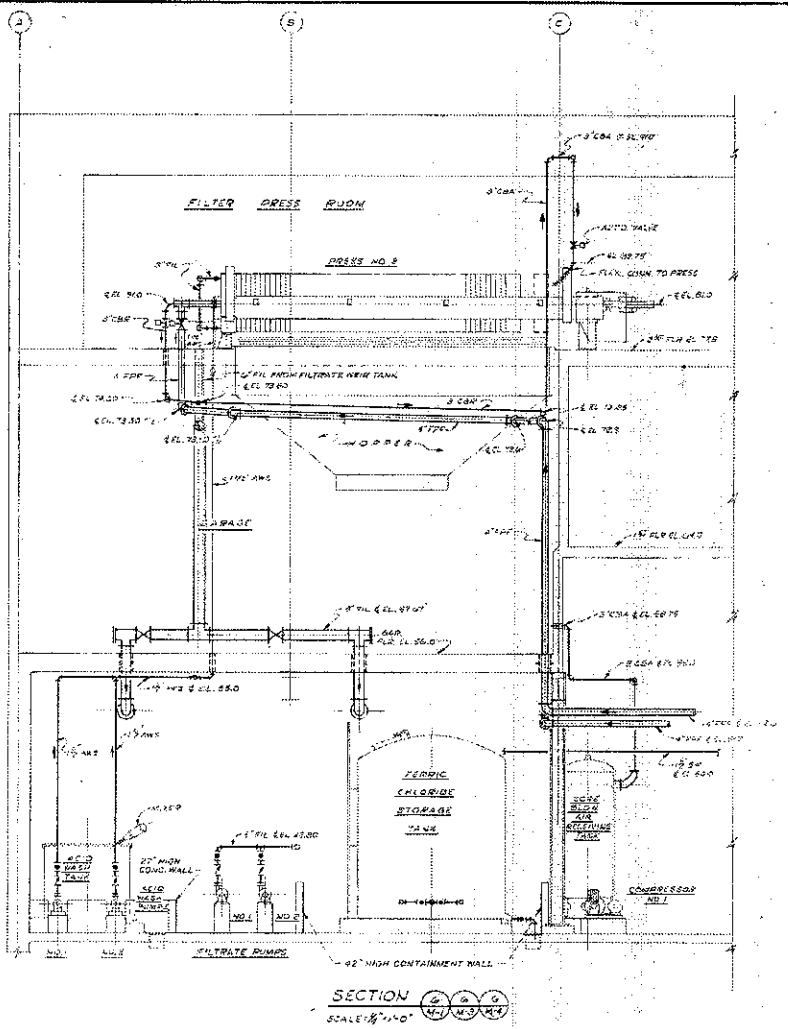
DATE 7-1-82 DRAWN BY CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-01737-1

ENV. 89523 M-10 LEA


FILTER PRESS ROOM
PRESS NO. 2
HOPPER
FERRIC CHLORIDE STORAGE TANK
SCUM BLOW AIR RECEIVING TANK
COMPRESSOR NO. 1
SCUM WASH TANK
SCUM WASH PUMPS
NO. 1
NO. 2
FILTRATE PUMPS
42" HIGH CONTAINMENT WALL
20" HIGH CONC. WALL
6" FIL. HIGH FILTRATE WASH TANK
EL. 73.80
EL. 73.50
EL. 72.10
EL. 72.85
EL. 72.0
EL. 69.0
EL. 68.75
EL. 68.0
EL. 67.50
EL. 56.0
EL. 55.0
EL. 43.50
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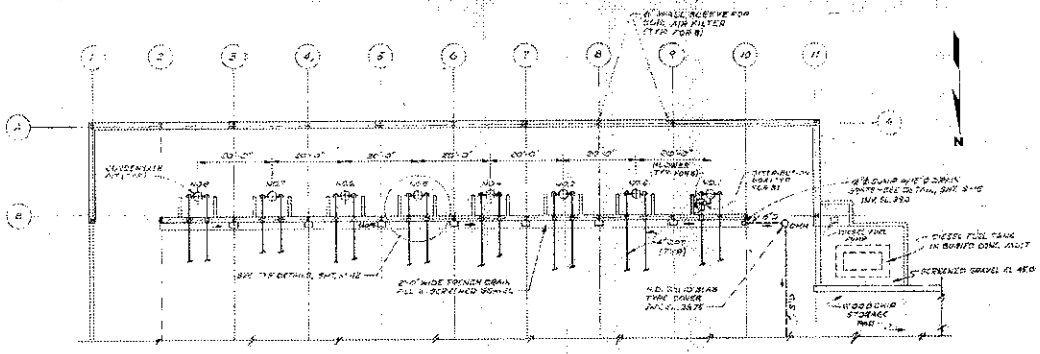
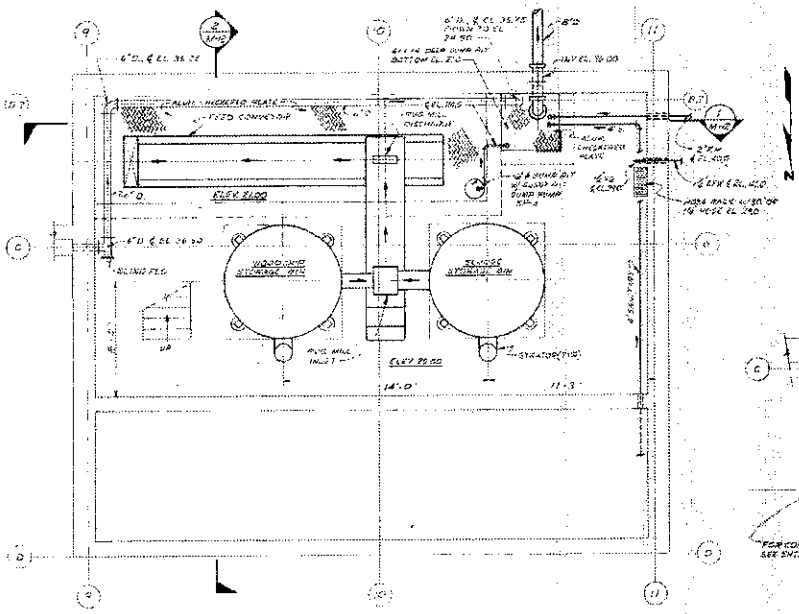
EL.

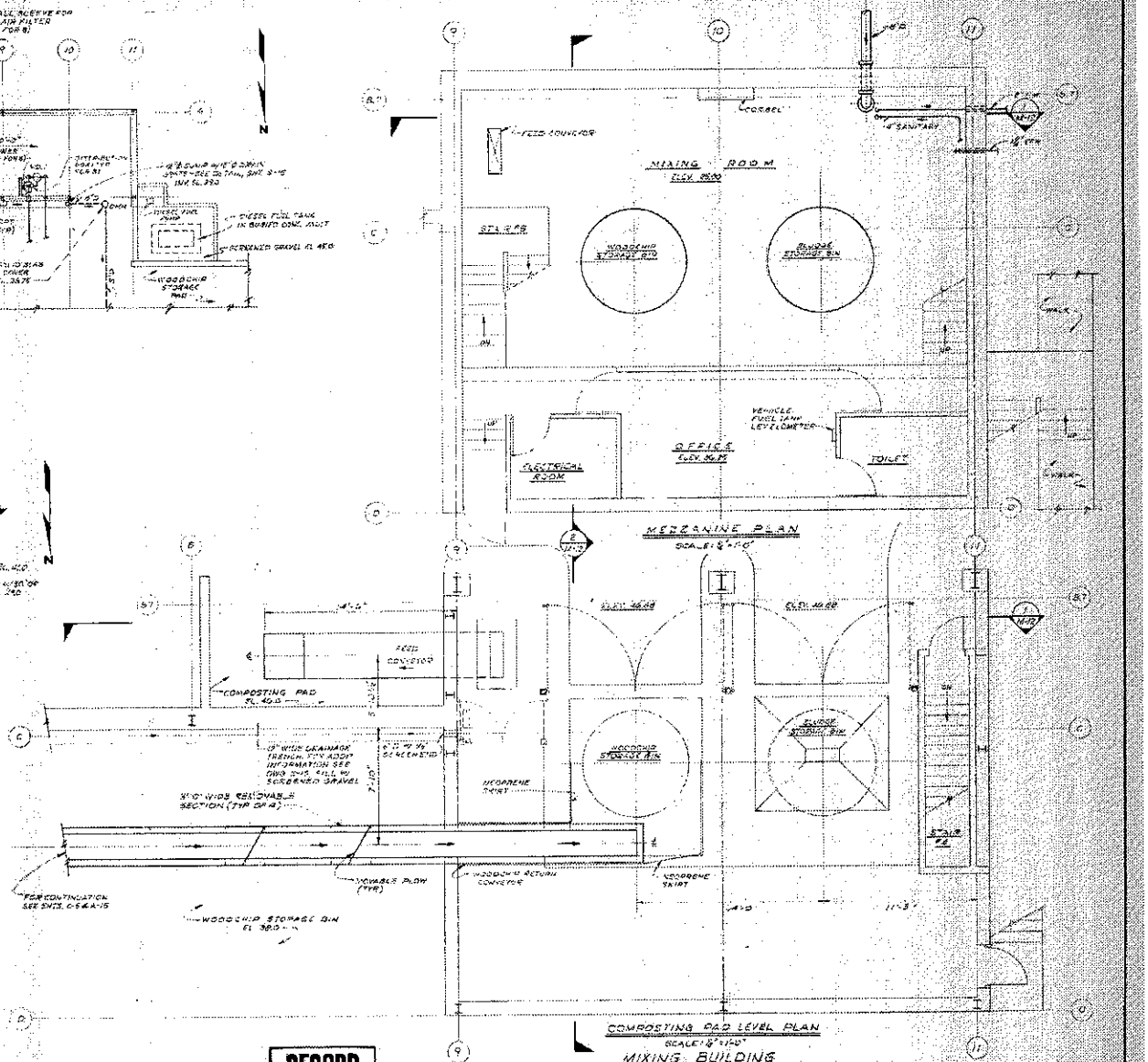
EP'81, 59523 M-11
LEA
LINENTHAL EISENBERG ANDERSON INC.



PLAN
COMPOSTING PAD
SCALE: 1/8"=1'-0"



BASEMENT PLAN
SCALE: 1/4"=1'-0"
MIXING BUILDING



MEZZANINE PLAN
SCALE: 1/4"=1'-0"

COMPOSTING PAD LEVEL PLAN
SCALE: 1/8"=1'-0"
MIXING BUILDING

RECORD DRAWING

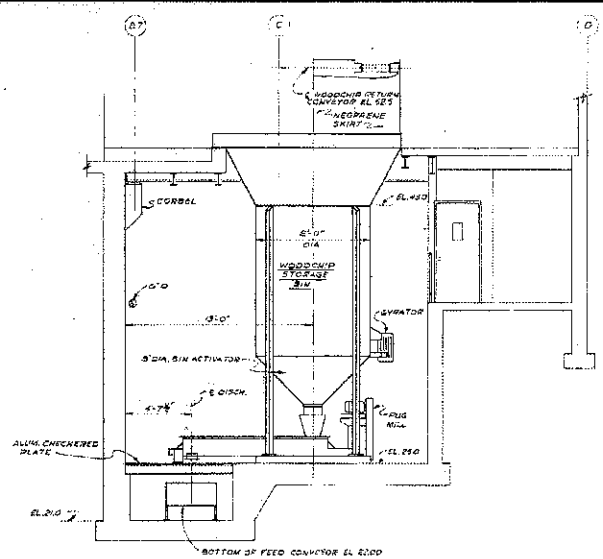
REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/80	T.J.T.	GENERAL
2	6/80	T.J.T.	SYSTEM FOR RECORD DWG

TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
MIXING BUILDING & COMPOST PAD PLANS
DATE 7-1-81 DRAWN BY ... CHECKED BY ...
SCALE AS SHOWN
PROJECT NO. 59523
DWG. NO. M-11

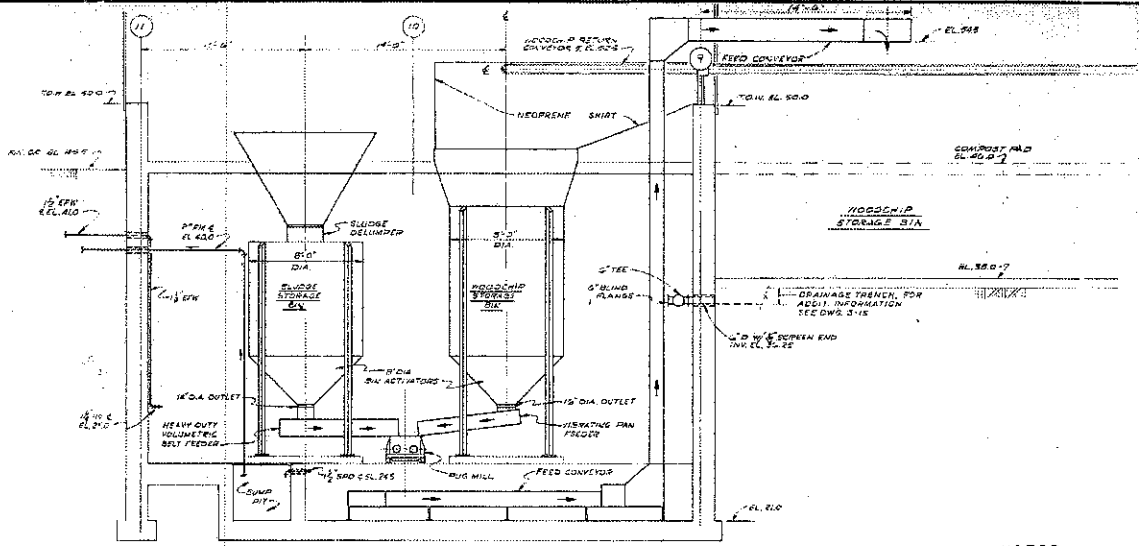
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA

M-01737-1

ENV 59523 M-12 LEA



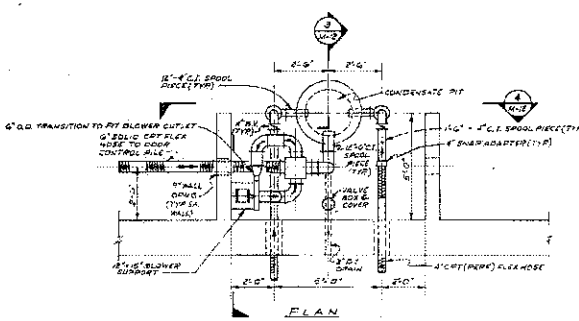
SECTION (2) (M-11)
SCALE: 3/8"=1'-0"



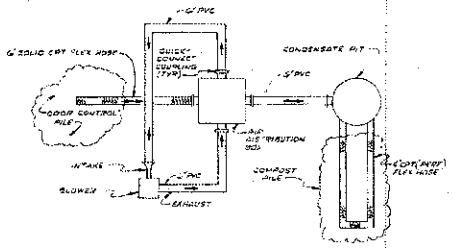
SECTION (1) (M-11)
SCALE: 3/8"=1'-0"

NOTES

1. ALL DISTRIBUTION BOX & A.D. COLLECTOR MATERIALS TO BE 1/4" THICK STEEL PLATE.
2. ALL JOINTS TO BE WELDED.
3. ALL JOINTS TO BE AIR TIGHT INCLUDING AIR DEFLECTOR & COVER.
4. QUICK-CONNECT COUPLER TO MAT. W/ PVC PIPING & PROVIDE A 2" CONNECTION.
5. PLATFORM, LEGS & HARDWARE TO BE STAINLESS STEEL.

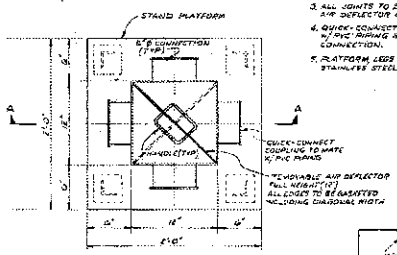


PLAN
BLOWER DETAIL
SCALE: 3/8"=1'-0"

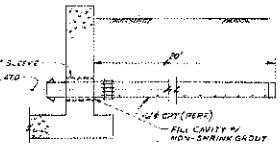


TYPICAL COMPOST BLOWER PIPING SCHEMATIC
NO SCALE

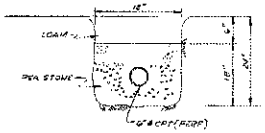
PLAN



PLAN

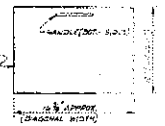


SECTION

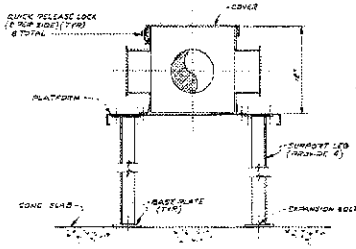


TRENCH DETAIL

SOIL AIR FILTER DETAILS
NO SCALE

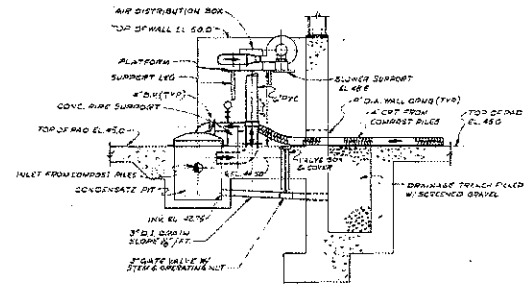


AIR DEFLECTOR DETAIL
NO SCALE

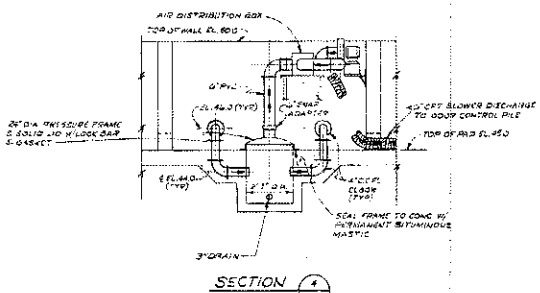


SECTION A-A

AIR DISTRIBUTION BOX DETAILS
NO SCALE



SECTION (3) (M-12)
SCALE: 3/8"=1'-0"



SECTION (4) (M-12)
SCALE: 3/8"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/96	T.J.T.	GENERAL
2	6/90	T.J.T.	REVISED PER RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

MIXING BUILDING SECTIONS

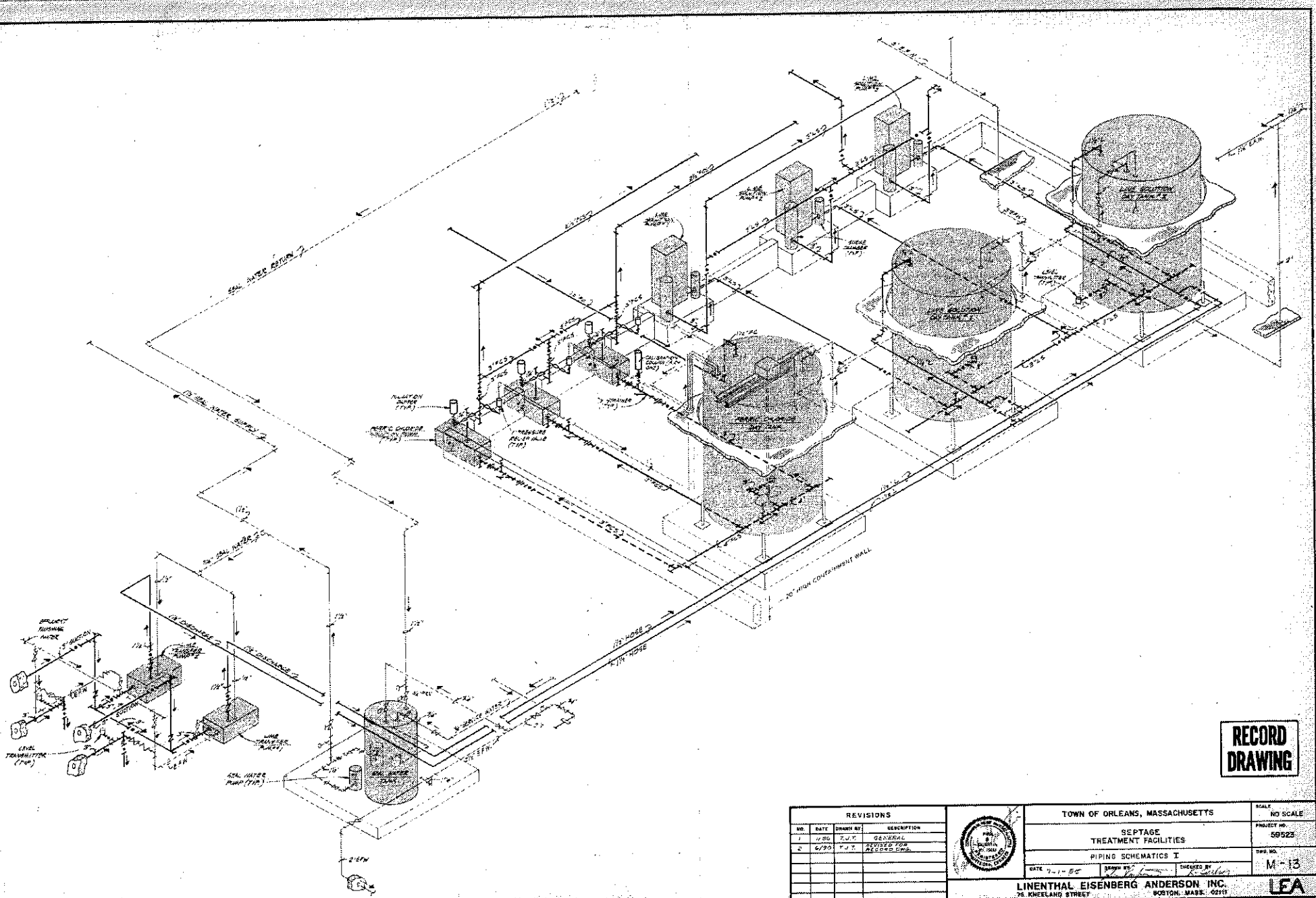
DATE 7-1-85 | DRAWN BY J.C. | CHECKED BY E. CALDWELL

SCALE: AS SHOWN
PROJECT NO. 59523
DWG. NO. M-12

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-01740-1



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.T.	GENERAL
2	6/90	T.J.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

PIPING SCHEMATICS I

SCALE: NO SCALE

PROJECT NO.: 59523

DWG. NO.: M-13

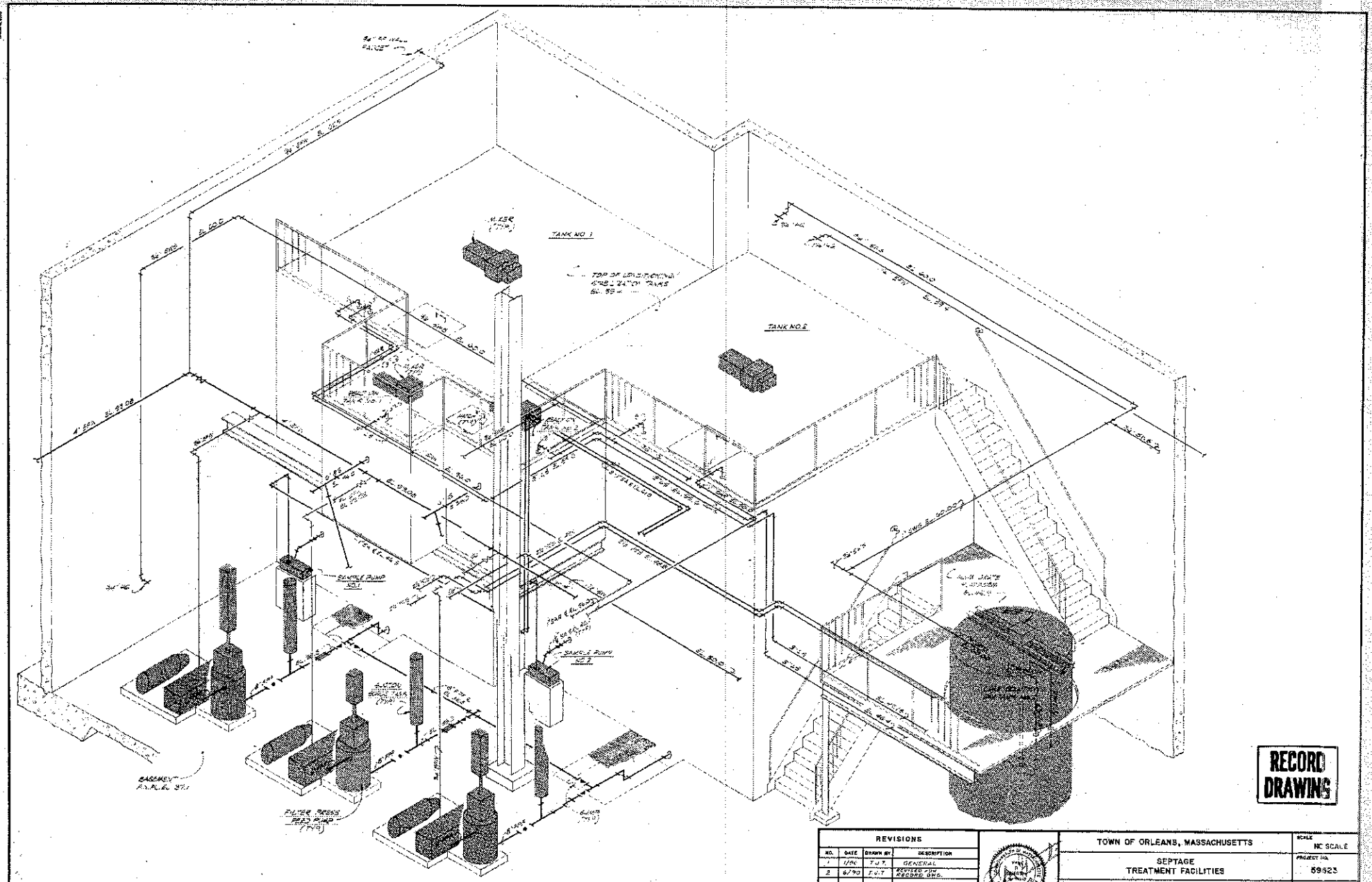
DATE: 7-1-85 DRAWN BY: [illegible] CHECKED BY: [illegible]

LINENTHAL EISENBERG ANDERSON INC.
76 KNEELAND STREET BOSTON, MASS. 02111

LEA

M-01741-1

ENV. 59523 M-13 LEA



REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/96	T.J.T.	GENERAL
2	6/90	T.J.T.	REVISED FOR RECORD DRG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

PIPING SCHEMATICS III

SCALE: NO SCALE

PROJECT NO. 89823

DWG. NO. M-14

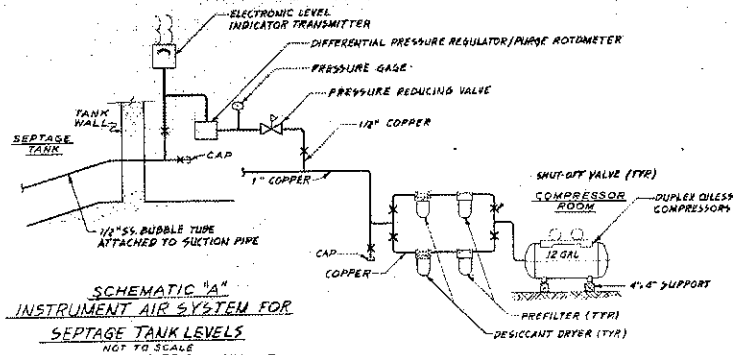
DATE: 1-9-96 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

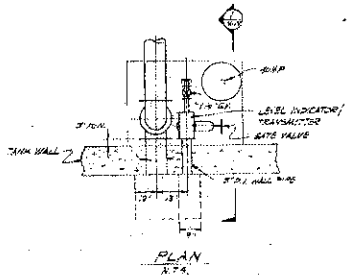
ENV. 89823 M-14 LEA

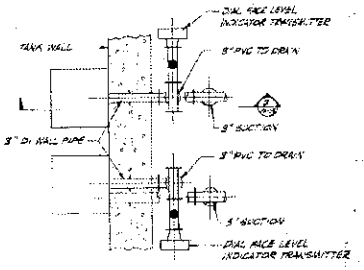
EN° 59523 M-15

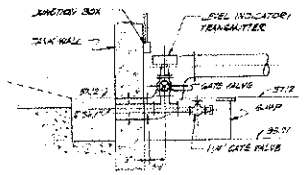


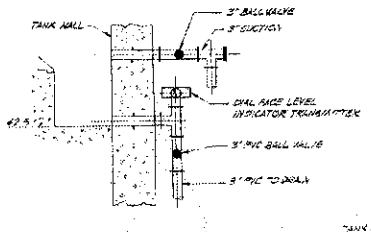
SCHEMATIC "A"
INSTRUMENT AIR SYSTEM FOR
SEPTAGE TANK LEVELS
NOT TO SCALE

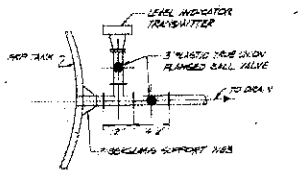
NOTES: 1. FILTRATE TANK SIMILAR.
2. FOR ADDITIONAL INFORMATION REFER TO FISCHER & PORTER SHOP DWGS.

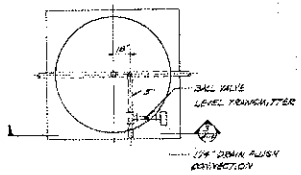


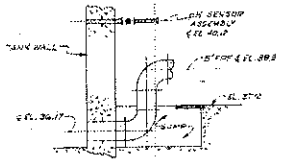


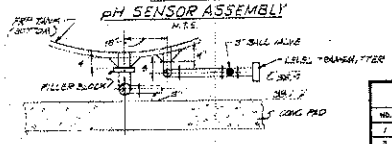


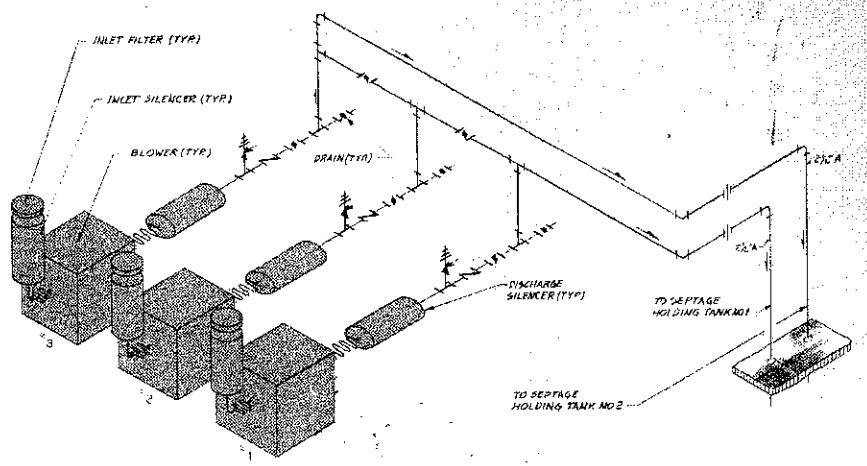




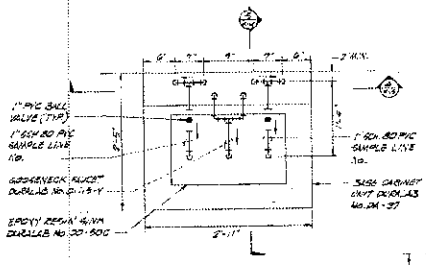


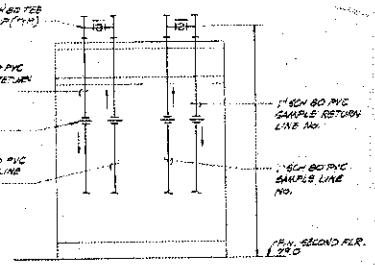


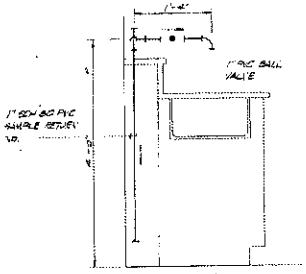




LOW PRESSURE AIR PIPING SCHEMATIC
BLOWER ROOM







RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.T	GENERAL
2	6/90	T.J.T	ADDED FOR PROCESS DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

MISCELLANEOUS DETAILS I

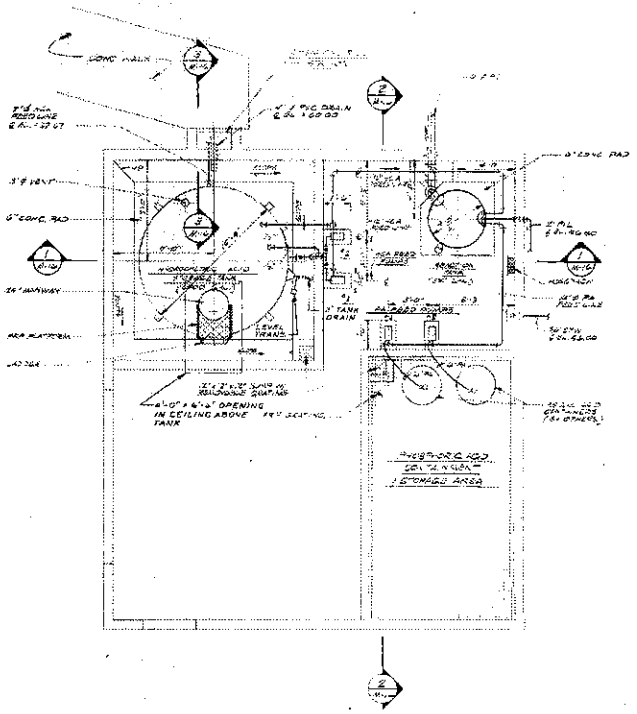
SCALE: NO SCALE | PROJECT NO.: 59524 | DWG. NO.: M-15

DATE: 7-1-85 | DRAWN BY: [illegible] | CHECKED BY: [illegible]

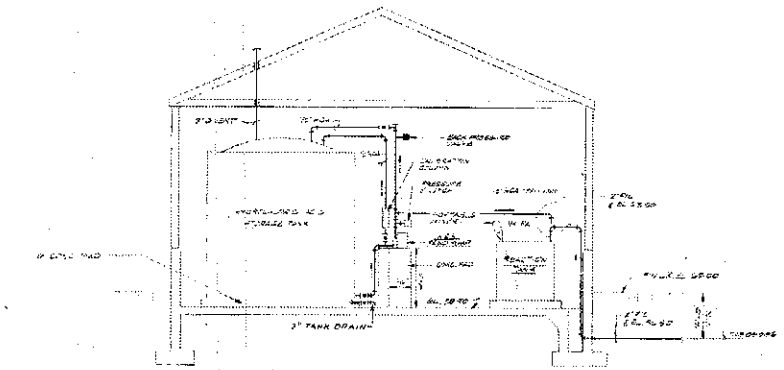
LINENTHAL EISENBERG ANDERSON, INC.
28 KILBELAND STREET BOSTON, MASS. 02111

LEA

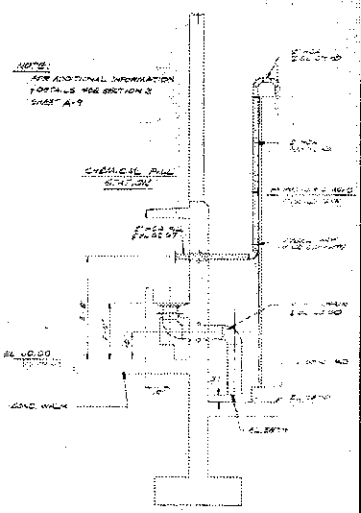
11-01-0243-1



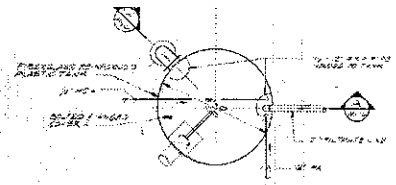
PLAN



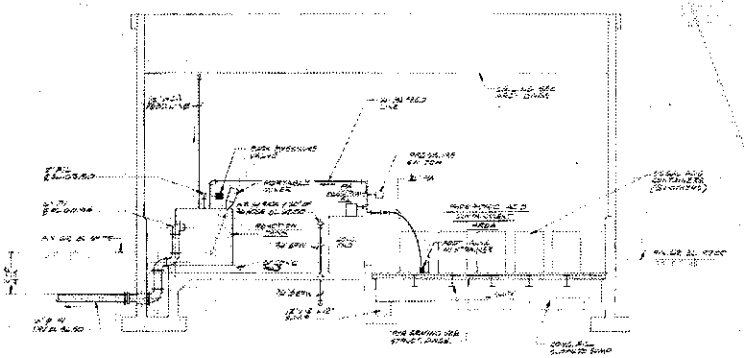
SECTION



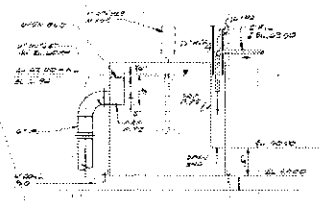
SECTION



PLAN



SECTION



SECTION

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	11/84	T.J.T.	GENERAL
2	6/85	T.J.T.	REVISED PER RECORD DWG.
3	8/85	T.J.T.	REVISED PER RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

CHEMICAL FEED BUILDING - PLAN, SECTIONS & DETAILS

SCALE: AS SHOWN

PROJECT NO. 59523

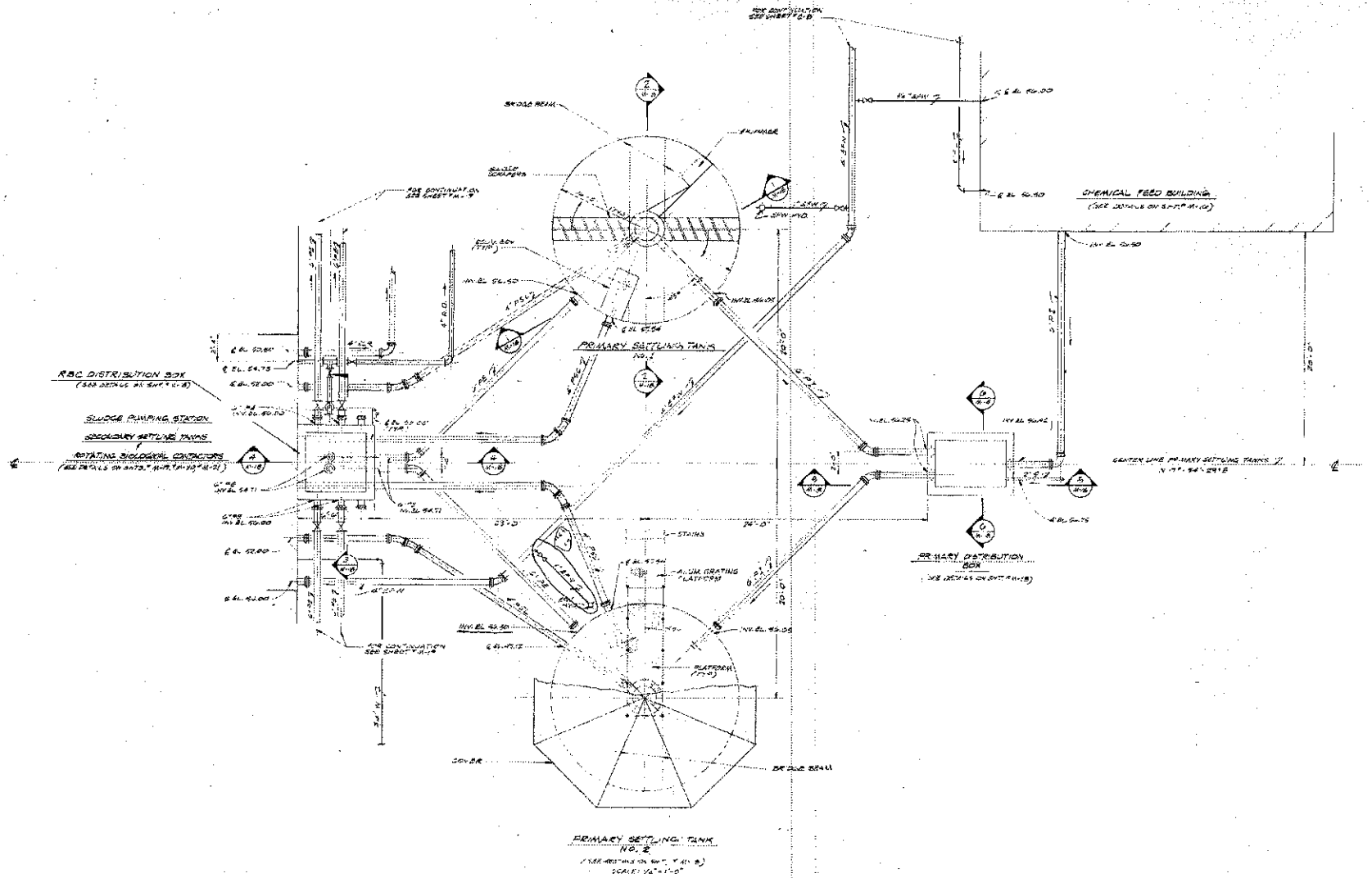
DWG. NO. M-16

DATE 7-1-85 DRAWN BY CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-017c4-1



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/88	T.J.T.	GENERAL
2	6/89	T.J.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

PRIMARY SETTLING TANK PIPING & DETAILS

SCALE: AS SHOWN

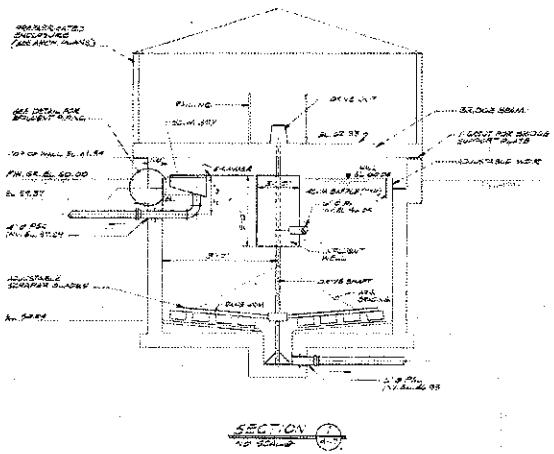
PROJECT NO. 59523

DRAWING NO. M-7

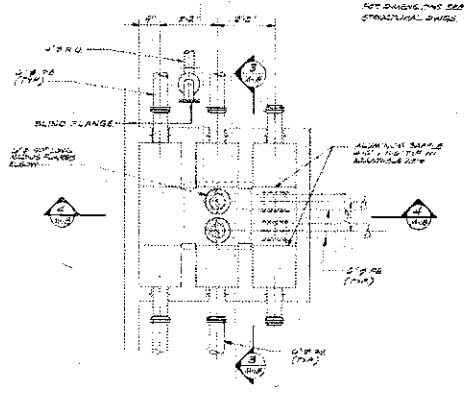
DATE: 7-87 DRAWN BY: T.J.T. PROJECT NO.

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS.

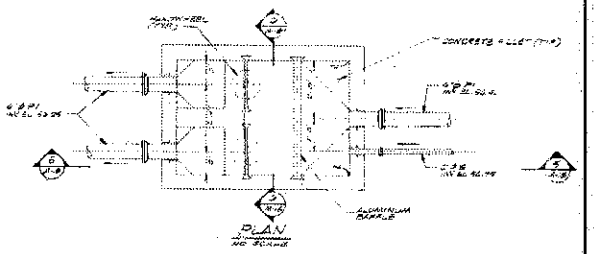
LEA



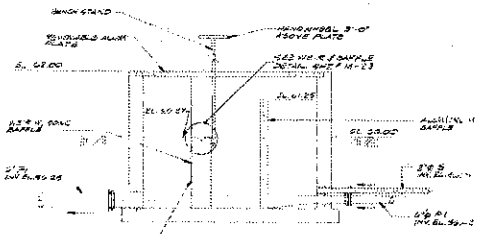
SECTION (1/M-8)
NO SCALE



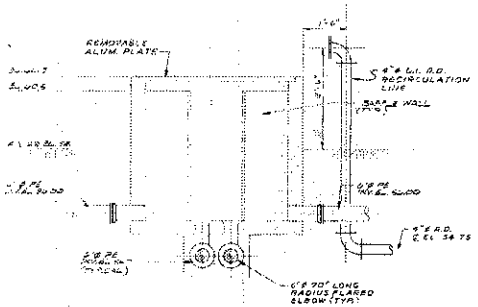
PLAN
1" = 1'-0"



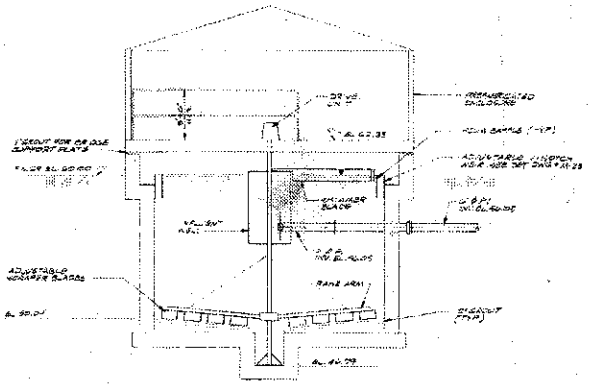
PLAN
NO SCALE



SECTION (3/M-8)
NO SCALE

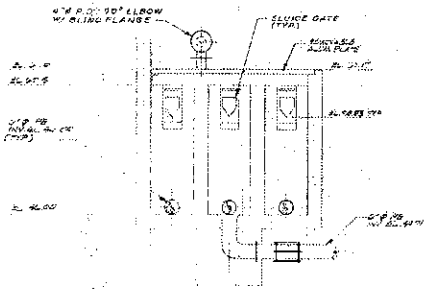


SECTION (2/M-8)
NO SCALE



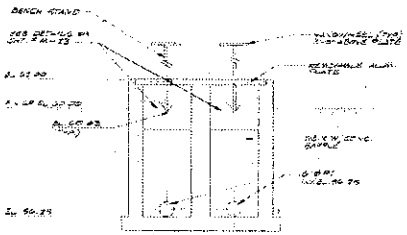
SECTION (2/M-7)
NO SCALE

PRIMARY SETTLING TANKS



SECTION (4/M-8)
NO SCALE

RBC DISTRIBUTION BOX



SECTION (4/M-8)
NO SCALE

PRIMARY DISTRIBUTION BOX

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	7/84	T.J.T.	GENERAL
2	6/90	T.J.T.	RECESSED PRECAST COVER

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

PRIMARY SETTLING TANKS & MISCELLANEOUS DETAILS

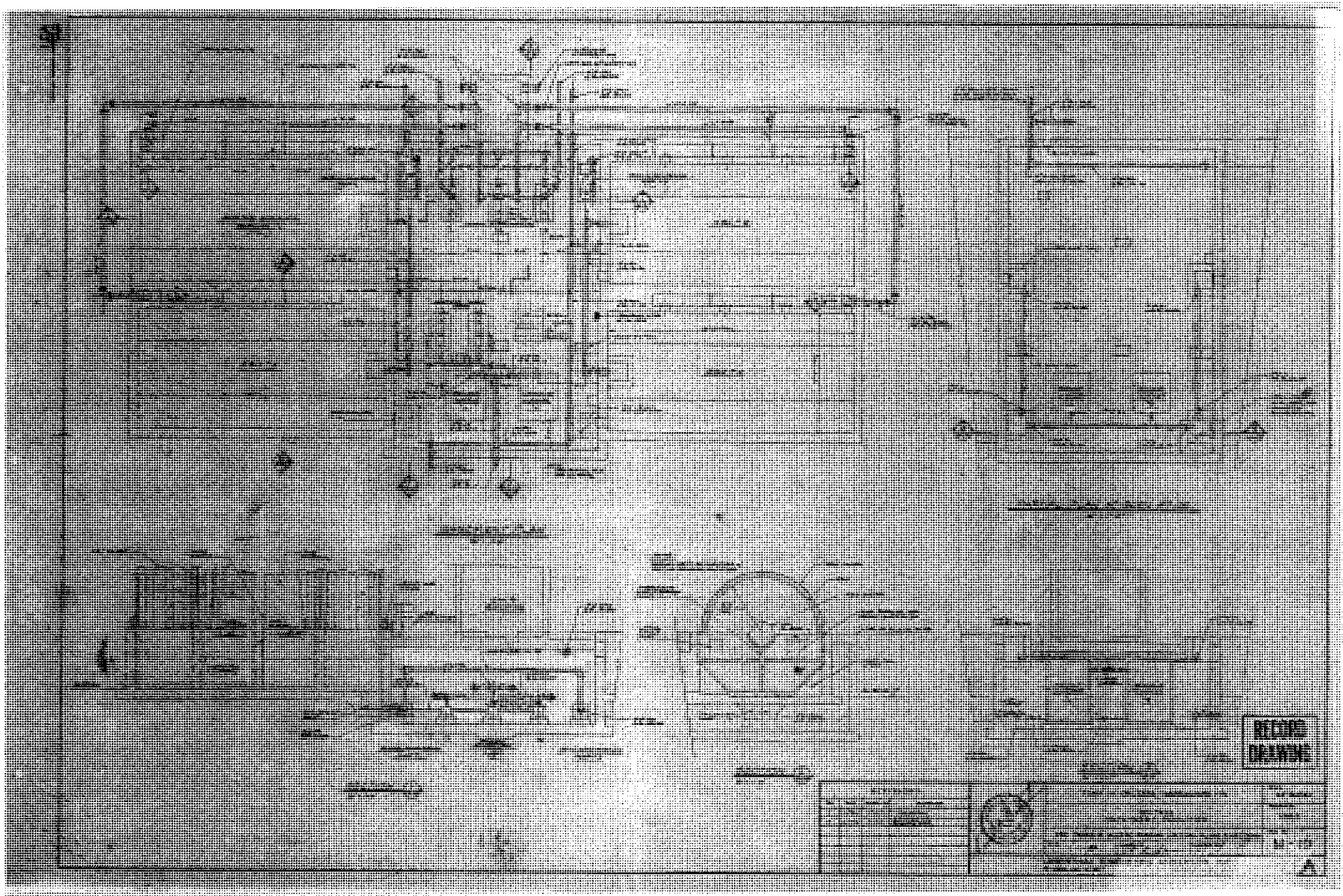
SCALE: AS SHOWN

PROJECT NO: 5952.3

DWG. NO: M-18

DATE: 7-1-85 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111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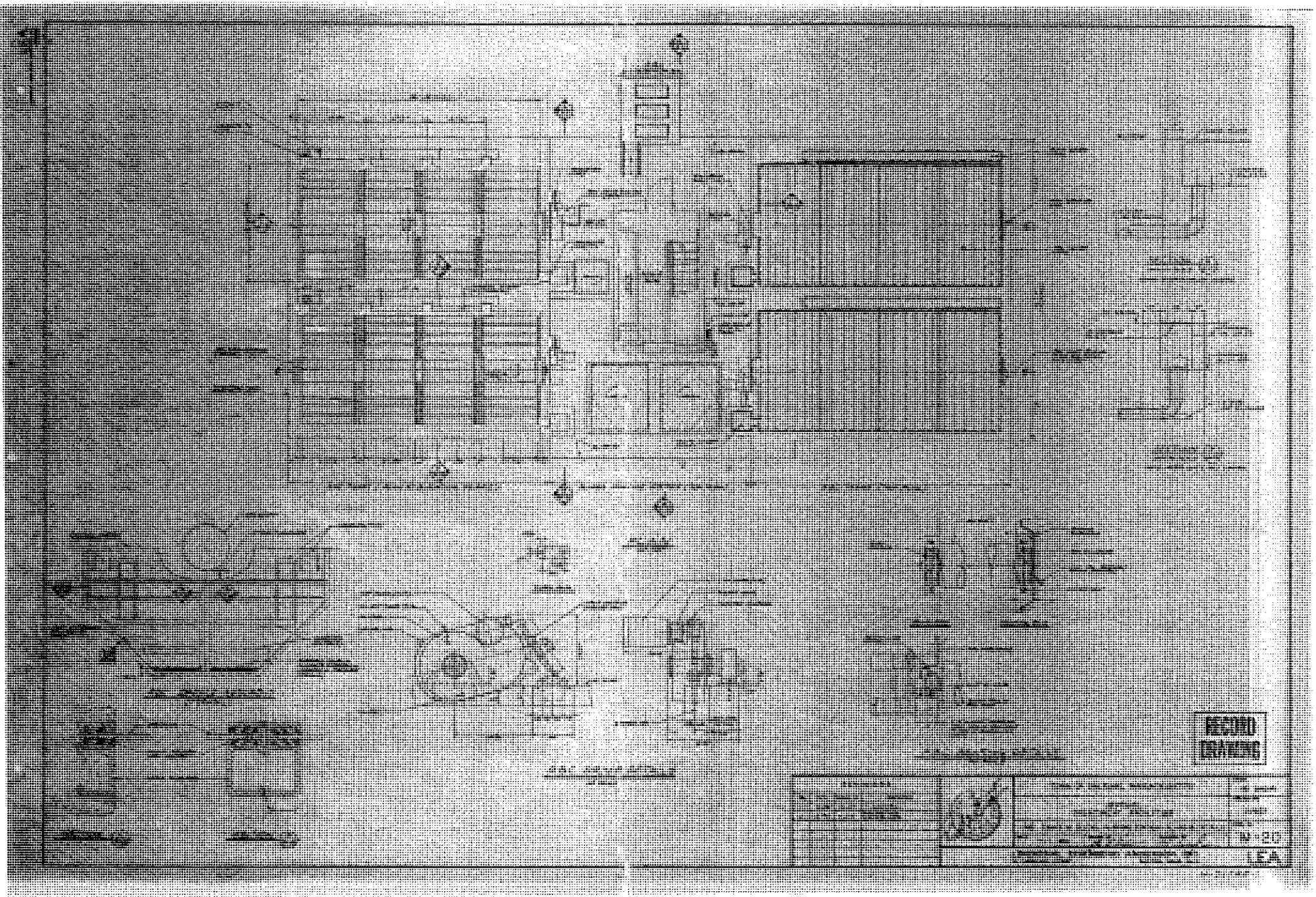
DRAWING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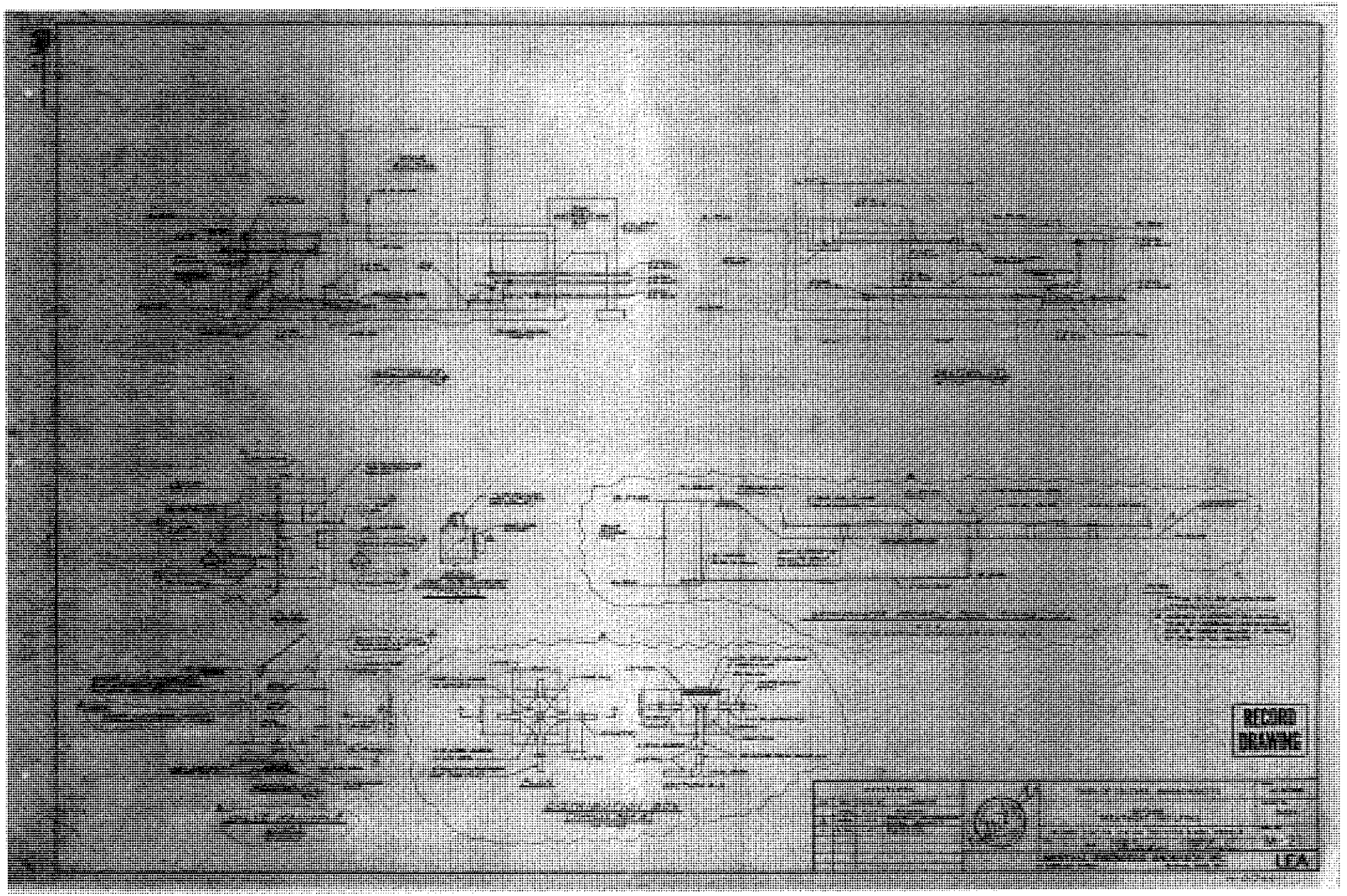
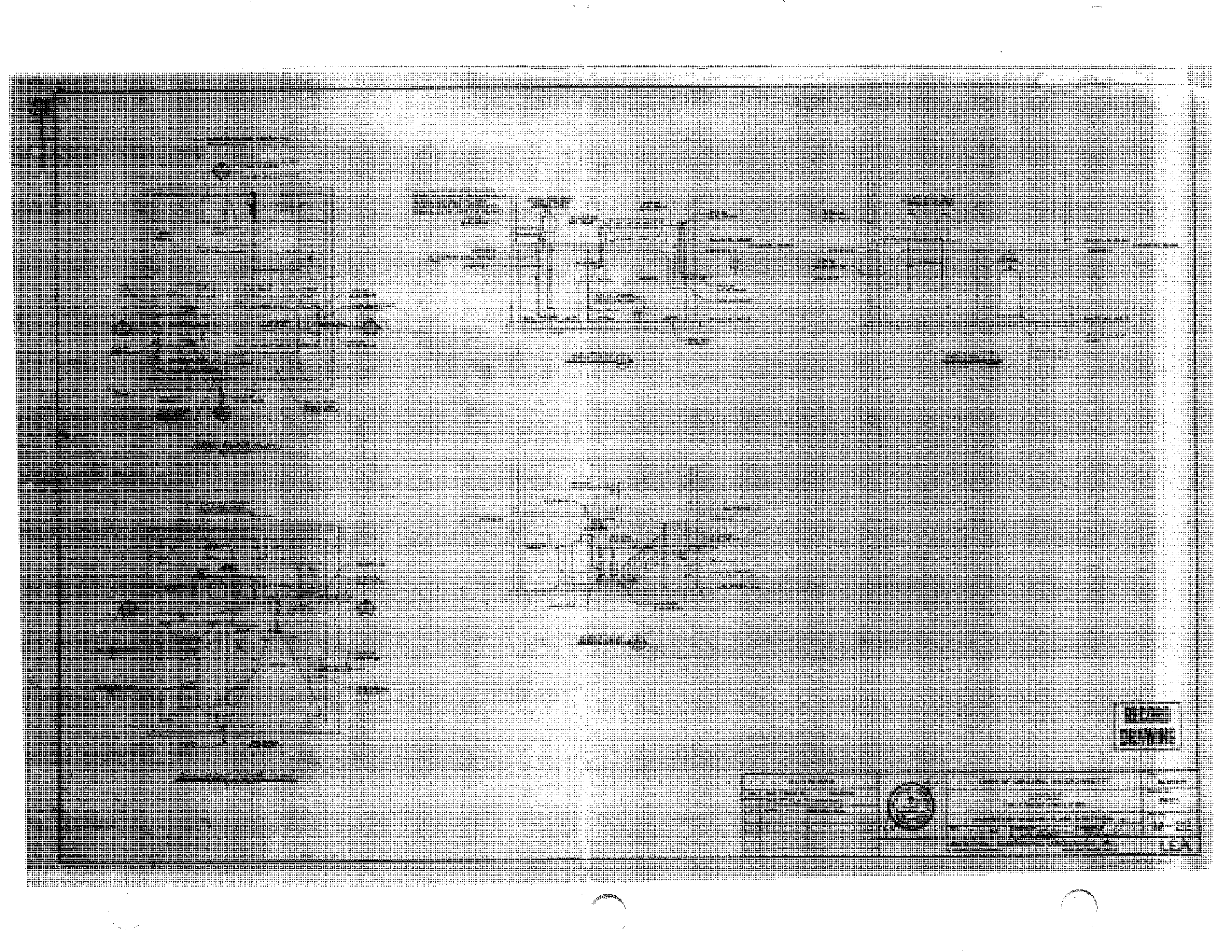
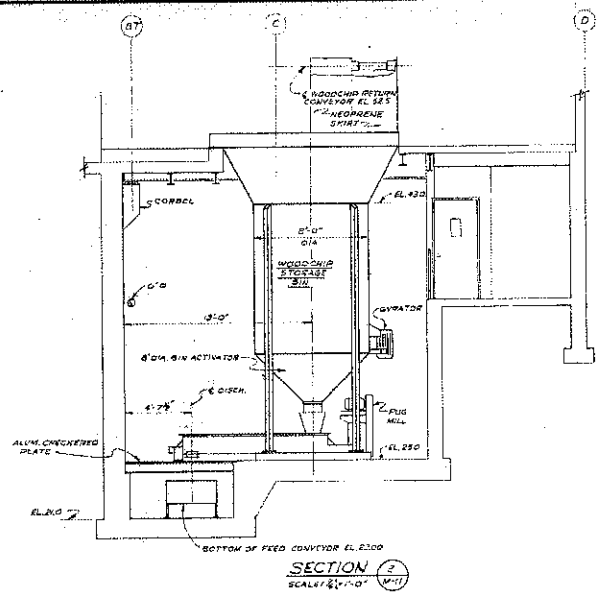
DRAWING

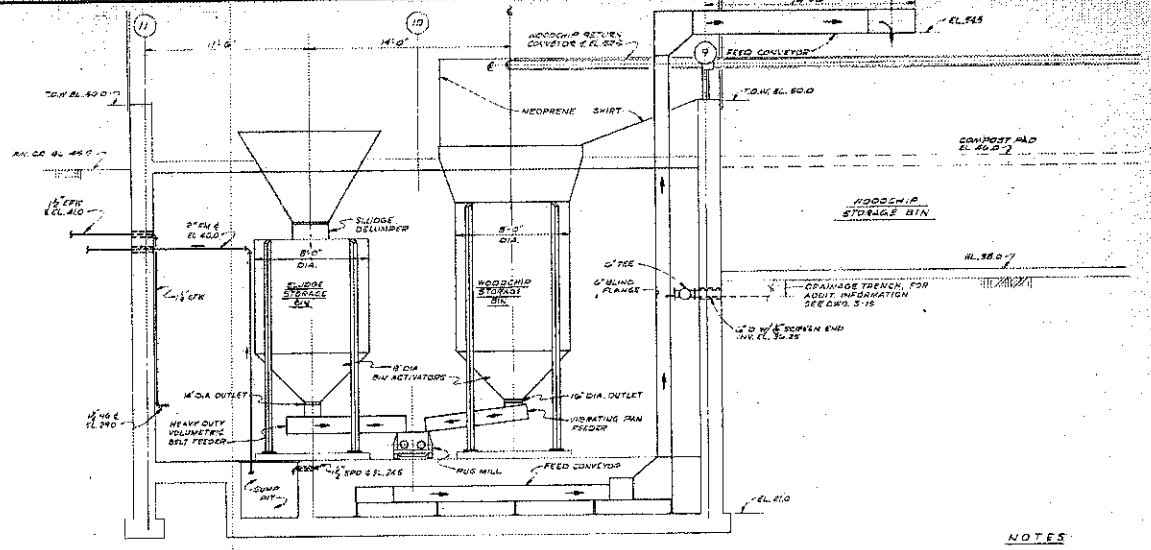

RECORD
DRAWING



ENV 59523 M-12 LEA



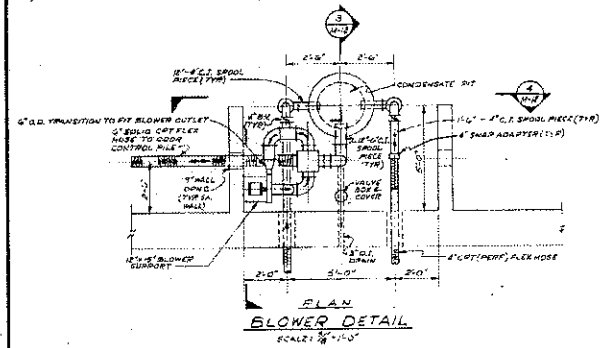
SECTION 2 / M-11
SCALE: 1/4"=1'-0"



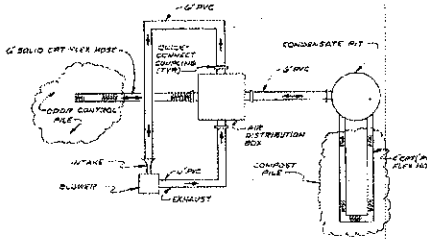
SECTION 1 / M-11
SCALE: 1/4"=1'-0"

NOTES

1. ALL DISTRIBUTION BOX & AIR DEFLECTOR MATERIALS TO BE 1/4" STAINLESS STEEL PLATE.
2. ALL JOINTS TO BE WELDED.
3. ALL JOINTS TO BE AIR TIGHT INCLUDING 1/4" DEFLECTOR & COVER.
4. QUICK-CONNECT COUPLER TO MATE W/ PVC PIPING & PROVIDE AIR-TIGHT CONNECTION.
5. PLATFORM, LEGS & HANDRAIL TO BE STAINLESS STEEL.

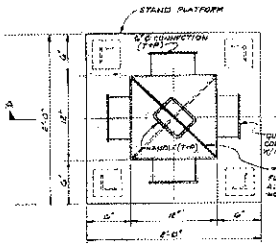


PLAN
BLOWER DETAIL
SCALE: 1/4"=1'-0"

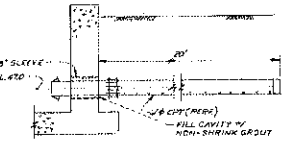


TYPICAL COMPOST BLOWER PIPING SCHEMATIC
NO SCALE

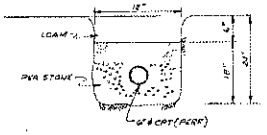
PLAN



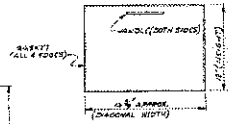
PLAN



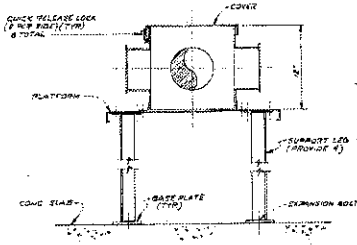
SECTION



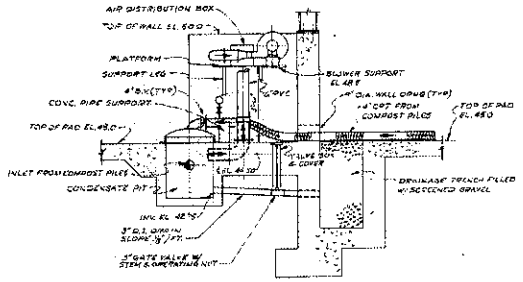
TRENCH DETAIL
SOIL AIR FILTER DETAILS
NO SCALE



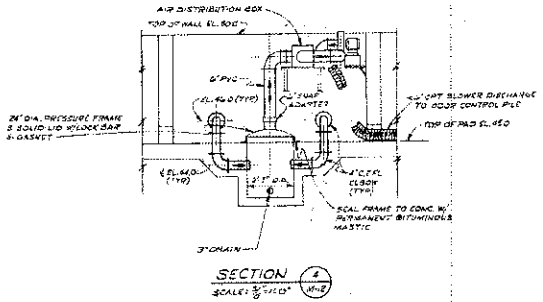
AIR DEFLECTOR DETAIL
NO SCALE



SECTION A-A
AIR DISTRIBUTION BOX DETAILS
NO SCALE



SECTION 3 / M-12
SCALE: 3/4"=1'-0"



SECTION 4 / M-12
SCALE: 3/4"=1'-0"

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/81	T.V.T.	GENERAL
2	6/90	T.V.T.	REVISED FOR RECORD DWG.

RECORD DRAWING

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

MIXING BUILDING SECTIONS

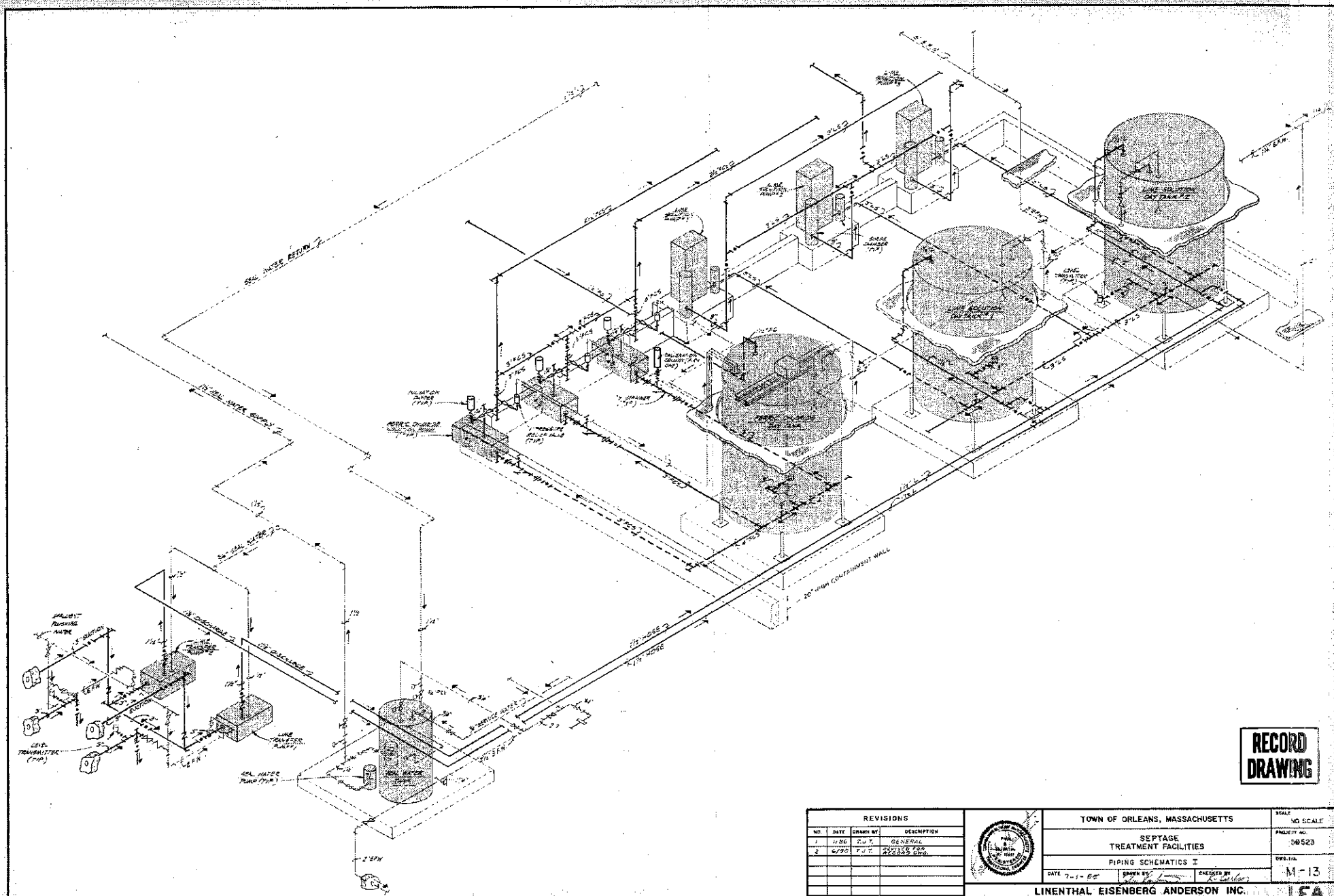
SCALE: AS SHOWN
PROJECT NO. 59523
DWG. NO. M-12
DATE 7-1-85
DRAWN BY: JJF
CHECKED BY:

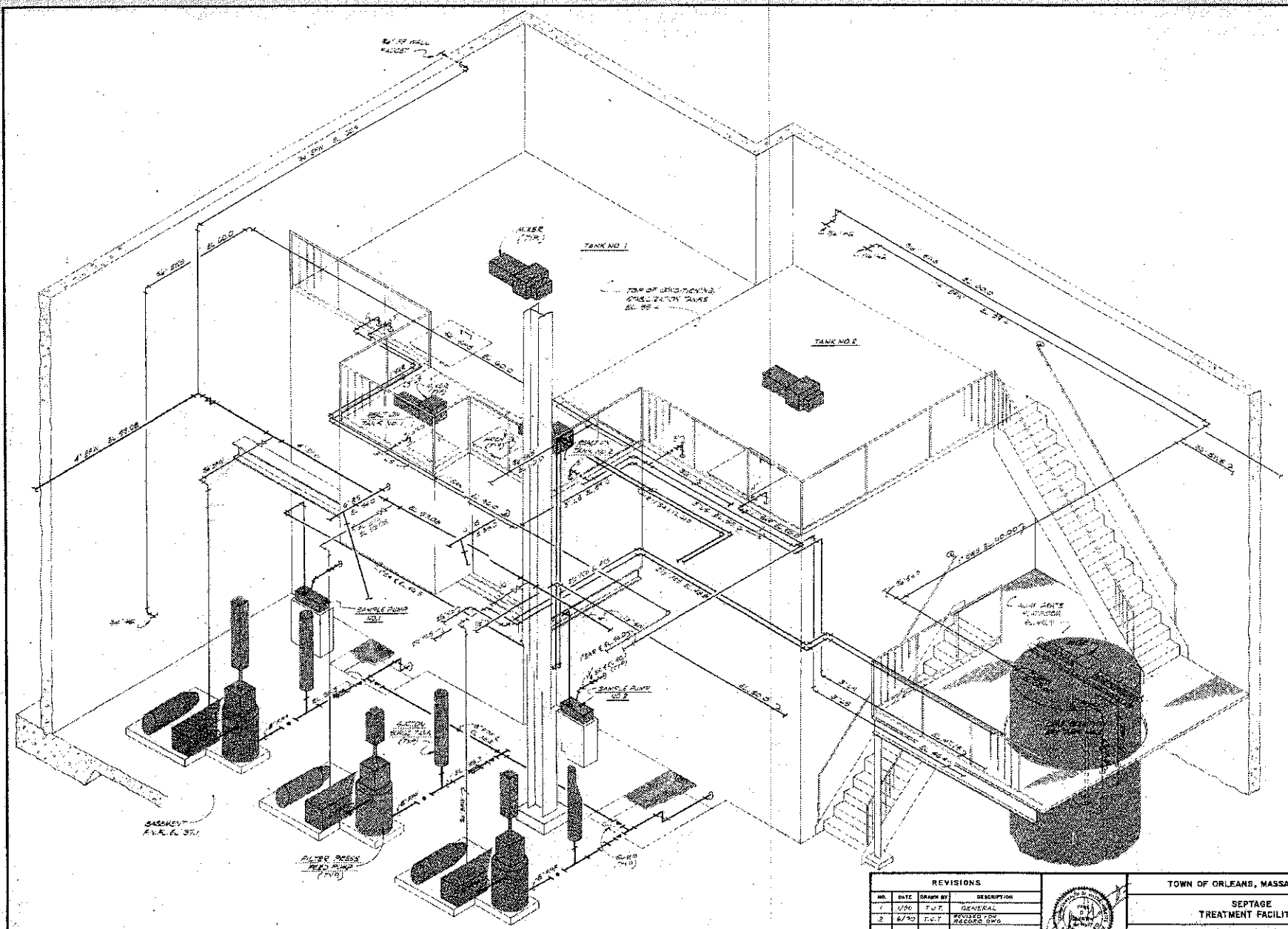
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

H-01140-1

ENV. 59523 M-13 LEA


55% SLUDGE RETURN
15% SEAL WATER SUPPLY
SEAL WATER PUMPS (TYP.)
SLUDGE PUMPS (TYP.)
SLUDGE PUMP SUCTION HEADER
SLUDGE PUMP DISCHARGE HEADER
SLUDGE RECIRCULATION HEADER
SLUDGE RECIRCULATION VALVE (TYP.)
SLUDGE RECIRCULATION VALVE (TYP.)
SLUDGE RECIRCULATION VALVE (TYP.)



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/90	T.O.T.	GENERAL
2	6/90	T.O.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

PIPING SCHEMATICS II

SCALE: NO SCALE

PROJECT NO.: 59523

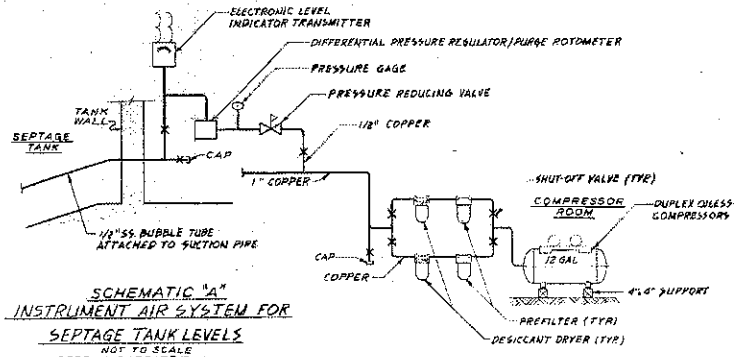
DWG. NO.: M-14

DATE: 1-9-89 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

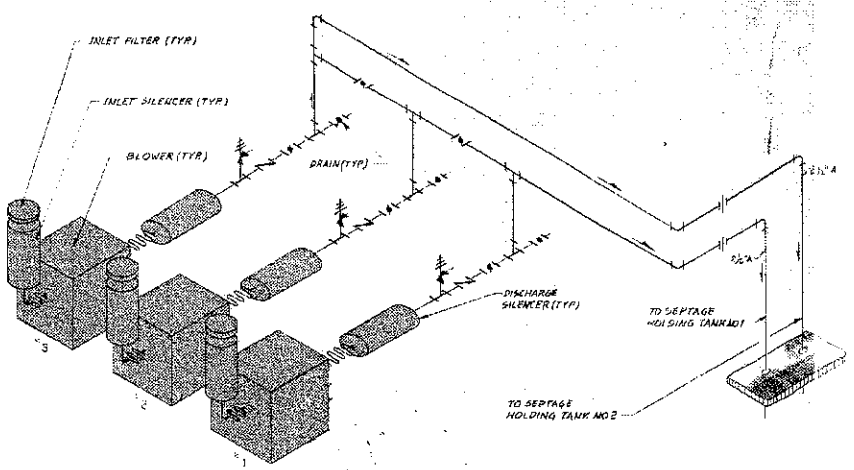
EW 59523 M-14 LEA



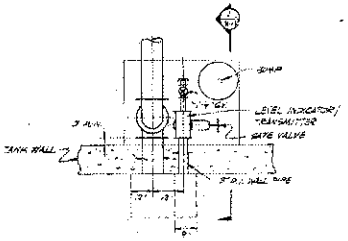
SCHEMATIC "A" INSTRUMENT AIR SYSTEM FOR SEPTAGE TANK LEVELS

NOT TO SCALE

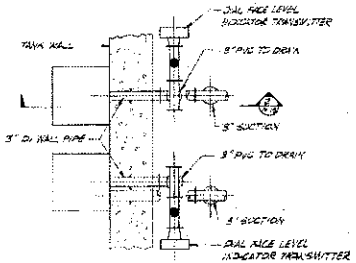
NOTES: 1. FILTRATE TANK SIMILAR.
2. FOR ADDITIONAL INFORMATION REFER TO FISCHER & PORTER SHOP DWGS.



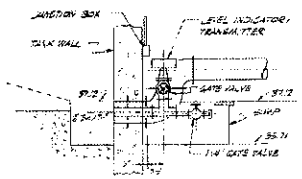
LOW PRESSURE AIR PIPING SCHEMATIC BLOWER ROOM



PLAN N.T.S.

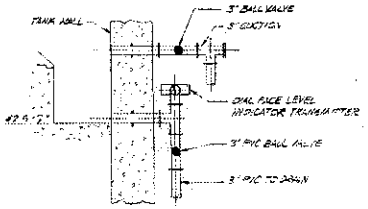


PLAN N.T.S.



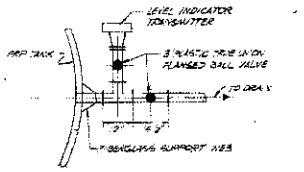
SECTION

LEVEL INDICATOR TRANSMITTER (FOR SALT TOWING / DISSOLUTION TANK) N.T.S.



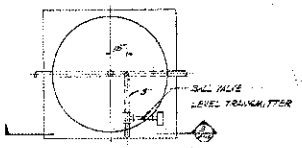
SECTION

LEVEL INDICATOR TRANSMITTER (FOR SALT LIME STORAGE TANK) N.T.S.

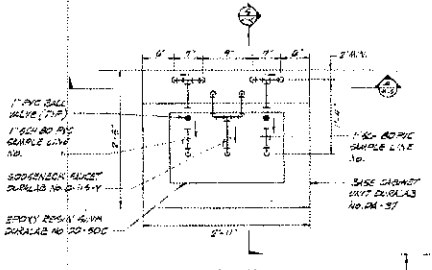


PLAN

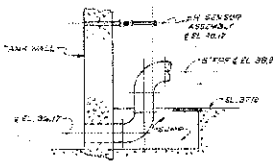
LEVEL INDICATOR TRANSMITTER (FOR ALUM TANK / FERRIC CHLORIDE STORAGE) N.T.S.



PLAN N.T.S.

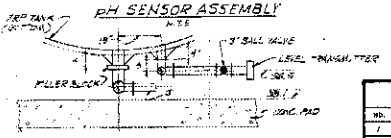


PLAN N.T.S.



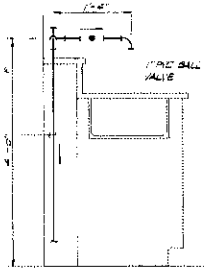
SECTION

pH SENSOR ASSEMBLY N.T.S.



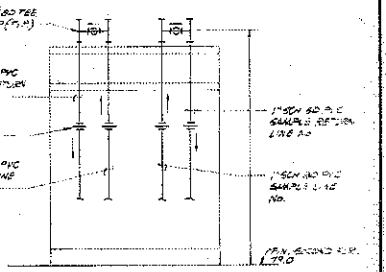
SECTION

LEVEL INDICATOR TRANSMITTER (FOR LIME & FeCl2 DAY TANKS) N.T.S.



SECTION

SAMPLE SINK (FILTER PRESS CONTROL ROOM)



SECTION

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	E.J.T	GENERAL
2	6/90	E.J.T	UPDATED FOR RECORD DWG

TOWN OF ORLEANS, MASSACHUSETTS

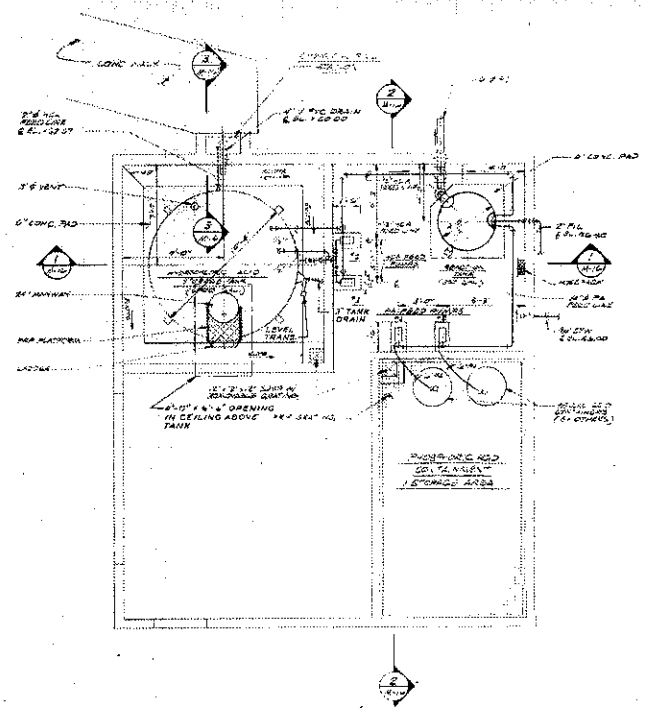
SEPTAGE TREATMENT FACILITIES

MISCELLANEOUS DETAILS I

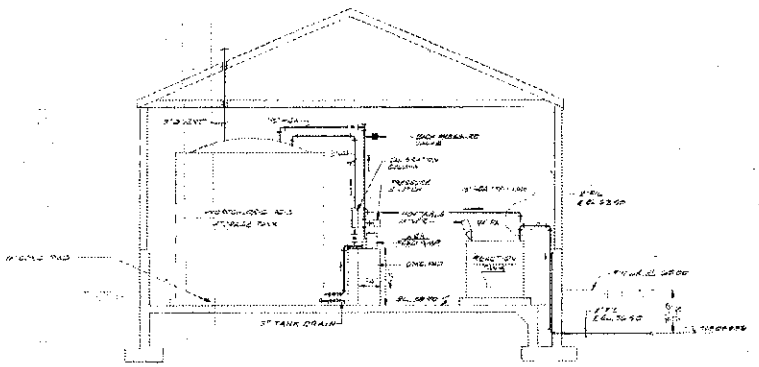
SCALE: NO SCALE
PROJECT NO: 59524
DWG NO: M-15
DATE: 2-1-85
DRAWN BY: E.J.S
CHECKED BY: R. Carlson

LINENTHAL EISENBERG ANDERSON INC.
75 RHEELAND STREET BOSTON, MASS. 02111

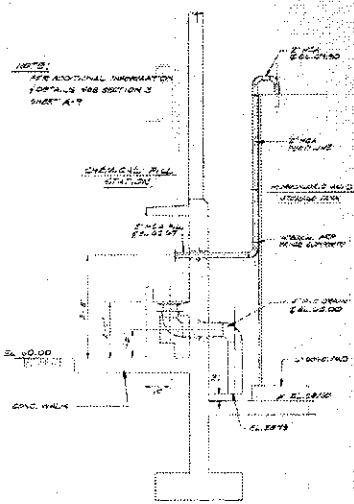
LEA



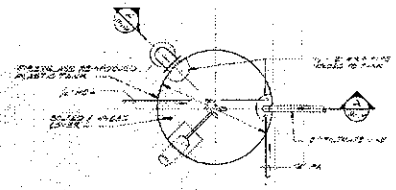
PLAN



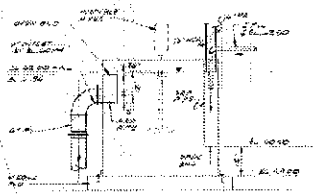
SECTION



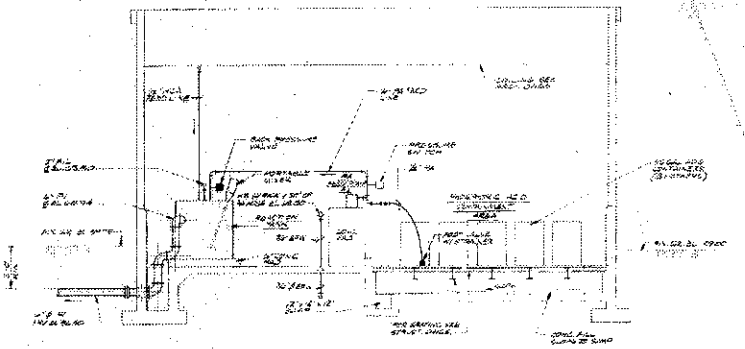
SECTION



PLAN



SECTION



SECTION

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	7/81	T.J.T.	GENERAL
2	6/30	T.J.T.	REVISED FOR RECORD DWG.
3	2/82	F.E.M.	ADD'L SEED FOR ADDITIONAL DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

CHEMICAL FEED BUILDING - PLAN, SECTIONS & DETAILS

SCALE: AS SHOWN

PROJECT NO.: 59525

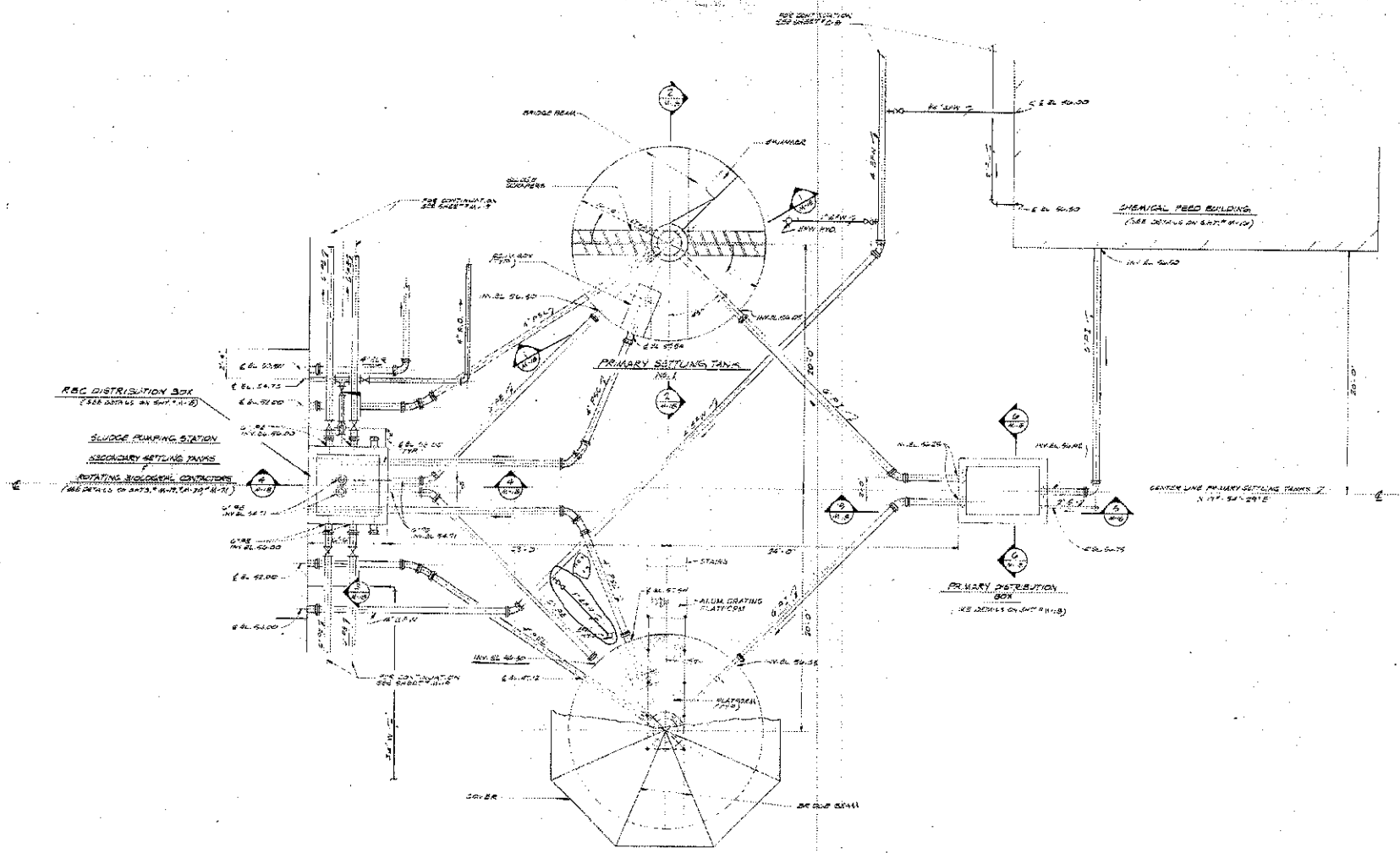
DWG. NO.: M-16

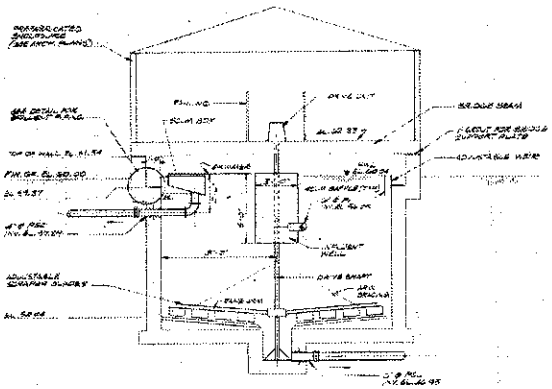
DATE: 7-1-82 | DRAWN BY: [illegible] | CHECKED BY: [illegible]

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

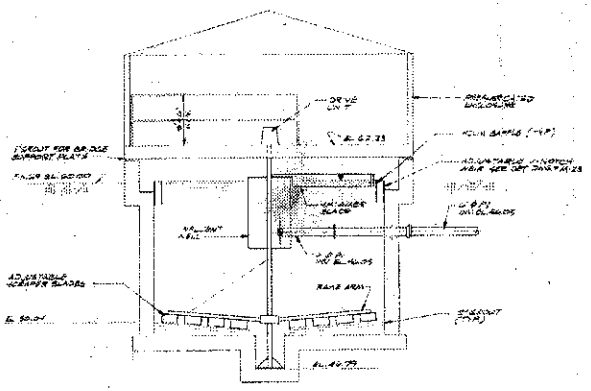
LEA

H-01744-1


BRIDGE BEAM
SKIMMER
SLUDGE SCRAPERS
PRIMARY SETTLING TANK NO. 1
RBC DISTRIBUTION BOX
SLUDGE PUMPING STATION
SECONDARY SETTLING TANKS
ROTATING BIOLOGICAL CONTACTORS
CHEMICAL FEED BUILDING
PRIMARY DISTRIBUTION BOX
CENTER LINE PRIMARY SETTLING TANKS
STAIRS
ALUM. GRATING PLATFORM
PLATFORM
SCUM BAFFLE
SCUM BAFFLE
SCUM BAFFLE

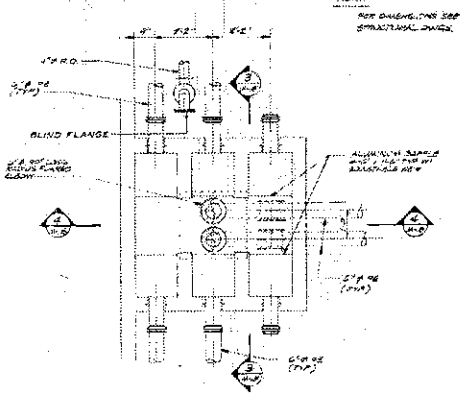


SECTION 1 — 1/2" SCALE

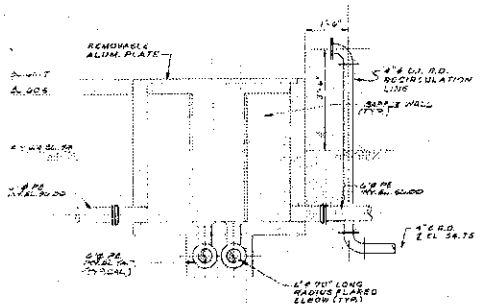


SECTION 2 — NO SCALE

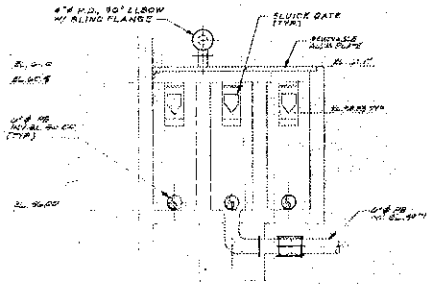
PRIMARY SETTLING TANKS



PLAN — NO SCALE

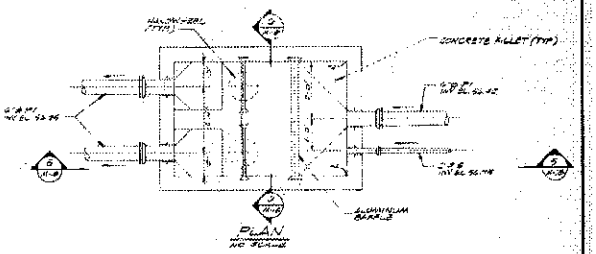


SECTION 3 — NO SCALE

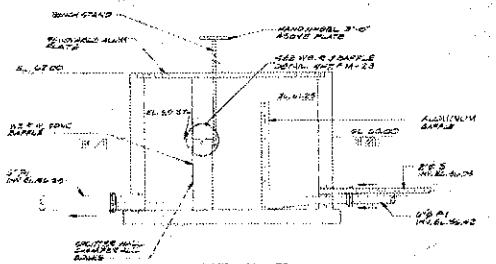


SECTION 4 — NO SCALE

RBC DISTRIBUTION BOX



PLAN — NO SCALE



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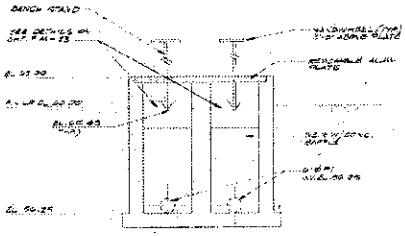


SECTION 6 — NO SCALE

PRIMARY DISTRIBUTION BOX

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/86	T.J.E.	GENERAL
2	6/90	T.M.T.	REVISED PER AS-BUILT INFO.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

PRIMARY SETTLING TANKS & MISCELLANEOUS DETAILS

SCALE: AS SHOWN

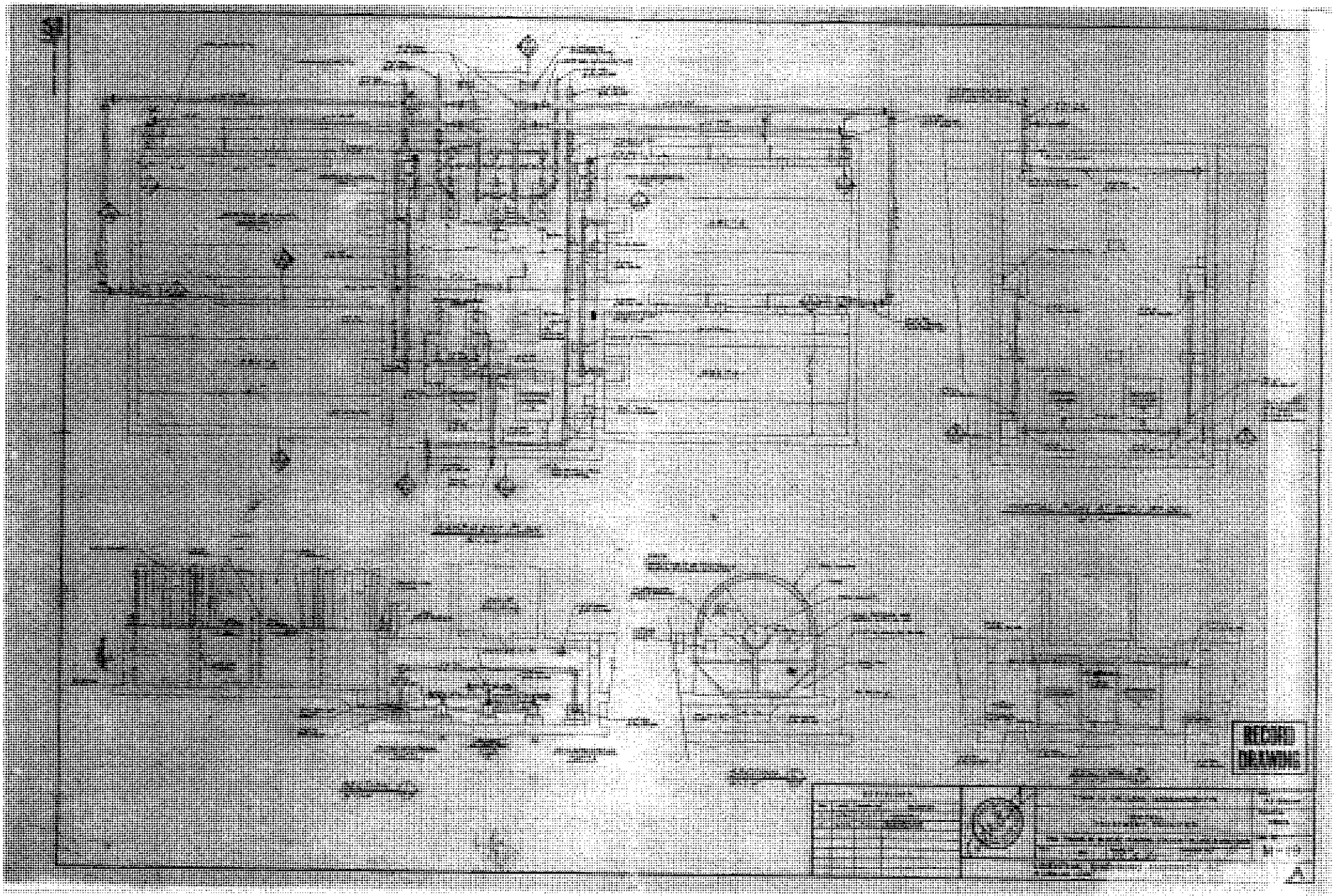
PROJECT NO. 59523

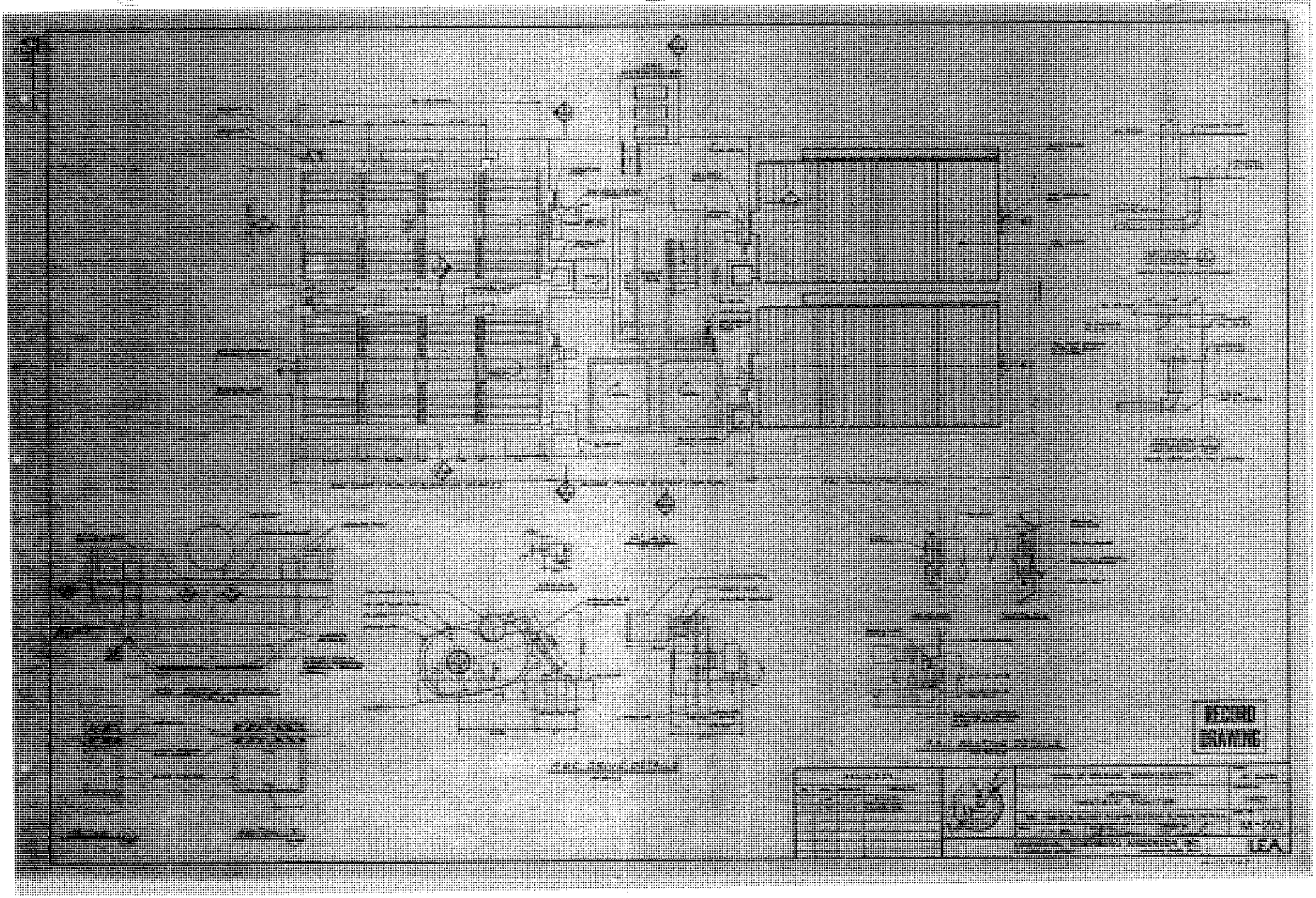
DWG. NO. M-18

DATE: 7-1-89 DRAWN BY: CHECKED BY:

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS.

LEA


RECORD
DRAWING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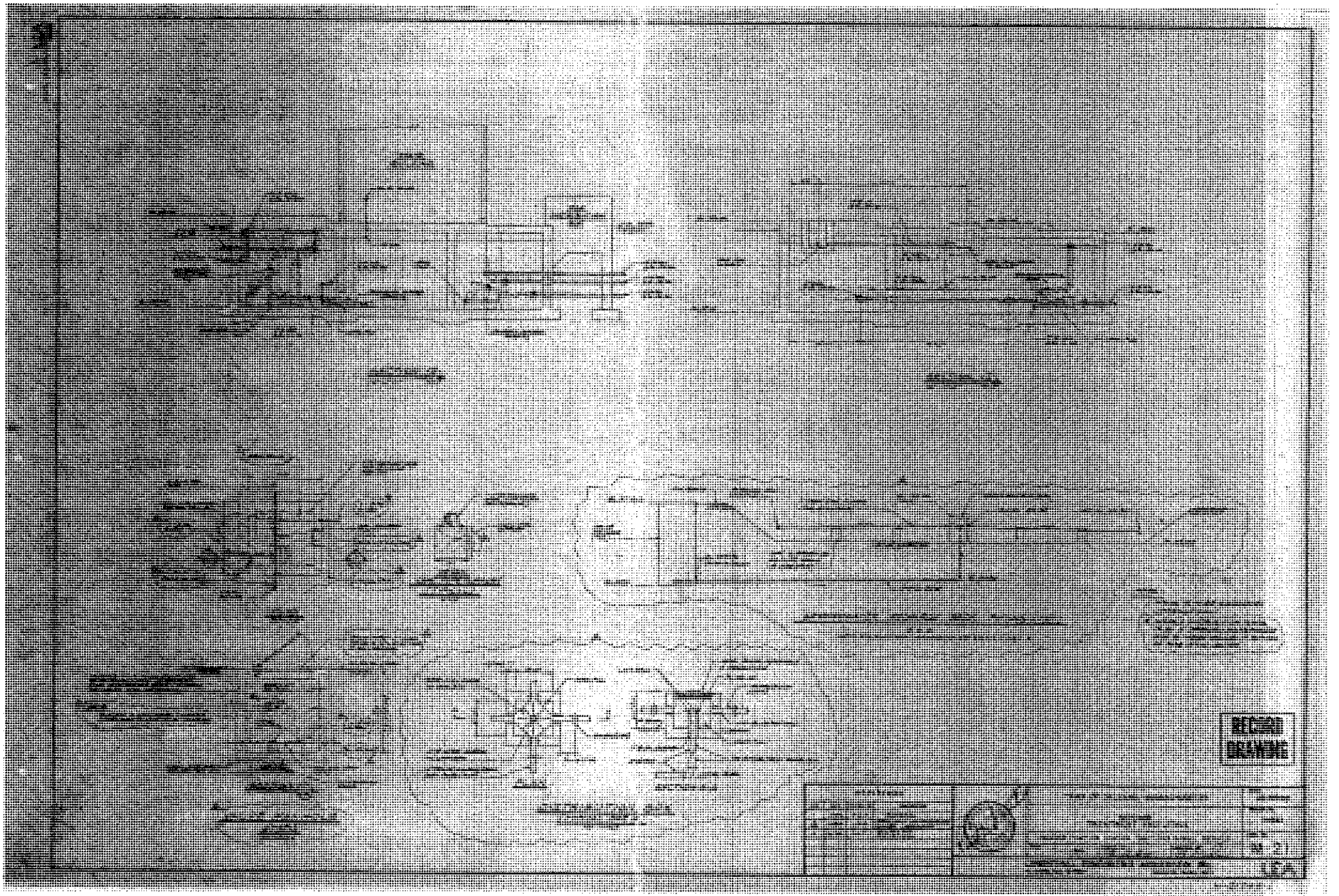
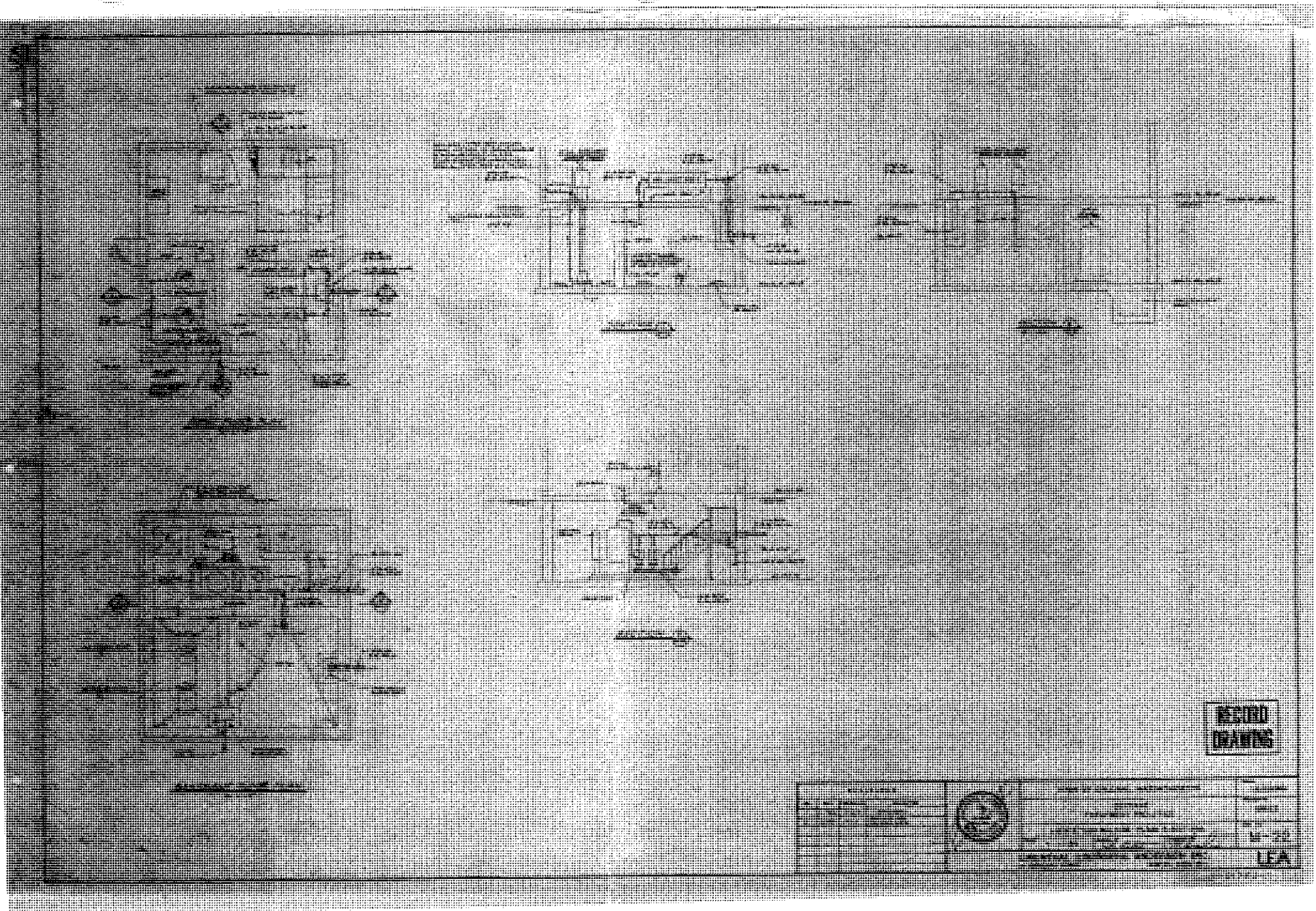
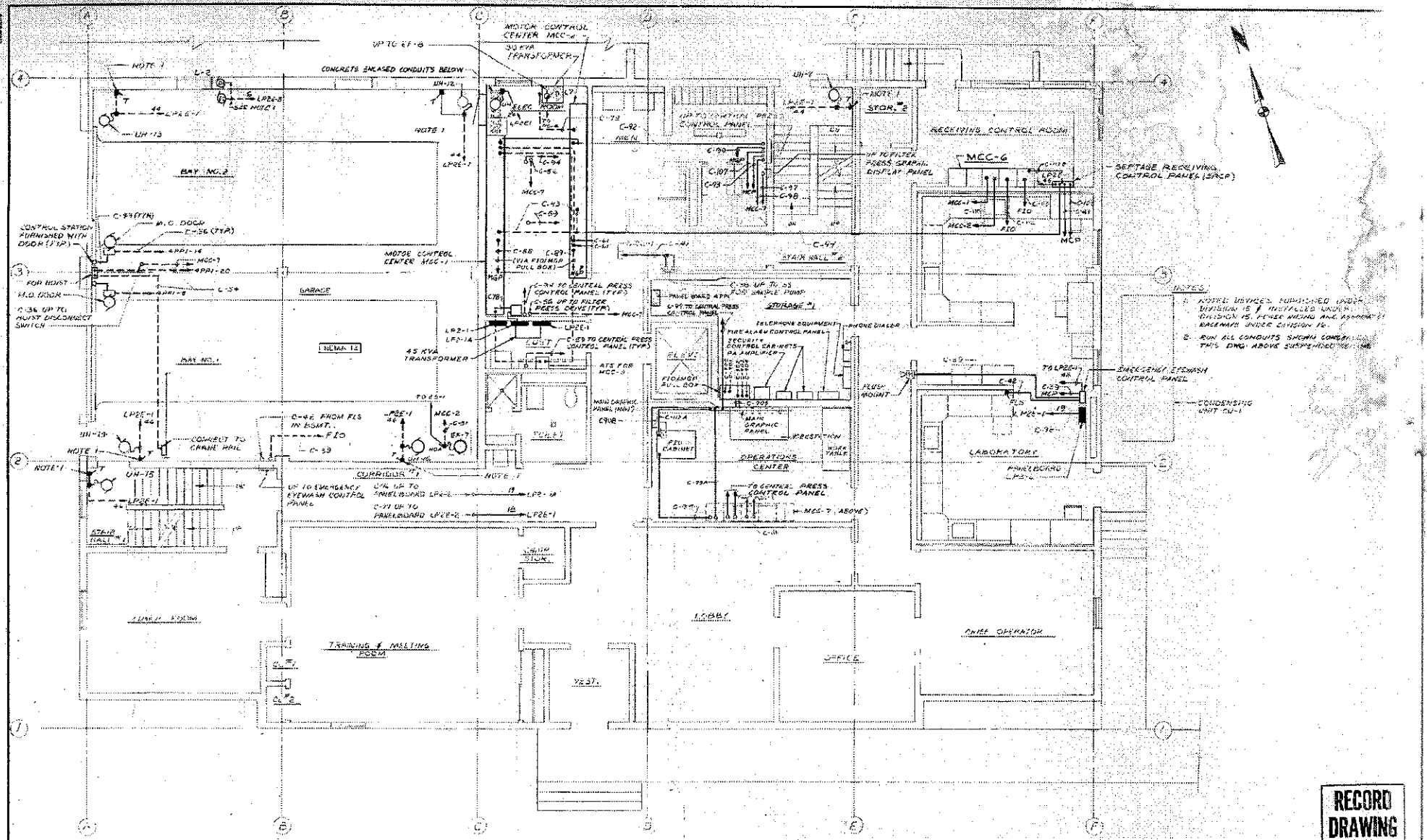

RECORD
DRAWING


RECORD DRAWING
LFA



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	4/85	CAC	GENERAL
2	1/86	T.G.T.	GENERAL
3	6/90	T.G.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

OPERATIONS BLDG. FIRST FLOOR POWER PLAN II

SCALE: 1/4" = 1'-0"

PROJECT NO: 59523

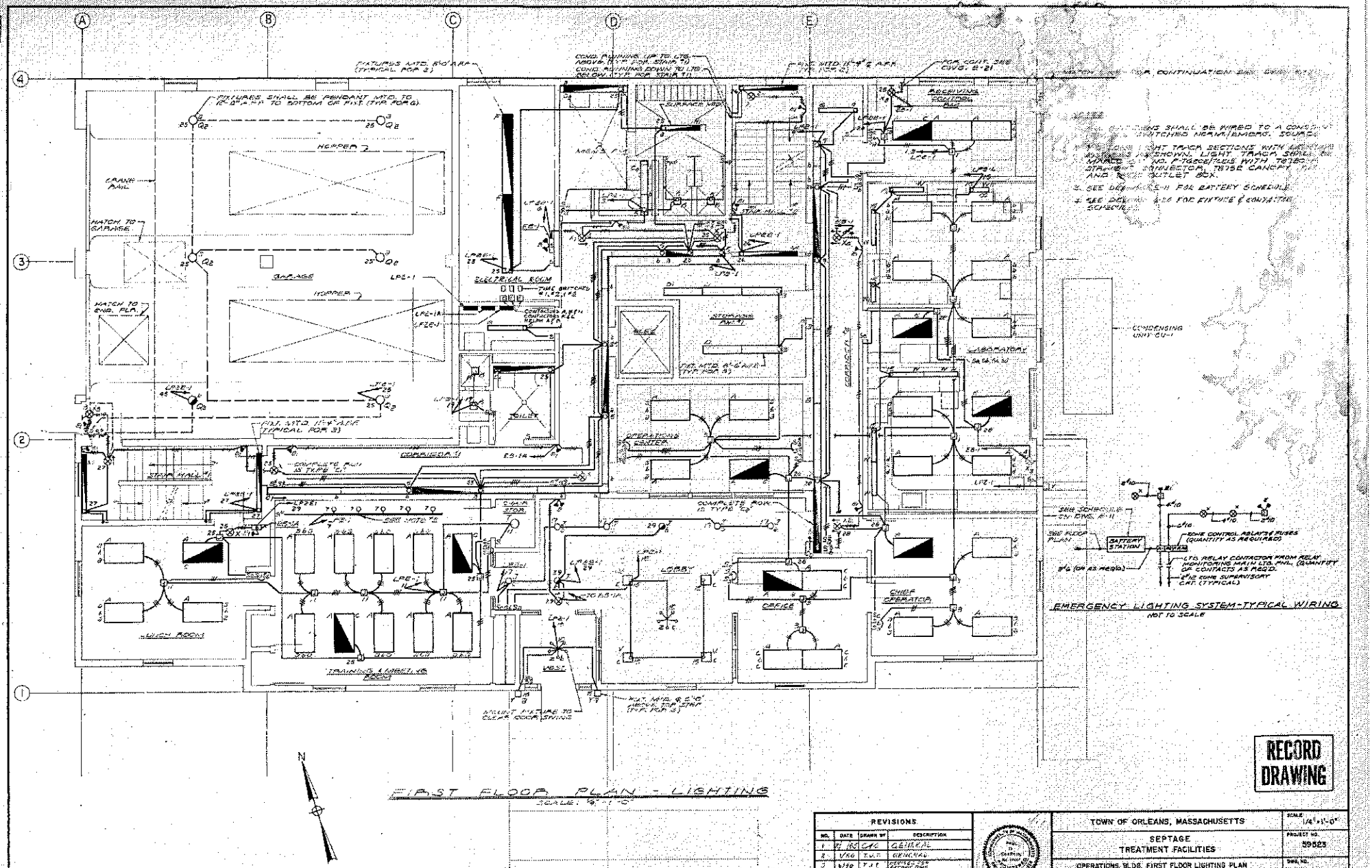
DWG. NO: E-14

DATE: 4-1-85 DRAWN BY: F.P. CHECKED BY: E.L.S./E.S.P.

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA

ENG. 59523 E-14 LEA

ENV. 39523 E-15 LEA



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	11/80	RCC	GENERAL
2	1/81	TJF	GENERAL
3	6/30	TJF	REVISED PER ARCHITECT

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

OPERATIONS BLDG. FIRST FLOOR LIGHTING PLAN

SCALE: 1/8" = 1'-0"

PROJECT NO. 39523

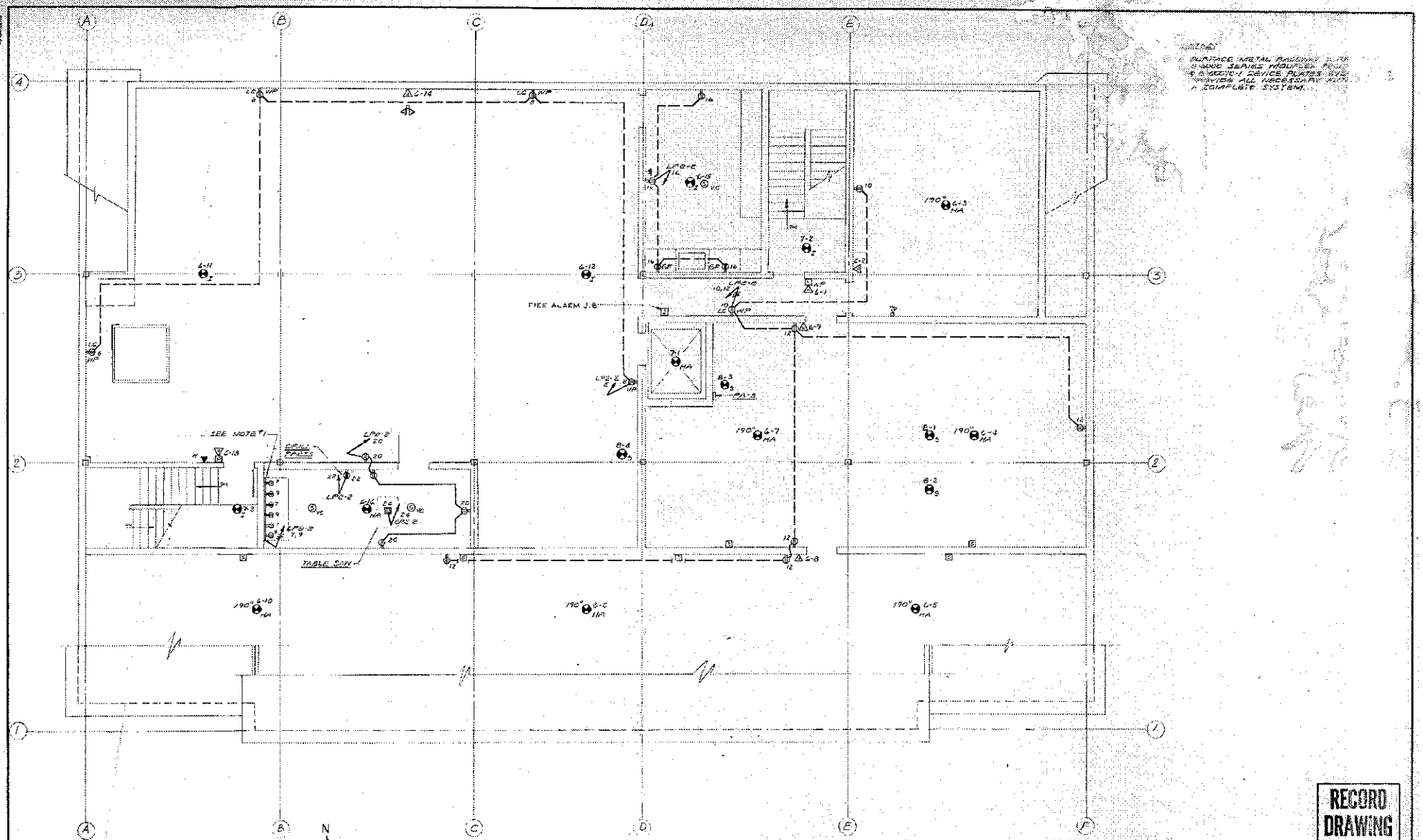
DWG. NO. E-15

DATE | DRAWN BY | CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

ENV. 89523 E-16



SECOND FLOOR - POWER PLAN

SCALE: 1/4" = 1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	8/25	TMC	GENERAL
2	1/84	T.U.T	GENERAL
3	6/10	T.U.T	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

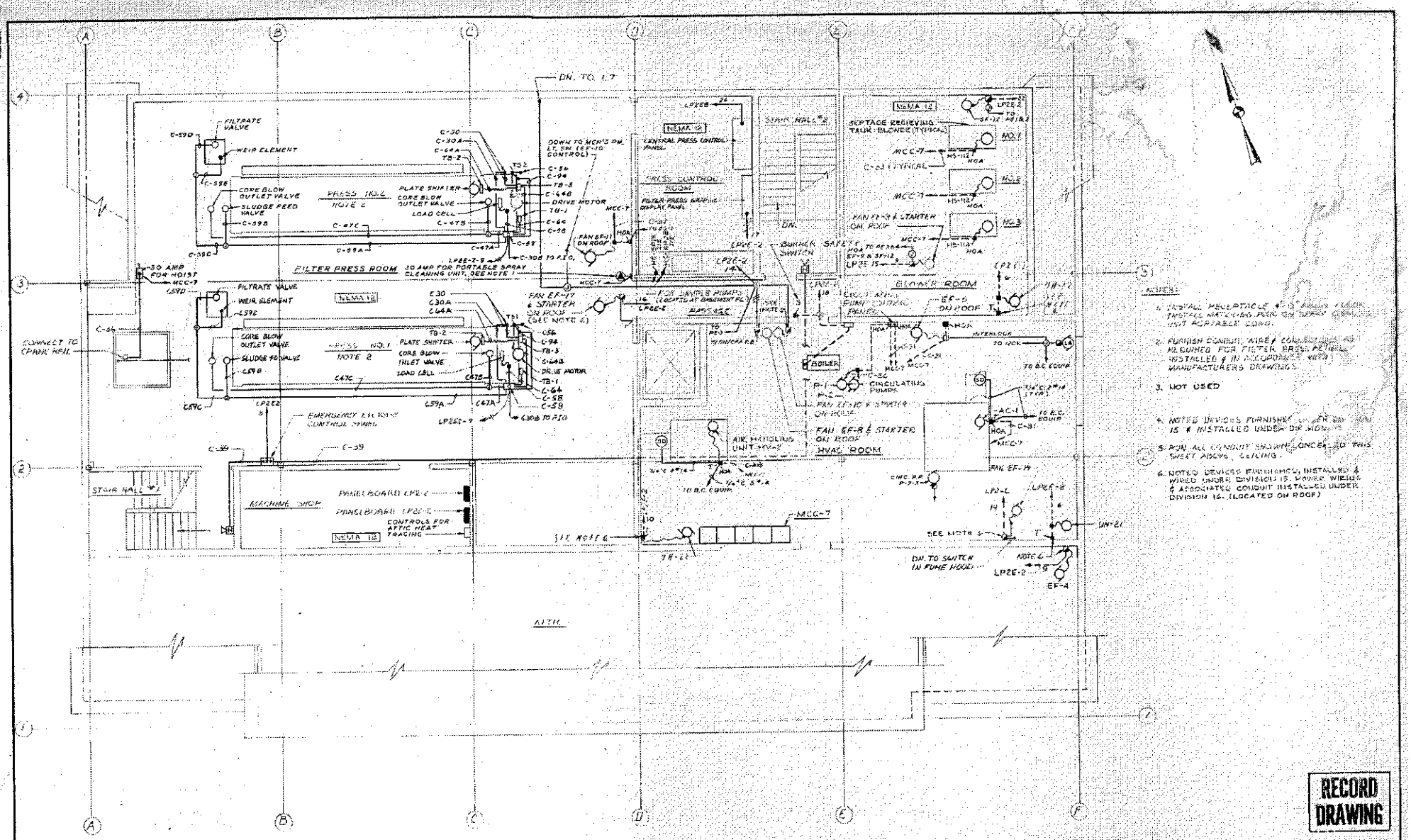
SEPTAGE TREATMENT FACILITIES

OPERATIONS BLDG. SECOND FLOOR POWER PLAN, I

SCALE: 1/4"=1'-0" | PROJECT NO. 89523 | DWG. NO. E-16

DATE: 7/1/83 | DRAWN BY: J.A.G. | CHECKED BY: E.L.S./E.S.P.

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	10/86	F.J.T.	GENERAL
2	11/86	F.J.T.	GENERAL
3	6/90	F.J.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

OPERATIONS BLDG. SECOND FLOOR POWER PLAN II

SCALE: 1/4" = 1'-0"

PROJECT NO. 59523

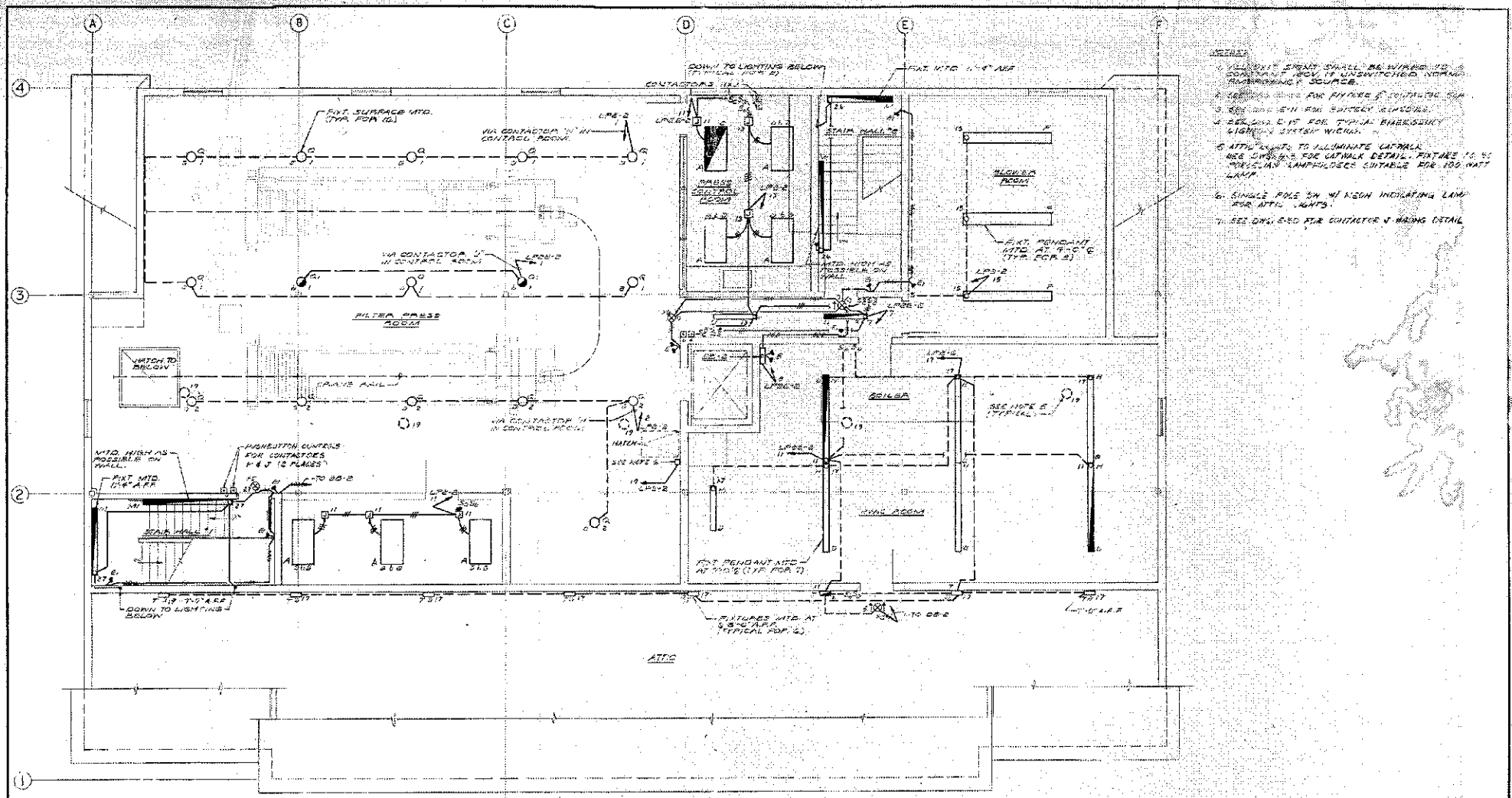
DWG. NO. E-17

DATE: 9/86 DRAWN BY: F.J.T. CHECKED BY: C.L.S.

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LFA

ENV. 59523 E-16 LEA



NOTES:

1. CONTROL CIRCUIT SHALL BE WIRED TO OPERATE ON 24 VOLTS OR LESS FROM TRANSFORMER(S) SUPPLIED FROM NON-INTERRUPTED NORMAL POWER SOURCE.
2. SEE SHEET E-11 FOR FIXTURE & LUMINAIRE SCHEDULE.
3. SEE SHEET E-11 FOR SYMBOLS & ABBREVIATIONS.
4. SEE SHEET E-17 FOR TYPICAL EMERGENCY LIGHTING SYSTEM WIRING.
5. ATTIC LIGHTS TO ILLUMINATE CATWALK. SEE DWG. M-3 FOR CATWALK DETAIL. FIXTURES TO BE PORCELAIN LAMPHOLDERS SUITABLE FOR 100 WATT LAMP.
6. SINGLE POLE 3A 4V NEON INDICATING LAMP FOR ATTIC LIGHTS.
7. SEE DWG. E-20 FOR CONTACTOR WIRING DETAIL.

SECOND FLOOR PLAN - LIGHTING

SCALE: 1/4"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	10/05	SJ/BJ	GENERAL
2	1/06	T.J.T.	GENERAL
3	6/30	T.J.T.	REVISED PER REVISIONS.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

OPERATIONS BLDG. SECOND FLOOR LIGHTING PLAN

SCALE: 1/4"=1'-0"

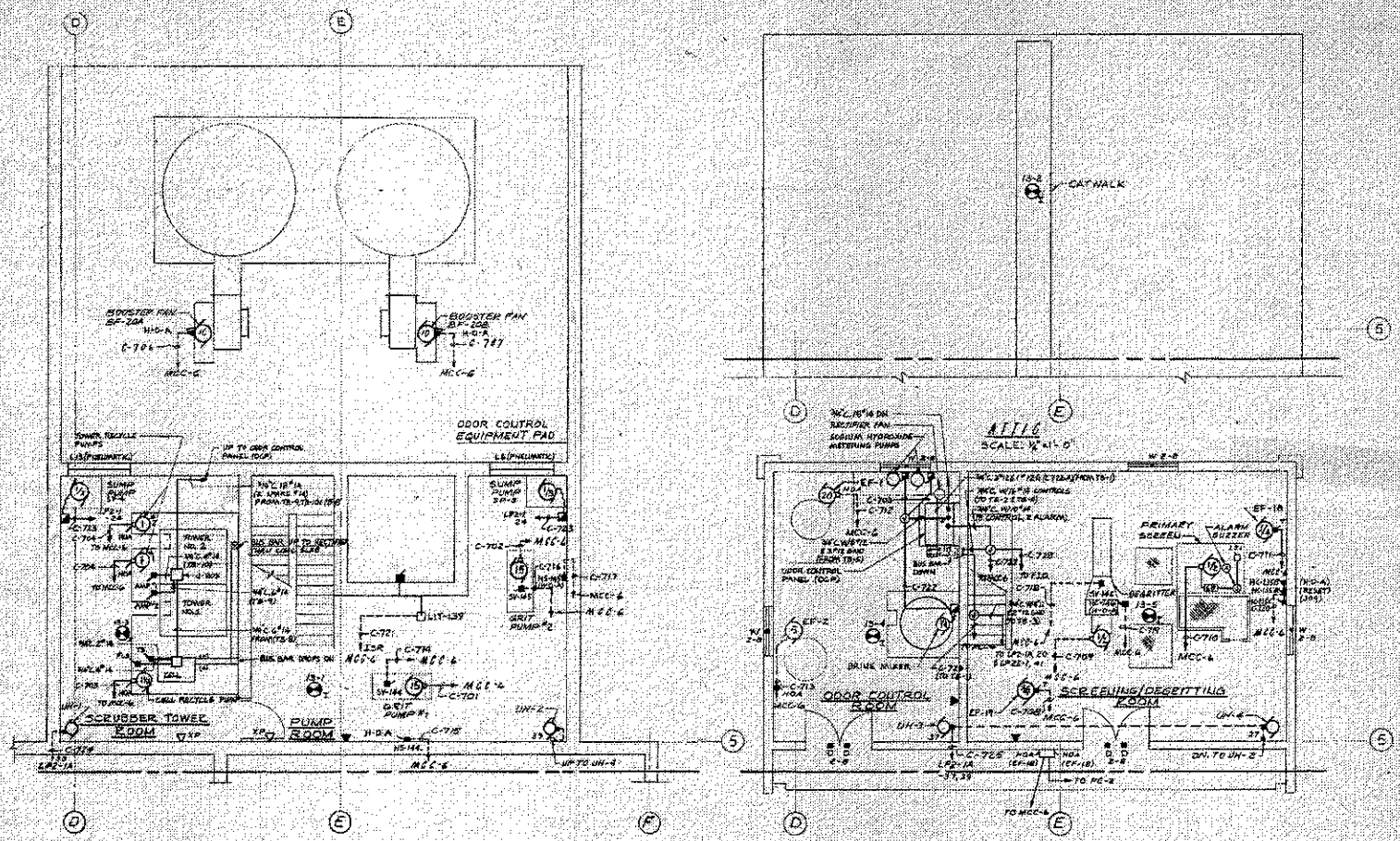
PROJECT NO. 59523

DWG. NO. E-16

DATE: | DRAWN BY: T.J.T. | CHECKED BY: E.L.A./E.A.P.

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON MASS. 02111

LEA



NOTES:

1. FOR SYMBOLS, GENERAL NOTES & LEGEND SEE SHEET E-1
2. ALL ELECTRICAL WORK AND INSTALLED EQUIPMENT ASSOCIATED WITH THE SCREENING/DEGRITTING AREA SHALL BE SUITABLE FOR CLASS II, DIVISION 2, GROUP D HAZARDOUS LOCATIONS AS DEFINED BY THE NEC UNDER ARTICLE 500.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	9/85	BS C.A.C.	GENERAL
2	1/86	T.V.T.	GENERAL
3	6/86	T.V.T.	REVISED PER RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SCREENING / DEGRITTING / ODOR CONTROL BUILDING POWER PLAN

SCALE: AS SHOWN

PROJECT NO. 8882.10

DWG. NO. E-18A

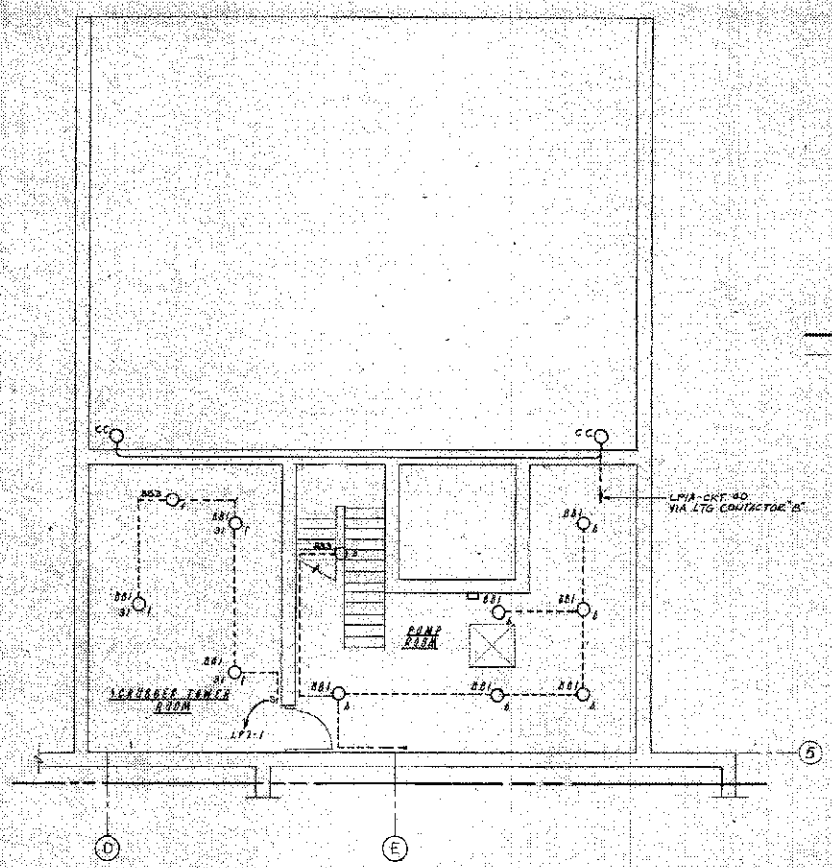
DATE: 1-85 DRAWN BY: V.T.C. CHECKED BY: F.S./E.S.P.

LINENTHAL EISENBERG ANDERSON INC.
75 KINGSLAND STREET BOSTON, MASS. 02111

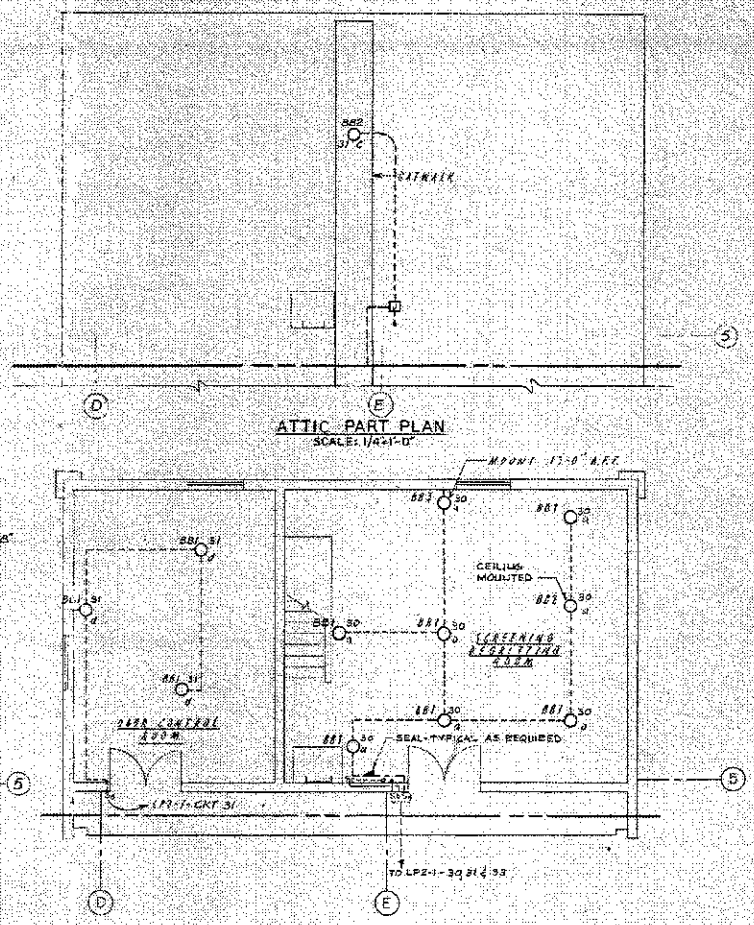
LEA

NOTES

1. FOR SYMBOLS, GENERAL NOTES, ETC. SEE SHEET E-1.
2. ALL ELECTRICAL ROUGH-INS SHALL BE CONCEALED IN WALLS OR CEILINGS UNLESS OTHERWISE NOTED. ALL EXPOSED CONDUIT SHALL BE RIGID STEEL & PAINTED TO MATCH ADJACENT SURFACES UNLESS OTHERWISE NOTED ON THE RCP'S AND/OR ELEV.
3. TENANT FINISH FEATURES SHALL BE MOUNTED 15" B.C.O. U.N.O. SEE ELEV. NOTE
4. SWITCH 'S', 'T', AND 'U' SHALL BE TIED IN WITH SFD SWITCHING SYSTEM THAT ARE ILLUMINATED WHEN THE LIGHTS ARE TURNED ON
5. LIGHTING FIXTURE SCHEDULE ON SHEET E-1.



BASEMENT
SCALE: 1/4"=1'-0"



ATTIC PART PLAN
SCALE: 1/4"=1'-0"

FIRST FLOOR
SCALE: 1/4"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	9/25	CAC	GENERAL
2	2/94	T.J.T.	GENERAL
3	6/10	T.J.T.	ADDITION OF HEATING SYS.

TOWN OF ORLEANS, MASSACHUSETTS

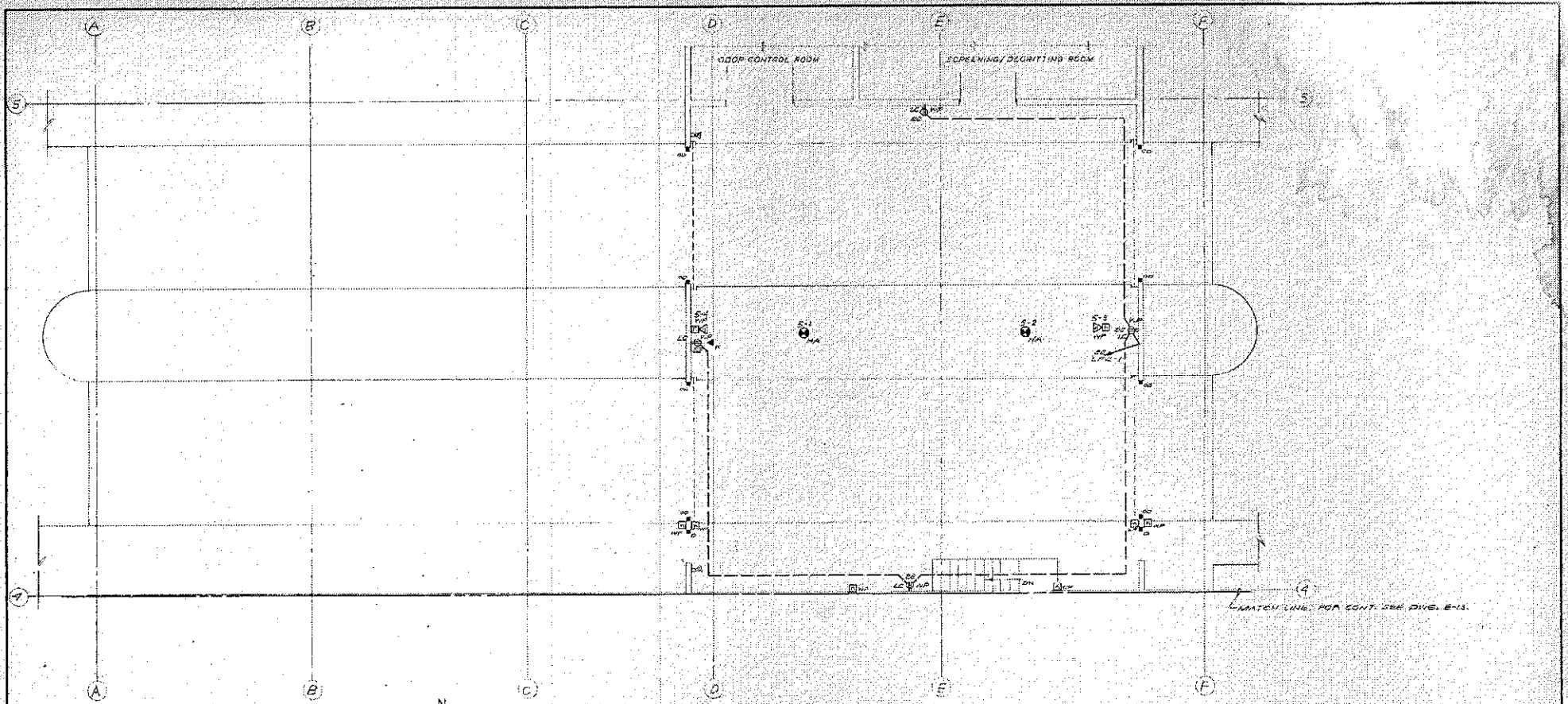
SEPTAGE TREATMENT FACILITIES

SCREENING/DEGRITTING/ODOR CONTROL BUILDING LIGHTING PLAN

SCALE: AS SHOWN
PROJECT NO. 9452.1
DWG. NO. E-18B
DATE: 7-94
DRAWN BY: T.J.T.
CHECKED BY: E.L.S./E.S.A.

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA



RECEIVING BUILDING POWER PLAN I

SCALE: 1/4"=1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/84	T.V.P.	GENERAL
2	6/20	T.V.P.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

RECEIVING BUILDING POWER PLAN I

SCALE: 1/4"=1'-0"

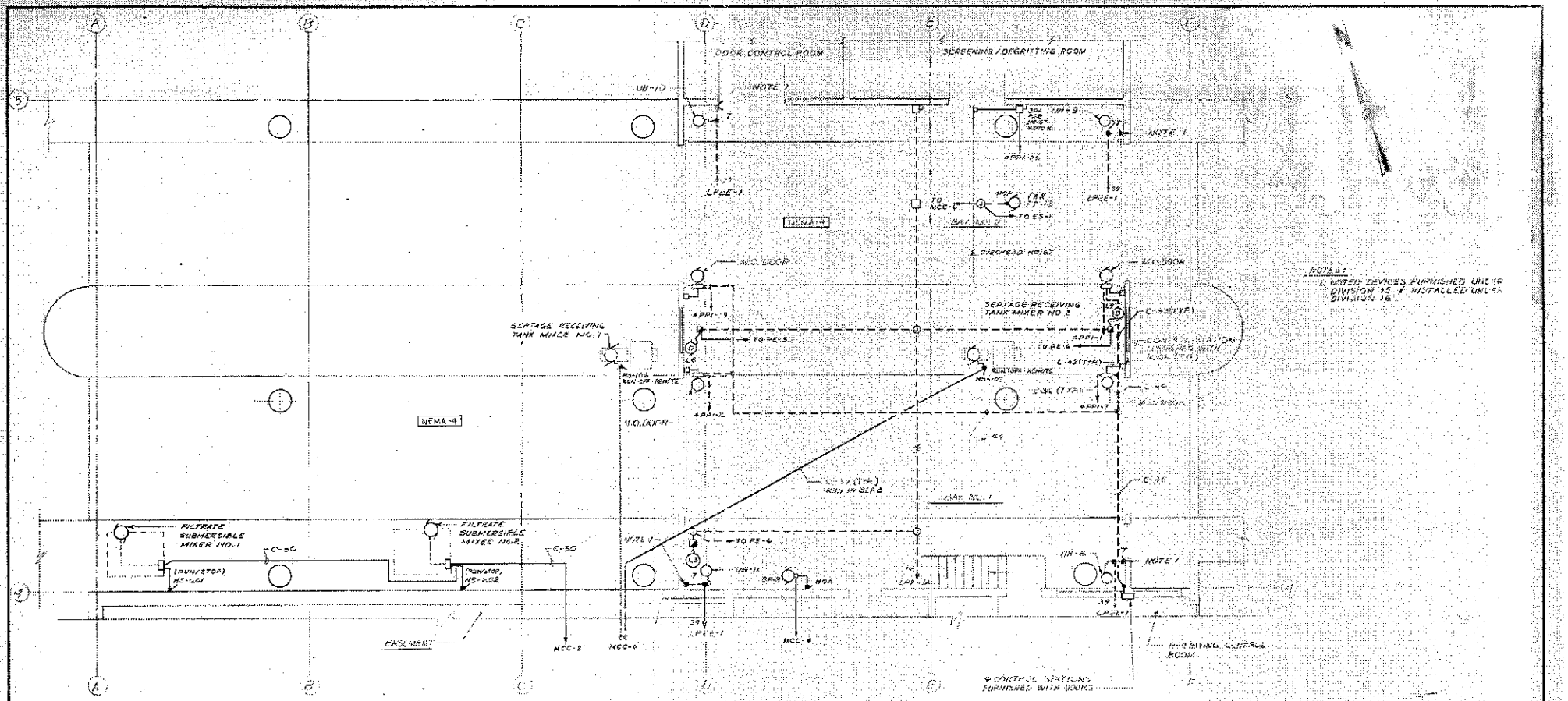
PROJECT NO. 88523

DWG. NO. E-19

DATE: 7/20 DRAWN BY: T.V.P. CHECKED BY: [illegible]

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA



SEPTAGE RECEIVING AREA

SCALE: 1/4" = 1'-0"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	12/85	B.J.H.	GENERAL
2	1/86	T.J.T.	GENERAL
3	6/86	T.J.T.	REVISED PER RECORDING

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

RECEIVING BUILDING POWER PLAN II

SCALE: AS SHOWN

PROJECT NO. 85023

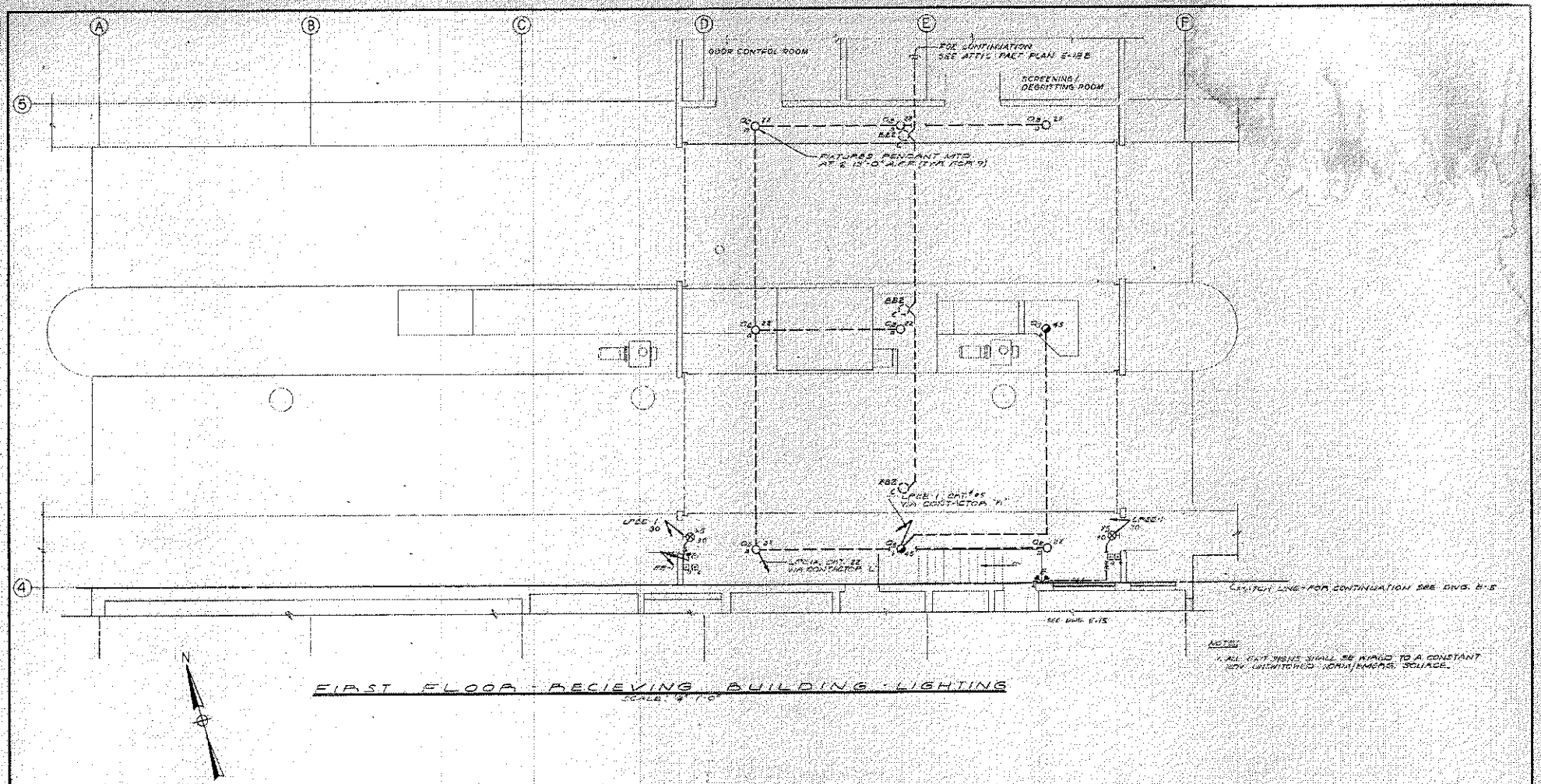
DWG. NO. E-20

DATE: 7-1-85 | DRAWN BY: T.J.T. | CHECKED BY: E.L.S./E.S.H.

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

M-0182



FIRST FLOOR - RECIEVING BUILDING - LIGHTING

SCALE: 1/4" = 1'-0"

NOTES:

1. ALL EXIT SIGNS SHALL BE WIRED TO A CONSTANT UNSWITCHED 120V/1PHASE, SOURCE.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/76	T.J.T.	GENERAL
2	4/76	T.J.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

RECEIVING BUILDING LIGHTING PLAN

SCALE: 1/4" = 1'-0"

PROJECT NO. 59523

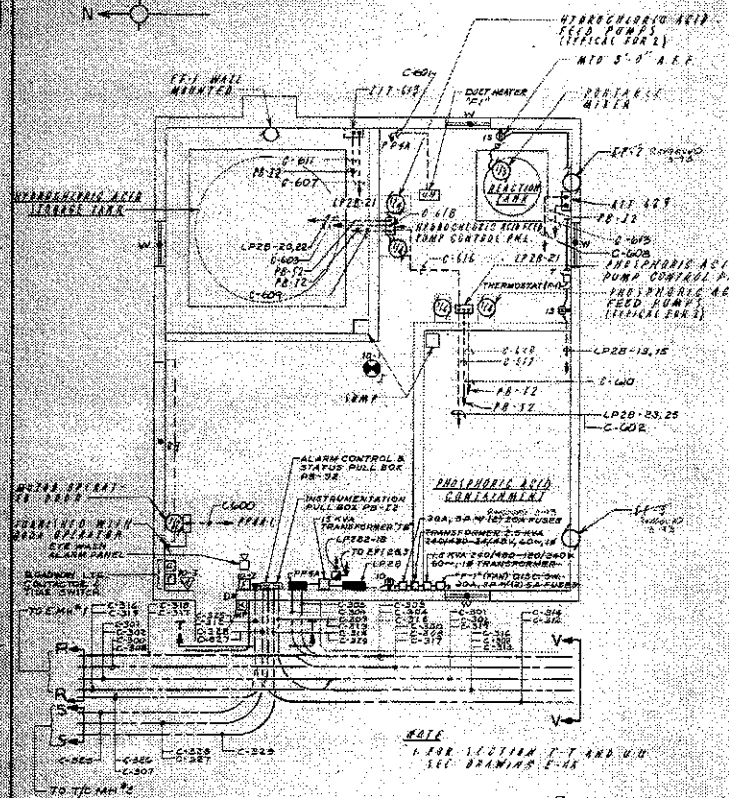
DWG. NO. E-21

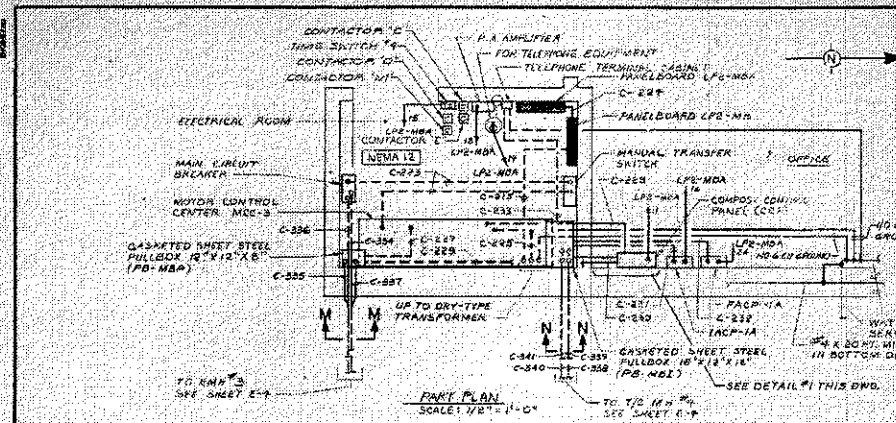
DATE: 1/76 DRAWN BY: T.J.T. CHECKED BY: F.L.E.E.P.

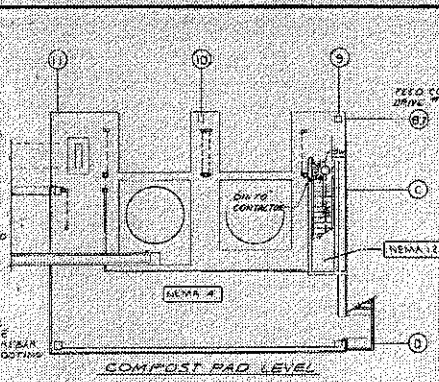
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

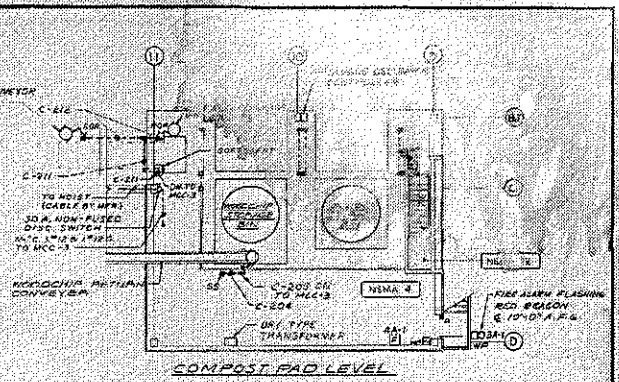
LEA

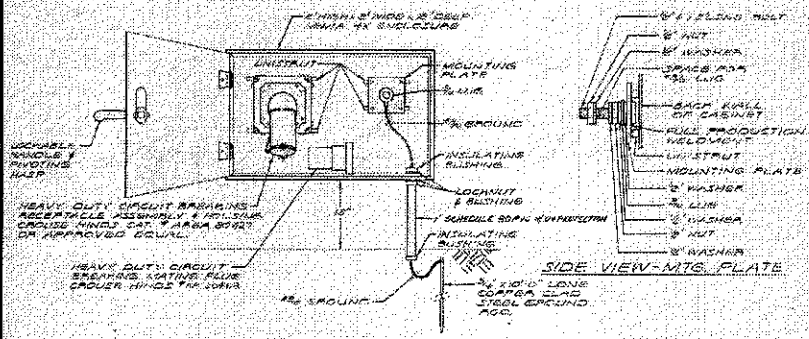
P.W. 59523 E-21 LEA


N
HYDROCHLORIC ACID FEED PUMPS (TYPICAL FOR 2)
MTD 5'-0" A.F.F.
DUCT HEATER
PORTABLE HEATER
REACTION TANK
HYDROCHLORIC ACID STORAGE TANK
HYDROCHLORIC ACID FEED PUMP CONTROL PANEL
THERMOSTAT (TYP.)
PHOSPHORIC ACID FEED PUMPS (TYPICAL FOR 2)
PHOSPHORIC ACID FEED PUMP CONTROL PANEL
TEMP.
ALARM CONTROL & STATUS PULL BOX PB-28
INSTRUMENTATION PULL BOX PB-22
PHOSPHORIC ACID CONTAINMENT
EYE WASH ALARM PANEL
TO E.W.H. #1
TO T/C FAN #2
TRANSF. POWER 2.5 KVA 240/480-120/240 V 60~, 1Ø TRANSFORMER
TRANSF. POWER 2.5 KVA 240/480-240/480, 60~, 1Ø
TRANSF. POWER 1.5 KVA 240/480-120/240 V 60~, 1Ø TRANSFORMER
SEE DRAWING E-13
SEE DRAWING E-14
SEE DRAWING E-15
SEE DRAWING E-16
SEE DRAWING E-17
SEE DRAWING E-18
SEE DRAWING E-19
SEE DRAWING E-20
SEE DRAWING E-21
SEE DRAWING E-22
SEE DRAWING E-23
SEE DRAWING E-24
SEE DRAWING E-25
SEE DRAWING

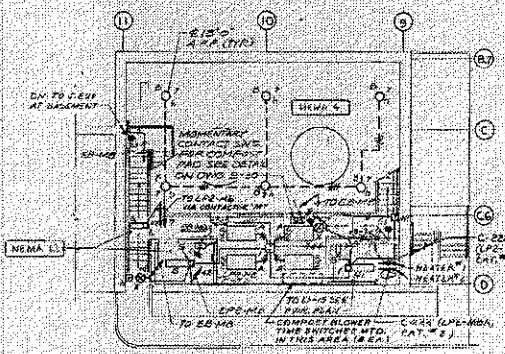


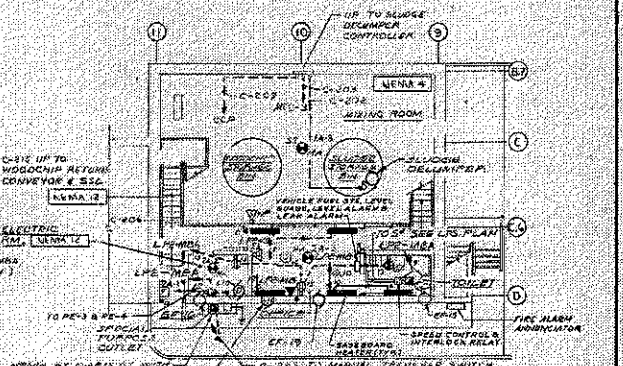




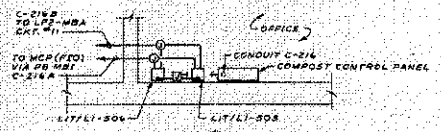


DETAIL OF SPECIAL PURPOSE OUTLET AND GROUNDING POINT CABINET
NO SCALE

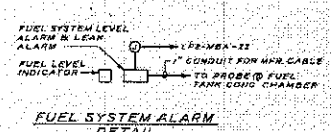




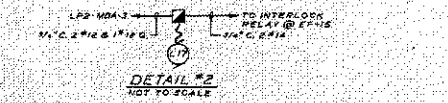
NOTES:
1. ELECTRICAL CONTRACTOR SHALL PAINT PLUG AND RECEPTACLE CONTACT SURFACES WITH THOMAS & BETTS NOPAINT CONDUCTIVE COMPOUND TO PREVENT CORROSION.
2. NOTED DEVICE FURNISHED UNDER DIVISION 16 & INSTALLED UNDER DIVISION 16.



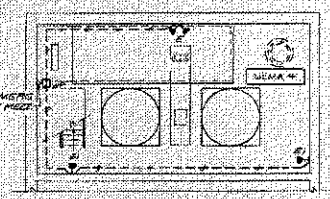
DETAIL #1
NOT TO SCALE



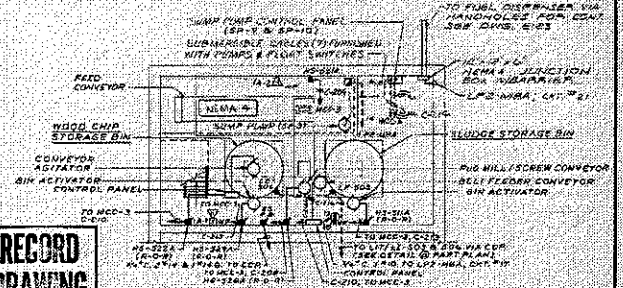
FUEL SYSTEM ALARM DETAIL
NOT TO SCALE



DETAIL #2
NOT TO SCALE



MIXING BUILDING LIGHTING PLANS
SCALE: 1/4"=1'-0"



RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	6/30	CHK	GENERAL
2	11/84	E.M.T.	GENERAL
3	6/30	E.M.T.	AS-BUILTED RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

MIXING BLDG. LIGHTING & POWER PLAN

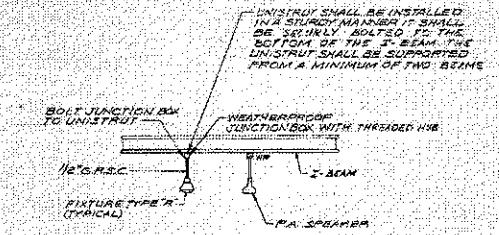
SCALE 1/8"=1'-0"

PROJECT NO. 80523

DWG. NO. E-22

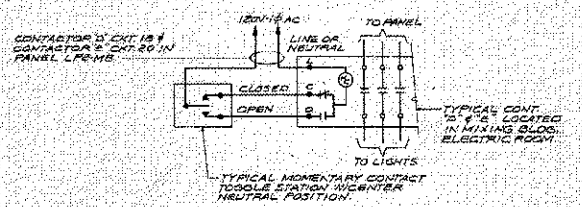
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA



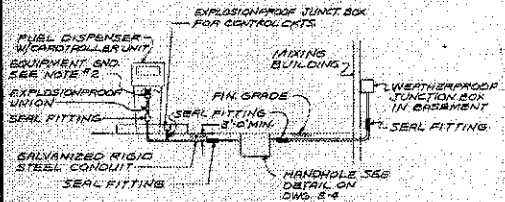
MOUNTING DETAIL OF FIXTURE TYPE "R"

NOT TO SCALE



TYPICAL WIRING DIAGRAM OF COMPOST PAD LIGHTS

NOT TO SCALE

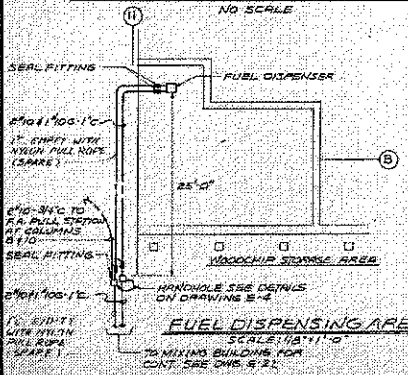


FUEL ISLAND NOTES

1. METAL PORTIONS OF DISPENSER, PUMPS, METAL ENCLOSURES AND ALL NONCURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE GROUNDED.
2. THE FOLLOWING METHOD SHALL BE USED TO TERMINATE THE GROUNDING CONDUCTOR: DRILL A SLEND HOLE FROM THE INSIDE SURFACE OF A THREADED PLUG USED TO SEAL AN UNUSED CONDUIT OPENING IN THE JUNCTION BOX. THE HOLE SHOULD NOT BE DRILLED ALL THE WAY THROUGH THE PLUG. THERE SHOULD BE AT LEAST 1/4" OF MATERIAL BETWEEN BOTTOM OF THE HOLE AND THE OUTSIDE SURFACE OF THE PLUG USING A BOTTOMING TAP, TAP THE HOLE TO RECEIVE A GROUNDING SCREW.
3. ALL ELECTRICAL EQUIPMENT INSTALLED FOR THE FUEL ISLAND SHALL BE SUITABLE FOR CLASS I, GROUP D, DIVISION 1 AND 2 INSTALLATION.
4. WIRING SHOWN IS TYPICAL. EXACT WIRING REQUIREMENTS SHALL BE AS DIRECTED BY FUEL ISLAND EQUIPMENT MANUFACTURER.

FUEL DISPENSER CONDUIT PLAN

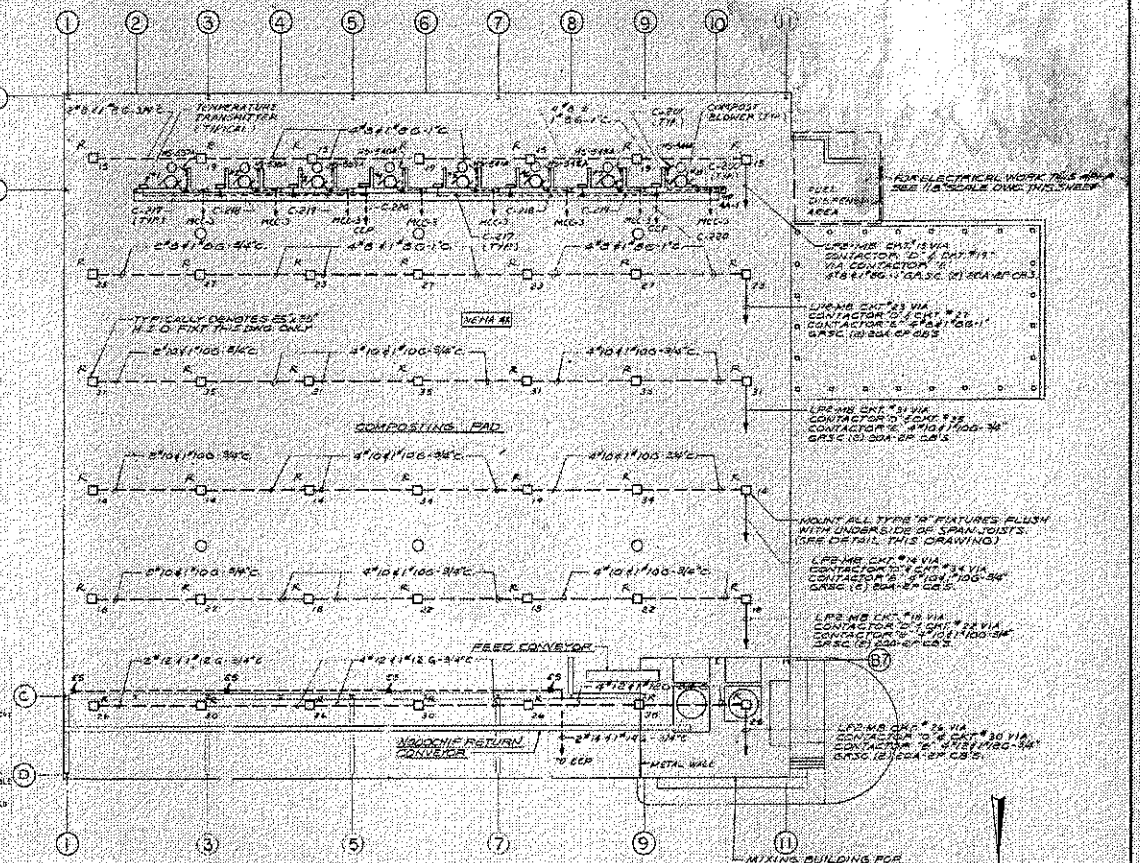
NO SCALE



FUEL DISPENSING AREA

SCALE: 1/8"=1'-0"

FIRE ALARM AND CONTROL CKTS. SHALL BE BARRIERED FROM POWER CKTS IN HANDHOLES AND JUNCT. BOXES



COMPOST PAD LIGHTING & POWER PLAN

SCALE: 1/8"=1'-0"

GENERAL NOTES:

1. ALL EXPOSED CONDUIT THIS AREA TO BE PVC COATED SCHEDULE 40 GALVANIZED RIGID STEEL.
2. SEE DRAWING E-4 FOR FIXTURE AND CONTACTOR SCHEDULES.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	12/83	D. Fitz	GENERAL
2	1/84	T.J.T.	GENERAL
3	2/84	T.J.T.	REVISED FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

COMPOST PAD LIGHTING & POWER PLAN

SCALE: AS SHOWN

PROJECT NO. 59523

DWG. NO. E-23

DATE: 1/84 DRAWN BY: T.J.T. CHECKED BY: E.L.F./E.S.P.

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

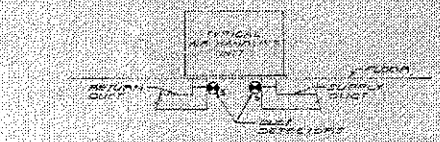
LEA

M-C-80511

ENV 59523 E-24 LEA

FIRE ALARM RISER NOTES:

1. ALL CONDUIT SHALL BE ¾" UNLESS NOTED OTHERWISE.
2. ALL WIRING SHALL BE DONE IN ACCORDANCE WITH MANUFACTURER'S SHOP DRAWINGS AND POINT TO POINT WIRING DIAGRAMS.



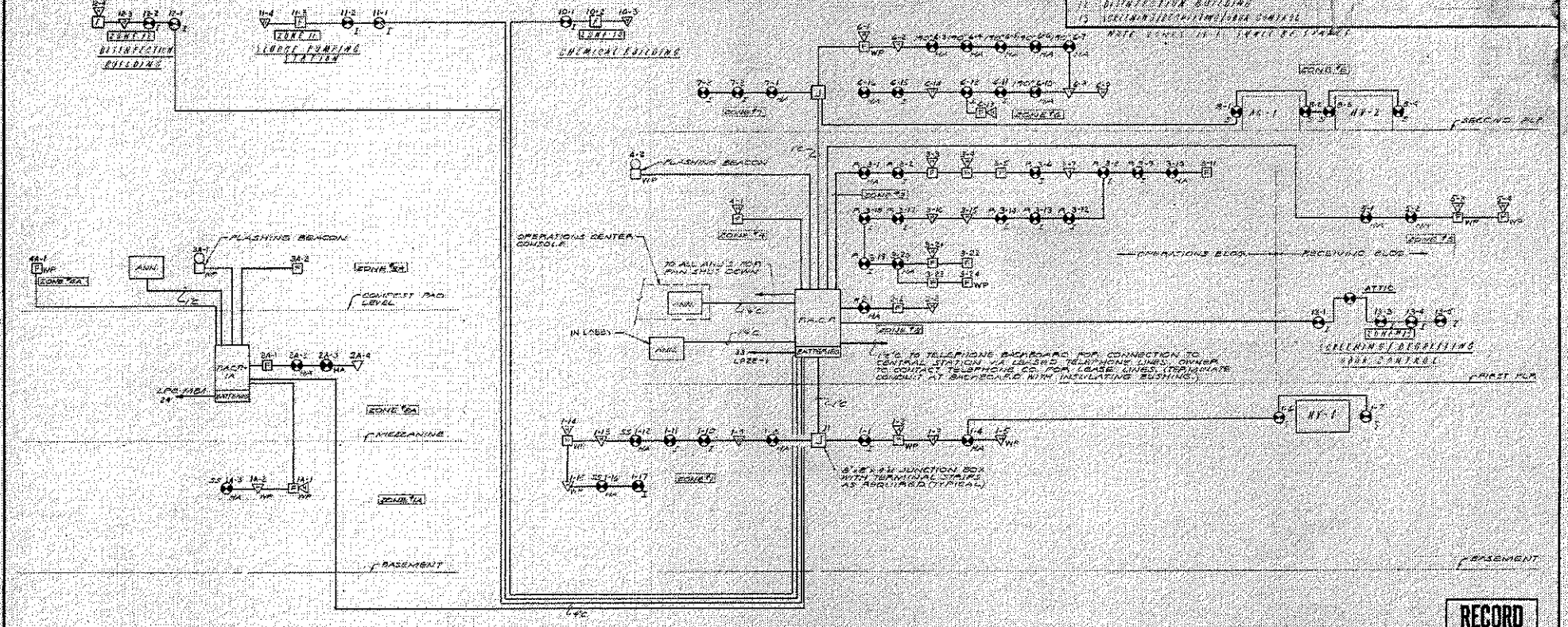
TYPICAL MOUNTING OF DUCT DETECTORS IN AIR HANDLING UNITS

NO SCALE

OPERATIONS & PROCESS BLDG. FIRE ALARM ZONE SCHEDULE	
ZONE NO.	DESCRIPTION
1	BASEMENT EQUIPMENT ROOMS, PUMP ROOM
2	FIRST FLOOR GALLERY & OFFICES
3	FIRST FLOOR LABORATORY & OFFICES
4	FIRST FLOOR GALLERY & OPERATIONS BLDG.
5	FIRST FLOOR - RECEIVING BUILDING
6	SECOND FLOOR - OPERATIONS BUILDING
7	STAIRS & ELEVATOR
8	AIR HANDLING UNITS
9	MIXING BUILDING
10	CHEMICAL BUILDING
11	SLUDGE PUMPING STATION
12	DISINFECTION BUILDING
13	CELLAR & ATTIC (TUNNEL) OPERATIONS BUILDING

MIXING BUILDING FIRE ALARM ZONE SCHEDULE	
ZONE NO.	DESCRIPTION
1	BASEMENT
2	FIRST FLOOR
3	MEZZANINE
4	TUNNEL CONDUIT
5	MIXING CHAMBER
6	SECOND FLOOR

NOTE: ZONES IN A SINGLE BUILDING TO BE SEPARATE



MIXING BUILDING
ZONE 9

OPERATIONS & PROCESSING BUILDING

FIRE ALARM RISER DIAGRAM

NO SCALE

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	1/94	F.S.T.	GENERAL
2	6/95	F.S.T.	SEPTAGE FOR RECORD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

FIRE ALARM RISER DIAGRAM

DATE 1/1/93 DRAWN BY J.A.J. CHECKED BY C.J.S./F.S.T.

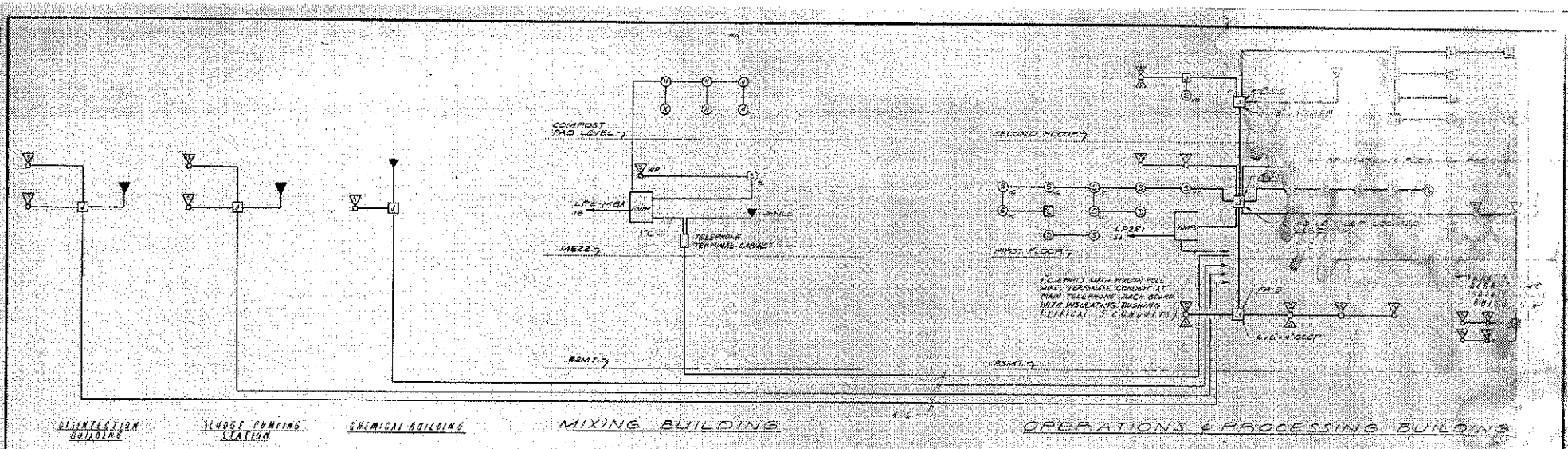
SCALE NONE

PROJECT NO. 59523

DWG. NO. E-24

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

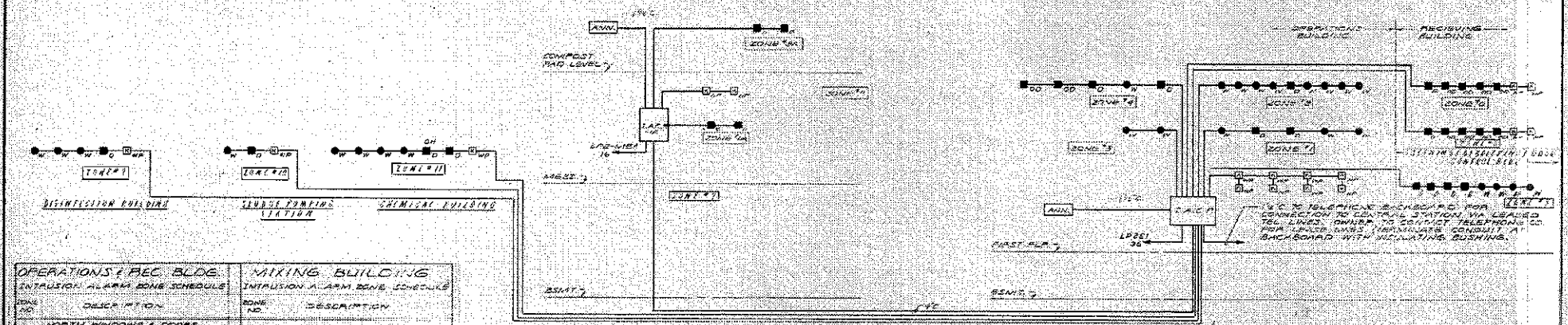


PUBLIC ADDRESS SYSTEM RISER NOTES

1. ALL CONDUIT SHALL BE ¾" MIN. UNLESS NOTED OTHERWISE.
2. ALL WIRING SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SHOP DRAWINGS AND POINT TO POINT WIRING DIAGRAMS.

PUBLIC ADDRESS SYSTEM RISER DIAGRAM

NO SCALE



OPERATIONS & REC. BLDG. INTRUSION ALARM ZONE SCHEDULE		MIXING BUILDING INTRUSION ALARM ZONE SCHEDULE	
ZONE NO.	DESCRIPTION	ZONE NO.	DESCRIPTION
1	NORTH WINDOWS & DOORS OPERATIONS BLDG.	1A	MEZZANINE DOORS
2	SOUTH WINDOWS & DOORS OPERATIONS BLDG.	2A	COMPOST PAD LEVEL DOORS
3	WEST WINDOWS OPERATIONS BLDG.	3A	SPARE ZONE
4	WEST WINDOWS, DOORS & OVERHEAD DOORS OPERATIONS BLDG.	4A	SPARE ZONE
5	EAST DOOR & OVERHEAD DOORS RECEIVING BLDG.	5A	SPARE ZONE
6	WEST DOOR & OVERHEAD DOORS RECEIVING BLDG.	6A	SPARE ZONE
7	MIXING BUILDING	7A	SPARE ZONE
8	SCREENING/RECEIVING/GRAVEL CHAMBER BLDG.	8A	SPARE ZONE
9	DISINFECTION BUILDING		
10	SLUDGE PUMPING STATION		
11	CHEMICAL BUILDING		
12-X	SPARE ZONES		

INTRUSION ALARM RISER NOTES:

1. ALL CONDUIT SHALL BE MINIMUM ¾" UNLESS NOTED OTHERWISE.
2. ALL WIRING SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SHOP DRAWINGS AND POINT TO POINT WIRING DIAGRAMS.

INTRUSION ALARM RISER DIAGRAM

NO SCALE

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	Nov.	T.H.T.	GENERAL
2	5/90	T.H.T.	AS-BUILT PER FIELD DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SECURITY & PUBLIC ADDRESS SYSTEMS RISER DIAGRAM

SCALE: NONE | PROJECT NO. 59123 | DWG. NO. E-25

DATE: 1/11 | DRAWN BY: T.H.T. | CHECKED BY: E.J.S./E.W.

LINENTHAL EISENBERG ANDERSON, INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

FIXTURE SCHEDULE

TYPE	MANUFACTURER	LAMPS NO.	LAMPS TYPE	VOLTS	DESCRIPTION	MOUNTING	BALLAST
A	MILLER ⑩⑭ *FD-2-92-AWG	3	7QCW TRI-CIN	120	2'x2' FLUOR. TROFFER WITH BLACK REVEL 8 ACRYLIC PRISMATIC LENS.	RECESSED	(1)BG1036W (1)BG1036W
B	HOLOPHANE *PRSL-1QFP-30-A66A	1	LUMO 65"/6	208	1'x4' FLUOR. TROFFER WITH WHITE BAF LUMINAIRE WITH PRISMATIC GLASS REFLECTOR	PENDANT	AS SUPPLIED WITH UNIT
B1	HOLOPHANE *PRSL-1QFP-30-A265	1	LUMO 65"/6	208	1'x4' FLUOR. TROFFER WITH WHITE BAF LUMINAIRE WITH PRISMATIC GLASS REFLECTOR	PENDANT	AS SUPPLIED WITH UNIT
B2	HOLOPHANE *PRSL-1QFP-30-A265EM	1	LUMO 65"/6 W/EMERG. BALLAST	208	SAME AS TYPE 'B' EXCEPT WITH EMERGENCY HALOGEN	PENDANT	AS SUPPLIED WITH UNIT
C	COLUMBIA *ALSBA-HA-96.2	2 @ 8	PROTECH T-8	120	RECESSED LINEAR FLUOR. SYSTEM WITH ACRYLIC PRISMATIC LENS	RECESSED	(1)BG1036W (1)BG1036W
C2	COLUMBIA ⑫ *ALSBA-HA-96.2	1 @ 8	PROTECH PROTECH	120	SAME AS TYPE 'C' EXCEPT FOR LAMPS	RECESSED	(1)BG1036W (1)BG1036W (1)BG1036EM
C3	COLUMBIA ⑭⑮ *ALSBA-HA-SW	6	PROTECH	120	SAME AS TYPE 'C' EXCEPT FOR LAMPS	RECESSED	(1)BG1036W
C4	COLUMBIA ⑬⑮ *ALSBA-HA-93	1	PROTECH PROTECH	120	SAME AS TYPE 'C' EXCEPT FOR LAMPS	RECESSED	(1)BG1036W (1)BG1036W
D	BENJAMIN ⑭⑮ *CO-0824-8	4	PROTECH	120	8'-0" LONG FLUOR. STRIP/FOUND FIXTURE WITH ACRYLIC PRISMATIC LENS	SURFACE	(2)BG1036W
D1	BENJAMIN ⑭⑮ *CO-0824-4	2	PROTECH	120	SAME AS TYPE 'D' EXCEPT 4'-0" LONG	SURFACE	(1)BG1036W
E	GIMPRICE *TYVM-2-SS	2	WH. SEALED BEAM HALO	120VAC	EMERGENCY LIGHTING HEADS WITH STAINLESS STEEL FINISH ON DOUBLE MOUNTING PLATE.	SURFACE WALL	NONE REQ'D.
E1	GIMPRICE *TYVM-1-SS	1	WH. SEALED BEAM HALO	6VDC	SAME AS TYPE 'E' EXCEPT ON SINGLE MOUNTING PLATE	SURFACE WALL	NONE REQ'D.
E2	GIMPRICE *TYVM-2-RHP	2	RECESSED SEALED BEAM HALO	6VDC	EMERGENCY LIGHTING HEADS HOUSABLE CAST ALUMINUM & BRONZE MOUNTING PLATE	SURFACE WALL	NONE REQ'D.
E3	GIMPRICE *TYVM-1-LH	1	RECESSED SEALED BEAM HALO	6VDC	SAME AS TYPE 'E' EXCEPT SINGLE MOUNTING	SURFACE WALL	NONE REQ'D.
F	MILLER *FL-2001-08	4	PROTECH	120	8'-0" LONG FLUOR. INDUSTRIAL STRIP, W/WHITE ENAMEL PAN	PENDANT	(1)BG1036W
G	CROUSE HINDS *SPR2/4A	2	PROTECH	120	4'-0" LONG BARE STRIP FLUOR. FIXTURE	SURFACE	(1)BG1036W
H	SUTTI ⑭⑮ *ACE 4752/120/EB	4	PROTECH	120	2'x2' CAMB. STAINLESS STEEL RECESSED EGGCRATED FLUOR. FIXT. W/ACRYLIC PRISMATIC LENS	SURFACE	(2)BG1036W
H1	SUTTI ⑭⑮ *ACE 4742/120/EB	2	PROTECH	120	SAME AS TYPE 'H' EXCEPT 2'x4' LOUVS.	SURFACE	(1)BG1036W
J	CAPRI *AEOD-100	1	100W A-21	120	RECESSED ROUND INCAND. DOWNLIGHT W/BLACK MULTI-GROOVE BAFFLE/REFLECTOR	RECESSED	NONE REQ'D.
K	CAPRI *EIOA-313	1	100W A-21	120	RECESSED SQUARE INCANDESCENT DOWNLIGHT W/CHROME LENS TREATMENT PROTECTED	RECESSED	NONE REQ'D.
L	DEVINE ⑨ *FA31-VA-INC-TR	1	90W MED/TIG	120	RECESSED INCAND. STEPLIGHT BAFFLE SIZE W/CAST LOUVER	RECESSED DOWN	NONE REQ'D.
M	LITECONTROL ⑭⑮ *LMF100LNCLA8SA5+FLJ/D	4	PROTECH	120	WALL MOUNTED, RECESSED, PRE-ALIGNED FIXTURE WITH RADIAL LENS	SURFACE WALL	(1)BG1036W
M1	LITECONTROL ⑭⑮ *RIGGS/ABERS/ECS-CALI/D	2	PROTECH	120	WALL MOUNTED, DIRECT/REFLECTANT FIXTURE WITH RADIAL LENS	SURFACE WALL	(1)BG1036W
M2	LITECONTROL ⑭⑮ *RIGGS/ABERS/ECS-CALI/D	4	PROTECH	120	PENDANT MOUNTED, INDIRECT/DIRECT FLUOR. FIXTURE WITH RADIAL LENS	PENDANT	(2)BG1036W
N	GENERAL ELECTRIC ⑨ SOLAR 70 ROSEWOOD WALK WITH 6087 BALLAST	1	LUMO S-23½	208	POLE MTD. DECORATIVE H.I.D. LUMINAIRE WITH DARK BRONZE FINISH	POLE	AS SUPPLIED WITH UNIT
P	DEVINE ⑨ *DAE-50-MPS-180-D	1	LUMO S-23½	120	H.I.D. 8" ROUND LOUVERED SQUARE WITH 80' SHIELD	SQUARE	AS SUPPLIED WITH UNIT
Q	NEBIE *DEC-105LY-208V	1	LUMO S-23½	208	H.I.D. INDUSTRIAL ART. WITH MEDIA TO DIFFUSE TO SUITABLE FOR WET LOCATIONS, ENCLOSED	SURFACE	AS SUPPLIED WITH UNIT
Q1	NEBNE *DEC-105LX-208V-EMR	1 1	LUMO S-23½ QUADRALUX	208	SAME AS TYPE 'Q' EXCEPT WITH QUARTZ EMERGENCY LIGHT	SURFACE	AS SUPPLIED WITH UNIT
Q2	NEBNE *DEP-105LY-208V	1	LUMO S-23½	208	SAME AS TYPE 'Q' EXCEPT PENDANT MOUNTED	PENDANT	AS SUPPLIED WITH UNIT
Q3	NEBNE *DEP-105LX-208V-EMR	1 1	LUMO S-23½ QUADRALUX	208	SAME AS TYPE 'Q1' EXCEPT PENDANT MOUNTED.	PENDANT	AS SUPPLIED WITH UNIT
R	SUTTI *LL930-HSA-3/IVL ⑨	1	LUMO MADSUL	208	H.I.D. LOW BAY LUMINAIRE W/ACRYLIC LENS & SQUARE CAST ALUM. REFLECTOR	PENDANT	AS SUPPLIED WITH UNIT
S	ARMED *TSDFT-P	1	35W MR-16	120	INCANDESCENT TRACK LIGHT W/WHITE FINISH	TRACK	NONE REQ'D.
T	NORDAY ⑨ *HO-35	1	35W MYSTIQUE	120	ROUND MOLDED LIGHT HOUSE W/INDUCTION MOLDED REFLECTOR & PLASTIC LENS	SURFACE CEILING WALL	(1)BG1036W
U	FERRANTI ⑭⑮ *FCOCOU	2	PROTECH	120	2'-0" LONG CHROME CEILING FLUOR. RECESS. FIXT. WITH ACRYLIC LENS & LOUVERS	SURFACE	(1)BG1036W
V	NORDAY *HAVOC-2 WOU	2	PROTECH	120	2'x2' FLUORESCENT FIXT. W/LOUVERS & RECESSED MAINTENANCE DOOR	SURFACE	(1)BG1036W
W	ALNCO *ASC-32-RSW	2	T5-13W	120	UNDER CABINET FLUOR. FIXTURE	SURFACE UNDER CABINET	AS SUPPLIED WITH UNIT
W1	ALNCO *ASC-16-SW	1	T5-8W	120	UNDER CABINET FLUOR. FIXTURE	SURFACE UNDER CABINET	AS SUPPLIED WITH UNIT
X	NEBNE *EDEAC-BC	1	20W T6½	120VAC 6VDC	EXIT SIGN WITH 6" HIGH RED LETTERS ON SAND BLAST GROUND SINGLE FACE	SURFACE CEILING	AS SUPPLIED WITH UNIT
X1	NEBNE *EDEAD-BC	1 1	20W T6½ 3W DIC	120VAC 6VDC	SAME AS TYPE 'X' EXCEPT WITH ARROW	SURFACE CEILING	AS SUPPLIED WITH UNIT
X2	NEBNE *EDEAD-BC	1 1	20W T6½ 3W DIC	120VAC 6VDC	SAME AS TYPE 'X' BACK TO BACK DOUBLE FACE	SURFACE CEILING	AS SUPPLIED WITH UNIT
X3	NEBNE *EDEAD-BC	1 1	20W T6½ 3W DIC	120VAC 6VDC	SAME AS TYPE 'X' EXCEPT WALL MOUNTED	SURFACE WALL	AS SUPPLIED WITH UNIT
X4	CRUSOE *EFEC-CUB-3A-I-RD-E	1 1	20W T6½ 1.8W DIC	120VAC 6VDC	CORROSION RESISTANT EXIT SIGN W/6" HIGH RED LETTERS ON WHITE BRUSHED ALUMINUM HOUSING, SINGLE FACE & END MTD.	SURFACE WALL	AS SUPPLIED WITH UNIT
X5	CRUSOE *EFEC-CUB-3A-II-RD-E	2 1	20W T6½ 1.8W DIC	120VAC 6VDC	SAME AS TYPE 'X4' EXCEPT DOUBLE FACE MOUNTED	SURFACE WALL	AS SUPPLIED WITH UNIT
X6	CRUSOE *EFEC-CUB-3A-I-RD-I	1 1	20W T6½ 1.8W DIC	120VAC 6VDC	SAME AS TYPE 'X4' EXCEPT CEILING MOUNTED	SURFACE CEILING	AS SUPPLIED WITH UNIT

FIXTURE SCHEDULE (CONT.)

TYPE	MANUFACTURER	LAMPS NO.	LAMPS TYPE	VOLTS	DESCRIPTION	MOUNTING	BALLAST
X7	CRUSOE *EFEC-CUB-3A-I-RD-I-LC	1 1	20W T6½ 3W DIC	120VAC 6VDC	SAME AS TYPE 'X4' EXCEPT WITH LOUVERS	SURFACE WALL	AS SUPPLIED WITH UNIT
Y	PROGRESS *P5814-11	1	32W T-8 RAPID START	120	EXTERIOR WALL MOUNTED ELECTRONIC BALLAST	SURFACE WALL	NONE REQ'D.
Z	PROGRESS *P5814-11	2	32W RAPID START	120	WALL MOUNTED BRASS ORIENTAL LANTERN	LAMP	NONE REQ'D.
AA	NEBNE *ECW836C	2	PROTECH	120	WALL MOUNTED FLUORESCENT WALL WASHER FIXTURE W/ RECESSED LUMINAIRE	WALL/ HANGER	(1)BG1036W
BB1	CROUSE HINDS *EVA-5052	1	150W T-37	120	ROUND 11" LOCATION W/ LAMP ASSEMBLY COMPLETE	PENDANT	N.I.C.
BB2	CROUSE-HINDS *EVA-5052	1	150W T-37	120	ROUND 11" LOCATION W/ LAMP ASSEMBLY COMPLETE	CEILING	N.I.C.
BB3	CROUSE HINDS *EVA-5052	1	150W T-37	120	ROUND 11" LOCATION W/ LAMP ASSEMBLY COMPLETE	WALL	N.I.C.
CC	CROUSE HINDS *VMA-52	1	150W T-37	120	ROUND 11" LOCATION W/ LAMP ASSEMBLY COMPLETE	WALL	N.I.C.
DD	RELEASE *GMM-18H-LX	1	HOKUS POKUS	24V	PAGE TELEPHONE FOR STAT LIGHT, WHISTLE AT BASE, THROUGH DOOR	PAD	FURNISH WIRING
EE	BENJAMIN *9412-ASY 2541	1	13W	120	SMALL 2W HOME FOREST LOOK SWINGLE	STRADDLE	N.I.C.

FIXTURE SCHEDULE NOTES

1. LENS, DOOR, LOCK & HINGE TYPE
2. FINISH, CLEAR ANODIZED ALUMINUM
3. PROVIDE CENTRAL EMERGENCY POWER TYPE CPA 1000 BATTERY PACK & TEST TIME TUMBLE SWITCH. PROVIDE WITH REMOTE TEST SWITCH & WIRE GUARD.
4. EMERGENCY LIGHTING BATTERY PACK BY DENSEN SYSTEMS CO.
5. FOR USE IN A NEMA 4X LOCATION

CONTACTOR SCHEDULE

NO.	MANUFACTURER	POLES	AMPS	COIL VOLTAGE	REMARKS
⑤(1)	A ASCO *8332C	4	30	120V	NEMA 1 ENCLOSURE
⑥(1)	B ASCO *8610C	10	30	120V	NEMA 1 ENCLOSURE
⑦(2)	C ASCO *8610C	4	20	120V	NEMA 1 ENCLOSURE
⑧	D ASCO *8610C	6	20	120V	NEMA 1 ENCLOSURE
⑫	E ASCO *8332C	2	30	120V	NEMA 1 ENCLOSURE
⑤	F ASCO *8332C	2	30	120V	N NEMA 3 ENCLOSURE
③	G ASCO *8332C	4	30	120V	N NEMA 3 ENCLOSURE
⑨	H ASCO *8316C 3				
⑥	J ASCO *8316C	3			
⑪	K ASCO *8332C	2			
⑥	L ASCO *8610C	6			
⑩	M ASCO *8610C	4			
⑥(1)	N ASCO *8332C	2			
⑥(3)	P ASCO *8332C	2			

(1) LOCATED IN MAIN ELECTRICAL PANEL
(2) LOCATED IN MAIN ELECTRICAL PANEL
(3) LOCATED AT PUMPING BUILDING AT EACH WATER PUMP
(4) LOCATED IN FILTER PRESS CONTROL ROOM
(5) CONTROLLED BY TIME SWITCH "1"
(6) CONTROLLED BY TIME SWITCH "2"
(7) CONTROLLED BY TIME SWITCH "3"
(8) CONTROLLED BY TIME SWITCH "4"
(9) LOCATED IN CHEMICAL FEED BUILDING
(10) CONTROLLED BY TIME SWITCH "5"

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	8 JUL	EJC	CLARIFICATION
2	9 JAN	EJC	ITEM 1 REVISION
3	JAN.	TJT	GENERAL
4	6 FEB	TJT	ADDED SHEET

TOWN OF ORLEANS, MASSACHUSETTS
SEPTAGE TREATMENT FACILITIES
SCHEDULES I
DATE 7 JUNE | DRAWN BY E.J.C. | CHECKED BY E.J.C.
SCALE: NONE
PROJECT NO. 89523
DWG. NO. E-26

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111
LEA

M-07(24)

ENV. 89523 E-26 LEA

ENV 69623 E-27

PANELBOARD LP2-B

MAIN OR LUGS 125 VOLTAGE 120/208 3 Ø 4 W 5N — SURFACE MOUNTING — LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
1	-	-	Blank	-	-	Note Breaker	3	50	2
-	-	-	Blank	-	-	Note Breaker	-	-	4
-	-	-	Blank	-	-	Note Breaker	-	-	6
7	20	2	Ceiling Lights Seat. Northeast	1.92	.92	Ceiling Lights Seat. Southeast	1	20	8
9	20	2	Ceiling Lights Seat. Northeast	1.92	.92	Ceiling Lights Seat. Southeast	1	20	10
11	20	2	Ceiling Lights Seat. Northeast	1.44	.48	Panel for Vacuum Convertor	1	20	12
13	20	2	Ceiling Lights Seat. Northeast	1.44	.48	Recept. North & East Walls	1	20	14
15	20	2	Receptacle Miscellaneous Lights Storage	1.08	.72	Recept. South Side of Basement	1	20	16
17	20	1	Spare	-	1.00	Recept. East Side of Basement	1	20	18
19	20	1	Fluorescent Lights Over Tanks	.48	-	Spare	1	20	20
21	-	1	Spare	-	.72	Fluorescent Over Stock West Wall	1	20	22
23	-	1	Spare	-	-	Spare	1	20	24
25	-	1	Blank	-	-	Blank	-	-	26
27	-	1	Blank	-	-	Blank	-	-	28

PANELBOARD LP2-1

MAIN OR LUGS 225 LUGS VOLTAGE 120/208 3 Ø 5 W 5N — SURFACE MOUNTING — LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
1	20	1	Lights Rear Control Room Sec.	1.08	.08	Recpt. North Electrician Room	1	20	2
3	20	1	Lights Shed Overhang - Guardhouse, North Control Rm. Kitchen Area #2	1.08	.08	Recpt. in Janitor Closet	1	20	4
5	20	1	Lights Rear, Pl. Corridor (Closet), North Toilets, Women's Toilet	1.20	.20	Recpt. in Control Room E Recpt.	1	20	6
7	20	1	Street Lights in Conference Room	.48	1.44	Recpt. in Secretary's Office, Chief Operator's Office	1	20	8
9	20	1	Corridor #2 Lights, Storage Room #2 Lights	.48	1.44	Recpt. in Office, Conference Room, North Room	1	20	10
11	20	1	Lights Control Room, Shift Workers, Lunch Room	1.08	.80	Recpt. West wall - South Room	1	20	12
13	20	1	Spare	-	.20	Recpt. in Men's Room	1	20	14
15	20	1	Lights in Locker & Toilet and Outside Front Door	1.02	.48	Recpt. in Women's Room	1	20	16
17	20	1	Spare	-	.72	Recpt. in Gen. Control Room	1	20	18
19	20	1	Shower Light Locker Ventilator	.35	.60	Odor Control Air Cond Blower	1	20	20
21	20	1	Lights Wall in Lunch Room 208V	2.16	.80	Recpt. in Gen. Area	1	20	22
23	-	-	Waste Heat in Lunch Room 208V	208 VA	-	Sump Pumps in Odor Control Basement	1	20	24
25	20	2	Garage Ceiling Lights 208V	1.26	.42	Rec. in Walls Salt Conveyors Off.	1	20	26
27	-	-	Garage Ceiling Lights 208V	-	.84	Rec. in Walls & Walls salt in Salt Control Room	1	20	28
29	20	1	Spare	-	-	Lights in Screen Enclosure 4a	1	20	30
31	20	1	Lights Odor Control, Monsoon Vent. Fan	-	.20	Rec. for Vacuum & Grit & Sand Control	1	20	32
33	20	1	Lights Pump Room Door Control Area	-	.20	Outside Recpt. at Side Window Door	1	20	34
35	20	1	Lights Over Work Area in Lunch Room	1.20	.80	Screen Receptacles	1	20	36
37	20	1	Spare	-	.72	Time Clock No 1	1	20	38
39	20	1	Spare	-	-	Time Clock No 2	1	20	40
41	20	1	Spare	-	.72	Time Stamp No 2	1	20	42

PANELBOARD LP2-1A

MAIN OR LUGS 225 VOLTAGE 120/208 3 Ø 4 W 5N — SURFACE MOUNTING — LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
-	-	-	Blank	-	-	Bath Breaker	3	125	2
-	-	-	Blank	-	-	Bath Breaker	-	-	4
-	-	-	Blank	-	-	Bath Breaker	-	-	6
1	-	-	Blank	-	33.36	Bath to LP2-1	3	125	2
3	-	-	Blank	-	-	Bath to LP2-1	-	-	4
5	-	-	Blank	-	-	Bath to LP2-1	-	-	6
7	15	1	Feed LP2-E, 2nd Floor	9.60	9.60	Feed LP2-E	1	15	8
9	-	-	Feed LP2-E, 2nd Floor	-	-	Feed LP2-E	-	-	10
11	-	-	Feed LP2-E, 2nd Floor	-	-	Feed LP2-E	-	-	12
13	15	1	Lights on Old Bldg. Exter.	1.20	1.20	Feed Lights, Overland Way	1	15	14
15	-	-	Lights on Old Bldg. Exter.	-	-	Feed Lights, Overland Way	-	-	16
17	15	1	Spare	-	1.68	Feed Lights, Overland Way	2	20	18
19	-	-	Spare	-	-	Feed Lights, Overland Way	-	-	20
21	20	1	Lights in Front of Bldg. Park. Lot	.48	1.08	Ceiling Lights, Receiving Area	2	20	22
23	-	-	Lights in Front of Bldg. Park. Lot	-	-	Ceiling Lights, Receiving Area	-	-	24
25	15	1	Rear Lights at Rec. Area Entrance & Park	.48	-	Spare	-	-	26
27	20	2	Rear Lights at Rec. Area Entrance & Park	-	-	Spare	-	-	28
29	-	-	Spare	-	-	Spare	-	-	30
31	-	-	Spare	-	-	Spare	-	-	32
33	-	-	Spare	-	-	Spare	-	-	34
35	20	1	Ventilator Duct Drive	-	.20	Radiator Lights on Front Wall	-	20	36
37	20	1	Odor Control Ac Screen Enclosure #1	-	.40	Radiator Lights on Front Wall	-	20	38
39	20	1	Hose Room, Drill Hydrant	-	-	2 Lights at Center Tanks	1	20	40
41	-	-	Spare	-	-	Spare	-	-	42
43	-	-	Spare	-	-	Spare	-	-	44
45	-	-	Spare	-	-	Spare	-	-	46
47	-	-	Spare	-	-	Spare	-	-	48

PANELBOARD LP2-L

MAIN OR LUGS 70 AMP VOLTAGE 120/208 3 Ø 4 W 5N — RECESSED MOUNTING LABORATORY LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
1	20	1	Space	-	-	Spare	2	20	2
3	20	1	Space	-	-	Spare	-	-	4
5	20	1	Space	-	.18	Gun Hood	1	20	6
7	20	1	Space	-	.18	Gun Hood	1	20	8
9	20	1	Space	-	-	Spare	1	20	10
11	20	1	Space	-	-	Spare	1	20	12
13	20	1	Receptacles	.36	-	Lab Vent Fan #21	1	20	14
15	20	1	Miscellaneous Lights	.90	1.44	Lab Vent Fan #22	1	20	16
17	20	1	Ceiling Lights Lab. South Wall	.90	.90	Gun Hood Fan & Lights	1	20	18
19	20	1	Ultraviolet Ster. Rm. Wall	.48	.60	Ultraviolet Ster. Room Inspection	1	20	20
21	20	1	Ultraviolet Ster. Rm. Wall	.48	.60	Ultraviolet Ster. Room Inspection	1	20	22
23	20	1	Ultraviolet Ster. Rm. Wall	.48	-	Ultraviolet Ster. Room Wall	1	20	24
25	20	1	Receptacles	.90	-	Safety Receptacle	1	20	26
27	20	1	Receptacles	.90	-	Ultraviolet Ster. South Wall	1	20	28
29	20	1	Exhaust Ventilator	-	-	Ultraviolet Ster. South Wall	1	20	30

PANELBOARD LP2-2

MAIN OR LUGS 125 AMP VOLTAGE 120/208 3 Ø 5 W 5N — SURFACE MOUNTING — LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
-	-	-	Blank	-	-	Note Breaker	3	50	2
-	-	-	Blank	-	-	Note Breaker	-	-	4
-	-	-	Blank	-	-	Note Breaker	-	-	6
7	20	1	Lights in Filter Press Room	.90	.90	Lights in Filter Press Room	1	20	8
9	20	1	Lights in Filter Press Room	.90	-	Lights in Filter Press Room	1	20	10
11	-	-	Spare	-	-	Spare	1	20	12
13	20	1	Recpt. in Work Area in Machine Room	.90	.90	Recpt. in Filter Press Room	1	20	14
15	20	1	Recpt. in Work Area in Machine Room	.90	.90	Recpt. in Existing Polymer Room	1	20	16
17	20	1	Lights in Machine Room	.90	1.80	Recpt. in Work Area in Machine Room	1	20	18
19	20	1	Lights in Press Control Rm & Polymer Room	.90	-	Spare	1	20	20
21	20	1	Lights in Press Room	.90	.90	Recpt. in Filter Press Control	1	20	22
23	20	1	Fluorescents in Mac. Rm & Polymer Room	1.44	-	Spare	1	20	24
25	20	1	Lights in Sheet Mtl.	.90	.90	Recpt. in Machine Room	1	20	26
27	20	1	Lights in Machine Room	.90	.90	Recpt. in Press Area in Machine Room	1	20	28
29	20	1	Spare	-	1.20	Press Area in Machine Room	1	20	30

PANELBOARD LP2EB

MAIN OR LUGS 100 AMP VOLTAGE 120/208 3 Ø 4 W 5N — SURFACE MOUNTING — LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
-	-	-	Blank	-	-	Note Breaker	3	60	2
-	-	-	Blank	-	-	Note Breaker	-	-	4
-	-	-	Blank	-	-	Note Breaker	-	-	6
1	20	1	Pneumatic Settling Sys. Closure #1 (South)	1.20	1.68	Pneumatic Settling Sys. Closure #2 (South)	1	20	2
3	-	-	Pneumatic Settling Sys. Closure #1 (South)	-	-	Pneumatic Settling Sys. Closure #2 (South)	-	-	4
5	-	-	Blank	-	-	Blank	-	-	6
7	20	1	Blank	-	-	Blank	-	-	8
9	20	1	Ground Alarm Panel	.12	-	Spare	1	15	10
11	20	1	Elevator Cab Lights	.72	.60	Emergency Fluorescent in Elevator	1	20	12
13	20	1	Emergency Battery Light Unit	.72	.72	Lamps Relay at 87' #	1	20	14
15	20	1	Emergency Light Dehydrator Area	1.20	.72	Lights for Generator Alarm #2	1	20	16
17	20	1	Instrumentation Panel at Control	.72	.60	Flash for Compressor Alarm #2	1	20	18
19	20	1	Solenoids for Gas Valve	.72	.60	Spare	1	20	20
21	20	1	Feed for Control Panels in Equipment Bay 5&6	.72	.84	Air Blow in Compressor Room	1	20	22
23	20	1	Instrumentation Compressor #1	1.20	.72	Ventilation Dust Hood Panel	1	20	24
25	20	1	Instruments Air Compressor #2	1.20	.72	Panel in Filter Press Feed Room Control Room	1	20	26
27	-	-	Blank	-	-	Spare	-	-	28
29	-	-	Blank	-	-	Spare	-	-	30

PANELBOARD LP2E-2

MAIN OR LUGS 125 AMP VOLTAGE 120/208 3 Ø 5 W 5N — SURFACE MOUNTING — LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
-	-	-	Blank	-	-	Note Breaker	3	50	2
-	-	-	Blank	-	-	Note Breaker	-	-	4
-	-	-	Blank	-	-	Note Breaker	-	-	6
1	20	1	Emer. Lgts. in Filter Press Rm	.72	-	Blank	1	20	2
3	20	1	Emer. Lgts. in Filter Press Rm	-	.72	Blank	1	20	4
5	20	1	Exhaust Alarm Panel	.12	.72	Vent Heaters 2nd Floor	1	20	6
7	20	1	Exit Lgts. & Fluorescent Lgt. in Hallway	.12	.72	Emergency Recp. Unit #1 2	1	20	8
9	20	1	Filter Press Control Panel	.72	-	Circulation in Blower Room	1	20	10
11	20	1	Compound Fluorescents 2nd Floor	1.20	-	Vent Circulators in Blower Room	1	20	12
13	20	1	Dehydrator Gas Valve Tank Elevator	-	-	Spare: Take PE 5 AC	1	20	14
15	20	1	Exhaust Fans #1 and #2	.60	.60	Exhaust Fan #17	1	20	16
17	20	1	Filter Press Control Panel	.60	1.80	Boiler Control Panel	1	20	18
19	20	1	Spare	-	-	Blank	1	20	20
21	-	-	Blank	-	-	Blank	-	-	22
23	-	-	Blank	-	.72	Supply Fan #12	1	20	24
25	-	-	Blank	-	-	Blank	-	-	26

PANELBOARD LP2-MB

MAIN OR LUGS 150 AMP VOLTAGE 120/208 3 Ø 5 W 5N — SURFACE MOUNTING MAINT. ROOM LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
1	100	3	Feed to Panel Board LP2-MB	-	5.40	Elec. Duct Office Under Process	2	70	2
3	-	-	Feed to Panel Board LP2-MB	-	-	Elec. Duct Office Under Process	-	-	4
5	-	-	Feed to Panel Board LP2-MB	-	1.80	Elec. Duct Blower	1	20	6
7	20	1	Lights - Basement	1.20	-	Elec. Duct Blower	-	-	8
9	20	1	Lights - Basement	.90	.90	Elec. Duct Office & Corridor Wall	1	20	10
11	20	1	Lights - Basement	-	.90	Elec. Duct Office & Corridor Wall	-	-	12
13	20	1	Lights - Roadway	-	1.20	Lights - Compact Fwd Exp #8	1	20	14
15	20	2	Lights - Compact Fwd Exp #8	1.20	-	Lights - Compact Fwd Exp #9	-	-	16
17	20	1	Lights - Compact Fwd Exp #8	-	1.20	Lights - Compact Fwd Exp #9	1	20	18
19	20	1	Lights - Compact Fwd Exp #8	1.20	-	Lights - Compact Fwd Exp #9	-	-	20
21	20	1	Lights - Compact Fwd Exp #8	-	1.20	Lights - Compact Fwd Exp #9	1	20	22
23	20	1	Lights - Compact Fwd Exp #8	1.20	-	Lights - Compact Fwd Exp #9	-	-	24
25	20	1	Lights - Compact Fwd Exp #8	-	1.20	Lights - Compact Fwd Exp #9	1	20	26
27	20	1	Lights - Compact Fwd Exp #8	1.20	-	Lights - Compact Fwd Exp #9	-	-	28
29	20	1	Lights - Compact Fwd Exp #8	-	1.20	Lights - Compact Fwd Exp #9	1	20	30
31	20	1	Lights - Compact Fwd Exp #8	1.20	-	Lights - Compact Fwd Exp #9	-	-	32
33	-	-	Spare	-	-	Lights - Compact Fwd Exp #9	1	20	34
35	20	1	Spare	-	.72	Lights - Service & Feed Area	1	20	36

PANELBOARD LP2E-1

MAIN OR LUGS 125 VOLTAGE 120/208 3 Ø 4 W 5N — SURFACE MOUNTING — LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
1	-	-	Blank	-	-	Blank	3	50	2
-	-	-	Blank	-	-	Blank	-	-	4
-	-	-	Blank	-	-	Blank	-	-	6
7	70	3	Feed to Sub Panel LP2L	57.60	57.60	Feed to Sub Panel LP2L	3	70	8
9	-	-	Feed to Sub Panel LP2L	-	-	Feed to Sub Panel LP2L	-	-	10
11	-	-	Feed to Sub Panel LP2L	-	-	Feed to Sub Panel LP2L	-	-	12
13	15	2	Feed to Sub Pl. Panel LP2E1	1.44	1.44	Feed to Sub Pl. Panel LP2E1	2	15	14
15	-	-	Feed to Sub Pl. Panel LP2E1	-	-	Feed to Sub Pl. Panel LP2E1	-	-	16
17	30	3	Pulverizer Pump #3	5.28	8.28	Pulverizer Pump #4	3	30	18
19	-	-	Pulverizer Pump #3	-	-	Pulverizer Pump #4	-	-	20
21	-	-	Pulverizer Pump #3	-	-	Pulverizer Pump #4	-	-	22
23	20	1	Lights Left, Serv. Pl. Tanks, Fluorescent Light, Entrance #2 Lights, Rear Entrance #2	1.08	-	Spare	1	20	24
25	-	-	Spare	-	-	Spare	-	-	26
27	20	1	Roadway Lt. Lights	.48	-	Both Lamps Out - #1 Both Lamps Out - #2 Both Lamps Out - #3	1	20	28
29	20	1	Emergency Recpt., Men's Room, Both Lgts. in Lobby, Emergency Recpt. Work Area Lobby	.84	.48	Both Lamps Out - #1 and Working Lamp	1	20	30
31	20	1	To Gen.	1.20	-	Continuity Ind. Monitor Pwr. Fail	1	20	32
33	20	1	To Control Panel	1.20	.120	Fan Control	1	20	34
35	20	1	Instrumentation Alarm Panel	1.20	.72	Rec. in Work Area, Both Lights Out - #1 Both Lights Out - #2	1	20	36
37	20	1	Lobby Recepts. in Reception Area	.72	.72	Rec. in Work Control Rm. Desk Area	1	20	38
39	20	1	Odor Control Rm. Section Light #2 & #3	.48	-	Fog Flow Alarm Solid Fill Control Panel in Generator Set Trailer Room	1	20	40
41	20	1	H.V.F. Rooms in Floor Circulator in Air Area & Chemical Rec. Area	.48	-	Work Recepts on #1 Wall Garage Work Room #1	1	20	42
43	20	2	Emergency Lgts. in Garage & Gen. Area	.48	-	Lights Recepts South Wall Garage Work Room #1	1	20	44
45	-	-	Emergency Lgts. in Garage & Gen. Area	-	-	Recepts for Heat Blowers in Gen. Area, Gen. Set Trailer	1	20	46

PANELBOARD LP2-MBA

MAIN OR LUGS 125 AMP VOLTAGE 120/208 3 Ø 4 W 5N — SURFACE MOUNTING MAINT. ROOM LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
1	60	3	Water Heater	4.8	4.8	Water Heater	3	60	2
3	-	-	Water Heater	-	-	Water Heater	-	-	4
5	20	1	Spare	-	-	Spare	1	20	6
7	-	-	Spare	-	-	Spare	1	20	8
9	20	1	Rest Room Exhaust Fan	.72	.72	Lights Ext. & Sec.	1	20	10
11	20	1	Switchgear	.72	.72	Lights, Ext. Sec. Lgt.	1	20	12
13	15	1	Receptacles - Office	.36	.72	Soap Pump	1	20	14
15	15	1	Lights - Work Area	.36	.72	Soap Pump	1	20	16
17	15	1	Lights Ventilating Equipment	1.44	.72	Fluor. Lights	1	20	18
19	15	1	Lights Ventilating Equipment	1.44	.72	Fluor. Lights	1	20	20
21	15	1	"E-Mail" Space Conditioner	.36	.72	Spare	1	20	22
23	15	1	Vent Fans	.90	.90	Receptacle & Lamp, Blower	1	20	24
25	20	1	Spare	-	.72	Fire Alarm Panel	1	15	26

PANELBOARD APPI

MAIN OR LUGS 225 VOLTAGE 277/480 3 Ø 5 W 5N — SURFACE MOUNTING STORAGE RM. LOCATION

CKT NO.	TRIP AMPS	NO. POLES	LOAD DESCRIPTION	LOAD	LOAD	LOAD DESCRIPTION	NO. POLES	TRIP AMPS	CKT NO.
1	15	1	Garage Door Receiving, East #1	-	-	Spare	1	15	2
3	-	-	Garage Door Receiving, East #1	-	-	Spare	-	-	4
5	-	-	Garage Door Receiving, East #1	-	-	Spare	-	-	6
7	15	1	Garage Door Receiving, East #1	-	-	Garage Door #2	1	15	8
9	-	-	Garage Door Receiving, East #1	-	-	Garage Door #2	-	-	10
11	-	-	Garage Door Receiving, East #1	-	-	Garage Door #2	-	-	12
13	15	1	Garage Door Receiving, East #1	-	-	Garage Door #2	1	15	14
15	-	-	Garage Door Receiving, East #1	-	-	Garage Door #2	-	-	16
17	15	1	Garage Door Receiving, East #1	-	-	Garage Door #3	1	15	18
19	-	-	Garage Door Receiving, East #1	-	-	Garage Door #3	-	-	20
21	-	-	Garage Door Receiving, East #1	-	-	Garage Door #3	-	-	22
23	15	1	Garage Door Receiving, East #1	-	-	Garage Door #3	1	15	24
25	-	-	Garage Door Receiving, East #1	-	-	Garage Door #3	-	-	26
27	-	-	Garage Door Receiving, East #1	-	-	Garage Door #3	-	-	28
29	-	-	Garage Door Receiving, East #1	-	-	Garage Door #3	-	-	30
31	15	1	Garage Door Receiving, East #1	-	-	Garage Door #3	1	15	32
33	-	-	Garage Door Receiving, East #1	-	-	Garage Door #3	-	-	34
35	20	1	Spare	-	-	Boiler A.F. Receiving Area	1	20	36
37	-	-	Spare	-	-	Boiler A.F. Receiving Area	-	-	38
39	-	-	Spare	-	-	Boiler A.F. Receiving Area	-	-	40
41	15	1	Spare	-	-	Recpt Breaker	-	-	42
43	-	-	Spare	-	-	Blower	-	-	44
45	-	-	Main Breaker	-	-	Blower	-	-	46

NOTES

1. FOR PANELBOARD SCHEDULE PP4A SEE DWG. NO. E-21A.
2. FOR PANELBOARD SCHEDULE LP2A SEE DWG. NO. E-22A.
3. FOR PANELBOARD SCHEDULE LP2C SEE DWG. NO. E-23A.

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	7/75	CAC	GENERAL
2	1/76	TJS	GENERAL
3	5/80	TJS	REVISED PER AS-BUILT DWG.

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SCHEDULES II

SCALE: NONE

PROJECT NO. 69623

DWG. NO. E-27

DATE — DRAWN BY — CHECKED BY

LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA

CONDUIT & WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE NO.	CABLE SIZE	REMARKS
C-100	3/4	4	14	POWER
		4	14	CONTROL
C-101	3/4	4	14	POWER
		4	14	CONTROL
C-102	3/4	4	14	POWER
		4	14	CONTROL
C-103	3/4	3	10	POWER - BLOWER
		4	14	CONTROL
C-104	3/4	3	12	POWER
		2	12	GROUND
		4	14	CONTROL
C-105	3/4	3	12	POWER
		2	12	GROUND
		4	14	CONTROL
C-106	3/4	3	12	POWER
C-107	4	4	14	CONTROL - SEPTAGE FLOW METER
		4	14	CONTROL
		4	14	CONTROL
C-108	3/4	4	14	CONTROL
C-109	3/4	4	14	ALARM & CONTROLS (WIRES from PIC PANEL TO P.I.C. & TO MCC #3)
C-110	3/4	4	14	ALARMS
C-111	3/4	4	14	ALARMS AND/OR CONTROL
C-112	3/4	4	14	CONTROL
C-113	3/4	4	14	CONTROL
C-114	3/4	4	14	CONTROL
C-115	3/4	4	14	CONTROL
C-116	3/4	3	10	POWER - ELEVATOR
		2	12	GROUND
C-117	3/4	3	12	POWER
		4	14	CONTROL
C-118	3/4	4	14	ALARMS AND/OR CONTROL
C-119	3/4	4	14	ALARMS AND/OR CONTROL
C-120	3/4	4	14	ALARMS
C-121	1-1/4	3	12	POWER - FILTER PRESS FEED PUMP
		4	14	CONTROL
C-122	1	3	12	POWER - FILTER PRESS FEED PUMP
		4	14	CONTROL
C-123	3/4	3	12	POWER
C-124	3/4	4	14	CONTROL
C-125	3/4	3	12	POWER - FILTER PRESS DRIVE
C-126	3/4	4	14	CONTROL
C-127	3/4	3	12	POWER - FILTER PRESS DRIVE
C-128	3/4	4	14	SIGNAL - FILTER PRESS LOAD CELL
C-129	CONDUIT FILLED AS ROOM WITH	4	14	CONTROLS - FILTER PRESS
C-130	1-1/2	SPARE		FOR POWER CO. METERING SECONDARIES
C-131	4	3	350	POWER - MCC-2
		1	2	GROUND
C-132	4	3	600	SERVICE
		1	1/0	GROUND
C-133	4	SPARE		
C-134				NOT USED
C-135	4	3	500	GENERATOR LEADS
		1	1/0	GROUND
C-136				NOT USED
C-137	3/4	2	14	ALARM - ENGINE START
C-138	1	2	14	ALARM - ENGINE FAIL & STATUS
		10	14	
C-139	3/4	3	10	POWER - CIRCUITS LP2E-L3, 11, 13
		1	10	GROUND
C-140	1			CONTROL CEN.
C-141	3/4	1	1/0	GROUND
C-142	1-1/4	4	8	FEEDER - PANELBOARD LP2-L
		1	8	GROUND
C-143	3/4	4	8	FEEDER - PANELBOARD LP2E-A
		1	10	GROUND
C-144	3/4	4	8	FEEDER - PANELBOARD LP2-B
		1	10	GROUND
C-145	1-1/2	4	1	FEEDER - PANELBOARD LP2-J
		1	6	GROUND
C-146	3/4	4	8	FEEDER - PANELBOARD LP2-J
		1	10	GROUND
C-147	3/4	4	8	FEEDER - PANELBOARD LP2E-2
		1	10	GROUND
C-148	3/4	4	8	FEEDER - 45 KVA TRANSFORMER
C-149	3/4	4	8	FEEDER - 30 KVA TRANSFORMER
C-150	1	4	1/0	FEEDER - PANELBOARD LP2-1A
		1	4	GROUND
C-151	1-1/4	4	8	FEEDER - PANELBOARD LP2E-1
		1	8	GROUND
C-152	3/4	1	4	GROUND
C-153	3/4	1	8	GROUND
C-154				NOT USED
C-155	1	#8	SPR	FIRE ALARM SYSTEM
C-156	1	#8	SPR	FIRE ALARM SYSTEM
C-157	1-1/2	#8	SPR	TELEPHONE / PA SYSTEM
C-158	4-1/2	101	14	CONTROL, STATUS & ALARM
		15	14	SPARES
C-159	1-1/2	10	14	CONTROL, STATUS & ALARM
C-160	1-1/4	12	14	STATUS & CONTROL
		4	14	SPARES
C-161	1-1/4	16	14	STATUS & CONTROL
		4	14	SPARES
C-162	1	10	14	STATUS & CONTROL
		4	14	SPARES
C-163	1-1/4	12	14	CONTROL & ALARM
		4	14	SPARES
C-164	3/4	3	14	CONTROL - FILTRATE PRESS CONTROL
C-165	3/4	4	14	CONTROL - BLOWER & P.I.C.

CONDUIT & WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE NO.	CABLE SIZE	REMARKS
C-166	1-1/4	4-2/C	14 SH	SIGNAL
C-167	1	4-2/C	14 SH	SIGNALS LIT RA 125
C-168	1-1/4	4-2/C	14 SH	SIGNALS
C-169	1-1/4	4-2/C	14 SH	SIGNALS
C-170	1-1/4	4-2/C	14 SH	SIGNALS
C-171	1-1/4	4-2/C	14 SH	SIGNALS FROM MIXING PUMP
C-172	1	7-2/C	16 SH	SIGNALS
C-173	1	15	14	STATUS
C-174	1	15	14	STATUS
C-175	1-1/2	12	14	CONTROL
C-176	3/4	4	14	STATUS
C-177	3/4	4	12	STATUS
C-178	3/4	3	12	POWER - MIXER
C-179	3/4	4	14	CONTROL

CONDUIT & WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE NO.	CABLE SIZE	REMARKS
C-200	3/4	3	12	POWER - COMPOST BLOWER
		4	14	CONTROL
C-201	3/4	3	14	CONTROL
C-202	3/4	3	14	POWER - SLUDGE DEWATERER
		4	14	CONTROL
C-203	3/4	3	12	POWER - SLUDGE DEWATERER
		4	14	CONTROL
C-204	3/4	3	12	POWER - WOOMCHIP RETURN CONVEYOR
		4	14	CONTROL
C-205	3/4	3	12	POWER - WOOMCHIP RETURN CONVEYOR
		4	14	CONTROL
C-206	3/4	3	12	POWER - WOOMCHIP RETURN CONVEYOR
		4	14	CONTROL
C-207	3/4	3	14	CONTROL E/OR ALARM
C-208	3/4	3	10	POWER - BIO MILL
		4	14	CONTROL
C-209	3/4	3	14	CONTROL BELT FEEDER
C-210	3/4	3	12	POWER - BELT FEEDER
		4	14	THERMAL OVERLOAD
C-211	3/4	3	12	POWER - FEED CONVEYOR
		4	14	CONTROL
		1	12	GROUND
C-212	3/4	3	12	POWER
C-213	3/4	3	12	POWER - BIN ACTIVATOR
		4	14	CONTROL
C-214	3/4	3	12	POWER - DRYER SUMP PUMP
C-215	1-1/2	4	3/0	POWER - PANELBOARD LP2-MC
C-216	3/4	2-2/C	14 SH	STORAGE BIN LEVEL
C-217	3/4	2/C	14 SH	SIGNALS
C-218	3/4	2-2/C	14 SH	SIGNALS
C-219	1	3-2/C	14 SH	SIGNALS
C-220	1	4-2/C	14 SH	SIGNALS
C-221				NOT USED
C-222	3/4	3	6	POWER - BOILER HEATER
C-223	2	3	3/0	POWER - NORMAL OR EMERGENCY
		1	1	GROUND
C-224	1-1/4	4	3	POWER - PANELBOARD LP2-MA
C-225	1	4	4	POWER - DRY TYPE TRANSFORMER
C-226				NOT USED
C-227	1-1/4	24	14	SPARES
		4	14	SPARES
C-228	2	8	14	CONTROL & STATUS
		8	14	SPARES
C-229	3/4	8	14	SPARES
		4	14	STATUS
C-230	1-1/2	12-2/C	16 SH	SIGNALS
		2-2/C	16 SH	SPARES
C-231	1	AS REQ'D		INTRUSION ALARM
C-232	1	AS REQ'D		FIRE ALARM
C-233	1	AS REQ'D		TELEPHONE / PA SYSTEM
C-234				NOT USED
C-235				NOT USED

CONDUIT & WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE NO.	CABLE SIZE	REMARKS
C-300	4 PVC	3	350	FEEDER - MCC - 4 (SLUDGE PUMPING STATION)
		1		GROUND
C-301	4 PVC	3	350	SPARE - FEEDER MCC 4 (SLUDGE PUMPING STA.)
		1		GROUND
C-302	4 PVC	-	-	SPARE
C-303	4 PVC	3	1/0	FEEDER - PPAX (CHEMICAL BLDG)
		1	1/0	GROUND
C-304	4 PVC	-	-	SPARE - PPAX (CHEMICAL BLDG)
C-305	4 PVC	8	12	FEEDERS TO PRIMARY SETTLING TANK (LABS)
		1	12	GROUND
		16		CONTROL
C-306	4 PVC	1	12	FEEDER TO PRIMARY SETTLING TNK. & RECYCLE
		1	12	GROUND
C-307	4 PVC	-	-	SPARE TO (CHEMICAL BLDG)
C-308	4 PVC	6	14	STATUS - PRIMARY SLUDGE PUMP RUNNING
		4	14	STATUS - MCC RUNNING
		4	14	STATUS - DEWATER & RECYCLE PUMP RUNNING
		4	14	STATUS - RECYCLED SLUDGE PUMP RUNNING
		4	14	STATUS - MCC RECYCLED PUMP RUNNING
		2	14	ALARM - MCC PUMP LEVEL HIGH
		PR	14	ALARM MCC TEST
		4	14	CONTROL - FILTRATE PUMP (STA.)
		4	14	STATUS PLATE SETTER
		10	14	SPARE
C-309	4 GRS	8-2C	16SH	INSTRUMENTATION
C-310	4 PVC	10	8	FUTURE (INTAKE SITTLING TANK)
		-	-	SPARE (INTAKE SITTLING TANK)
C-311	4 PVC	-	-	SPARE
C-312	4 PVC	-	-	FEE CONDUIT EMPTY (MCC BLOCK)
C-313	4 PVC			ALARMS - PUMP/INTRUSION SLUDGE PUMPING STA.
C-314	3 PVC	-	-	SPARE SLUDGE PUMPING STATION
C-315	4 PVC	-	-	SPARE SLUDGE PUMPING STATION
C-316	3 PVC	3	350	FEEDER TO MCC-5 (SLUDGE PUMP)
		1	2	GROUND
C-317	4 PVC	3	350	ENERG. FEEDER TO MCC-5 (SLUDGE PUMP)
		1	2	GROUND
C-318	4 PVC	-	-	SPARE (SLUDGE PUMP BLDG)

NOTE:
REFER TO COMPUTER PRINTOUT SHEETS FOR CORRECT CONDUIT & WIRE SCHEDULES.

CONDUIT & WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE NO.	CABLE SIZE	REMARKS
C-119	4 PVC	3	12	SPARE
		2	12	STATUS - EXTRACTOR MOTOR (P.I.C. BUILDING)
		2	14	STATUS - EXTRACTOR MOTOR (SLUDGE BUILDING)
		4	14	STATUS - UV TUBE
		4	14	STATUS - BLDG. HEAT CONT. (P.I.C. BLDG.)
		2	14	ALARM - BLDG. HEAT CONT. (P.I.C. BLDG.)
		2	14	CONTROL - EXTRACTOR FANS (P.I.C. BLDG.)
		6	14	ALARM - UV TUBE
C-120	4 GRS	2-2C	14SH	SPARE
		2C	14SH	STATUS - EXPLOSIVE GASEOUS LEVEL (P.I.C. BLDG.)
		2C	14SH	STATUS - EXPLOSIVE GASEOUS LEVEL (SLUDGE BLDG.)
		2C	14SH	STATUS - EXPLOSIVE GASEOUS FLOW (P.I.C. BLDG.)
C-121	4 PVC			SPARE
C-122	4 PVC			FIRE, EXTRACTION ALARMS (P.I.C. BLDG.)
C-123	4 PVC			SPARE
C-124	4 PVC			TEL. CONDUIT
C-125	4 PVC			TELEPHONE/P.A. SYSTEM - (MECHANICAL BLDG.)
C-126	4"	4	12	STATUS - MCC, PRIM. PUMPS RUNNING
		4	14	STATUS - PRIMARY TANK SUMPS CONTROL
		4	14	STATUS - SECONDARY TANK SUMPS CONTROL
		4	14	CONTROL - FILTRATE PUMP (STA.)
C-127	3/4 PVC			SPARE
C-128	4 GRS	2C	14SH	STATUS - MCC, AUTO STORAGE TANK LEVELS
		2C	14SH	STATUS - SUMP/TANK (P.I.C. BLDG.)
		2C	14SH	STATUS - (P.I.C. BLDG.)
		2C	14SH	STATUS - (P.I.C. BLDG.)
		2C	14SH	STATUS - (P.I.C. BLDG.)
C-129				SPARE

(FOR WIRING & CONDUITS CONTINUED ON DRAWING E-28A)

CONDUIT & WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE NO.	CABLE SIZE	REMARKS
C-400	3/4	3	12	POWER - PRIMARY SLUDGE PUMP
		2	12	GROUND
		4	14	CONTROL
C-401	3/4	3	12	POWER - SECONDARY & RECYCLE PUMP
		2	12	GROUND
		4	14	CONTROL
C-402	3/4	3	12	POWER - SECONDARY SLUDGE PUMP
		2	12	GROUND
C-403	3/4	2	12	POWER - EFFLUENT
		2	12	GROUND
C-404	1-1/2	3	12	POWER - MCC
		2	12	GROUND
		4	14	CONTROL
		4	14	POSITION - 4B, 5A SPARE, & FUTURE
C-405	3/4	2	12	ALARM - MCC
C-406	3/4	2	12	MCC - MCC HIGH SUMP PUMP
		2	12	GROUND
C-407	1/2	2	14	EFFLUX - PLATE SETTLER
C-408	3/4	6	14	STATUS - MCC HIGH PUMP UP
		2	14	ALARM - MCC HIGH SUMP LEVEL
		4	14	CONTROL - FILTRATE PUMP (STA.)
C-409	3/4	2	12	POWER - PUMP, SUMP, (BLDG.)
		2	12	GROUND
C-410	3	3	12	POWER - PPAX
		2	12	GROUND
C-411	1/2	3	14	POWER - 15 KW UNIT HEATER w/ 1/3 HP FAN
		2	12	GROUND
C-412	3	6	14	STATUS - PRIMARY SLUDGE PUMP RUNNING
		4	14	STATUS - MCC RUNNING
		4	14	STATUS - DEWATER & RECYCLE PUMP RUNNING
		4	14	STATUS - SECONDARY SLUDGE PUMP RUNNING
		4	14	STATUS - MCC PUMP RUNNING
		2	14	ALARM - MCC PUMP LEVEL HIGH
		PR	14	ALARM MCC TEST
		4	14	CONTROL - FILTRATE PUMP (STA.)
C-413				NOT USED
C-414	3/4	2	12	SPACE EXHAUST FAN
		1	12	GROUND

CONDUIT & WIRE SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CABLE NO.	CABLE SIZE	REMARKS
C-500	3/4	3	12	POWER - UNIT HEATER (P.I.C. BLDG.)
		2	12	GROUND
C-501	3/4	3	12	SPARE - DUCT HEATER
		2	12	GROUND
C-502	3	4	12	SPARE (WASTEWATER FEED PUMP)
			14	CONTROL
C-503	1	4	14	POWER - MCC (SLUDGE PUMP)
		2	12	GROUND
C-504	3/4	3	12	SPARE - EXHAUST FAN #1
		2	12	GROUND
C-505	3/4	3	12	SPARE - EXHAUST FAN #2
		2	12	GROUND
C-506	3/4	3	12	SPARE - (P.I.C. BLDG.)
		2	12	GROUND
C-507	3/4	3	12	SPARE - PROPORTIONAL VALVE (P.I.C. BLDG.)
C-508	3/4	3-2C	14SH	STATUS - PROPORTIONAL VALVE (P.I.C. BLDG.)
C-509	3/4	3C	14SH	STATUS - MCC, MIXER PUMP #1 (P.I.C. BLDG.)
C-510	3/4	3C	14SH	STATUS - MCC, MIXER PUMP #2 (P.I.C. BLDG.)
C-511	3/4	3C	14SH	STATUS - MCC, MIXER PUMP #3 (P.I.C. BLDG.)
C-512	3/4	3C	14SH	STATUS - MCC, MIXER PUMP #4 (P.I.C. BLDG.)
C-513	3/4	3C	14SH	STATUS - (P.I.C. BLDG.)
C-514				SPARE
C-515				SPARE

(FOR WIRING & CONDUITS CONTINUED ON DRAWING E-28A)

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	4/29/77	T.H.S.	ADD STATUS & CONTROL WIRING
2	6/7/77	T.H.S.	ADD SPARE

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

SCHEDULES III

SCALE: NONE

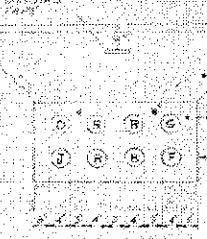
PROJECT NO. 59563

DWG. NO. E-28

DATE 4-29-77 | DRAWN BY T.H.S. | CHECKED BY

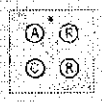
LINENTHAL EISENBERG ANDERSON INC.
75 KNEELAND STREET BOSTON, MASS. 02111

LEA



SECTION A-A

SECTION B-B



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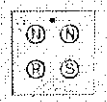

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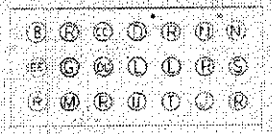

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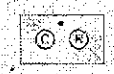

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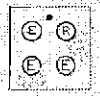
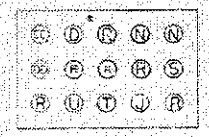


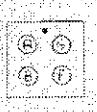
SECTION H-H

SECTION J-J



SECTION L-L

SECTION M-M



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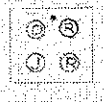

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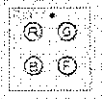


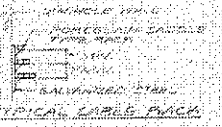
SECTION Q-Q

DUCT BANK

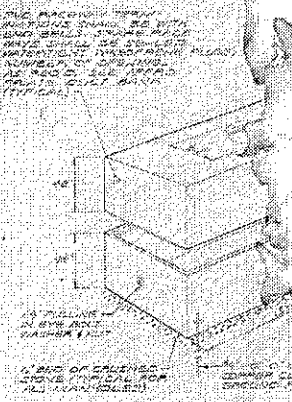
SYMBOL	CONDUIT SIZE	SERVICE
		SUPPLY TELEPHONE CONDUITS
		MISCELLANEOUS CONDUITS
E	4"	SUPPLY POWER CONDUIT
G	4"	SPARE 4" CONDUIT
H	4"	FIRE ALARM CONDUIT TO THE BUILDING
J	4"	FIRE ALARM CONDUIT TO THE BUILDING
K	4"	SPARE
L	4"	FEEDER TO SERVICE BUILDING
M	4"	SPARE CONDUIT
N	4"	SPARE
P	4"	SPARE FOR FUTURE
R	4"	GENERATOR CONDUIT TO MECHANICAL ROOM
S	4"	FUTURE GENERATOR LEADS
T	4"	SPARE
U	4"	SPARE

COORDINATED ON DRAWING E-10A

ADJUSTABLE COVER & FRAME



TYPICAL CABLE RACK



TYPICAL TELEPHONE/ELECTRIC MANHOLE

RECORD DRAWING

REVISIONS			
NO.	DATE	DRAWN BY	DESCRIPTION
1	10/27/94	LEA	ADDENDUM
2	1/95	LEA	ADDENDUM
3	3/95	LEA	ADDENDUM

TOWN OF ORLEANS, MASSACHUSETTS

SEPTAGE TREATMENT FACILITIES

DETAILS 2

SCALE: NO SCALE

PROJECT NO. 89023

DWG NO. E-29

DATE | DRAWN BY | DESIGNED BY

LINENTHAL EISENBERG ANDERSON INC.
74 KNEELAND STREET BOSTON, MASS. 02111

LEA

APPENDIX B

AS-BUILT DRAWINGS – WRIGHT-PIERCE (1997)

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TRI-TOWN
SEPTAGE TREATMENT FACILITY

COPY NO.

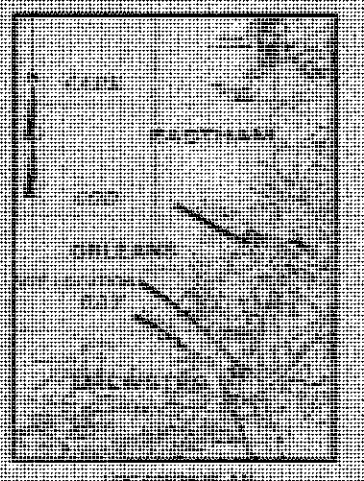
ORLEANS, MASSACHUSETTS

SEPTAGE FACILITY UPGRADE

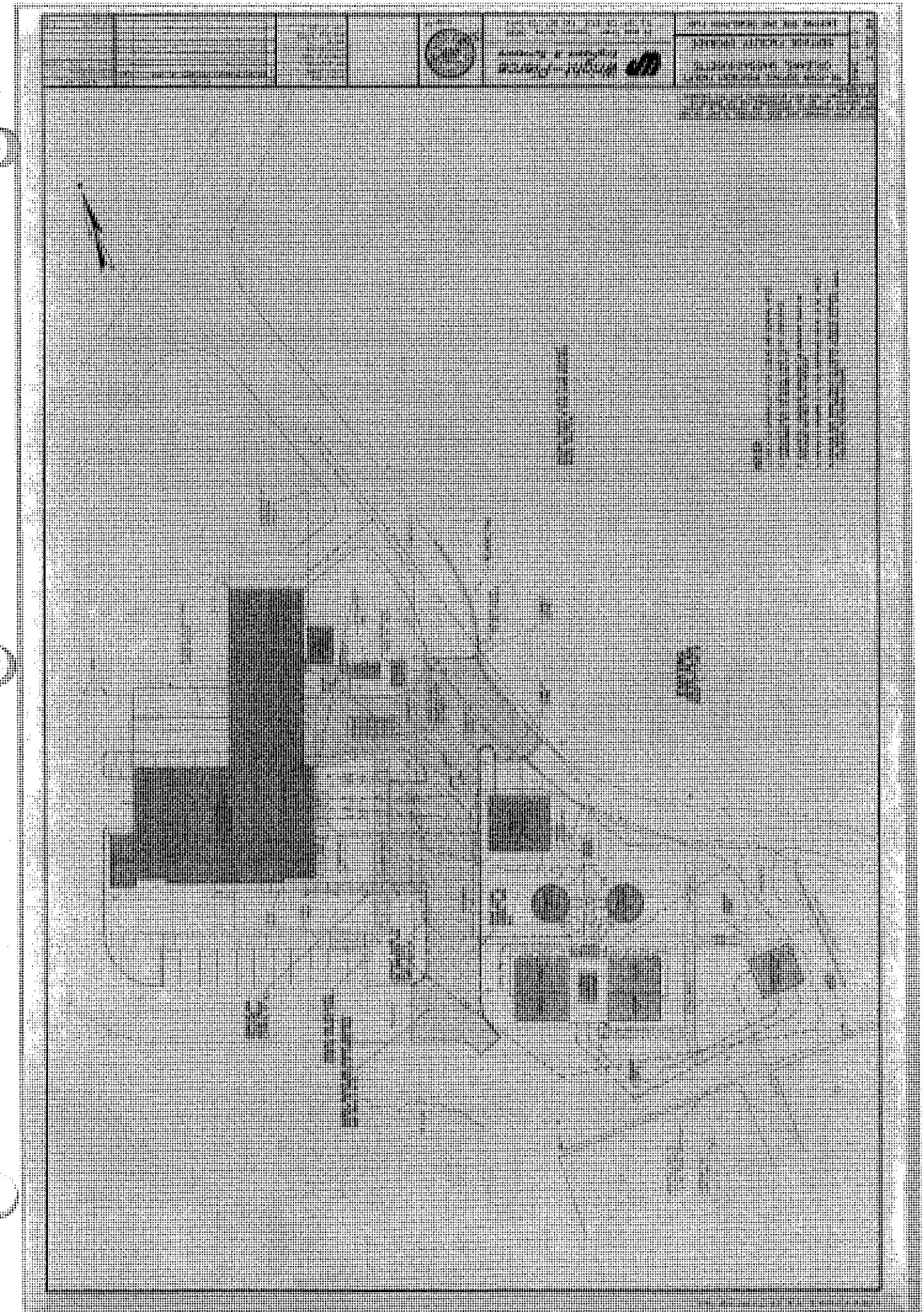
EPA PROJECT NO. C250 524-03
CONTRACT NO. 95-1

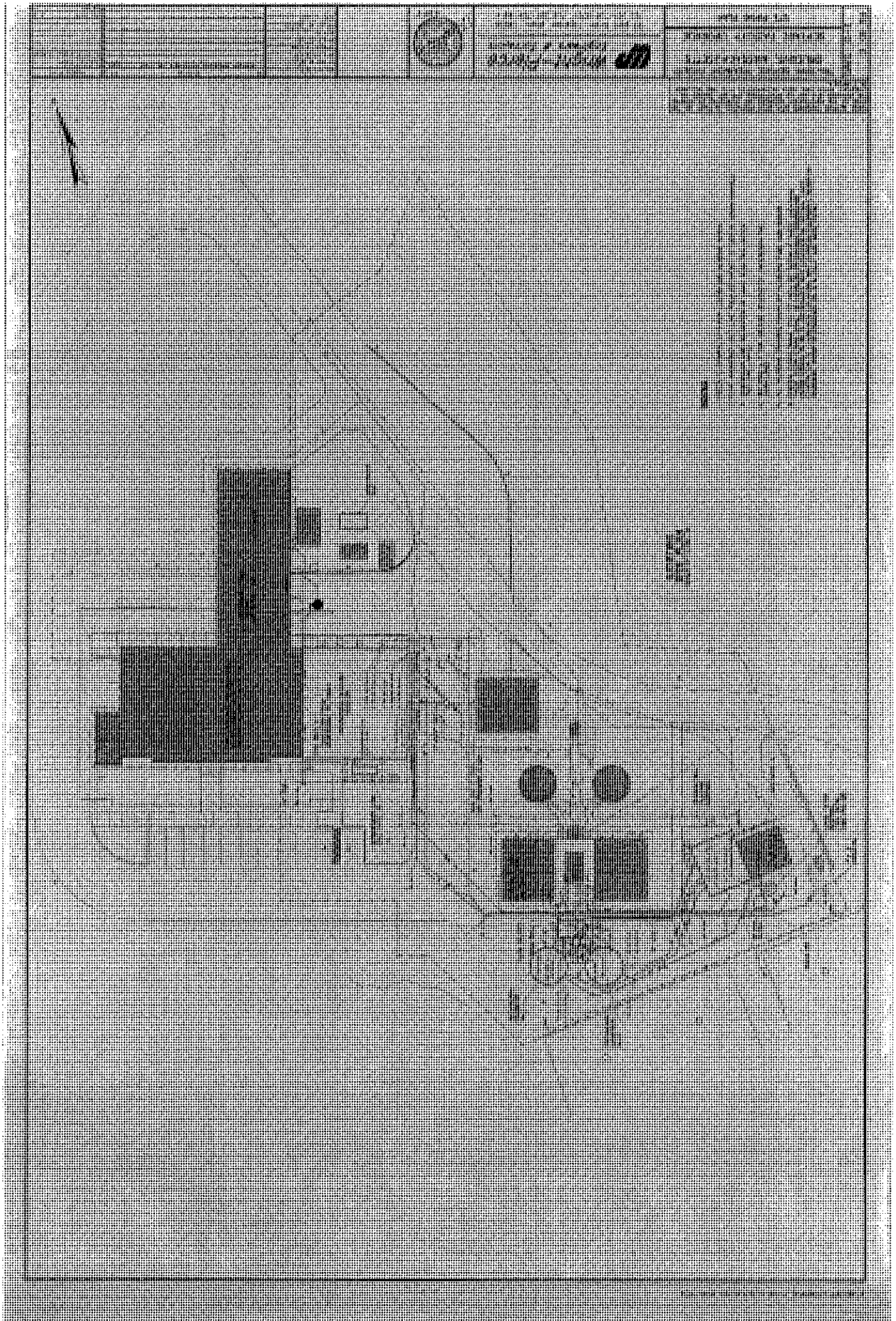
APRIL 1995

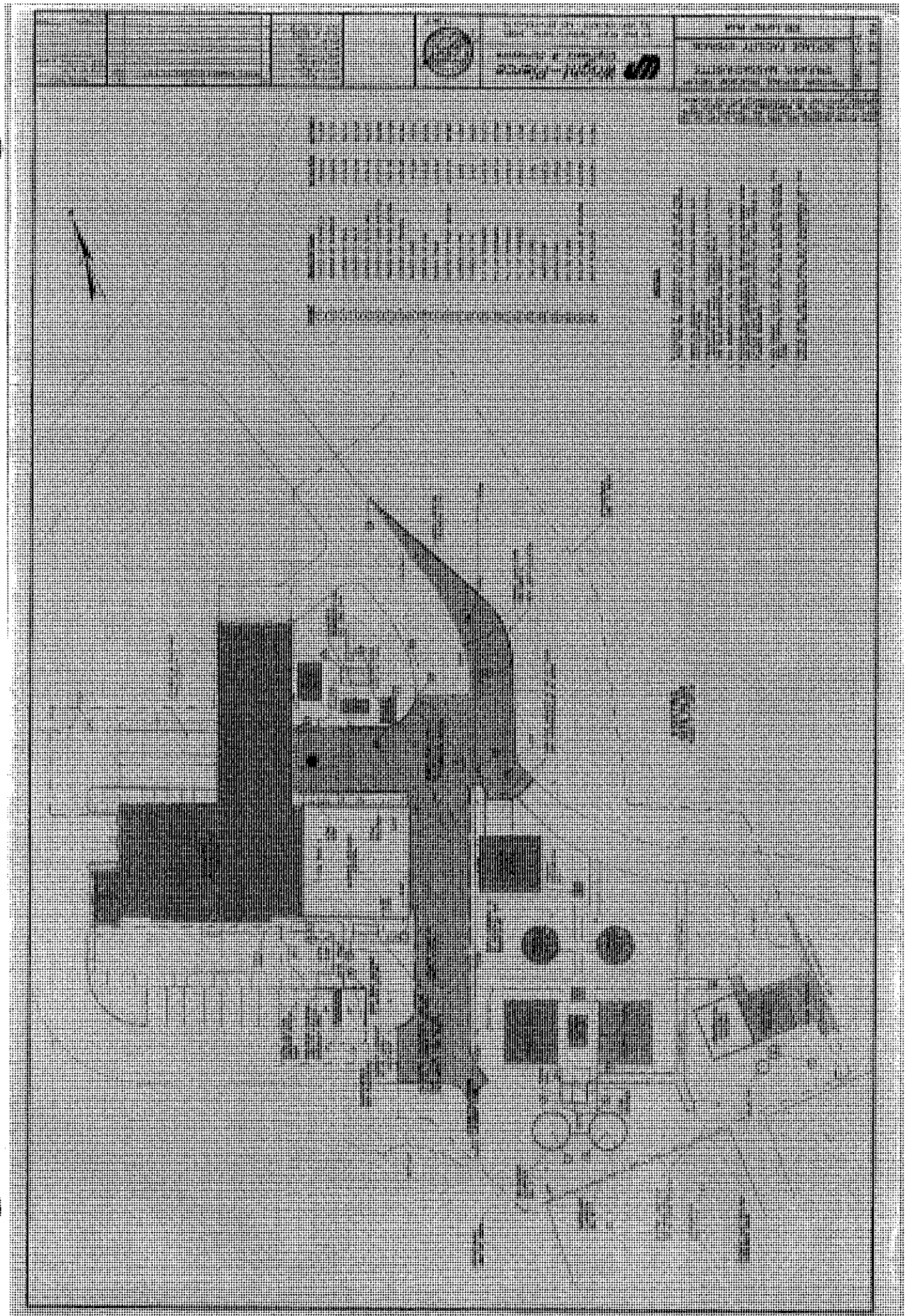
RECORD DRAWINGS DECEMBER 1997

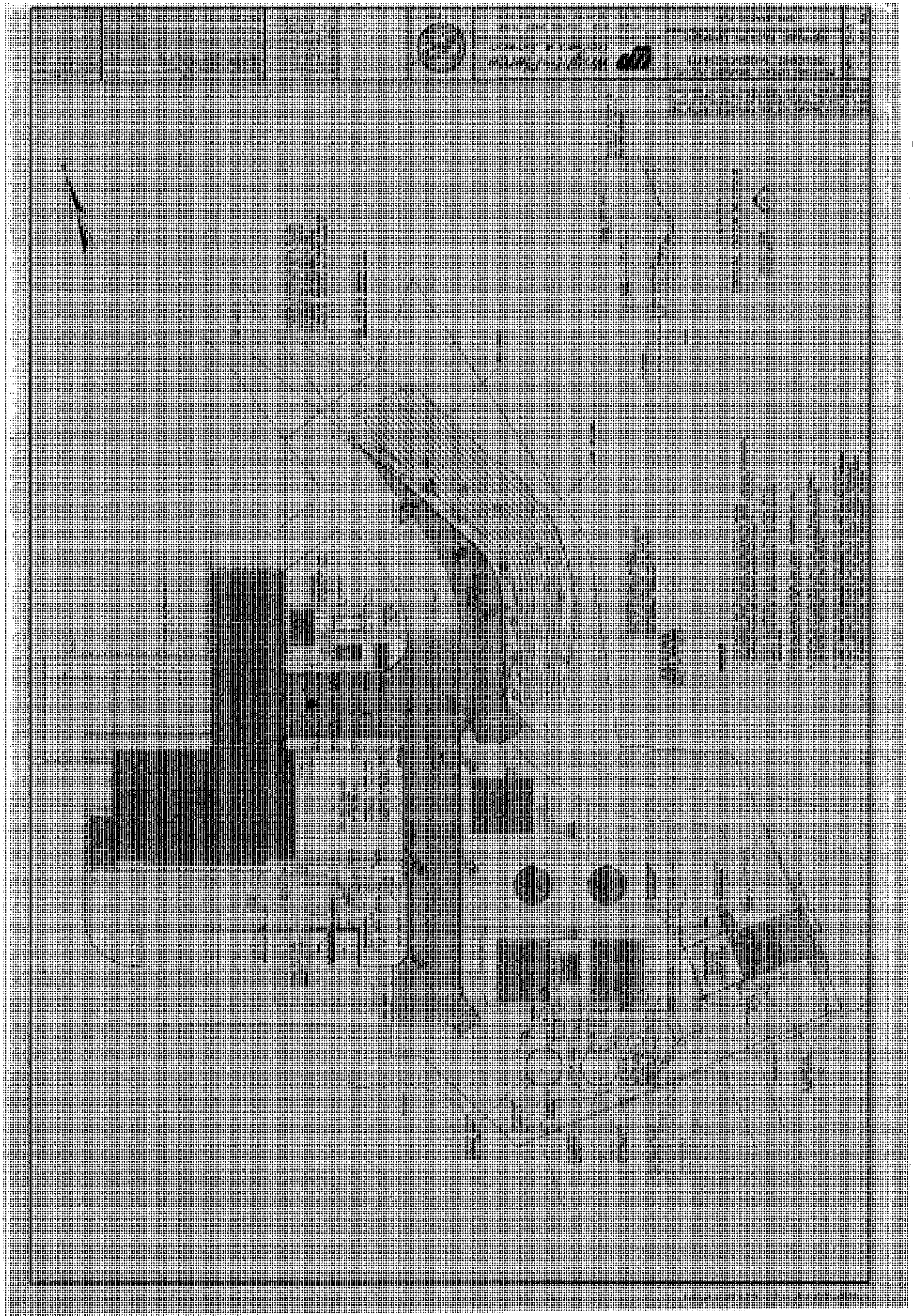


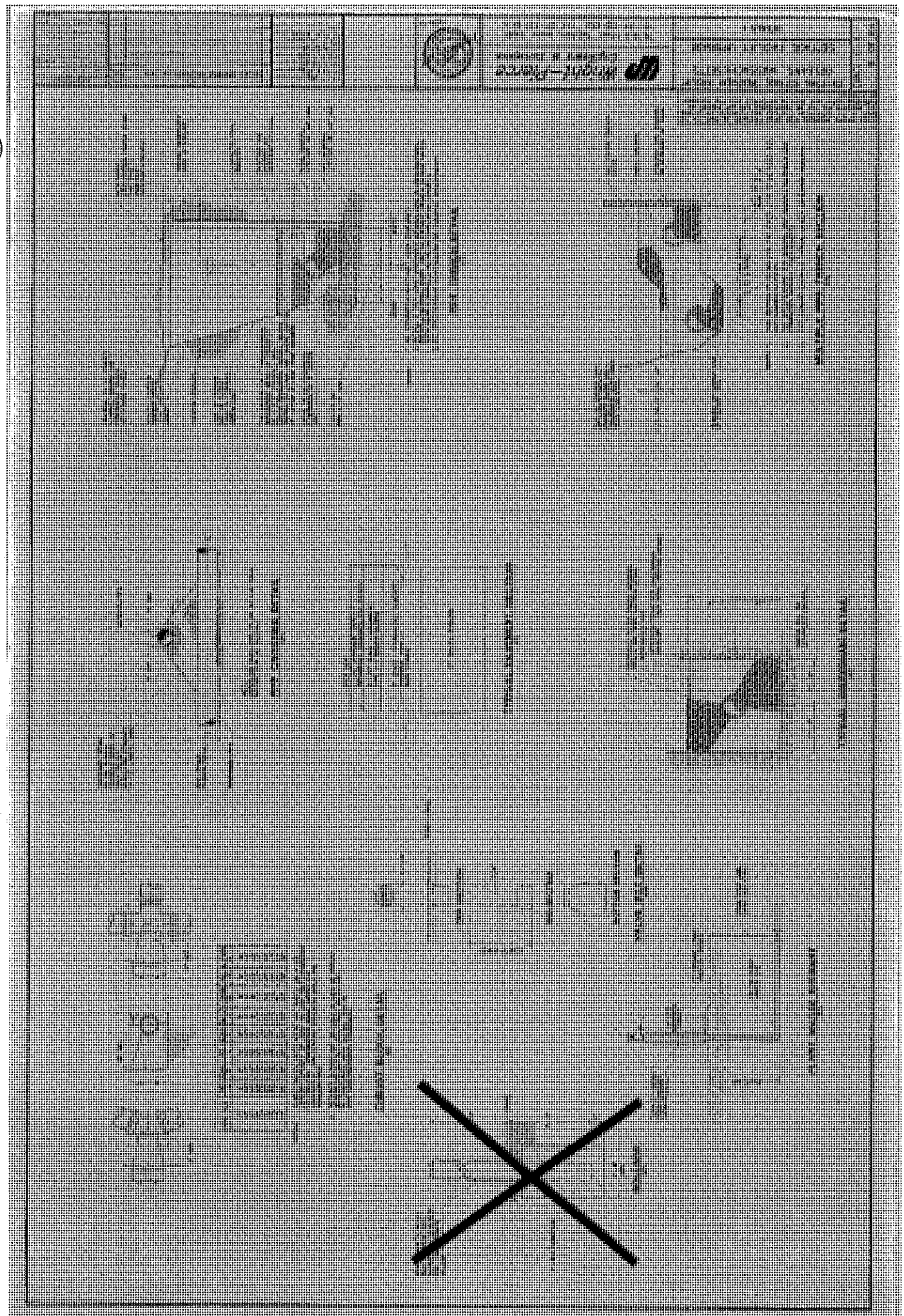
Wright-Pierce

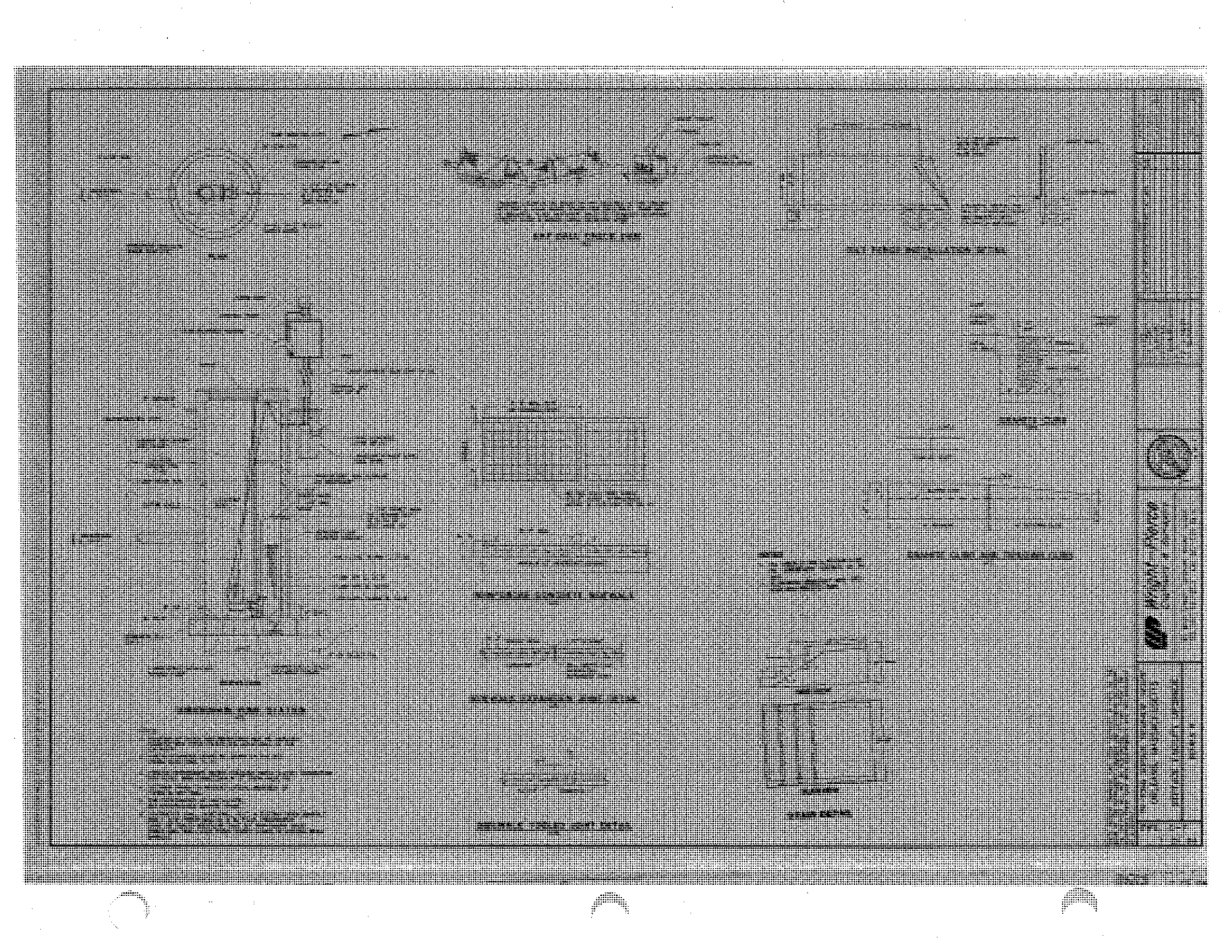


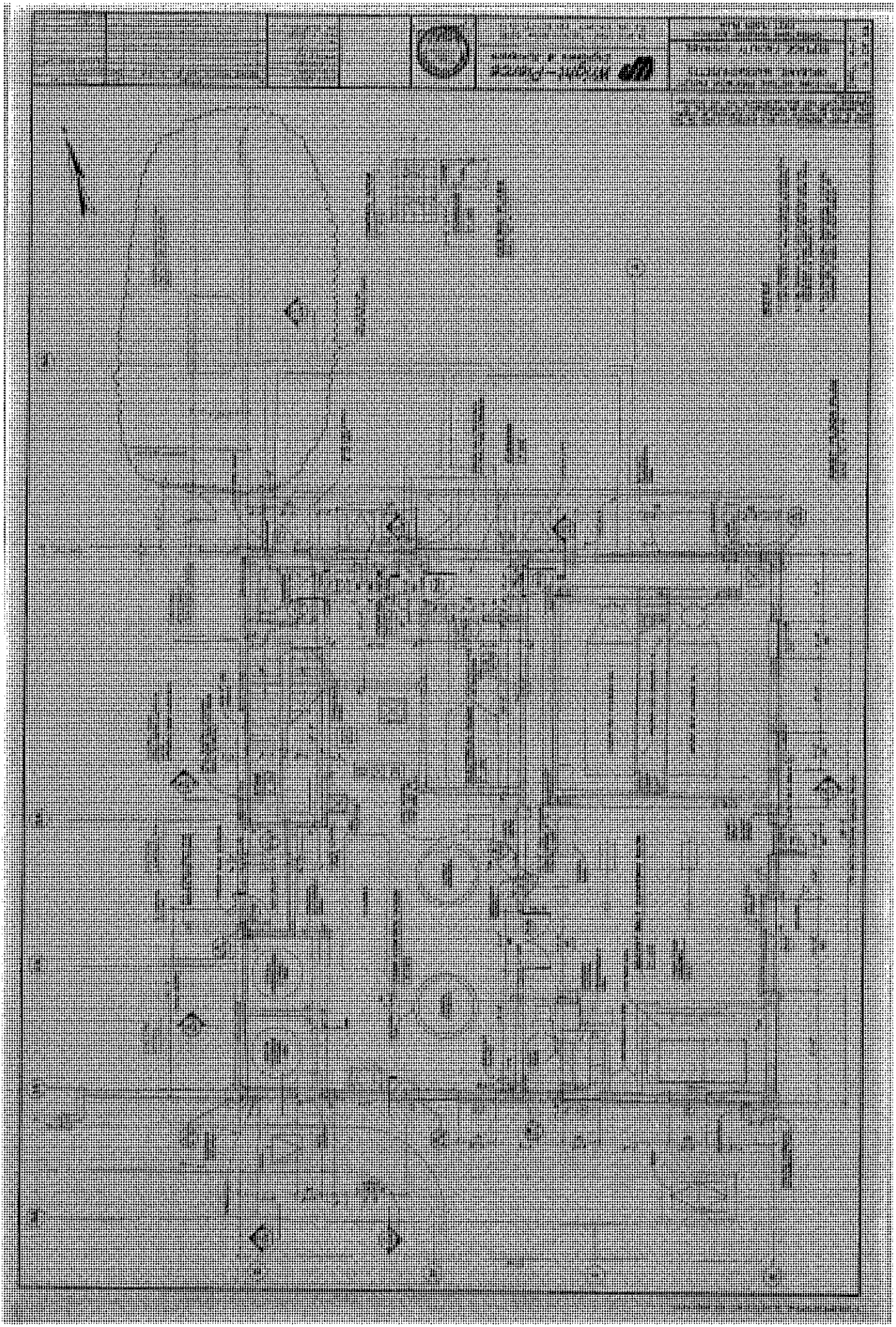


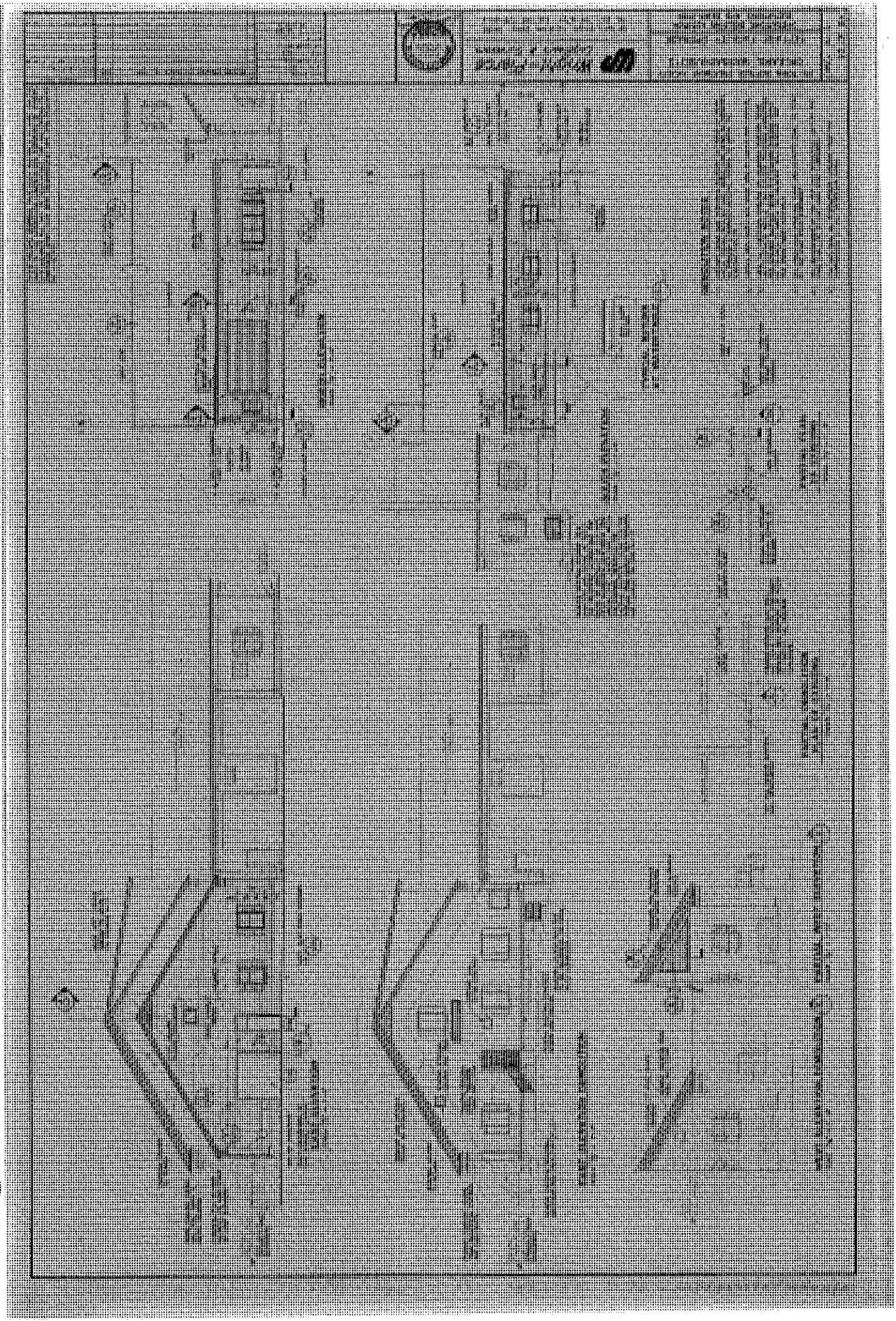


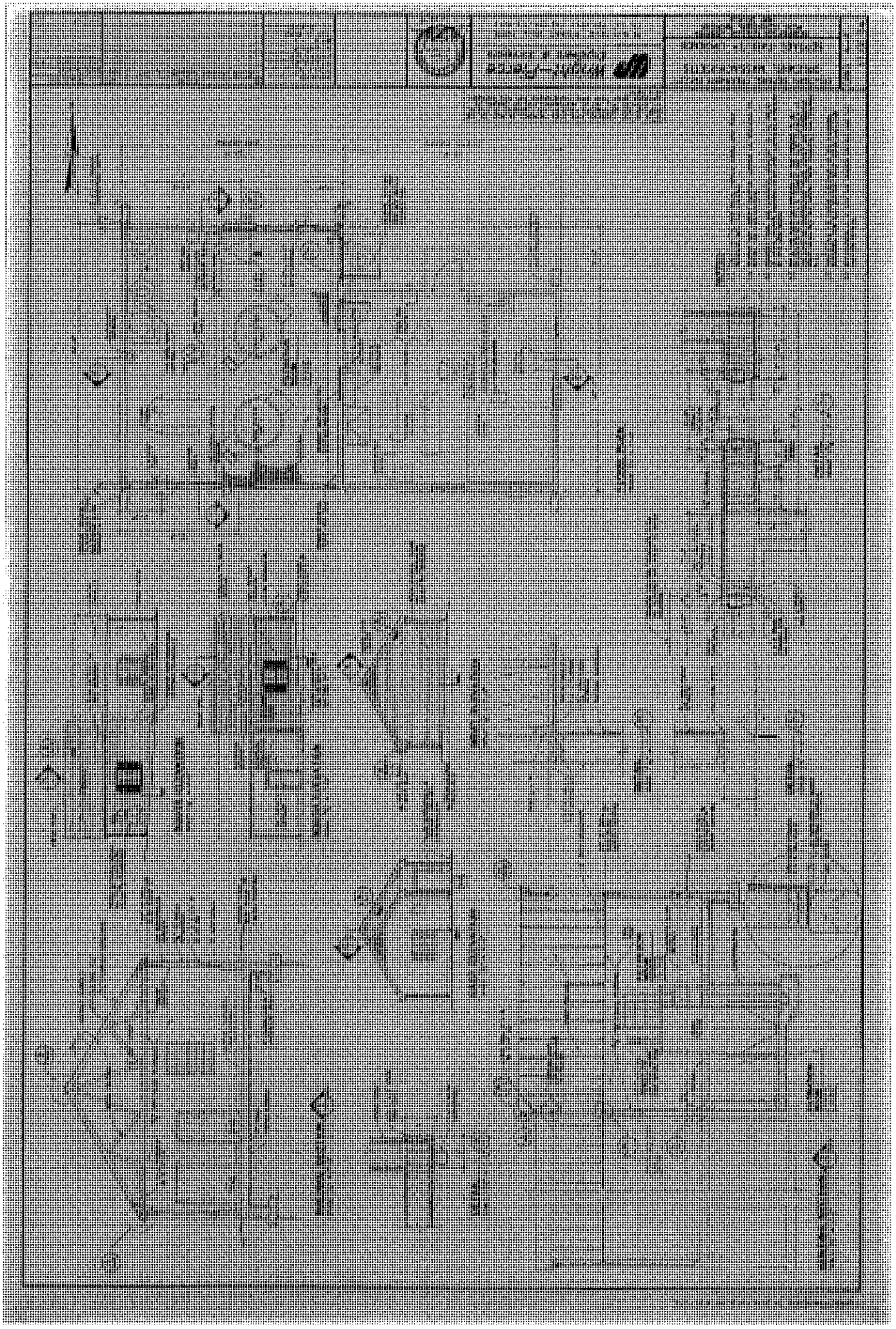


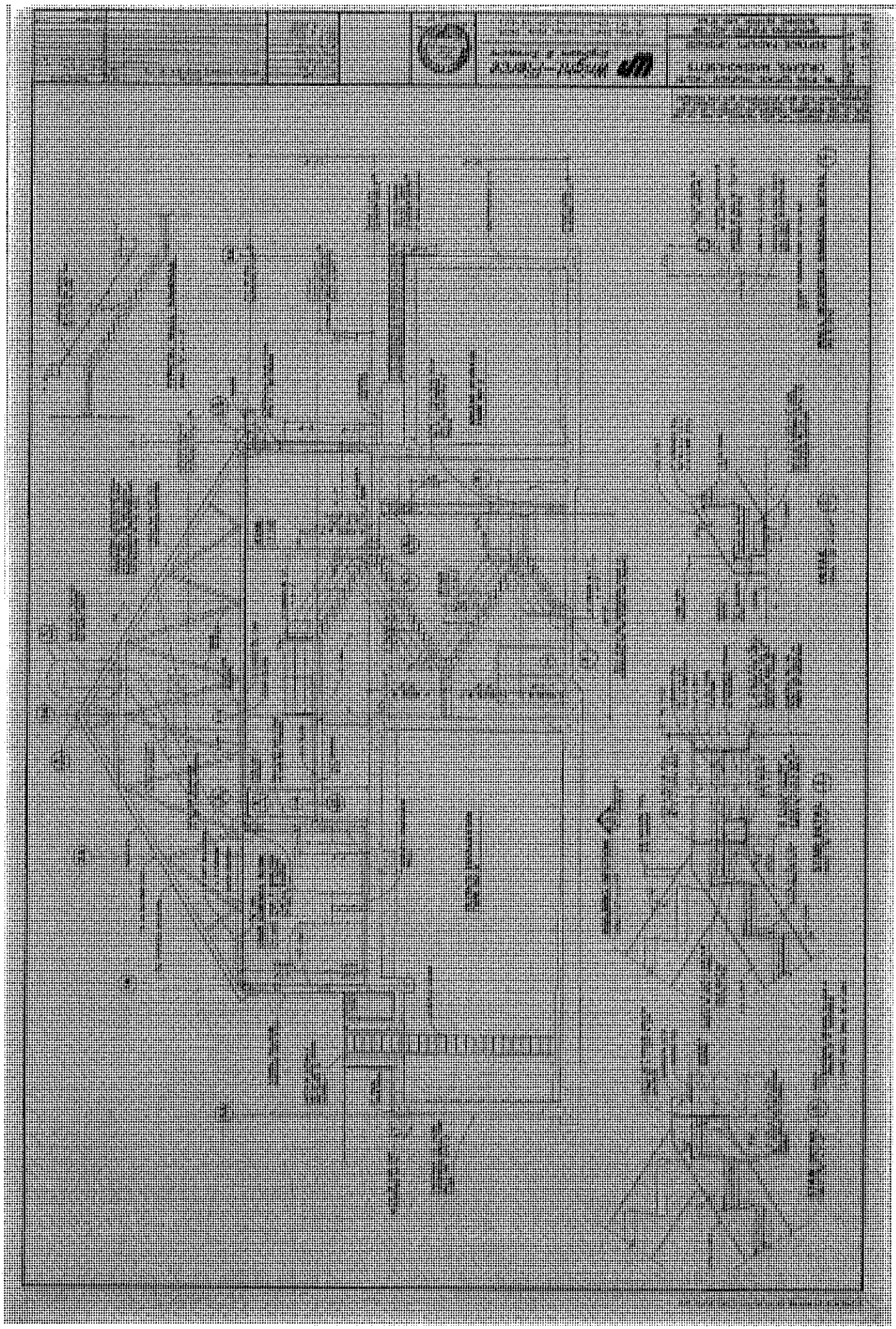


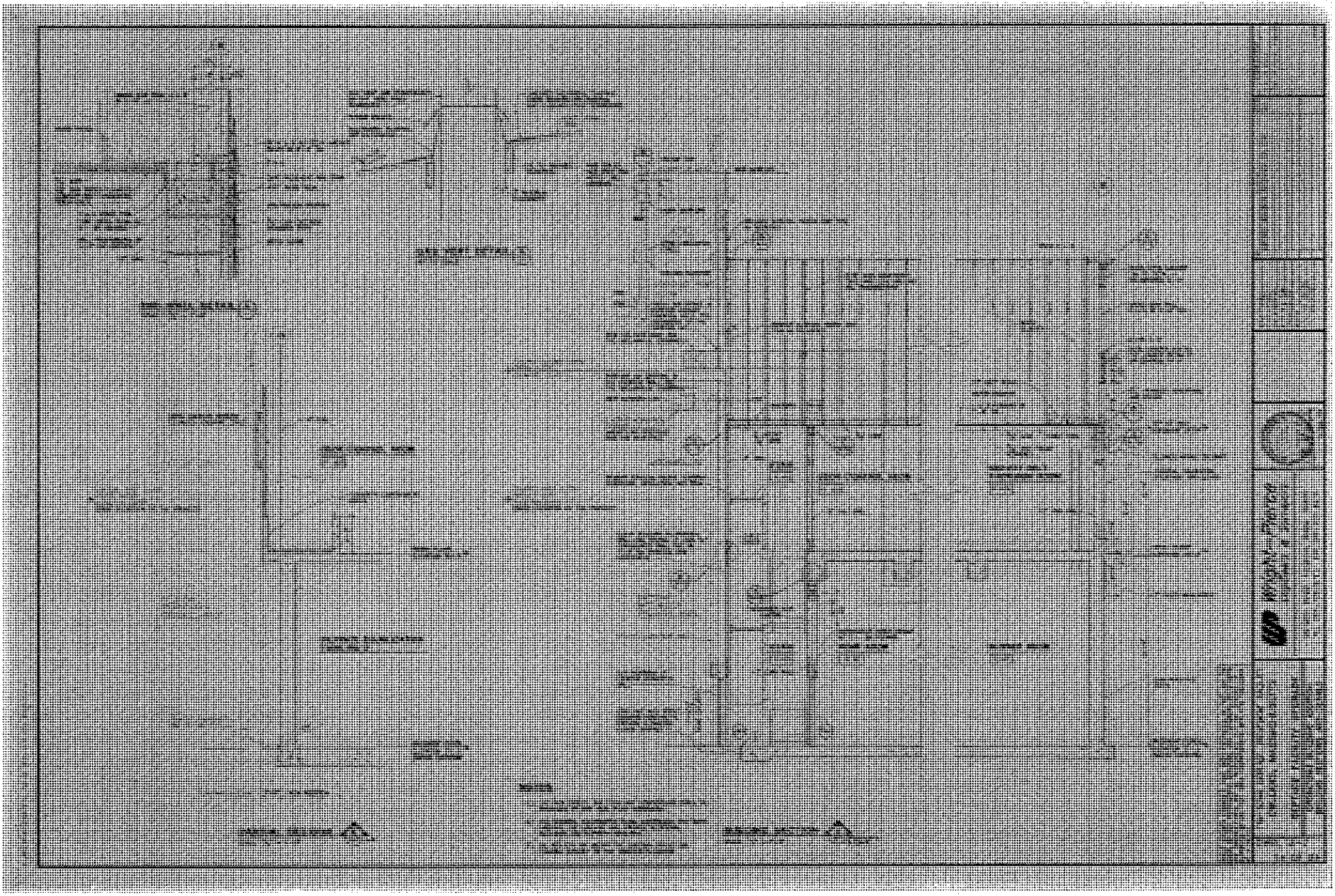


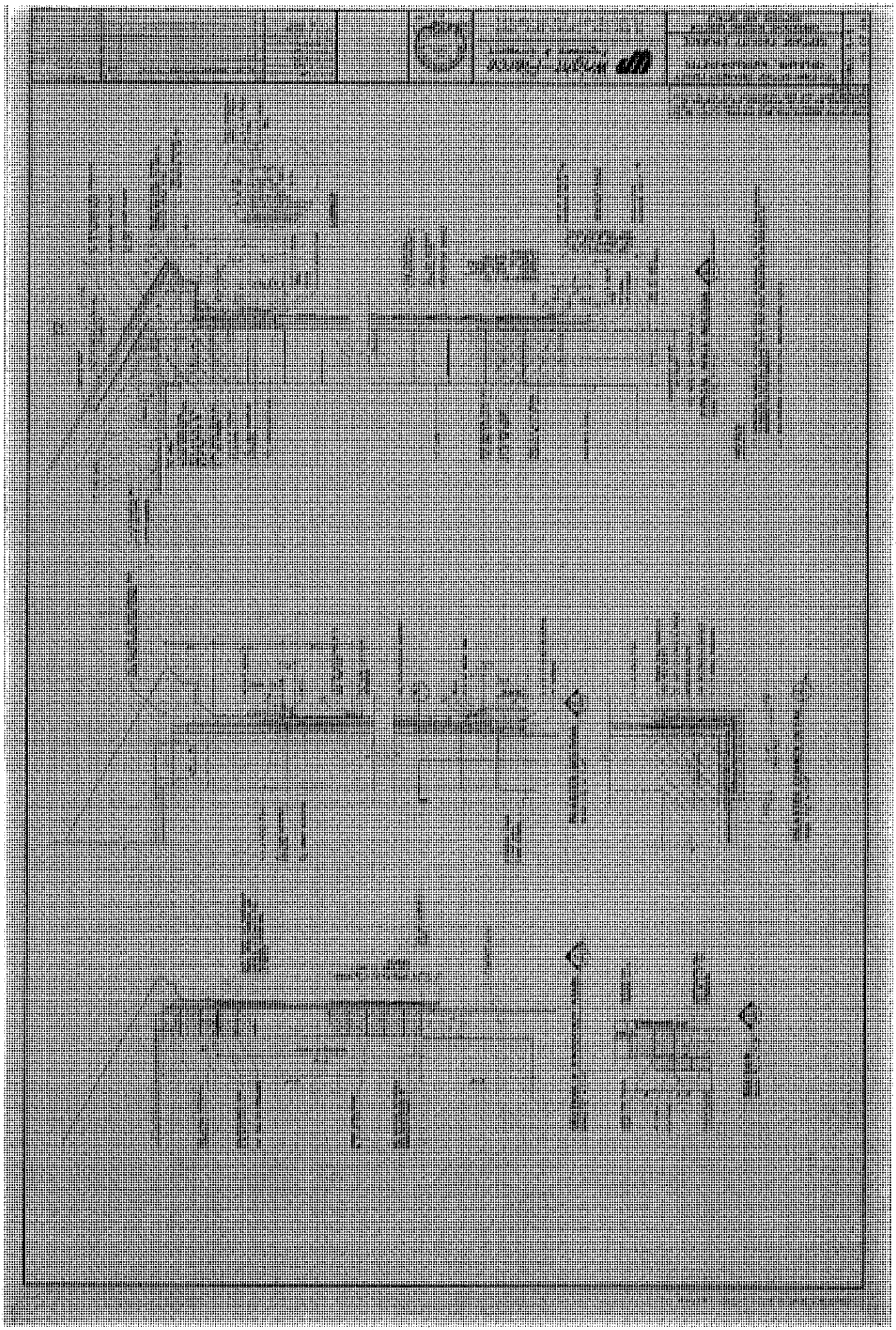


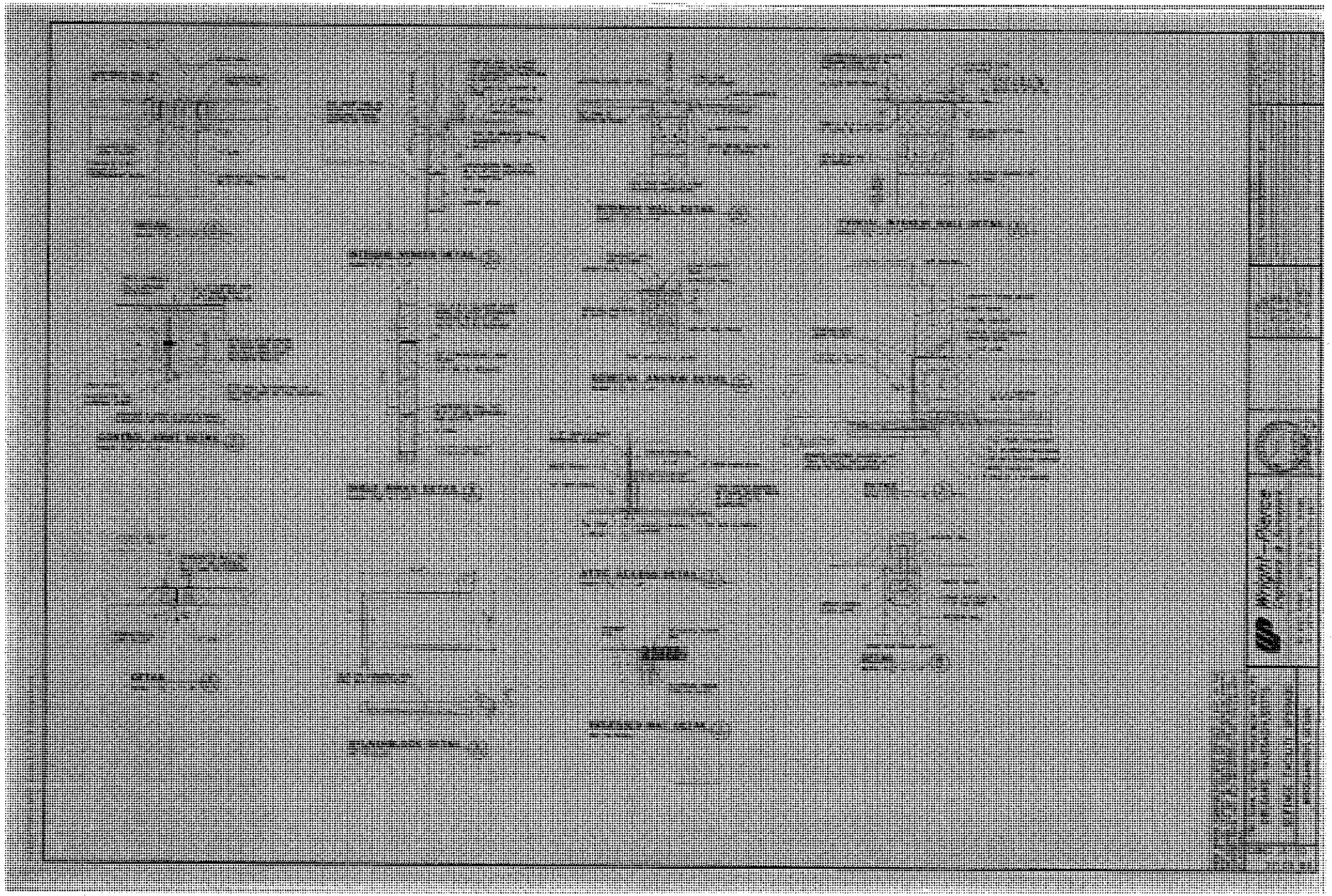


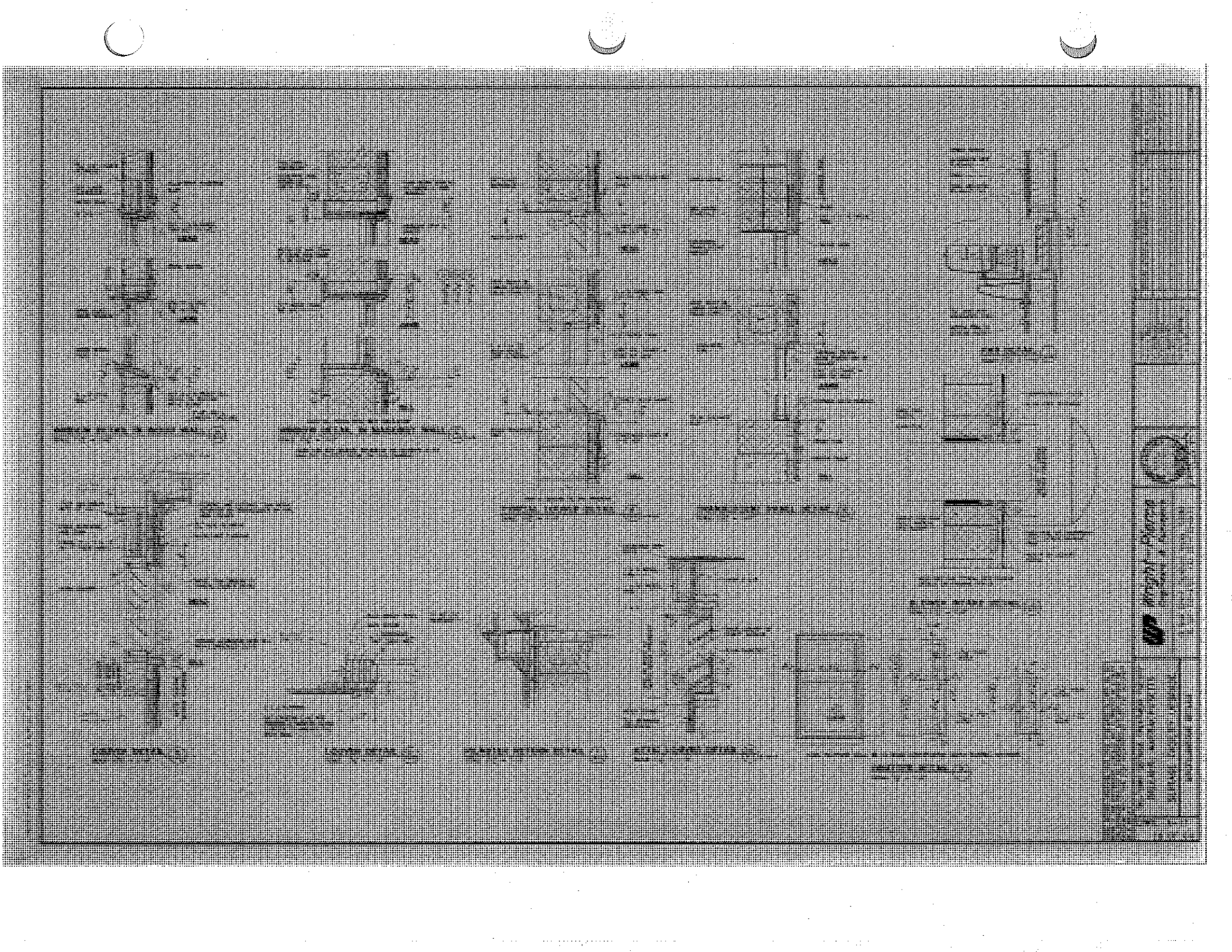


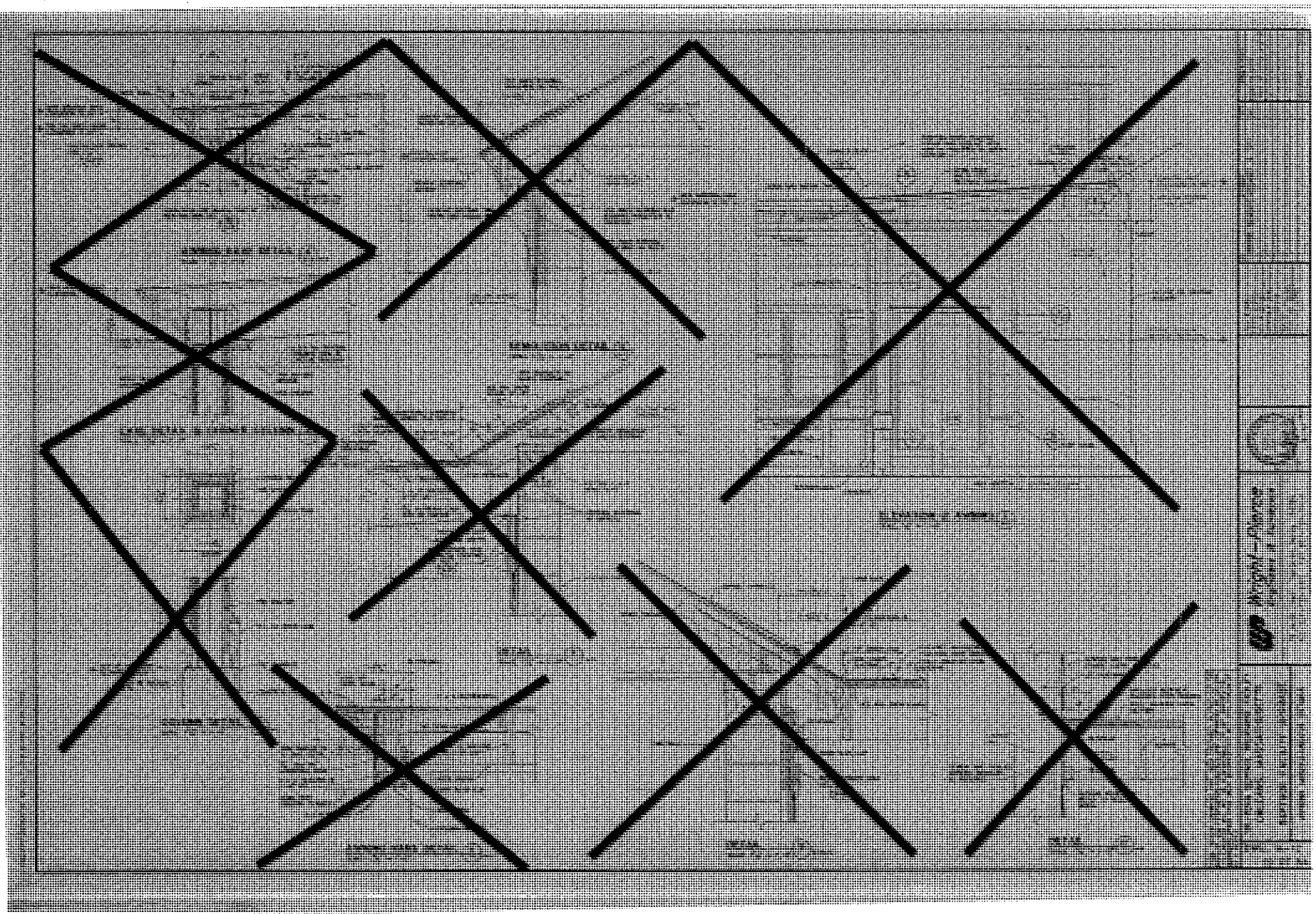












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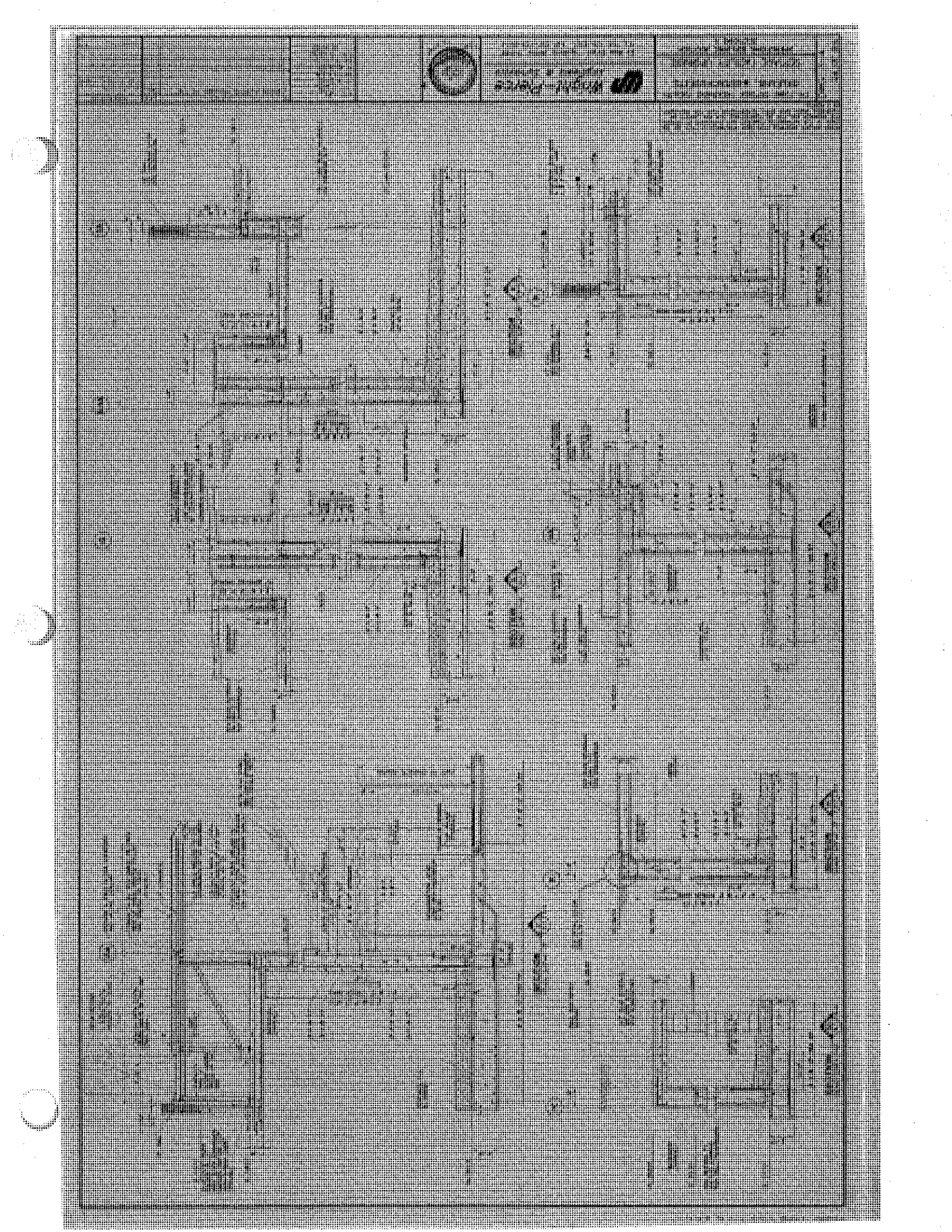
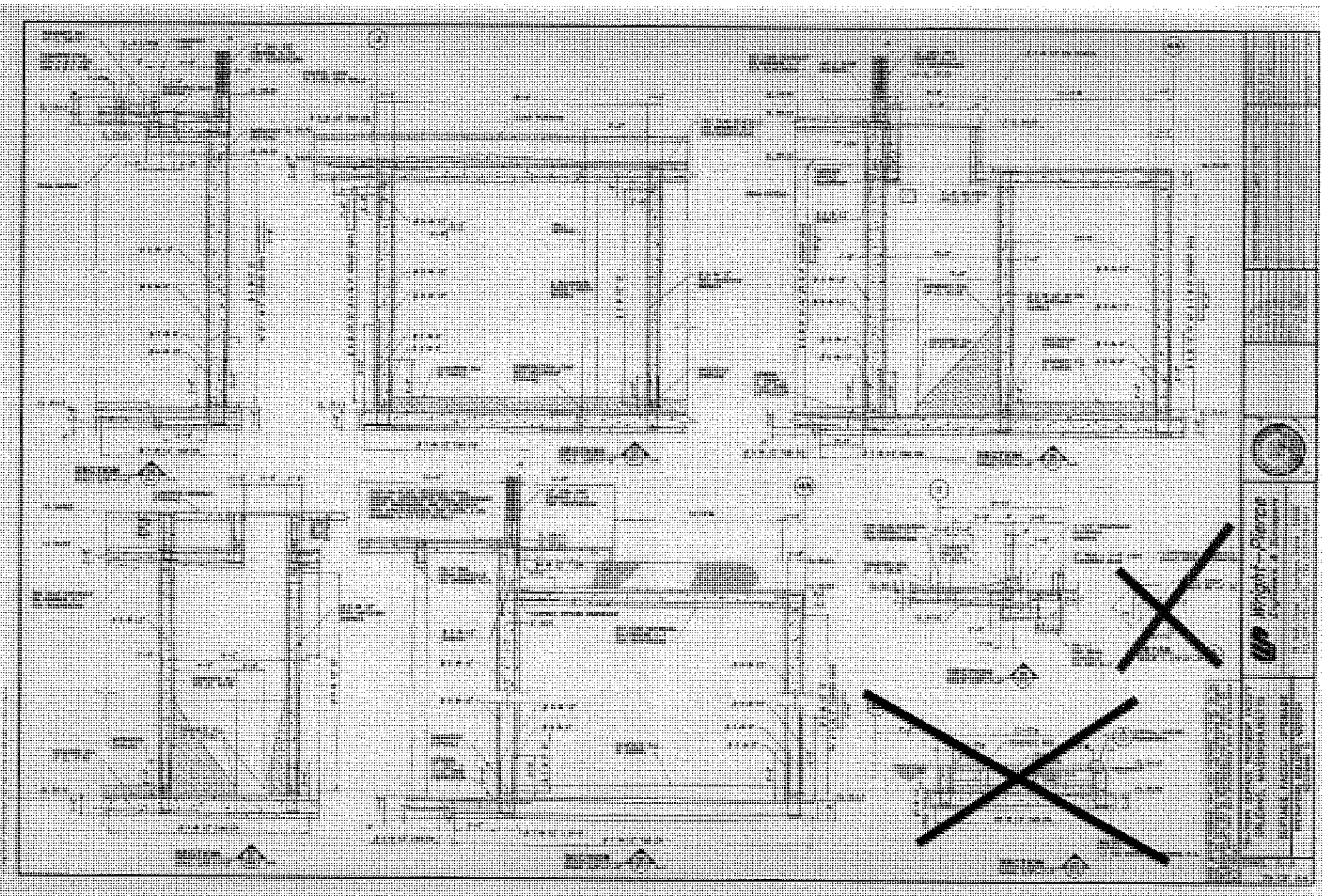
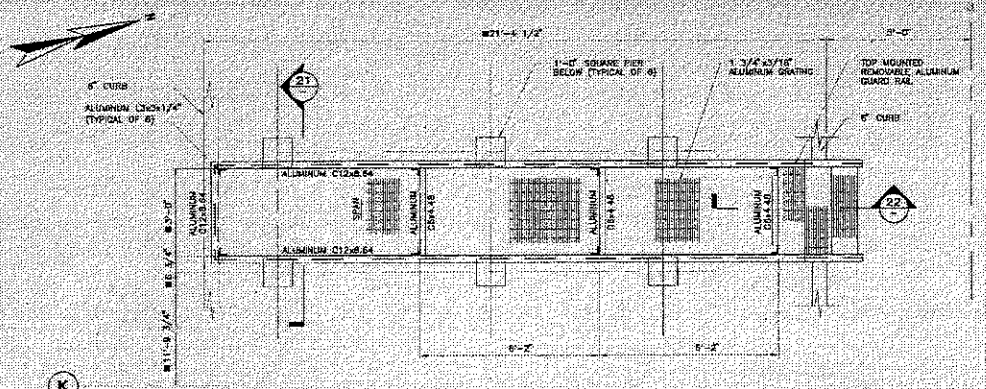
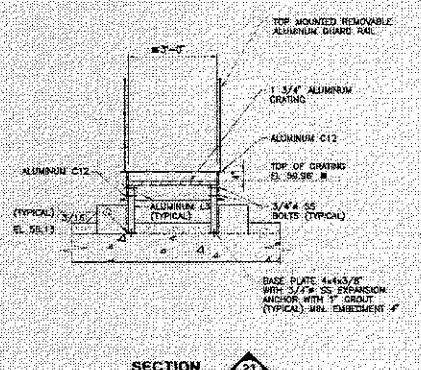






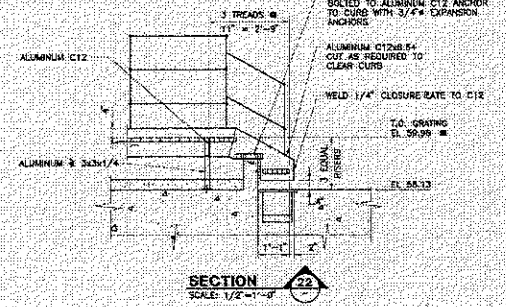
GRAVITY BELT THICKENER PLATFORM FRAMING PLAN

1/2"=1'-0"



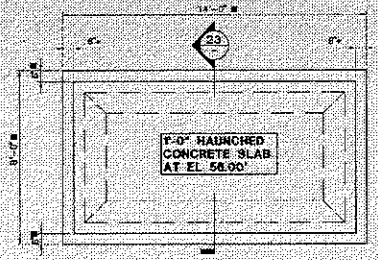
SECTION 21

SCALE: 1/2"=1'-0"



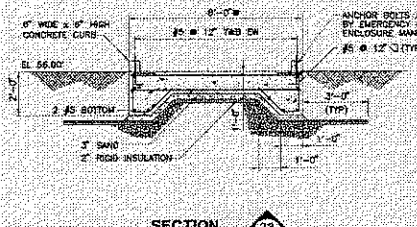
SECTION 22

SCALE: 1/2"=1'-0"



PLAN

SCALE: 3/8"=1'-0"



SECTION 23

SCALE: 3/8" = 1'-0"

NOTE:
EMERGENCY GENERATOR AND ENCLOSURE NOT SHOWN FOR CLARITY.

EMERGENCY GENERATOR FOUNDATION

NOTES:

1. ■ INDICATES GENERAL CONTRACTOR SHALL COORDINATE EXACT DIMENSIONS BASED ON EMERGENCY GENERATOR ENCLOSURE SUPPLIED. EMERGENCY GENERATOR AND ENCLOSURE WILL BE REVIEWED AND NO EXCEPTIONS TAKEN BY THE ENGINEER PRIOR TO SUBMITTING REINFORCING STEEL SHOP DRAWINGS.
2. FOR EMERGENCY GENERATOR DETAILS, SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS.
3. FOR GENERAL NOTES AND STANDARD DETAILS, SEE DRAWINGS S-14, S-15 AND S-16.

NOTES:

1. DESIGN LIVE LOAD 150 PSF.
2. PLATFORM FRAMING SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL THE SUBMITTALS OF THE EQUIPMENT HAS BEEN REVIEWED AND NO EXCEPTIONS TAKEN BY THE ENGINEER.
3. ■ INDICATES GENERAL CONTRACTOR SHALL COORDINATE EXACT DIMENSIONS AND ELEVATIONS WITH THE MISCELLANEOUS METAL SUBMISSION.
4. FOR GENERAL NOTES AND STANDARD DETAILS SEE DRAWINGS S-14, S-15 AND S-16.

THESE SECTIONS DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION FURNISHED BY OTHERS. WRIGHT-PIERCE DOES NOT GUARANTEE THE ACCURACY OF SUCH INFORMATION FURNISHED BY OTHERS AND SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THESE DRAWINGS THAT MAY BE REQUIRED AS A RESULT.

NO.	REVISIONS	BY	DATE
1	REVISED PERMITS SUBMITTAL	JAH	12/97

Wright-Pierce Engineers & Surveyors
99 Main Street Topsham, Maine 04086
TEL. 207-725-8721 FAX 207-725-6441

TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS

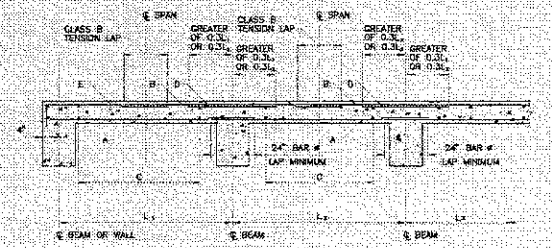
SEPTAGE FACILITY UPGRADE

DRAWING NO. S-6
26 OF 84

DRAWING TITLE
BUILDING SECTIONS IV AND V
EMERGENCY GENERATOR PLAN & SECTION

SLAB SCHEDULE

MARK	THICKNESS	REINFORCEMENT A	B	C	D	E	REMARKS
S-1	1'-0"	#7 @ 6"	——	#5 @ 6" T&B	——	#7 @ 6"	EXTEND #7 @ 6" INTO BEAM
S-2	1'-0"	#5 @ 6"	#6 @ 12"	#5 @ 6" T&B	#6 @ 12"	#5 @ 6"	
S-3	1'-0"	#6 @ 6"	#5 @ 12"	#5 @ 6" T&B	——	——	
S-4	1'-0"	#6 @ 12"	#6 @ 12"	#5 @ 12" T&B	#5 @ 12"	#5 @ 12"	
S-5	1'-0"	#6 @ 12"	#6 @ 12"	#5 @ 12" T&B	——	——	
S-6	1'-0"	#5 @ 12"	#5 @ 12"	#5 @ 12" T&B	——	——	
S-7	1'-0"	#5 @ 12"	#5 @ 12"	#5 @ 12" T&B	——	#5 @ 12"	
S-8	1'-0"	#6 @ 12"	#5 @ 12"	#6 @ 12"	——	#5 @ 12"	
S-9	1'-3"	#6 @ 5"	#6 @ 6"	#6 @ 6"	——	#5 @ 6"	
S-10	1'-4"	#6 @ 5"	#6 @ 6"	#6 @ 6"	——	#5 @ 6"	
S-11	1'-3"	#6 @ 6"	#6 @ 6"	#5 @ 6"	——	#5 @ 6"	



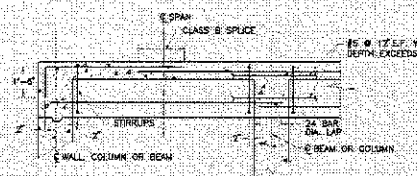
SLAB ELEVATION
NTS

BEAM SCHEDULE

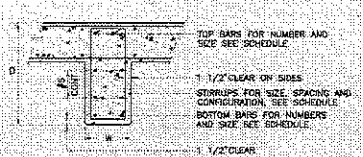
FIRST FLOOR BEAM SCHEDULE

MARK	SIZE WxD	REINFORCING ℄ SUPPORT	REINFORCING ℄ SPAN	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPACING	REMARKS
FB-1	16x60	3#9	5#9	#4		10@2"EE, BAL@12"	SEE SECTION 8 ON DRAWING S-4
FB-2	16x60	3#9	3#9	#4		10@2"EE, BAL@12"	SEE SECTION 3 ON DRAWING S-4
FB-3	16x60	2 1/2" 3#10		#4		10@2"EE, BAL@12"	SEE SECTION 8 ON DRAWING S-4
FB-4	16x36	3#9	4#10	#4		10@2"EE, BAL@12"	——
FB-5	16x36	3#9	2#10	#4		10@2"EE, BAL@12"	——
FB-6	16x36		4#10	#4		10@2"EE, BAL@12"	——
FB-7	12x24	2#8	2#9	#4		10@2"EE, BAL@12"	DEPRESSION REQ'D FOR RECESS MAT FRAME
FB-8	12x24	2#8	2#9	#4		10@2"EE, BAL@12"	——
FB-9	24x36	3#9	4#10	#4		10@2"EE, BAL@12"	——
FB-10	24x36	2 1/2" 4#10	3#10	#4		10@2"EE, 8@6"EE, BAL@12"	——
FB-11	24x36	2 1/2" 4#10	3#10	#4		10@2"EE, 8@6"EE, BAL@12"	SEE SECTION 19 ON DRAWING S-5
FB-12	24x36	2 1/2" 4#10	2#10	#4		10@2"EE, 8@6"EE, BAL@12"	——

NOTES:
1. FOR DOVETAIL SLOTS AND OTHER EMBEDDED ITEMS, SEE ARCHITECTURAL DRAWINGS.
2. FOR BEAM LOCATIONS, SEE DRAWINGS S-2.



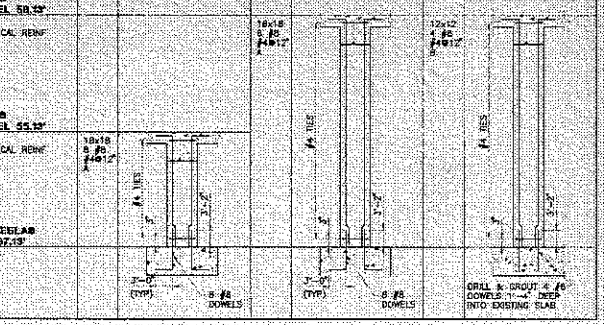
TYPICAL BEAM REINFORCING DETAIL
NTS



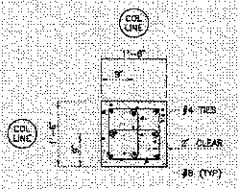
TYPICAL FLOOR BEAM SECTION
NTS

COLUMN SCHEDULE

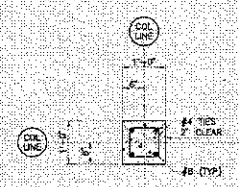
COLUMN MARK	H-1A, I-1A	H-2A, I-2A	F,S-3A,B
SLAB @ EL 58.33'			
SIZE		18x18	12x12
VERTICAL REINF		8 #8	4 #6
TIES		#4@12"	#3@12"
TYPE		A	B
SLAB @ EL 55.13'			
SIZE	18x18		
VERTICAL REINF	8 #8		
TIES	#4@12"		
TYPE	A		
BASESLAB EL 37.13'			



NOTES:
1. FOR COLUMN ORIENTATION, SEE DRAWINGS S-1 AND S-2.
2. FOR DOVETAIL SLOTS AND OTHER EMBEDDED ITEMS, SEE ARCHITECTURAL DRAWINGS.
3. FOR GENERAL NOTES AND STANDARD DETAILS, SEE DRAWINGS S-14, S-15 AND S-16.



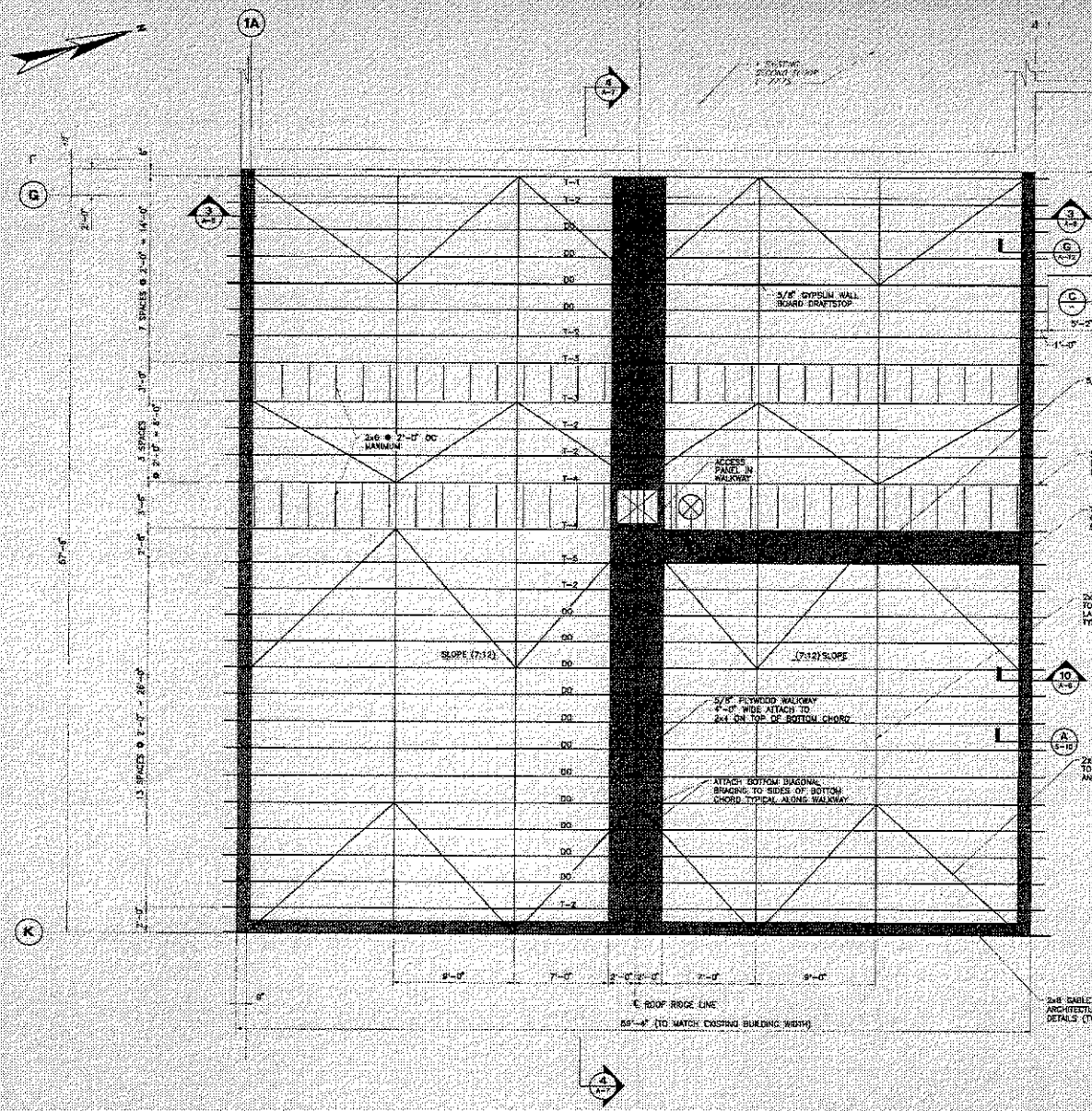
TYPE A
SCALE: 3/4"=1'-0"



TYPE B
SCALE: 3/4"=1'-0"

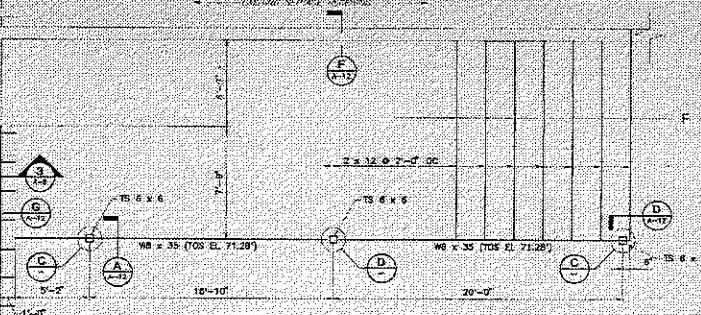
THESE DRAWINGS, AND BEING PREPARED IN PART, ON THE COMPUTER, ARE INSTRUMENTS OF SERVICE AND ARE THE PROPERTY OF WRIGHT-PIERCE. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS BY OTHERS.

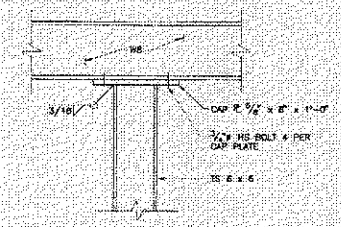
1	SECOND PHASE SUBMITTAL	JCR



ROOF FRAMING PLAN

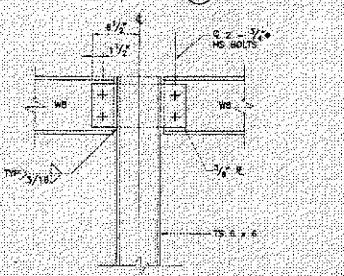
SCALE: 1/4" = 1'-0"





DETAIL

SCALE: 1 1/2" = 1'-0"



DETAIL

SCALE: 1 1/2" = 1'-0"

2x6 LATERAL BRACING ATTACH TO TOP SIDE OF BOTTOM CHORD, LAP BRACES OVER TWO TRUSSES TYPICAL

2x6 DIAGONAL BRACING ATTACH TO TOP SIDE OF BOTTOM CHORD AND UNDERSIDE OF TOP CHORD

2x8 GABLE END WALL SEE ARCHITECTURAL DRAWING A-5 FOR DETAILS (TYPICAL EACH END)

5/8" PLYWOOD WALKWAY

SEE ARCHITECTURAL DRAWING A-5 AND A-6 FOR OVERHANG AND SOFFIT DETAILS

TOP OF 1'-0" CMU WALL BELOW EL 71.48'

NOTES:

1. FOR WOOD FRAMING AND WOOD TRUSS NOTES SEE DRAWING S-10.
2. FOR GENERAL NOTES AND STANDARD DETAILS SEE DRAWINGS S-14, S-15 AND S-16.

THESE RECORD DRAWINGS HAVE BEEN PREPARED IN PART ON THE BASIS OF THE INFORMATION OBTAINED AND FURNISHED BY OTHERS. WRIGHT-PIERCE IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY BE CONTAINED IN THESE DRAWINGS AS A RESULT OF ANY SUCH INFORMATION HAVING BEEN INCORRECT.

TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS

SEPTAGE FACILITY UPGRADE

OPERATIONS BUILDING ADDITION
ROOF FRAMING PLAN

Wright-Pierce
Engineers & Surveyors
99 Main Street Topsham, Maine 04086
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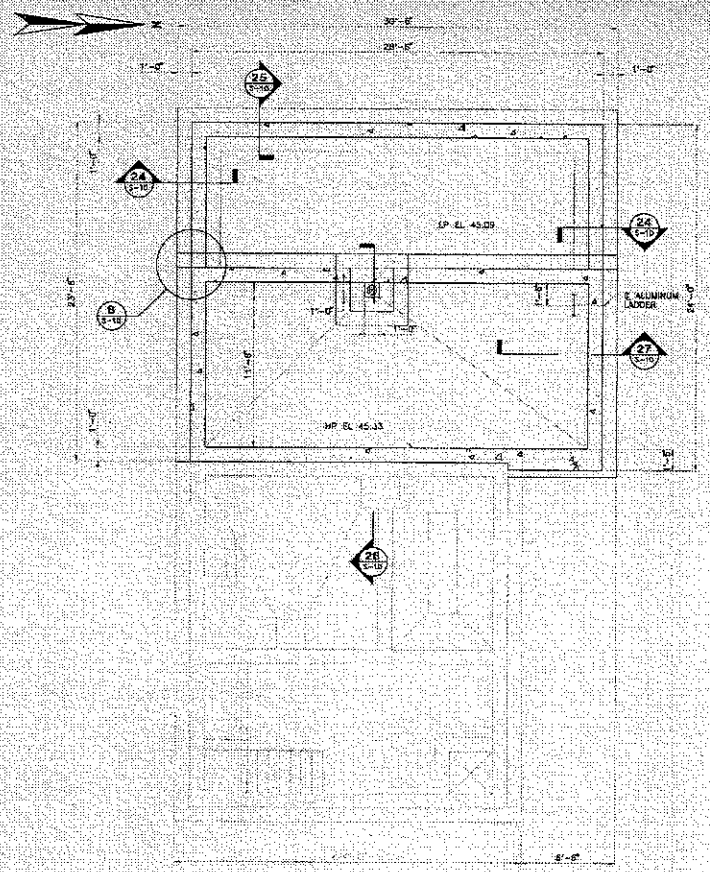
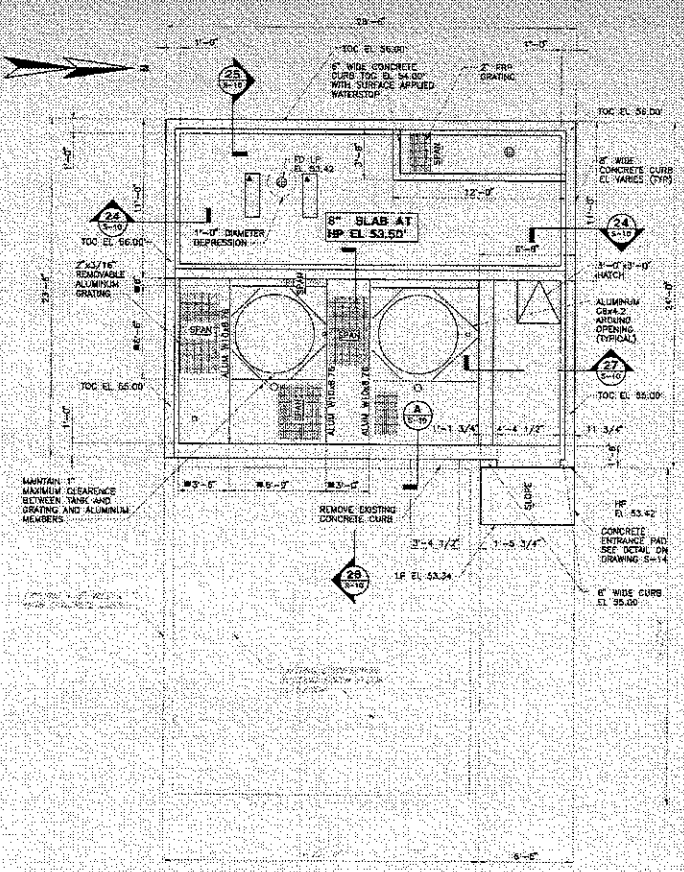
DWG. S-8
28 OF 84



BASE PLAN
SCALE: 1/4"=1'-0"

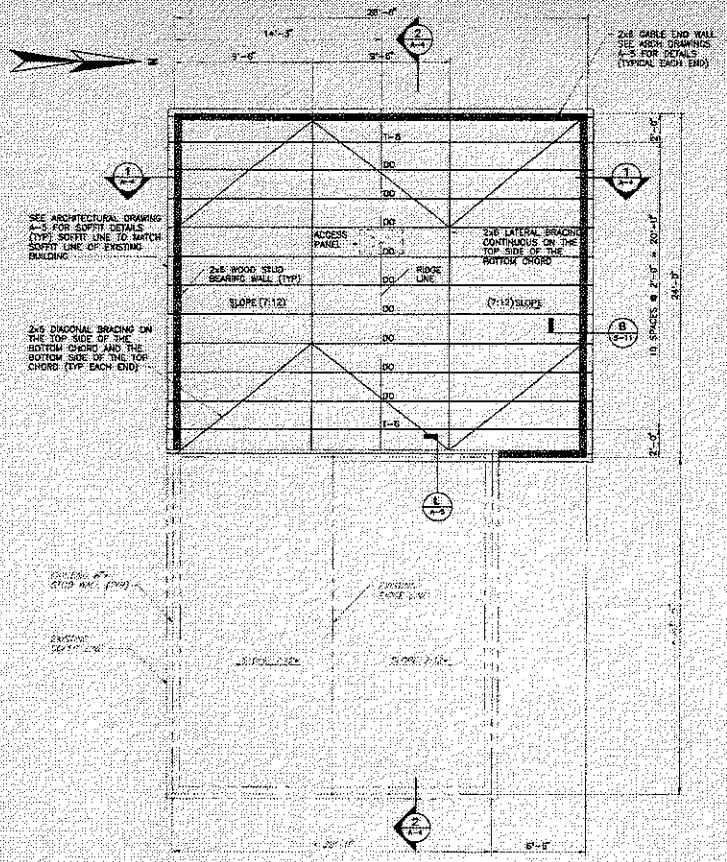


FLOOR PLAN
SCALE: 1/4"=1'-0"

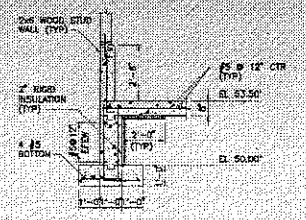
NOTES:

1. DESIGN FLOOR LIVE LOAD 250 PSF.
2. ∘INDICATES DIMENSIONS AND/OR ELEVATIONS TAKEN FROM RECORD DRAWINGS FOR SEPTAGE TREATMENT FACILITIES, TOWN OF ORLEANS, MASSACHUSETTS, BY LINDENTAL ENGINEERS ANDERSON, INC., DATED JULY 1985. CONTRACTOR SHALL FIELD VERIFY AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. F.D. DENOTES FLOOR DRAIN. FOR SIZE AND LOCATION OF FLOOR DRAINS AND CLEANOUTS, SEE PLUMBING DRAWINGS.
4. ▲ DENOTES EQUIPMENT PAD. CONTRACTOR SHALL COORDINATE SIZE AND LOCATION BASED ON EQUIPMENT SUPPLIED.
5. SEE ARCHITECTURAL DRAWINGS FOR STUD WALL FRAMING DETAILS AND OTHER ARCHITECTURAL DETAILS NOT SHOWN.
6. SEE PROCESS, PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATIONS OF PIPING AND OTHER EMBEDDED ITEMS.
7. FOR WOOD TRUSS AND WOOD FRAMING NOTES, SEE DRAWING S-11.
8. ■ INDICATES GENERAL CONTRACTOR SHALL COORDINATE ALL DIMENSIONS, LAYOUTS AND ELEVATIONS WITH THE EQUIPMENT MANUFACTURER AND MISCELLANEOUS METAL FIELD SUBRODER. THE ENGINEER WILL BE NOTIFIED OF ANY DIMENSION, LAYOUT OR ELEVATION CHANGES TO SUIT EQUIPMENT SUPPLIED. FINAL EQUIPMENT SHOP DRAWINGS WILL BE REVIEWED AND NO EXCEPTIONS TAKEN PRIOR TO SUBMITTING MISCELLANEOUS METAL SHOP DRAWINGS.
9. FOR GENERAL NOTES AND DETAILS, SEE DRAWINGS S-14, S-15 AND S-16.

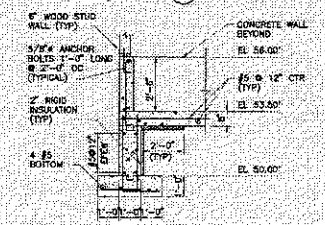
THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF THE INFORMATION COMPILED AND FURNISHED BY OTHERS. WRIGHT-PIERCE DOES NOT GUARANTEE THE ACCURACY OF THE DRAWINGS WHICH HAVE BEEN INCORPORATED AND THIS DOCUMENT AS A RESULT



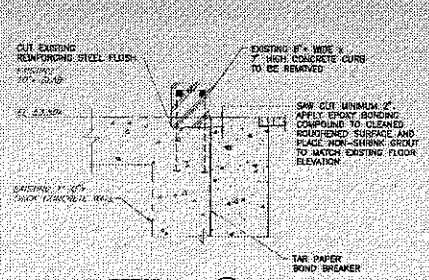
ROOF PLAN
SCALE: 1/4"=1'-0"



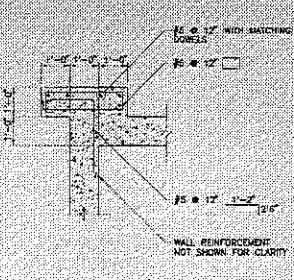
SECTION
SCALE: 3/8"=1'-0"
24 S-6



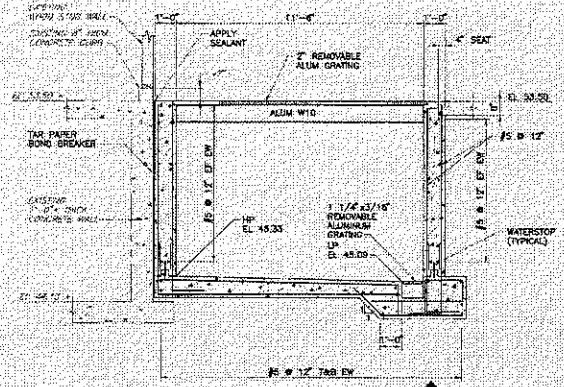
SECTION
SCALE: 3/8"=1'-0"
25 S-6



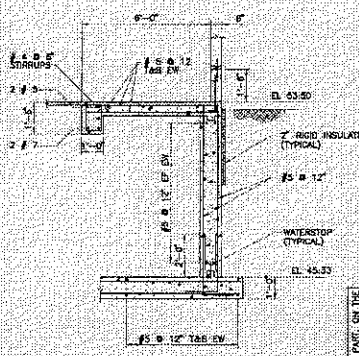
DETAIL
SCALE: 1"=1'-0"
A S-6



DETAIL
SCALE: 1/2"=1'-0"
B S-6



SECTION
SCALE: 3/8"=1'-0"
26 S-6



SECTION
SCALE: 3/8"=1'-0"
27 S-6

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TRI-TOWN SEPTAGE TREATMENT FACILITY
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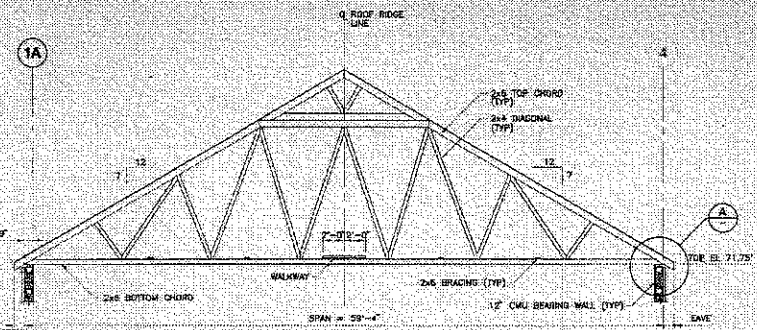
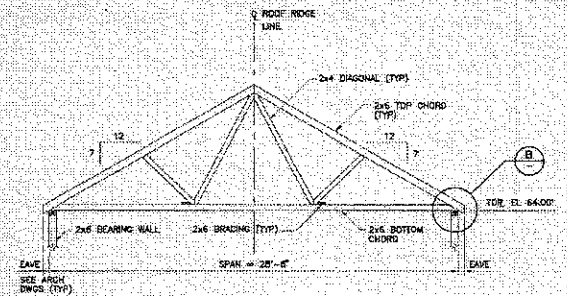
DISINFECTION BUILDING ADDITION
ROOF PLAN AND SECTIONS

DWG. S-10
30 OF 84



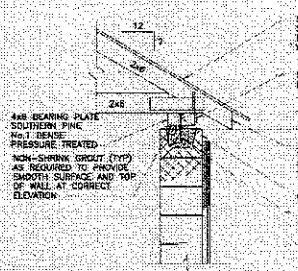
ELEVATION TRUSS T-1 THRU T-5

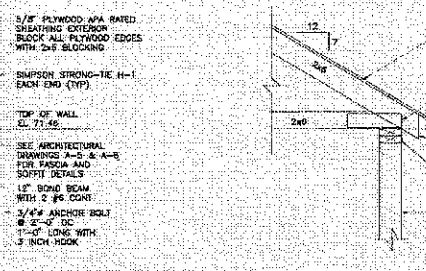
SCALE: 3/16"=1'-0"



ELEVATION TRUSS T-6

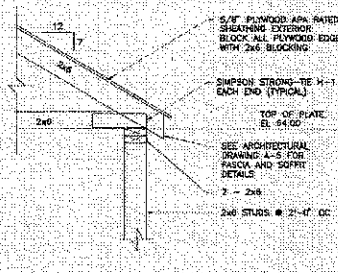
SCALE: 1/4"=1'-0"





DETAIL

SCALE: 3/4"=1'-0" (A) A-6



DETAIL

SCALE: 3/4"=1'-0" (B) A-6

TRUSS SCHEDULE					
TRUSS DESIGNATION	SPAN	EAVE	T O ℄ EL	TOP/BOT CHORDS	DIAGONALS
T1, T2, T3, T4, T5	59'-4"	*	71.75	2x6	2x4
T6	28'-6"	*	64.00	2x6	2x4

* OVERHANGS ARE LESS THAN 12 INCHES, CUT TO SUIT AS SHOWN ON THE ARCHITECTURAL DRAWINGS

NOTES

WOOD FRAMING NOTES:

1. SPECIFICATION: "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION – 1986" INCLUDING "DESIGN VALUES FOR WOOD CONSTRUCTION", NATIONAL FOREST PRODUCTS ASSOCIATION.
2. FRAMING FOR WALLS AND ROOF SHALL BE NO. 1 SOUTHERN YELLOW PINE USED AT 19% MAXIMUM MOISTURE CONTENT OR EQUAL.
4. NAILING SCHEDULE:

PLATE TO STUD, DIRECT	2-16d
STUD TO PLATE, TOENAIL	4-8d
PLYWOOD EDGES (ROOF)	8d @ 6" O.C.
PLYWOOD CENTER (ROOF)	8d @ 12" O.C.
ROOF RAFTER TO PLATE, TOE NAIL	3-8d
DOUBLE CAP PLATE, DIRECT	10d @ 16"
2nd PLATE LAPS	2-10d
ROOF RAFTER TO RIDGE, TOE OR DIRECT	2-16d
FURRING/STRAPPING TO BOTTOM OF TRUSS	2-8d NAILS OR 2 NO. 8 X 2 1/2 SCREWS PER EACH TRUSS

FOR OTHER NAILING SITUATIONS COMPLY WITH THE COMMONWEALTH OF MASSACHUSETTS STATE BUILDING CODE.

4. WOOD TO STEEL, WOOD TO WOOD AND WOOD TO MASONRY BOLTED CONNECTORS SHALL BE MADE WITH ASTM A307 BOLTS WITH FLAT WASHERS. USE FLAT WASHERS BETWEEN HEAD OF BOLT AND WOOD; USE FLAT AND LOCK WASHERS BETWEEN NUT AND WOOD. BOLT HOLES IN WOOD SHALL BE 1/16" LARGER THAN THE BOLT. WOOD MEMBERS SHALL BE FASTENED WITH 1/2" DIAMETER BOLTS STAGGERED AT 2'0" UNLESS, OTHERWISE NOTED.
5. WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE 0.4 PCF CCA PRESSURE TREATED.
6. THE LATERAL BRACING SYSTEM INCLUDES WOOD CROSS-BRACING AND PLYWOOD WALL AND ROOF SHEATHING. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS REQUIRED TO LATERALLY SUPPORT THE STRUCTURE DURING CONSTRUCTION.
7. PLYWOOD SHEATHING SHALL BE:
ALL ROOFS – 5/8" APA RATED SHEATHING 40/20, EXPOSURE (BLOCK ALL PLYWOOD EDGES WITH 2 X 6 BLOCKING).
DISINFECTION BUILDING ADDITION WALLS – 5/8" APA RATED SHEATING 40/20, EXPOSURE (BLOCK ALL PLYWOOD EDGES WITH 2 X 6 BLOCKING). OTHER PLYWOOD SHEATING WILL BE SHOWN ON THE DRAWINGS CEILING WALKWAY – 5/8" APA RATED SHEATING 40/20 EXPOSURE. PLYWOOD SHALL BE LAID WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. STAGGER ALL JOINTS.

WOOD TRUSS NOTES:

1. DESIGN, DETAIL AND FABRICATE WOOD TRUSSES IN ACCORDANCE WITH: "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION – 1986" INCLUDING "DESIGN VALUES FOR WOOD CONSTRUCTION", NATIONAL FOREST PRODUCTS ASSOCIATION; TRUSS PLATE INSTITUTE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES" TPI-86 (TRUSS CONNECTION PLATES SHALL BE 20% GREATER IN SIZE AND AREA THAN REQUIRED BY TPI SPECIFICATIONS).
2. STRUCTURAL LUMBER: WOOD USED IN THE MANUFACTURE OF WOOD TRUSSES SHALL BE NO. 2 KILN DRY SOUTHERN YELLOW PINE, NO. 2 KILN DRY EASTERN SPRUCE OR EQUAL USED AT 19% MAXIMUM MOISTURE CONTENT.
3. TOP AND BOTTOM CHORDS SHALL BE 2X6 MINIMUM SIZE, INTERIOR WEBS SHALL BE 2X4 MINIMUM SIZE. TRUSS MEMBER SIZES SHALL BE INCREASED ABOVE THE MINIMUMS AS NECESSARY TO SUPPORT DESIGN LOADS. OUTSIDE DIMENSIONS OF TRUSSES SHALL BE AS INDICATED ON THE DRAWINGS. INTERIOR CONFIGURATIONS MAY VARY TO SUIT THE DESIGN. GENERAL CONTRACTOR SHALL COORDINATE INTERIOR CONFIGURATIONS WITH MECHANICAL REQUIREMENTS AND WALKWAY.
4. A. CAMBER TRUSSES TO COMPENSATE FOR DEAD LOAD DEFLECTIONS.

B. LOADS ARE FOR OPERATIONS BUILDING ADDITION AND DISINFECTION BUILDING ADDITIONS (U.O.N.)

TRUSSES:
DEAD LOAD BOTTOM CHORD = 16 PSF
DEAD LOAD TOP CHORD = 10 PSF
LIVE LOAD, BOTTOM CHORD = 20 PSF
LIVE LOAD TOP CHORD (SNOW) = 25 PSF
OPERATIONS BUILDING ADDITION SHOW DRIFT SURCHARGE TOP CHORD. TRIANGULAR LOADING WITH A MAXIMUM LOAD OF 76 PSF FOR A DISTANCE OF 15'-0"
WIND 18.7 PSF (WINDWARD SUCTION)
14.7 PSF (LEEWARD SUCTION)

LOAD CASES:
– FULL LIVE AND FULL DEAD LOAD.
– FULL LIVE AND FULL DEAD LOAD ON 1/2 OF TRUSS SPAN CONCURRENT WITH 1/2 OF FULL LIVE LOAD WITH FULL DEAD LOAD ON ADJACENT 1/2 OF TRUSS SPAN.
– OTHER CASES AS SPECIFIED BY TPI AND NDS.

5. DIMENSION LUMBER SHALL BE ATTACHED TO TRUSSES WITH 16D COMMON NAILS SPACED AT 2 1/2" MINIMUM SPACING UNLESS OTHERWISE RESTRICTED BY THE TRUSS DESIGNER.
6. TOP CHORDS OF TRUSSES WILL BE LATERALLY SUPPORTED FULL LENGTH WITH PLYWOOD SHEATHING. ALL TRUSSES WILL BE LATERALLY SUPPORTED AT BEARING POINTS.
7. TRUSSES SHALL BE DESIGNED ACCORDING TO THE SPECIFICATIONS AND DESIGN LOADS AND AS SHOWN ON THE DRAWINGS. SUBMIT CALCULATIONS STAMPED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS. SUBMIT ERECTION AND DETAIL SHOP DRAWINGS INDICATING: SPECIES, GRADE, SIZE AND MOISTURE CONTENT OF LUMBER, CONNECTION PLATE MATERIAL, SIZES AND LOCATIONS; ACTUAL DIMENSIONS OF EACH TRUSS; MINIMUM BEARING LENGTHS; AND LOCATION AND SIZE OF ALL ADDITIONAL BRACING NOT INDICATED ON THE DESIGN DRAWINGS. NOTIFY ENGINEER OF ALL SPECIAL CONDITIONS OR REQUIREMENTS WHICH AFFECT THE USE OF THE SUPPLIED TRUSSES.
8. REFER TO PREFABRICATED WOOD TRUSSES, SPECIFICATION 06190.
9. ATTACH ROOF TRUSSES TO TOP PLATE WITH SIMPSON STRONG-TIE H-1 WITH 6-8d NAILS TO TRUSS AND 4-8d NAILS TO TOP PLATE, 18 GAGE CONNECTION, EACH END TYPICAL OR EQUAL.
10. SIZE AND LOCATIONS OF ROOF OPENINGS SHALL BE ADJUSTED TO BE COMPATIBLE WITH ITEMS SUPPLIED. SIZES AND LOCATIONS ARE SHOWN FOR MANUFACTURER'S INFORMATION. GENERAL CONTRACTOR SHALL COORDINATE TRADES.

THESE PLANS AND SPECIFICATIONS, AS INSTRUMENTS OF SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF WRIGHT-PIERCE. ALL REPRODUCTIONS OF THESE PLANS AND SPECIFICATIONS, AND ALL IDEAS, DESIGNS AND ARRANGEMENTS REPRESENTED THEREBY, ARE FOR USE SOLELY WITH RESPECT TO THIS PROJECT. THEY SHALL NOT BE USED BY ANY PERSON, FIRM OR CORPORATION FOR ANY PURPOSE WHATSOEVER FOR ANY OTHER PROJECT, FOR THE COMPLETION OF THIS PROJECT BY OTHERS, EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO WRIGHT-PIERCE. ALL SUCH REPRODUCTIONS UNAUTHORIZED BY WRIGHT-PIERCE SHALL BE FORBIDDEN TO THE FULLEST EXTENT PERMITTED BY LAW. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY WRIGHT-PIERCE FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT USER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO WRIGHT-PIERCE. ALL PLANS, SPECIFICATIONS AND DRAWINGS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT OF THIS AGREEMENT ARE SUBJECT TO THIS PROTECTION.

NO.	DATE	BY	DESCRIPTION
1	2/3/97		ADDENDUM #1
2	3/6/97		ADDENDUM #2
3	3/20/97		ADDENDUM #3
4	4/3/97		ADDENDUM #4
5	4/10/97		ADDENDUM #5
6	4/24/97		ADDENDUM #6
7	5/2/97		ADDENDUM #7
8	5/8/97		ADDENDUM #8
9	5/22/97		ADDENDUM #9
10	6/2/97		ADDENDUM #10
11	6/4/97		ADDENDUM #11

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ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
OPERATIONS BUILDING AND DISINFECTION BUILDING ADDITIONS ROOF SECTIONS, DETAILS & NOTES

DWG. S-11
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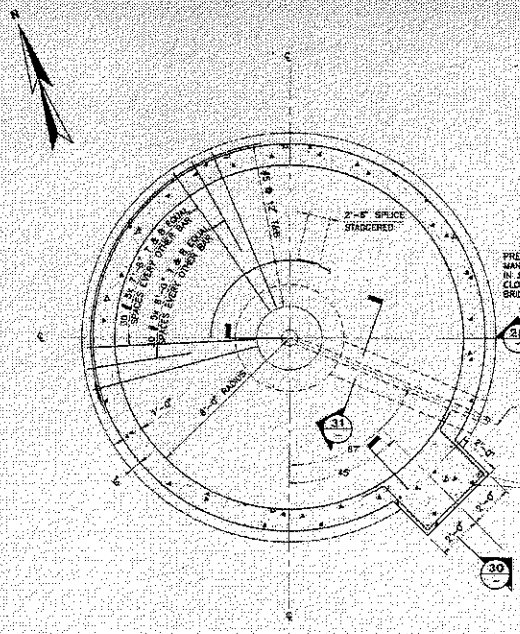
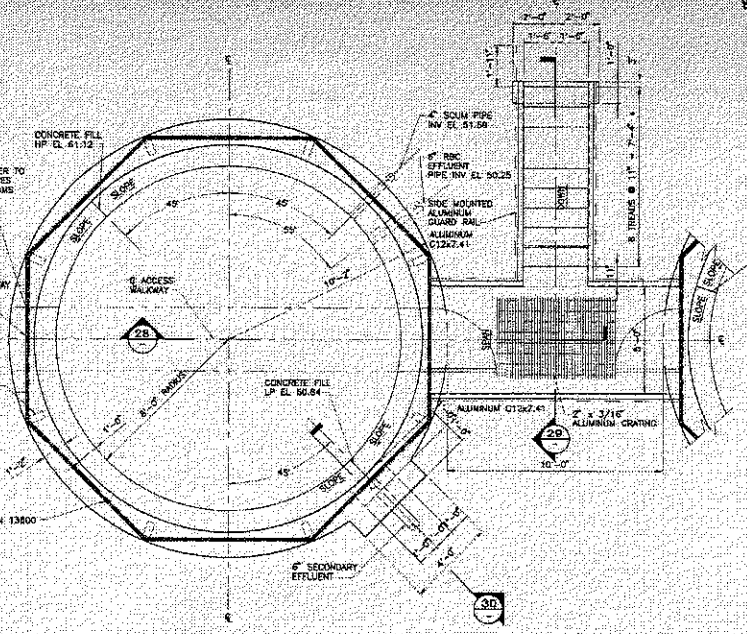
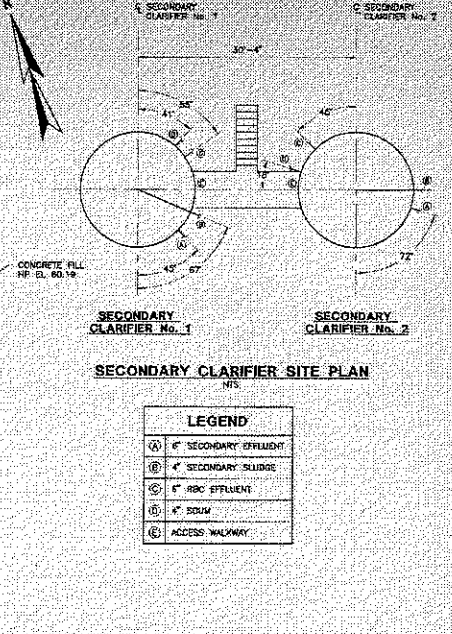






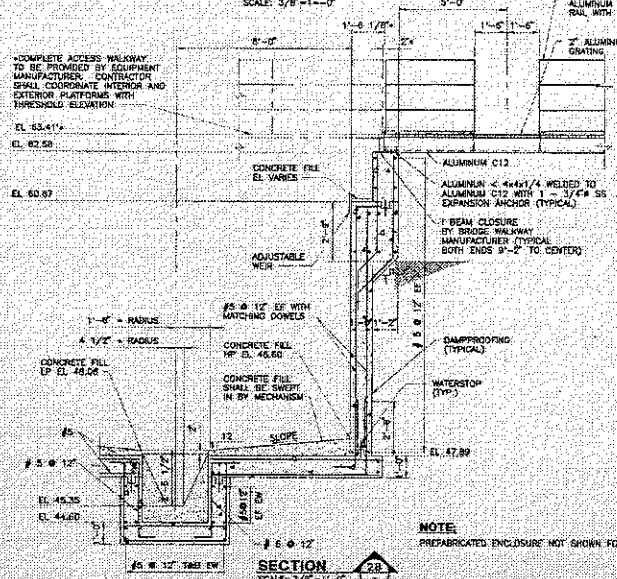
SECONDARY CLARIFIER SITE PLAN

NTS

LEGEND	
A	6" SECONDARY EFFLUENT
B	4" SECONDARY SLUDGE
C	6" RBC EFFLUENT
D	4" SCUM
E	ACCESS WALKWAY

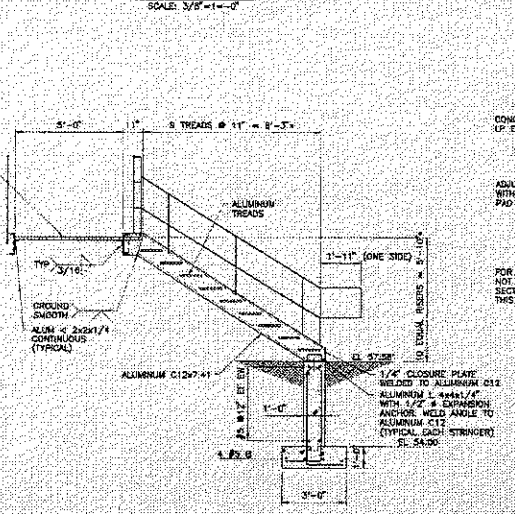
SECONDARY CLARIFIER No. 1 BASE PLAN

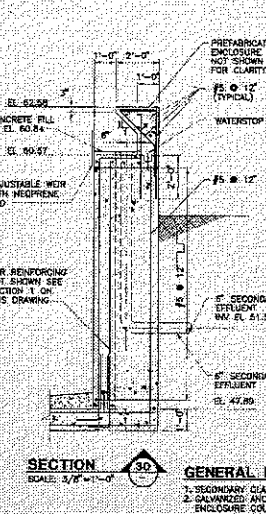
SCALE: 3/8"=1'-0"



SECONDARY CLARIFIER No. 1 LAUNDER PLAN

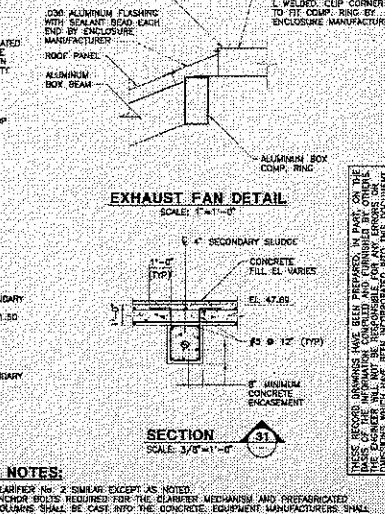
SCALE: 3/8"=1'-0"





EXHAUST FAN DETAIL

SCALE: 1"=1'-0"



SECTION

SCALE: 3/8"=1'-0" 28

NOTE

PREFABRICATED ENCLOSURE NOT SHOWN FOR CLARITY

SECTION

SCALE: 3/8"=1'-0" 29

SECTION

SCALE: 3/8"=1'-0" 30

SECTION

SCALE: 3/8"=1'-0" 31

GENERAL NOTES:

1. SECONDARY CLARIFIER No. 2 SIMILAR EXCEPT AS NOTED.
2. GALVANIZED ANCHOR BOLTS REQUIRED FOR THE CLARIFIER MECHANISM AND PREFABRICATED ENCLOSURE COLUMNS SHALL BE CAST INTO THE CONCRETE. EQUIPMENT MANUFACTURERS SHALL PROVIDE ANCHOR BOLTS AND TEMPLATE.
3. FOR PROCESS DETAILS SEE DRAWING PR-12.
4. ℄ GENERAL CONTRACTOR SHALL COORDINATE ALL DIMENSIONS, ELEVATIONS AND LAYOUT FOR BRIDGE, RAILING, WALKWAY, STAIRS, CLARIFIER MECHANISM AND DOME WITH SPECIFIC MANUFACTURERS AND MISCELLANEOUS METAL SUBBIDDER.
5. ℄ GENERAL CONTRACTOR SHALL COORDINATE EXHAUST FAN OPENING AND FRAMING REQUIRMENTS WITH HVAC FILL SUBBIDDER AND PREFABRICATED ENCLOSURE MANUFACTURER.
6. DESIGN LIVE LOAD FOR WALKWAY AND STAIRS = 100 PSF.
7. FOR GENERAL NOTES AND STANDARD DETAILS, SEE DRAWINGS S-14, S-15 AND S-16.

THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION FURNISHED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL DIMENSIONS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT.

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TRI-TOWN SEPTAGE TREATMENT FACILITY
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SEPTAGE FACILITY UPGRADE
SECONDARY CLARIFIERS No. 1 AND No. 2
PLANS, SECTIONS AND DETAILS

DWG. S-12
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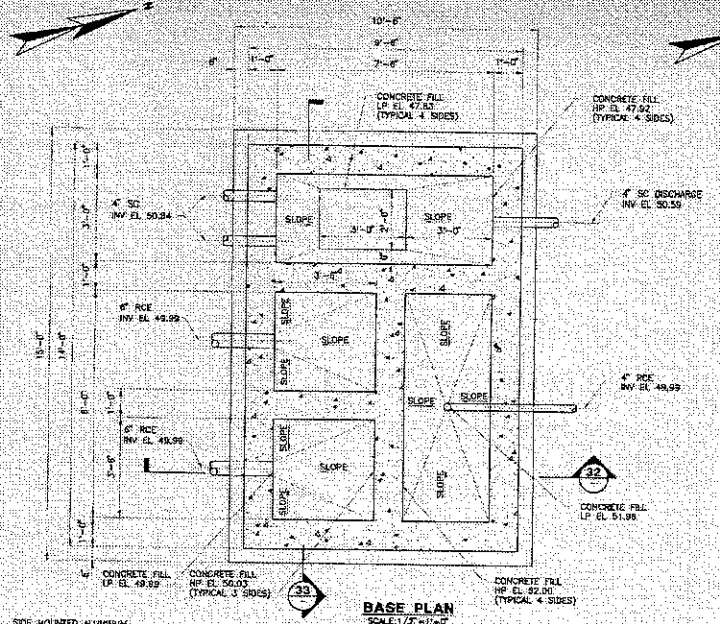
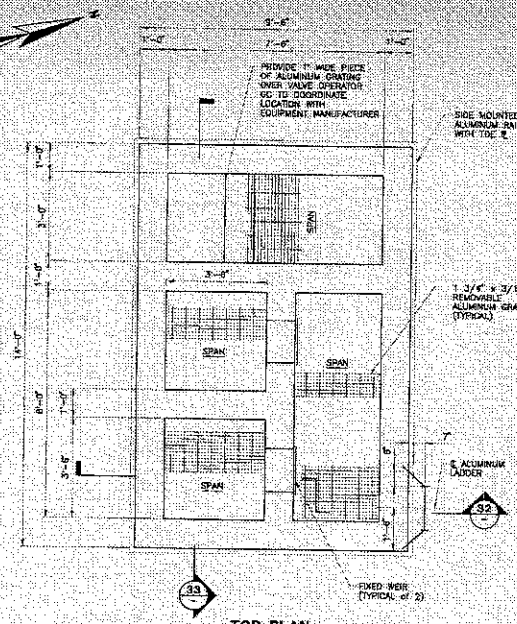
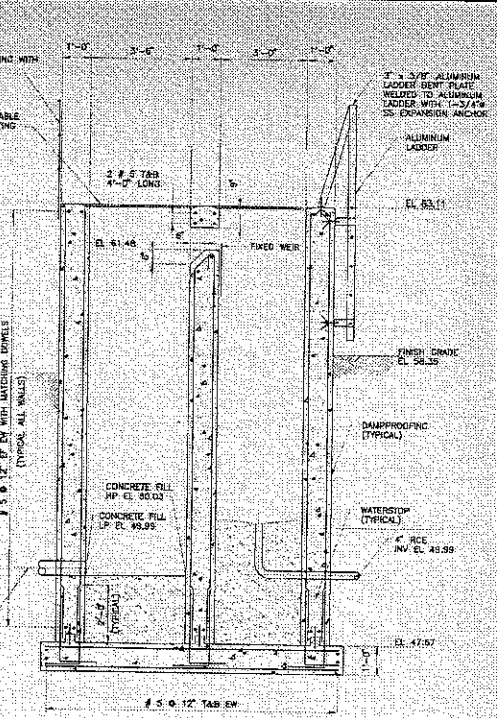


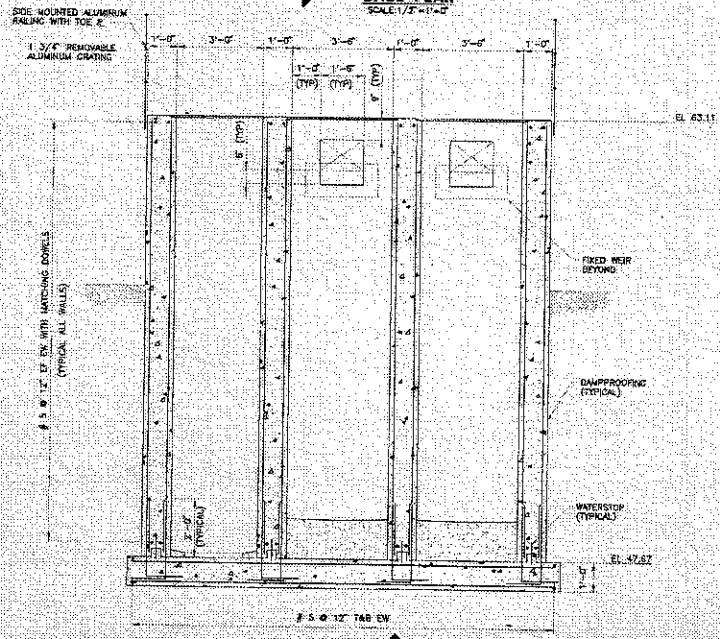
BASE PLAN
SCALE: 1/2" = 1'-0"



TOP PLAN
SCALE: 1/2" = 1'-0"



SECTION
SCALE: 1/2" = 1'-0"



SECTION
SCALE: 1/2" = 1'-0"

GENERAL NOTES:

1. DESIGN LIVE LOAD FOR GRATING = 150 PSF
2. SEE DRAWING PR-12 FOR PROCESS DETAILS
3. FOR GENERAL NOTES AND STANDARD DETAILS, SEE DRAWINGS S-14, S-15, AND S-16.

THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED AND FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE CORRECT, NEITHER WRIGHT-PIERCE NOR ITS CONSULTANTS WARRANT ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED HEREIN OR OMITTED AS A RESULT.

NO.	DESCRIPTION	DATE
1	PROCESS UPDATES	DECEMBER 16, 1997

DES.	DRN.	CHKD.	APP'D.	SCALE
CJH	CJH	MJS	MJS	AS NOTED

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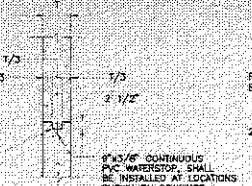
SEPTAGE FACILITY UPGRADE
FLOW SPLITTER/ SCUM WELL PLANS, SECTIONS AND DETAILS

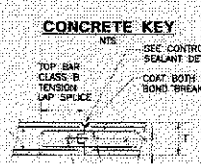
DWG. S-13
33 OF 84



CONTINUOUS KEY DOWNWARD EXCEPT AT TOP OF SLAB WHERE KEY SHALL BE TURNED UP (UNLESS OTHERWISE SHOWN ON DRAWINGS)

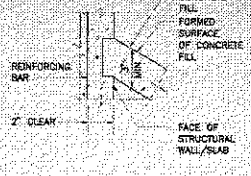
9"x3/8" CONTINUOUS PVC WATERSTOP, SHALL BE INSTALLED AT LOCATIONS SHOWN ON DRAWINGS

CONCRETE KEY
NTS



9" x 3/8" CONT. PVC WATERSTOP BOND TO INTERSECTING WATER STOP (WATERSTOP SHALL BE INSTALLED AT LOCATION SHOWN ON THE DRAWINGS)

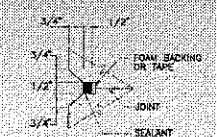
DOWEL SIZE TO MATCH SLAB REINFORCEMENT SPACE AT TWO TIMES THE SLAB REINFORCEMENT SPACING, OR CONTINUE 50% OF THE SLAB REINFORCEMENT THROUGH THE JOINT



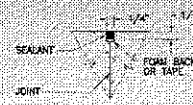
CONCRETE FILL KEY
NTS

CHAMFER ALL EXPOSED CORNERS

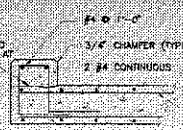
CHAMFER
NTS



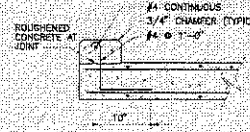
VERTICAL CONTROL JOINT SEALANT
NTS



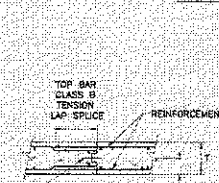
HORIZONTAL CONTROL JOINT SEALANT
NTS



TYPICAL CURB 8" MIN WIDTH
NTS

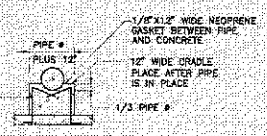


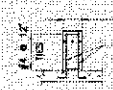
TYPICAL CURB LESS THAN 8" WIDE
NTS



9" x 3/8" CONT PVC WATERSTOP BOND TO INTERSECTING WATERSTOP (WATERSTOP SHALL BE INSTALLED AT LOCATIONS SHOWN ON DRAWINGS)

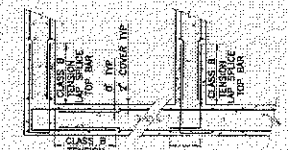
FOR KEY DIMENSIONS SEE CONCRETE KEY DETAIL





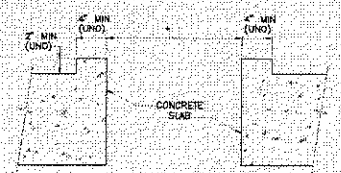
CONCRETE PIPE CRADLE
NTS

VERTICAL CONTROL JOINT
NTS



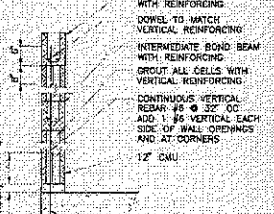
DEVELOPMENT LENGTH, OR STANDARD HOOK WHICH EVER IS GREATER 1'-0" MINIMUM (UON)

CONSTRUCTION JOINT
NTS



NOTE:
* THE CONTRACTOR SHALL COORDINATE PREPARED OPENING SIZES AND LOCATIONS WITH THE VARIOUS CONSTRUCTION TRADES. MANY PREPARED OPENING SIZES ARE LARGER THAN THE NOMINAL DIMENSION IN ORDER TO ACCOMMODATE THE EQUIPMENT, FOR EXAMPLE THOSE REQUIRED FOR FIRE DAMPERS. HAVE SPECIFIC REQUIREMENTS FOR FLOOR OPENING SIZES WHICH ARE LARGER THAN THE DUCT SIZE. THE GENERAL CONTRACTOR SHALL COORDINATE WITH ALL CONSTRUCTION TRADES FOR THEIR REQUIRED PENETRATIONS THROUGH THE CONCRETE PRIOR TO PLACEMENT OF CONCRETE.

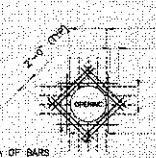
PREPARED OPENING IN FLOORS
NTS



WALL REINFORCING (12" CMU)
NTS

NOTE:
1. BOND BEAMS HAVE 2 # 5
2. SEE DRAWINGS A-8 FOR OTHER DEFORMED BAR REINFORCING

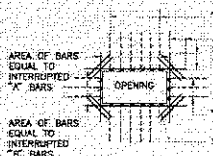
HORIZONTAL CONTROL JOINT
NTS



"A" BARS INTERRUPTED
2'-0" (TYP)
"B" BARS INTERRUPTED
AREA OF BARS EQUAL TO INTERRUPTED "A" BARS SEE NOTE 2
AREA OF BARS EQUAL TO INTERRUPTED "B" BARS

NOTES:
1. DETAILS ARE FOR OPENINGS 12" OR LARGER. SPREAD NORMAL REINFORCEMENT AT SMALLER OPENINGS.
2. CONCRETE THICK — ADD'L REINF *
   LESS THAN 12" — 2 - #5 CENTER
   MORE THAN OR EQUAL TO 12" — 2 - #5 EACH FACE

(* UNLESS OTHERWISE SHOWN ON DRAWINGS)



"A" BARS INTERRUPTED
3'-0" MIN OR AS SHOWN ON PLANS (TYP)
"B" BARS INTERRUPTED
SEE NOTE 2

NOTES:
1. DETAILS ARE FOR OPENINGS 12" OR LARGER. SPREAD NORMAL REINFORCEMENT AT SMALLER OPENINGS.
2. CONCRETE THICKNESS — ADD'L REINF *
   LESS THAN 12" — 2 - #5 x 4'-0" CENTER
   MORE THAN 12" OR EQUAL TO 12" — 2 - #5 x 4'-0" EACH FACE

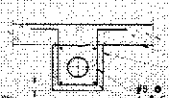
(* UNLESS OTHERWISE SHOWN ON THE DRAWINGS)

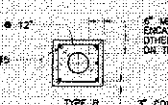
REINFORCEMENT AT RECTANGULAR OPENINGS
NTS

NOTE:
1) SPLICE BARS TO BE THE SAME SIZE AND SPACING AS THE LARGER OF THE BARS BEING SPLICED AT CORNERS OR INTERSECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

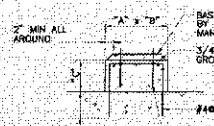
WALL REINFORCEMENT
NTS

REINFORCEMENT AT ROUND OPENINGS
NTS



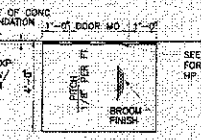


CONCRETE PIPE ENCASEMENT
NTS



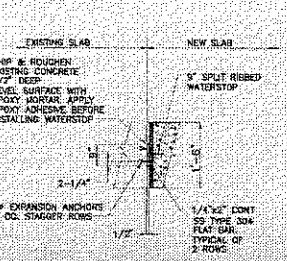
NOTES:
1. "A", "B", & "C" DIMENSIONS TO SUIT EQUIPMENT.
2. WHEN "C" IS LESS THAN 12" USE #4 @ 12" ALL AROUND, 2 BARS MINIMUM EACH SIDE.
3. WHEN "C" IS GREATER THAN 12" USE #5 @ 12" ALL AROUND, 2 BARS MINIMUM EACH SIDE.
4. WHEN NEW PAD IS PLACED ON EXISTING SLAB, DOWELS SHALL BE DRILLED & GROUTED REFER TO NOTES #2 & #3 FOR REINF SIZE AND SPACING.

EQUIPMENT PAD
NTS

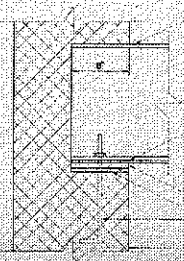


NOTE: PAD TO REST ON 4'-0" MINIMUM COMPACTED SELECT FILL (UNLESS OTHERWISE NOTED)

CONCRETE ENTRANCE PAD
NTS



WATERSTOP ON EXISTING CONCRETE
NTS



LINTEL BEARING
NTS

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NO.	DESCRIPTION	DATE	APP'D
1	RECORD DRAWINGS INCORPORATING CHANGES	10/1997	

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TRI-TOWN SEPTAGE TREATMENT FACILITY
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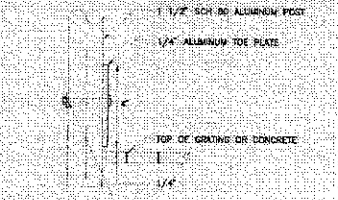
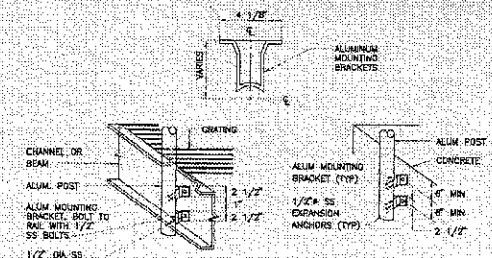
SEPTAGE FACILITY UPGRADE
STANDARD DETAILS I

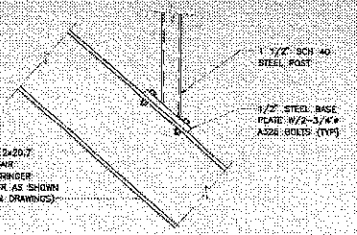
DWG. S-14
34 OF 34



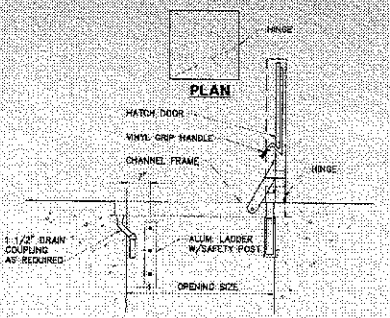
TOE PLATE
NTS



SIDE MOUNTED GUARD
NTS



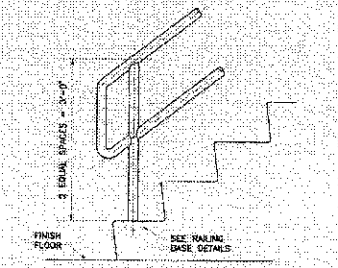
TOP MOUNTED GUARD
NTS



SECTION

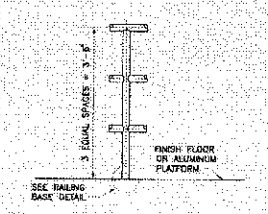
NOTE:
1. DIMENSIONS SHOWN MAY VARY BASED ON MANUFACTURER.
2. TYPE "A" HATCH SHOWN, SEE HATCH SCHEDULE ON DRAWING S-2.
3. SEE DRAWING P-3 FOR DRAIN DETAIL.

ALUMINUM HATCH
NTS



NOTES:
1. RAILING SCHEDULE 40 OD 1.90, ID 1.61
POST SCHEDULE 80 OD 1.90, ID 1.50
2. MAXIMUM POST SPACING 4'-8"
3. ALL ALUMINUM CONSTRUCTION
4. ALL FASTENERS SHALL BE STAINLESS STEEL TYPE 316

ALUMINUM GUARD END POST AT BOTTOM
NTS



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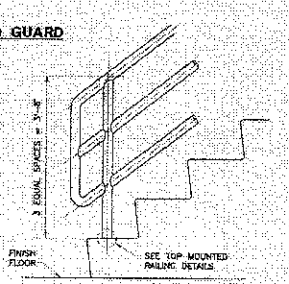
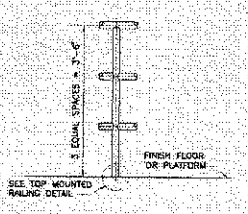
4. ALL FASTENERS STAINLESS STEEL TYPE 316

ALUMINUM GUARD DETAIL
NTS



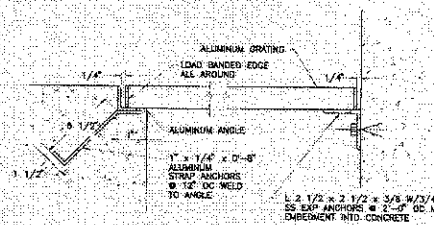
NOTES:
1. RAILING SCHEDULE 40 OD 1.90, ID 1.61
POST SCHEDULE 40 OD 1.90, ID 1.61
2. MAXIMUM POST SPACING 5'-0"
3. ALL STEEL CONSTRUCTION

STEEL GUARD END POST AT BOTTOM
NTS



NOTES:
1. RAILING SCHEDULE 40 OD 1.90, ID 1.61
POST SCHEDULE 40 OD 1.90, ID 1.61
2. MAXIMUM POST SPACING 5'-0"
3. ALL STEEL CONSTRUCTION

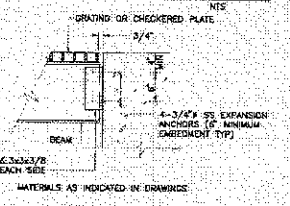
STEEL GUARD DETAIL
NTS



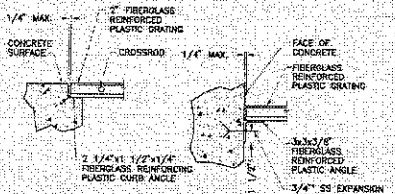
ALUMINUM GRATING SEAT DETAILS
NTS

GRATING THICKNESS	ALUMINUM ANGLE SEAT	REMARKS
3/4"	L 1 1/2 x 1 1/2 x 1/4	CUT VERTICAL LEG TO 1"
1"	L 1 1/2 x 1 1/2 x 1/4	CUT VERTICAL LEG TO 1-1/4"
1 1/4"	L 1 1/2 x 1 1/2 x 1/4	
1 1/2"	L 1 3/4 x 1 3/4 x 1/4	
1 3/4"	L 2 x 2 x 1/4	
2"	L 2 1/2 x 2 1/2 x 1/4	CUT VERTICAL LEG TO 2 1/4"

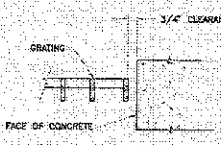
NOTES:
1. POLYAMIDE EPOXY ON ALL ALUMINUM EMBEDDED OR IN CONTACT WITH CONCRETE.
2. LOAD BAND ALL EDGES AND OPENINGS.
3. ANGLE FRAME TO BE MITERED AND WELDED AT CORNERS.
4. GENERAL CONTRACTOR SHALL COORDINATE LOCATION OF OPENINGS IN GRATING PRIOR TO FABRICATION.



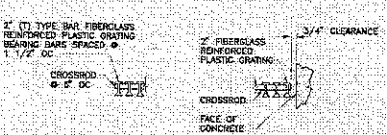
GRATING SUPPORT CONNECTION
NTS



GRATING SEAT



GRATING-EDGE CONDITION WHERE NON-SUPPORTED
NTS



GRATING TYPE | **GRATING END CONDITION** (NON-SUPPORT)

FIBERGLASS GRATING
NTS

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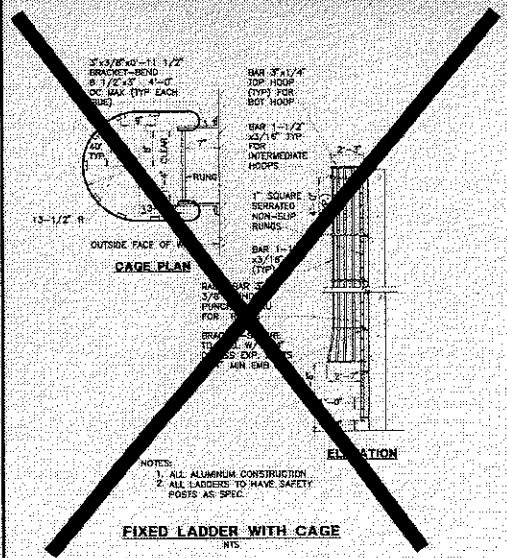
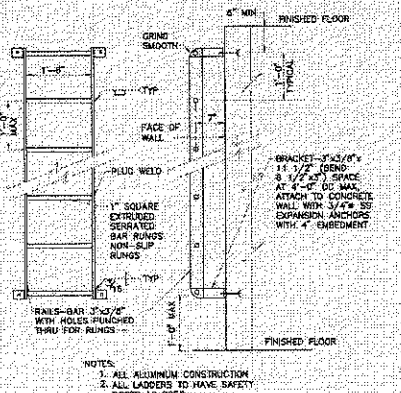
STANDARD DETAILS II

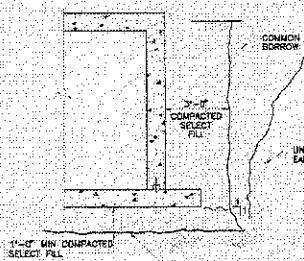
DWG: S-15
35 OF 84



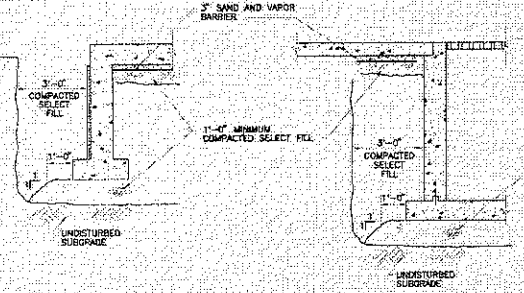
FIXED LADDER WITH CAGE
NTS



ALUMINUM LADDER
NTS



STRUCTURAL BACKFILL
NTS
AT OPERATIONS BUILDING SECONDARY CLARIFIERS & FLOW SPLITTER / SCUM WELL



STRUCTURAL BACKFILL
NTS
AT DISINFECTION BUILDING

STRUCTURAL ABBREVIATIONS

ALUMINUM	ALUM(AL)
ANCHOR BOLT	AB
AND	&
ANGLE	L
ARCHITECT	ARCH
AT	@
BEAM	BM
BOTTOM	BOT
BOTTOM OF CONCRETE	BOC
CENTER	CTR
CENTERLINE	℄
CLEAR	CL
COLUMN	COL
CONCRETE	CONC
CONCRETE MASONRY UNIT	CMU
CONTINUOUS	CONT
CONTROL JOINT	CJ
DETAIL	DET
DIAMETER	DIA, ø
EACH FACE	EF
EACH WAY	EW
ELEVATION (HEIGHT)	ELEV (EL)
EQUAL	EQ
EXPANSION	EXP
EXTERIOR	EXT
FEET	FT
FLOOR DRAIN	FD
GALVANIZED	GALV
GAUGE	GA
HIGH	HI
HIGH POINT	HP
HORIZONTAL	HORIZ(HOR)
INSIDE DIAMETER	ID
INSIDE FACE	IF
INSULATION	INSUL
JOINT	JT
LONG	LG
LOW POINT	LP
MANUFACTURER	MFR
MASONRY	MAS
MAXIMUM	MAX
MINIMUM	MIN
MODULAR OPENING	MO
MOUNTED	MTD
MOUNTING	MTG
NOT TO SCALE	NTS
NUMBER	NO
ON CENTER	OC
OPENING	OPNG
OUTSIDE DIAMETER	OD
OUTSIDE FACE	OF
PCF	PCF
PERIMETER	PERIM
PLATE	PL
POUND	#
PROCESS	PR
PROJECTION	PROJ
REINFORCING	REINF
REQUIRED	REQ'D
ROUGH OPENING	RO
SCHEDULE	SCHED(SCH)
SECTION	SECT
SHEET	SHT
SIMILAR	SIM
SLOPE	SL
SPACE(ING)	SP
SPECIFICATION	SPEC
SQUARE	SQ
STAINLESS STEEL	SS
STANDARD	STD
STEEL	STL
STRUCTURAL	STRUCT
SYMMETRICAL	SYM
THICKNESS	THK
TOP	T
TOP & BOTTOM	T & B
TOP OF CONCRETE	TOC
TOP OF GROUT	TOG
TOP OF MASONRY	TOM
TOP OF PLANK/PLATE	TOP
TREAD	T
TYPICAL	TYP
UNLESS OTHERWISE NOTED	UTON
WATERSTOP	WS
WELDED WIRE FABRIC	WWF
WIDE	W
WITH	W/
WITHOUT	W/O
WOOD	WD

GENERAL NOTES:

CONCRETE NOTES:

1. REINFORCED CONCRETE SHALL CONFORM TO THE ACI SPECIFICATION 318-89 AND ACI 350R-89.
2. MINIMUM CONCRETE STRENGTH AT 28 DAYS:
   STRUCTURAL CONCRETE: f'_c = 4000 PSI
   CONCRETE FILL: f'_c = 3000 PSI
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TO ASTM SPECIFICATION A615, GRADE 60 DEFORMED BARS.
4. REINFORCING STEEL FABRICATION SHALL BE IN ACCORDANCE WITH THE CRSI CODE OF STANDARD PRACTICE.
5. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER UNLESS OTHERWISE NOTED:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3-IN.
   CONCRETE SURFACES IN CONTACT WITH SOILS, WATER, SEWAGE, SLUDGE OR EXPOSED TO WEATHER: 2-IN.
   CONCRETE SURFACES NOT IN CONTACT WITH SOIL, WATER, SEWAGE, SLUDGE OR EXPOSED TO WEATHER: 1 1/2-IN.
6. SPLICED BARS SHALL HAVE A CLASS B TOP BAR TENSION LAP SPLICE UNLESS OTHERWISE NOTED.
7. IN CONCRETE BEAMS 15" OR DEEPER, PROVIDE CONTINUOUS #5@12" EACH SIDE BETWEEN MAIN REINFORCING.
8. CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN SHOWN ON THE DRAWINGS UNLESS REVIEWED AND NO EXCEPTIONS TAKEN BY THE ENGINEER.
9. SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE AS REQUIRED BY THE EQUIPMENT MANUFACTURER.
10. ALL EXPOSED CORNERS AND EDGES OF CONCRETE TO HAVE 3/4" MINIMUM CHAMFER UNLESS OTHERWISE NOTED.
11. REINFORCING BARS SHALL EXTEND 12 BAR DIAMETERS BUT NOT LESS THAN 12" BEYOND BEND UNLESS OTHERWISE NOTED.

MASONRY:

1. f'_m = 1350 PSI = INSPECTED.
2. MORTAR SHALL BE ASTM C270 TYPE S WITH 28 DAY COMPRESSIVE STRENGTH OF 1800 PSI.
3. CMU SHALL BE ASTM C90 TYPE N-I WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI ACCORDING TO ASTM C140.
4. GROUT SHALL BE ASTM C476 FINE GROUT WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.
5. VERTICAL AND HORIZONTAL DEFORMED REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
6. PRISM TESTS ACCORDING TO ASTM C447 ARE REQUIRED IN ACCORDANCE WITH SPECIFICATION SECTION 04200.
7. GROUT SOLID CMU AT EXPANSION ANCHOR LOCATIONS.

METALS:

1. STRUCTURAL STEEL SHALL BE ASTM A36 GALVANIZED.
2. STEEL LINTELS SHALL BE ASTM A36 GALVANIZED.
3. ANCHOR BOLTS SHALL BE ASTM A307.
4. STEEL BOLTS SHALL BE ASTM A325 N (UGH).
5. ALUMINUM MEMBERS SHALL BE ASTM B308-94 ALLOY 6061 -T6, (UGH)
6. STAINLESS STEEL FASTENERS SHALL CONFORM TO ASTM F593 AND ASTM F594.
7. ALL LINTELS SHALL BEAR 8" MINIMUM ON SOLID MASONARY EACH END.

FOUNDATION NOTES:

1. PRIOR TO DAMPPROOFING, WATERPROOFING AND BACKFILLING, ALL TANKS AND OTHER LIQUID CONTAINING STRUCTURES SHALL BE LEAK TESTED IN ACCORDANCE WITH SPECIFICATION SECTION 03300.
2. WATER LEAKAGE TESTS AND/OR BACKFILLING SHALL NOT COMMENCE UNTIL THE ELEVATED CONCRETE SLABS HAVE BEEN IN PLACE FOR A MINIMUM OF 28 DAYS AND HAVE ATTAINED DESIGN STRENGTH.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN A CONTINUOUS DEWATERING SYSTEM TO ENSURE AGAINST FLOTATION OF THE NEW STRUCTURES UNTIL CONSTRUCTION AND BACKFILL ARE COMPLETE.
4. FOUNDATION DESIGN, SUBGRADE AND FILL DETAILS ARE BASED ON A MAXIMUM NET ALLOWABLE SOIL BEARING CAPACITY OF 4000 PSF, IF SOILS AT EXCAVATION BOTTOMS DO NOT MEET THESE CAPACITIES AS VERIFIED BY THE ENGINEER, THE UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH MATERIAL AS DIRECTED BY THE ENGINEER.

GENERAL NOTES:

1. ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, PROCESS, MECHANICAL AND ELECTRICAL DRAWINGS, SHOP DRAWINGS AND SPECIFICATIONS.
2. SEE ARCHITECTURAL, PROCESS, MECHANICAL AND ELECTRICAL DRAWINGS FOR, DOVETAIL SLOTS, PIPE SLEEVES, CONDUITS OR OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH THE CONCRETE.
3. SEE PROCESS AND ELECTRICAL DRAWINGS FOR LOCATIONS OF CONCRETE EQUIPMENT PADS IN EXISTING STRUCTURES.

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR BIDDING	4-26-96	CJC
2	REVISED DRAWINGS DECEMBER 18, 1997	12-18-97	CJC

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TRI-TOWN SEPTAGE TREATMENT FACILITY
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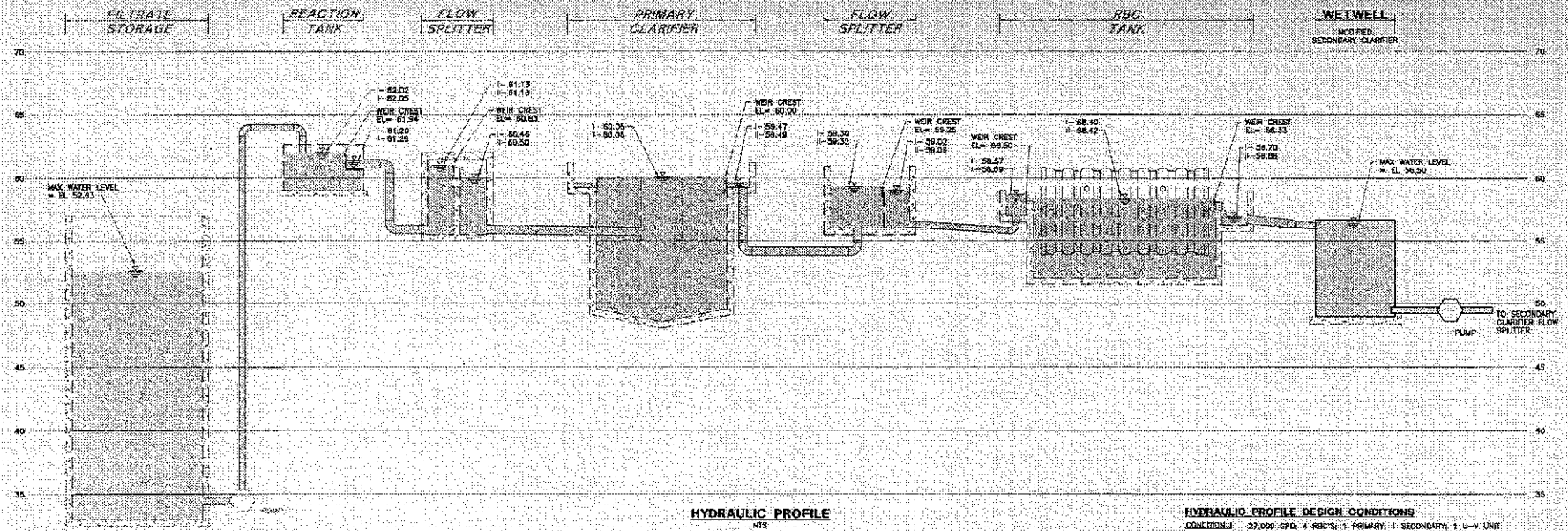
STANDARD DETAILS III

DWG. S-16
36 OF 84

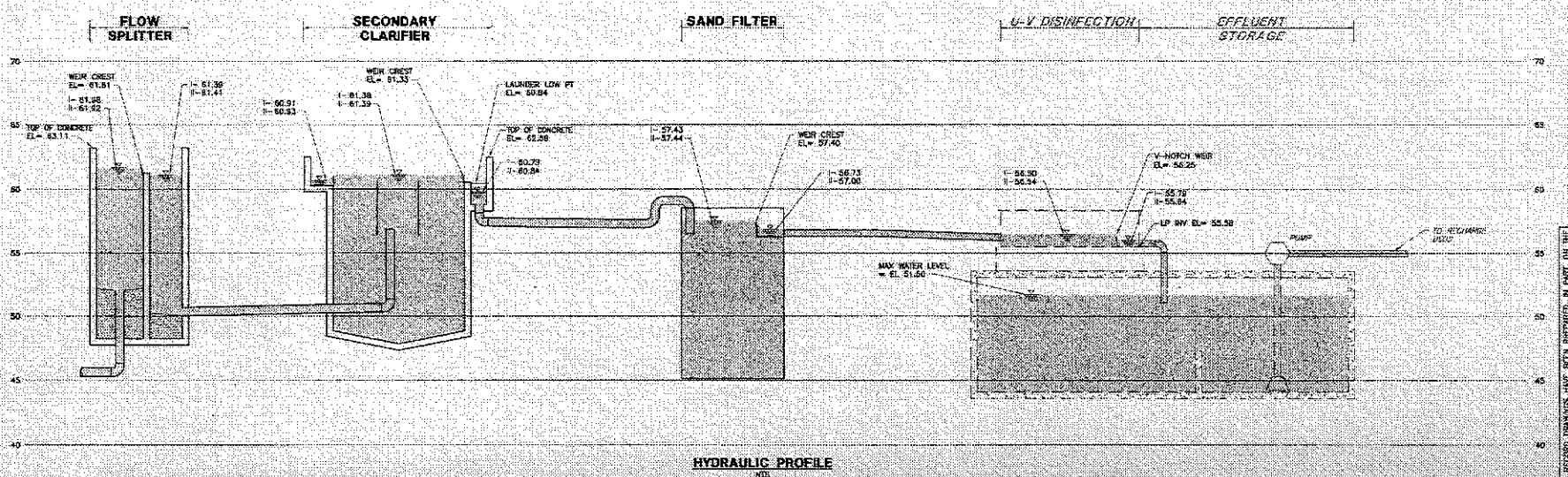


HYDRAULIC PROFILE
NTS

HYDRAULIC PROFILE DESIGN CONDITIONS

CONDITION I 27,000 GPD; 4 RBC'S; 1 PRIMARY; 1 SECONDARY; 1 U-V UNIT

CONDITION II 45,000 GPD; 4 RBC'S; 1 PRIMARY; 1 SECONDARY; 1 U-V UNIT



HYDRAULIC PROFILE
NTS

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TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS

SEPTAGE FACILITY UPGRADE

HYDRAULIC PROFILE

DWG. PR-1

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GENERAL NOTES:

1. ALL BURIED CONNECTIONS TO STRUCTURES, INCLUDING BUT NOT LIMITED TO THE OPERATIONS BUILDING ADDITION, CLARIFIERS, DISINFECTION BUILDING ADDITION, FLOW SPLITTER/SCUM WELL AND THE SAND FILTER MUDWELL SHALL HAVE SLEEVE TYPE DOUBLE FLEXIBLE CUSHIONED SEALS WITHIN APPROXIMATELY 4 FEET FROM THE STRUCTURES. ALL SLEEVE TYPE COUPLINGS ON PRESSURE LINES SHALL BE RESTRAINED. REFER TO SPECIFICATION SECTION 15088.
2. ALL WASTEWATER PIPING (EXCLUDING BUILDING DRAINS/SEWER) AND PRESSURIZED PIPING (I.E. PLANT WATER, CITY WATER, SOLUTION LINES, ETC.) INSTALLED BELOW SLABS SHALL BE ENCASED IN CONCRETE. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. PROVIDE CAST OR DUCTILE IRON WALL CASTINGS, OR GALVANIZED STEEL PIPE SLEEVES, FOR ALL PIPE PENETRATIONS MADE THROUGH CONCRETE FOUNDATIONS, WALLS AND SLABS. ALL WALL SLEEVES AND WALL CASTINGS SHALL HAVE WATERSTOPS. SEE PROCESS, MECHANICAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF PENETRATIONS. NEW PENETRATIONS THROUGH EXISTING STRUCTURE WALLS SHALL BE BY CORING MACHINE AND "LINK-SEAL" TYPE SEALS, UNLESS OTHERWISE INDICATED. OPENINGS TO BE COMPATIBLE WITH REQUIRED PIPING AND STANDARD LINK SEAL SIZES. SEE DRAWING PR-716 FOR DETAILS.
4. FOR PIPING MATERIAL, SEE THE PIPE SCHEDULE IN SPECIFICATION SECTION 15050.
5. USE ONLY LONG RADIUS PIPE BEND FITTINGS ON SLUDGE AND SCUM LINES, EXCEPT WHERE DIMENSIONAL CONSTRAINTS NECESSITATE THE USE OF STANDARD BENDS. THESE EXCEPTIONS SHALL BE SUBJECT TO ENGINEER'S REVIEW AND ACCEPTANCE.
6. ALL FLOW ELEMENTS SHALL BE LOCATED A MINIMUM OF TEN PIPE DIAMETERS DOWNSTREAM AND FIVE DIAMETERS UPSTREAM OF ANY HYDRAULIC DISTURBANCE, EXCEPT IN SITUATIONS WHERE DIMENSIONAL CONSTRAINTS PRECLUDE THESE SEPARATION DISTANCES. IN THESE CASES THE ENGINEER WILL REVIEW THE LAYOUT AND PROVIDE REDUCED MINIMUM SEPARATION DISTANCES.
7. ALL BLIND FLANGES ON SCUM, SLUDGE, SEPTAGE AND GRIT LINES SHALL HAVE A 1" BALL VALVE AND AN ATTACHMENT FOR FLUSHING WITH PLANT WATER, UNLESS OTHERWISE NOTED. GRIT LINES AND SOME SEPTAGE, SCUM, AND SLUDGE LINES SHALL BE HARD PIPED WITH PROCESS WATER FOR FLUSHING, WHERE INDICATED ON THE DRAWINGS. REFER TO SPECIFICATION SECTION 15401.
8. PROVIDE DRIP PANS, WITH CENTRAL COLLECTION POINT AND DRAIN TO FLOOR, FOR ELECTRICAL AND INSTRUMENTATION EQUIPMENT LOCATED BENEATH LIQUID CARRYING PIPES.
9. ALL PLANT WATER HOSE BIBBS SHALL BE PROVIDED WITH A HOSE RACK AND HOSE, ALONG WITH A SIGN INDICATING "NOT SUITABLE FOR DRINKING". FOR ADDITIONAL HOSE BIBB AND HOSE RACK INFORMATION SEE SPECIFICATION SECTION 15401.
10. INSTALL CORPORATION COCKS ON ALL BUILDING AND STRUCTURE INTERIOR PIPING HIGH POINTS TO PREVENT AIR BINDING. CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXACT NUMBER AND LOCATIONS OF THESE CORPORATION COCKS BASED UPON INFORMATION DEPICTED ON DRAWINGS AND ACTUAL FIELD ROUTING OF PIPING. REVIEW LOCATIONS WITH ENGINEER BEFORE INSTALLATION. THESE MANUAL AIR RELEASES SHALL INCLUDE A 1/2-INCH, BRASS CORPORATION COCK WITH 1/2-INCH COPPER TUBING ADEQUATELY SUPPORTED, EXTENDING TO A LOCAL AREA DRAIN. ROUTING OF TUBING AND SELECTED DRAIN TO BE REVIEWED WITH, AND ACCEPTED BY, ENGINEER.
11. PIPES 3-INCH IN DIAMETER AND UNDER SHALL HAVE UNIONS INSTALLED ADJACENT TO EQUIPMENT AND TANKS, UNLESS OTHERWISE NOTED ON DRAWINGS. FLANGES ARE ACCEPTABLE ON 3-INCH DIAMETER PIPING.
12. ALL PIPES SHALL BE ADEQUATELY RESTRAINED AND SUPPORTED IN ACCORDANCE WITH SPECIFICATION SECTION 15094. ALL SLEEVE TYPE COUPLINGS AND FLANGED ADAPTERS USED ON PRESSURIZED LINES SHALL BE RESTRAINED PER SPECIFICATION SECTION 15088.
13. AFTER INSTALLATION, ALL PIPELINES SHALL BE PRESSURE TESTED FOR TIGHTNESS IN ACCORDANCE WITH SPECIFICATION SECTION 15050. PRESSURE MAINS, INCLUDING BUT NOT LIMITED TO SLUDGE, SCUM, PLANT WATER, FORCE MAINS, GRIT, SEPTAGE AND CHEMICAL FEED LINES SHALL BE PRESSURE TESTED AT 1-1/2 TIMES THE ASSOCIATED PUMP SHUTOFF HEAD (LISTED IN THE SPECIFICATIONS) OR AT 100 PSIG — WHICHEVER IS GREATEST. PROCESS GRAVITY LINES AND AIR LINES SHALL BE PRESSURE TESTED WITH AIR AT 15 PSIG, UNLESS OTHERWISE INDICATED. THE AIR LINES SHALL BE ACCEPTABLE IF THE PRESSURE DECREASE IS NOT GREATER THAN 1/2 PSIG IN 30 MINUTES. ALL LEAKS SHALL BE CORRECTED AND RETESTED UNTIL PRESSURE TEST IS SATISFACTORILY COMPLETED.
14. ALL PIPING SHALL BE CLEANED, TO THE SATISFACTION OF THE ENGINEER, BEFORE TESTING.
15. PROVIDE 3 1/2-INCH HIGH (MIN.) REINFORCED CONCRETE PAD UNDER ALL EQUIPMENT, CONTROL PANELS, PIPE AND EQUIPMENT SUPPORTS, TANKS, ETC. UNLESS OTHERWISE INDICATED.
16. ALL EQUIPMENT AND PIPING LAYOUT DIMENSIONS SHALL BE FIELD VERIFIED AND COORDINATED WITH EQUIPMENT SUPPLIED, AND/OR EXISTING CONDITIONS.
17. DO NOT SCALE DISTANCES OR DIMENSIONS FROM THE DRAWINGS. WRITTEN DIMENSIONS SHALL PREVAIL. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
18. REFER TO SPECIFICATION SECTION 01070 FOR A LISTING OF COMMONLY USED ABBREVIATIONS.
19. INFORMATION ASSOCIATED WITH EXISTING PIPING AND EQUIPMENT LOCATIONS, ELEVATIONS AND SIZES TAKEN FROM RECORD DRAWINGS FOR SEPTAGE TREATMENT FACILITIES, TOWN OF ORLEANS, MASSACHUSETTS BY LINETHAL DESIGNERS ANDERSON, INC., DATED JULY 1982. CONTRACTOR SHALL FIELD VERIFY. IF FIELD CONDITIONS DIFFER FROM THOSE SHOWN, NOTIFY ENGINEER IMMEDIATELY PRIOR TO PROCEEDING FURTHER.
20. WHERE INSTALLING A VALVE OR FITTING IN AN EXISTING 3"ø OR LARGER PIPE, USE OF A FLANGED ADAPTER OR NEW SECTION OF PIPE IS REQUIRED.
21. FLEXIBLE EXPANSION JOINTS ON AIR LINES ARE TO BE PROVIDED WHERE SHOWN ON THE DRAWINGS AND AS REQUIRED FOR PROTECTION OF STRESSES INDUCED BY EXPANSION AND CONTRACTION OF PIPING. PROVIDE IN ACCORDANCE WITH SPECIFICATION SECTION 11373 AND AT A MINIMUM TO LIMIT STRAIGHT LENGTH OF PIPING TO 30' RUNS.
22. 2x4 — INDICATES REDUCER SIZE. ALL REDUCERS SHALL BE THE CONCENTRIC TYPE UNLESS FOLLOWED BY "E" (EXAMPLE 2x4E)
23. SPLIT TYPE COUPLINGS FOR GROOVED END PIPE ARE ACCEPTABLE FOR INTERIOR D.I. APPLICATIONS.

DEMOLITION NOTES:

1. [redacted] INDICATES EXISTING PIPING/EQUIPMENT TO BE DEMOLISHED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL DEMOLISHED PIPING, EQUIPMENT AND MATERIALS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND/OR MATERIALS ON SITE FOR THEIR USE. SUCH MATERIAL TO BE RETAINED SHALL BE PLACED IN AN ON-SITE STORAGE AREA, REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO, THE OWNER AND ENGINEER.
3. THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AND LOCATION OF UTILITIES FOUND AS PART OF THE PROJECT RECORD DOCUMENTS, AS SPECIFIED IN SECTION 01720.
4. REFER TO THE DEMOLITION SPECIFICATION SECTION 02050, SUMMARY OF WORK SPECIFICATION SECTION 01010, AND SITE DEMOLITION DRAWING C-2 FOR ADDITIONAL INFORMATION REGARDING DEMOLITION REQUIREMENTS AND CONSTRUCTION SEQUENCING.
5. REFER TO DRAWING C-2 FOR ADDITIONAL INFORMATION REGARDING EXISTING UTILITIES. THE SIZES, LOCATIONS, AND MATERIALS OF CONSTRUCTION INDICATED ARE FROM THE BEST AVAILABLE INFORMATION AND MAY NOT BE COMPLETE OR ACCURATE. ALL SIZES, LOCATIONS, AND MATERIALS OF CONSTRUCTION SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD AS REQUIRED. ALL EXISTING UTILITIES THAT ARE TO REMAIN, AND ARE DAMAGED BY THE CONTRACTORS ACTIVITIES, SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. SEVERING THE EXISTING UTILITIES FOR ABANDONMENT, OR REMOVAL OF A SEGMENT FROM SERVICE, SHALL BE PERFORMED IN SUCH A MANNER AS TO ALLOW THE REMAINING ACTIVE SEGMENT TO CONTINUE IN ITS INTENDED SERVICE. CAP ACTIVE SEGMENTS WITH APPROPRIATE FITTING, JOINT RESTRAINT, ETC. TO ENSURE THEIR INTEGRITY. THE METHOD OF CAPPING SHALL BE REVIEWED WITH, AND ACCEPTABLE TO, THE ENGINEER.
7. ALL PIPING, EQUIPMENT AND MATERIALS TO BE DEMOLISHED AND/OR REMOVED FROM SERVICE MUST BE COORDINATED WITH THE OWNER AND ENGINEER BEFOREHAND.
8. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE THAT ALL FLOWS, FLOW METERING AND LEVEL CONTROLS ARE MAINTAINED DURING CONSTRUCTION. GRAVITY, PUMPED BYPASSES OR OTHER MEANS OF FLOW MAINTENANCE SHALL BE REVIEWED WITH, AND ACCEPTABLE TO, THE ENGINEER. THE CONTRACTOR SHALL COORDINATE ANY TEMPORARY STOPPAGES WITH THE OWNER AND ENGINEER.
9. WHERE PIPING OR CONDUIT THAT IS TO BE REMOVED PASSES THROUGH THE WALL OF THE STRUCTURE, IT SHALL BE CUT OFF AS NEAR TO THE WALL AS PRACTICAL AND PROPERLY SEALED ON EACH SIDE OF THE WALL, OR AS SHOWN ON THE DRAWINGS. SEAL METHOD SHALL BE SUBJECT TO REVIEW AND ACCEPTANCE OF THE ENGINEER.
10. ALL WALL AND/OR FLOOR PENETRATIONS REMAINING AFTER THE REMOVAL OF PIPING OR CONDUIT ARE TO BE PATCHED AND FINISHED FLUSH TO MATCH EXISTING SURFACES.
11. REMOVE ALL PUMP AND EQUIPMENT PADS NOT BEING RE-USED AND FINISH FLUSH TO FLOOR LEVEL.
12. REMOVE ALL WALL BRACKETS, PIPE HANGERS AND PIPE SUPPORTS NOT BEING RE-USED. PATCH BOLT HOLES AND FINISH FLUSH TO MATCH THE EXISTING SURFACE.

LEGEND

NEW EQUIPMENT/PIPING	BUTTERFLY VALVE
EXISTING EQUIPMENT/PIPING	CHECK VALVE
GRIT	GATE VALVE
PLANT WATER	PLUG VALVE
AIR	DOUBLE DISC CHECK VALVE
SCUM	FLOW METER
PROCESS LINE (AS NOTED)	FLOW DIRECTION
GREASE	KNIFE GATE VALVE
SLUICE GATE	ORIFICE PLATE
WEIR GATE	CHEMICAL APPLICATION POINT
STOP GATE	
FIXED WEIR	

BALL VALVE	
PUMP	
SILENCER	
INTAKE FILTER	
BLOWER	
PRESSURE RELIEF VALVE	
SURGE TANK	
WATER METER	

NO.	REVISIONS	BY	DATE
1	RECORD DRAWING SUBMITTAL	LJC	10/15/13

SCALE: NOT TO SCALE
DESIGNED: MJH
DRAWN: MJH
CHECKED: LJC
APPROVED: LJC
DATE: 10/15/13

SCALE FOR REDUCED PRINTS
1" = 1'-0" FULL SIZE
0.5" = 1'-0" HALF SIZE
0.25" = 1'-0" QUARTER SIZE

PROJECT NO. 6525
SHEET NO. 4 OF 84 SHEETS

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TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
GENERAL NOTES, GENERAL DEMOLITION NOTES AND LEGEND

DWG. PR-2
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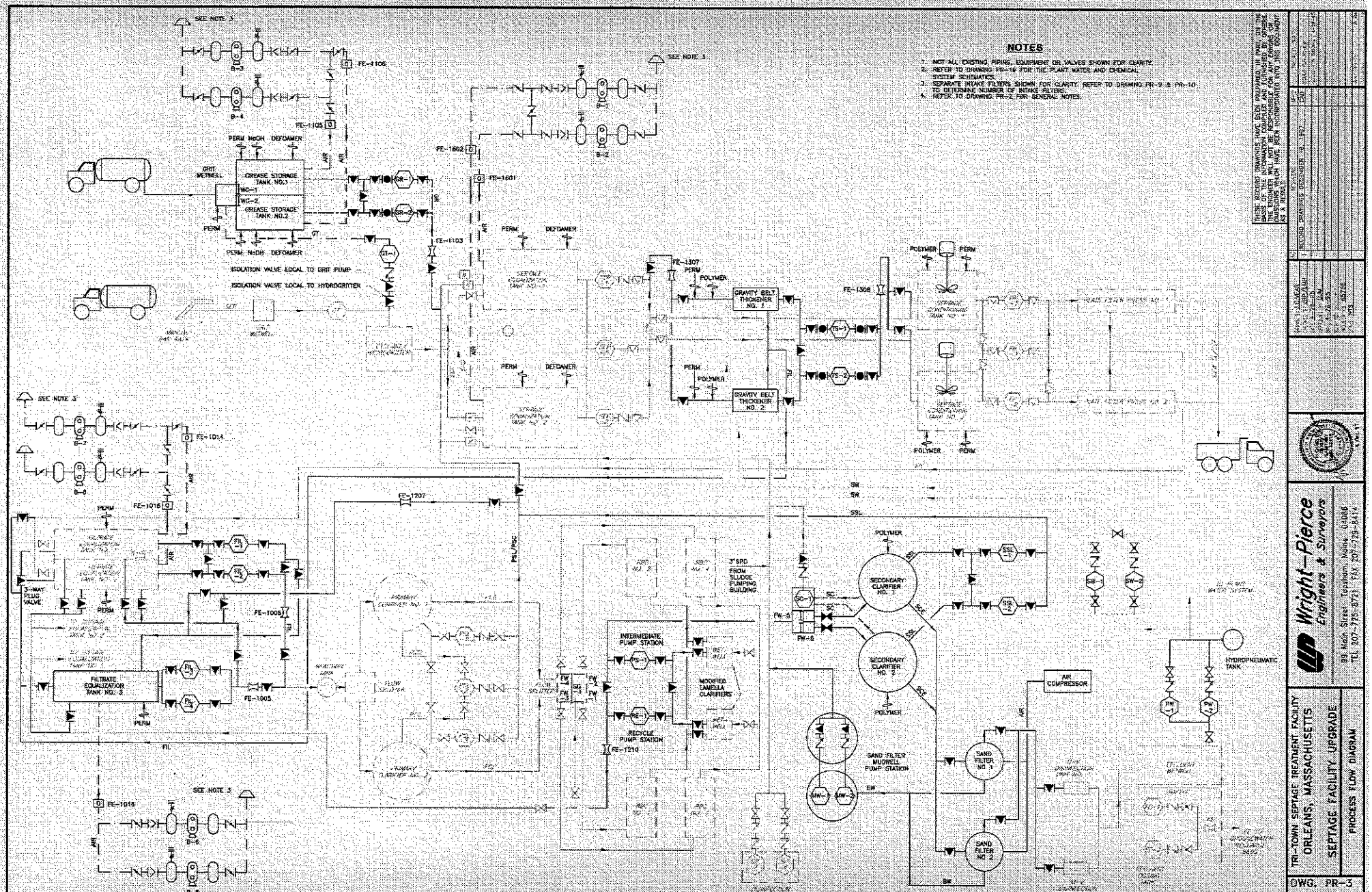

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NO.	RECORD DRAWING PROCEDURE 1A-1997	BY	DATE
1			

DRWN: J.T.L.A.C.A.	CHK'D:	APP'D:
DES'D:	DATE:	
PROJ. NO. 6774		

Wright-Pierce Engineers & Surveyors
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TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
PROCESS FLOW DIAGRAM

DWG. PR-3
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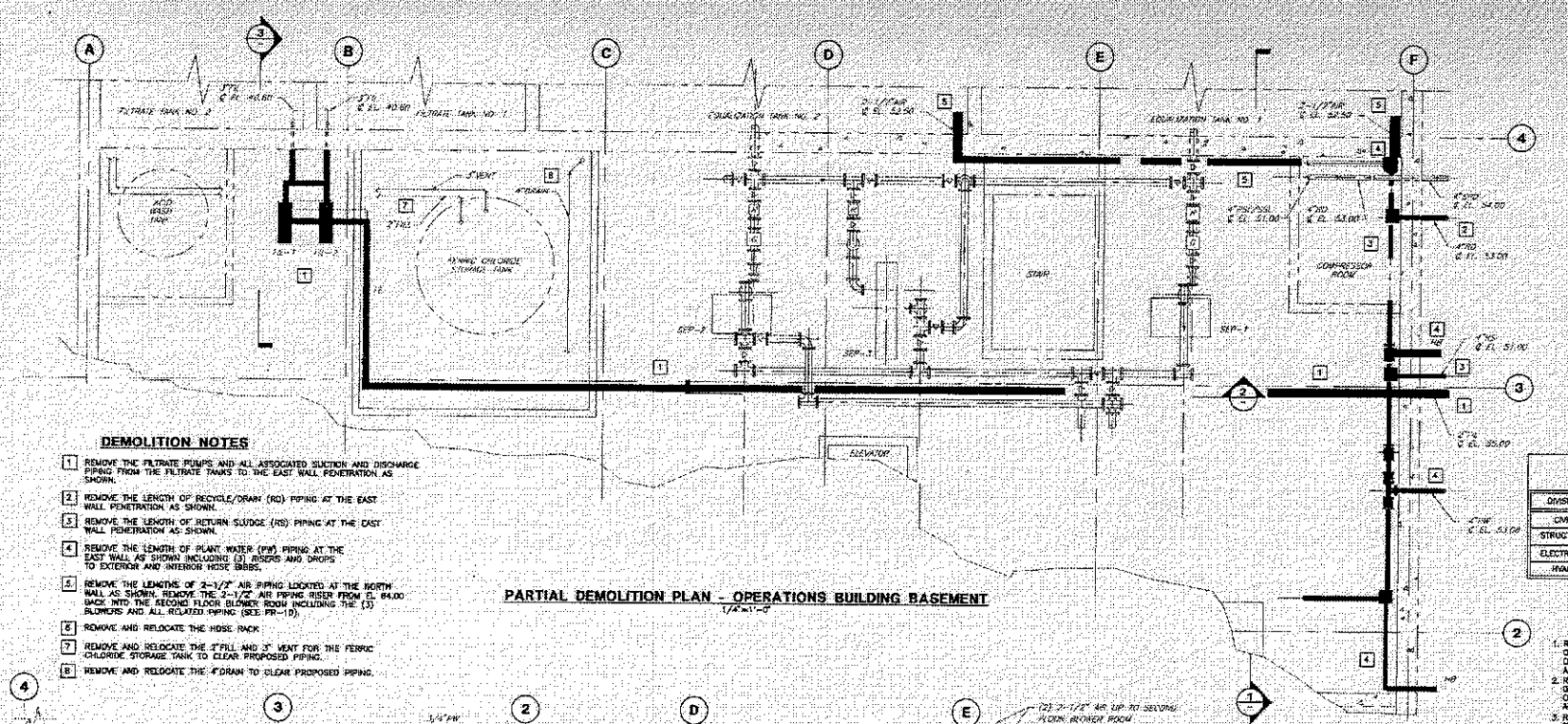

DEMOLITION NOTES

1. REMOVE THE FILTRATE PUMPS AND ALL ASSOCIATED SUCTION AND DISCHARGE PIPING FROM THE FILTRATE TANKS TO THE EAST WALL PENETRATION AS SHOWN.
2. REMOVE THE LENGTH OF RECYCLE/DRAIN (RD) PIPING AT THE EAST WALL PENETRATION AS SHOWN.
3. REMOVE THE LENGTH OF RETURN SLUDGE (RS) PIPING AT THE EAST WALL PENETRATION AS SHOWN.
4. REMOVE THE LENGTH OF PLANT WATER (PW) PIPING AT THE EAST WALL AS SHOWN INCLUDING (3) RISERS AND DROPS TO EXTERIOR AND INTERIOR HOSE BIBBS.
5. REMOVE THE LENGTHS OF 2-1/2" AIR PIPING LOCATED AT THE NORTH WALL AS SHOWN. REMOVE THE 2-1/2" AIR PIPING RISER FROM EL. 64.00 BACK INTO THE SECOND FLOOR BLOWER ROOM INCLUDING THE (3) BLOWERS AND ALL RELATED PIPING (SEE PR-10).
6. REMOVE AND RELOCATE THE HOSE RACK.
7. REMOVE AND RELOCATE THE 2" FILL AND 3" VENT FOR THE FERRIC CHLORIDE STORAGE TANK TO CLEAR PROPOSED PIPING.
8. REMOVE AND RELOCATE THE 4" DRAIN TO CLEAR PROPOSED PIPING.

PARTIAL DEMOLITION PLAN - OPERATIONS BUILDING BASEMENT

1/4"=1'-0"

REFERENCES

DIVISION	SHT. No.	COMMENTS
CIVIL	C-2	EXIST. SITE&DEMO
STRUCTURAL	S-1	STRUCTURES
ELECTRICAL	E-8	CONTROLS&ELECTRICAL
HVAC	HV-2	HVAC

NOTES

1. REFER TO SPECIFICATION SECTION 01045 AND 02060 FOR ADDITIONAL DETAILS ON CUTTING, PATCHING AND DEMOLITION.
2. REFER TO SPECIFICATION SECTION 01010 FOR ADDITIONAL DETAILS ON CONSTRUCTION SEQUENCING AND TEMPORARY PIPING CONNECTIONS.
3. REFER TO DRAWING PR-2 FOR THE GENERAL DEMOLITION NOTES.
4. REFER TO DRAWING PR-5 FOR INFORMATION REGARDING PIPING RELOCATIONS NOTED ON THIS SHEET.

SECTION 1/4" SCALE: 1/4"=1'-0"

SECTION 2 SCALE: 1/4"=1'-0"

SECTION 4 SCALE: 1/4"=1'-0"

NO.	DESCRIPTION	DATE
1	RECORD DRAWINGS SUBMITTAL	10/1997

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TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
EXISTING OPERATIONS BUILDING
DEMOLITION PLAN AND SECTIONS

DWG. PR-4
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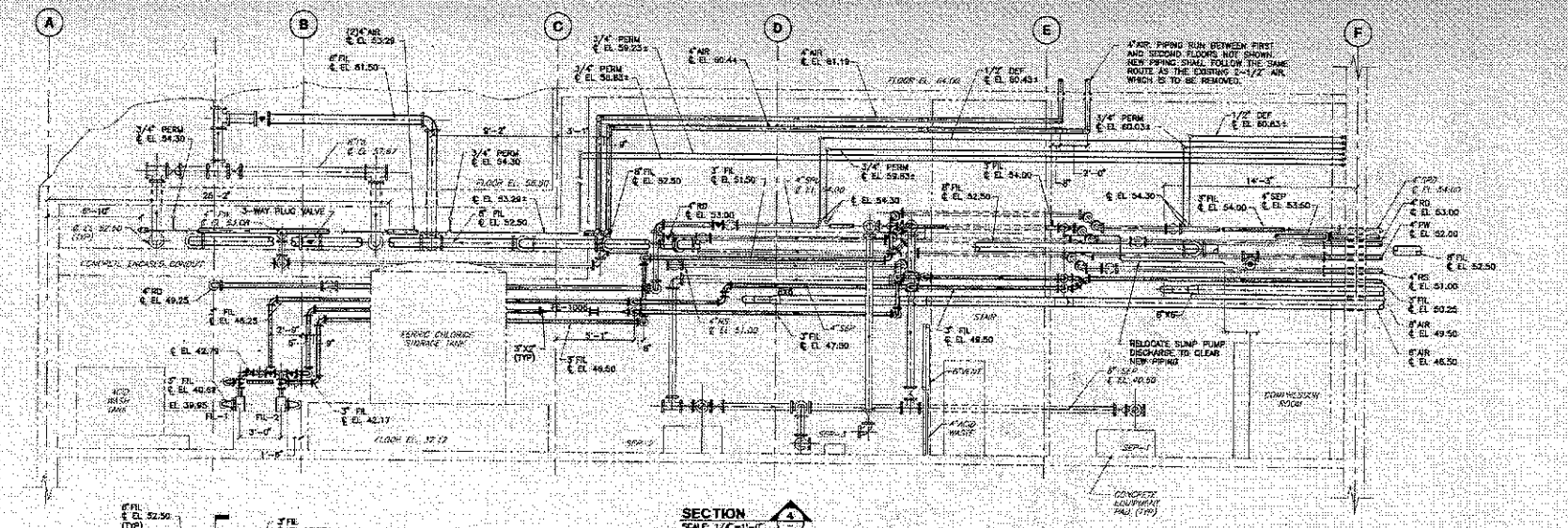
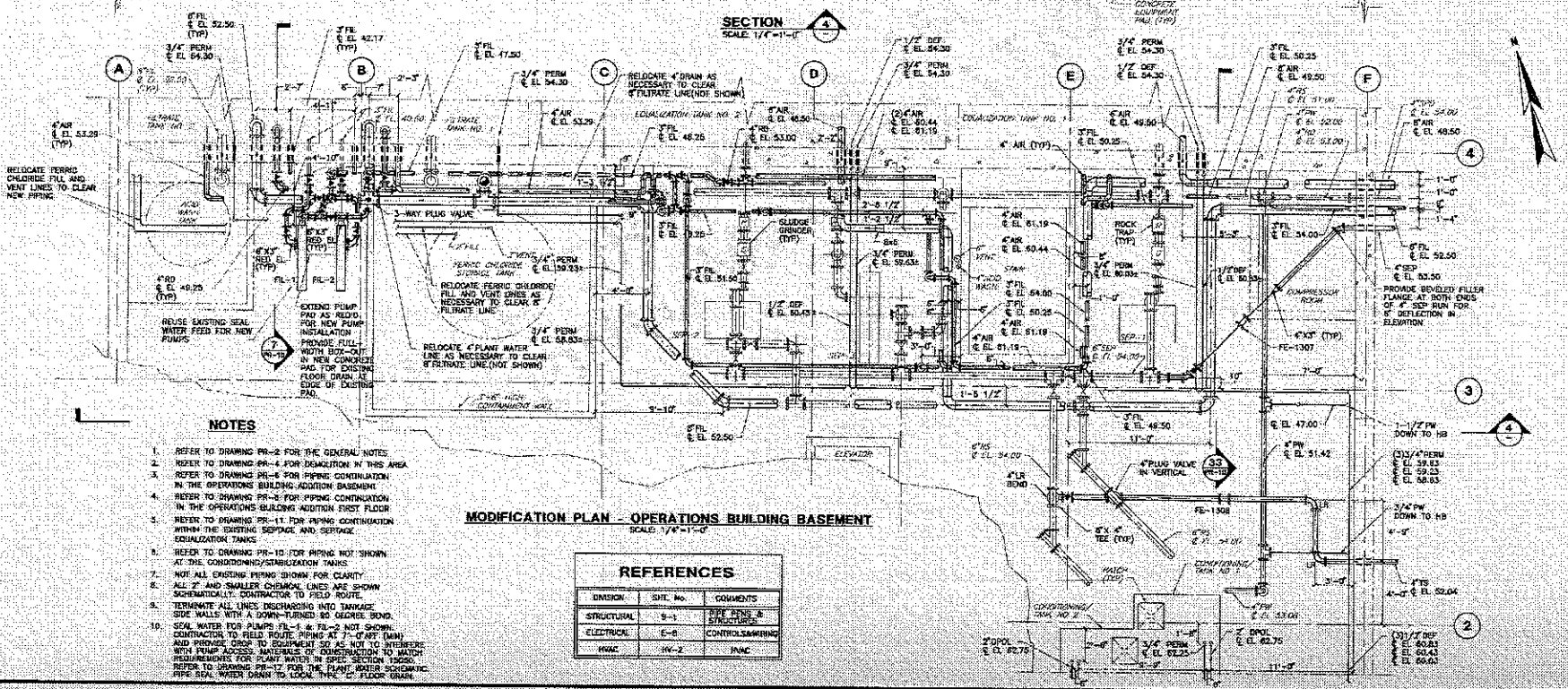


SECTION
SCALE: 1/4"=1'-0"



MODIFICATION PLAN - OPERATIONS BUILDING BASEMENT
SCALE: 1/4"=1'-0"

NOTES

1. REFER TO DRAWING PR-2 FOR THE GENERAL NOTES.
2. REFER TO DRAWING PR-4 FOR DEMOLITION IN THIS AREA.
3. REFER TO DRAWING PR-6 FOR PIPING CONTINUATION IN THE OPERATIONS BUILDING ADDITION BASEMENT.
4. REFER TO DRAWING PR-8 FOR PIPING CONTINUATION IN THE OPERATIONS BUILDING ADDITION FIRST FLOOR.
5. REFER TO DRAWING PR-11 FOR PIPING CONTINUATION WITHIN THE EXISTING SEPTAGE AND SEPTAGE EQUALIZATION TANKS.
6. REFER TO DRAWING PR-10 FOR PIPING NOT SHOWN AT THE CONDITIONING/STABILIZATION TANKS.
7. NOT ALL EXISTING PIPING SHOWN FOR CLARITY.
8. ALL 2" AND SMALLER CHEMICAL LINES ARE SHOWN SCHEMATICALLY. CONTRACTOR TO FIELD ROUTE.
9. TERMINATE ALL LINES DISCHARGING INTO TANKAGE SIDE WALLS WITH A DOWN-TURNED 90 DEGREE BEND.
10. SEAL WATER FOR PUMPS FL-1 & FL-2 NOT SHOWN. CONTRACTOR TO FIELD ROUTE PIPING AT 7'-0" AFF (MIN) AND PROVIDE DROP TO EQUIPMENT SO AS NOT TO INTERFERE WITH PUMP ACCESS. MATERIALS OF CONSTRUCTION TO MATCH REQUIREMENTS FOR PLANT WATER IN SPEC SECTION 15050. REFER TO DRAWING PR-12 FOR THE PLANT WATER SCHEMATIC. PIPE SEAL WATER DRAIN TO LOCAL TYPE 'C' FLOOR DRAIN.

REFERENCES

DIVISION	SHT. No.	COMMENTS
STRUCTURAL	S-1	PIPE PENS & STRUCTURES
ELECTRICAL	E-8	CONTROLS/WIRING
HVAC	HV-2	HVAC

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NO.	DATE	REVISION
1	4-5-13	ADDENDUM #1
2	4-26-13	ADDENDUM #2
3	5-17-13	ADDENDUM #3
4	6-4-13	ADDENDUM #4
5	6-20-13	ADDENDUM #5
6	7-2-13	ADDENDUM #6
7	7-15-13	ADDENDUM #7
8	8-5-13	ADDENDUM #8
9	8-12-13	ADDENDUM #9
10	8-19-13	ADDENDUM #10
11	8-26-13	ADDENDUM #11

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TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
EXISTING OPERATIONS BUILDING MODIFICATIONS

DWG. PR-5
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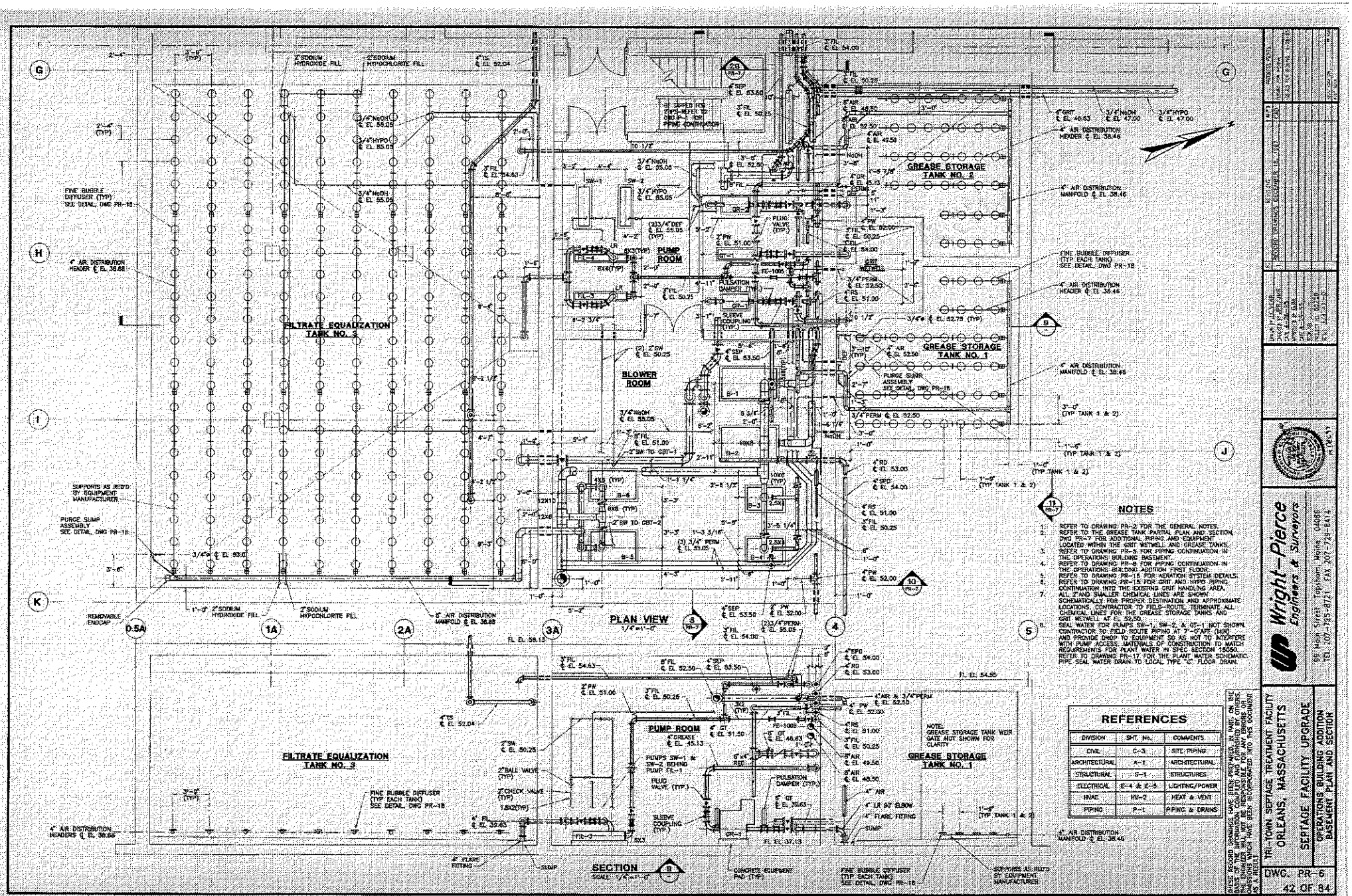

TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
OPERATIONS BUILDING ADDITION
BASEMENT PLAN AND SECTION

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DWG. PR-6
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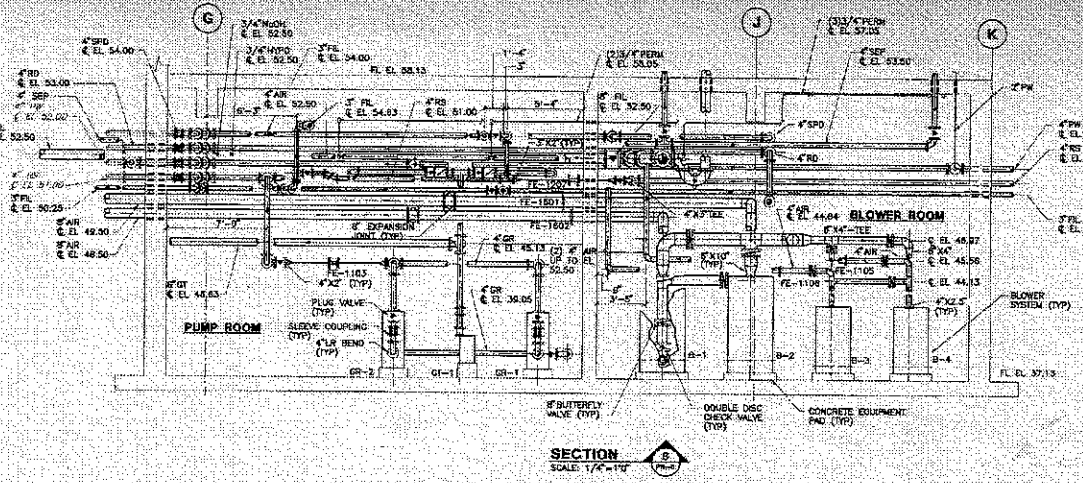

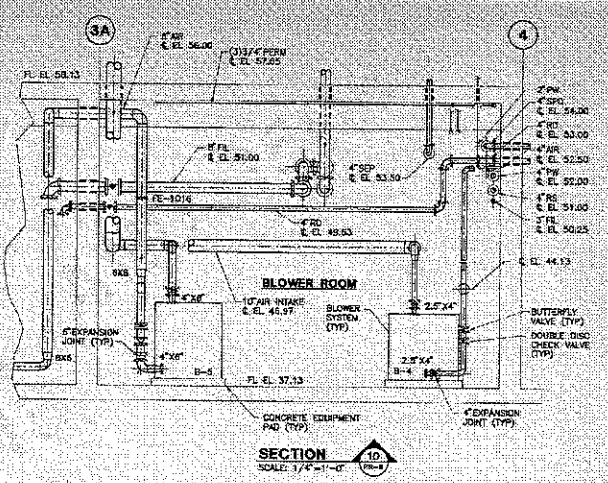

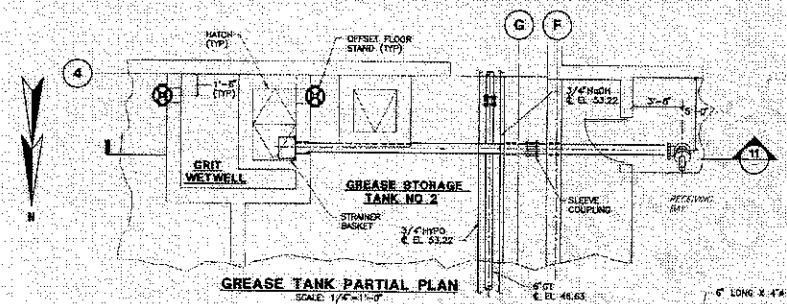

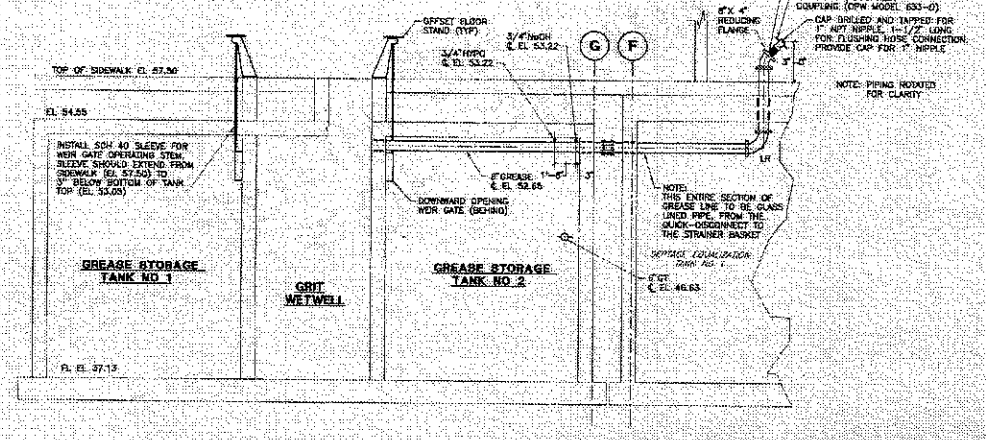

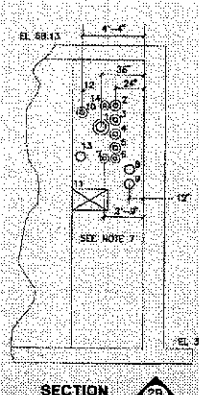

NOTES

1. REFER TO DRAWING PR-2 FOR THE GENERAL NOTES.
2. REFER TO DRAWING PR-17 FOR STRAINER BASKET DETAILS.
3. REFER TO DRAWING PR-15 FOR DOWNWARD OPENING WEIR GATE DETAILS AND SCHEDULES.
4. REFER TO DRAWING PR-5 FOR PIPING CONTINUATION IN THE EXISTING OPERATIONS BUILDING BASEMENT.
5. REFER TO DRAWING PR-8 FOR PIPING CONTINUATION IN THE OPERATIONS BUILDING ADDITION FIRST FLOOR.
6. REFER TO DRAWING PR-16 FOR THE TYPICAL BLOWER LAYOUT DETAIL.
7. USE OF HEAVY DUTY PNEUMATIC HAMMERS ARE NOT PERMITTED TO REMOVE EXISTING CONCRETE, UNLESS OTHERWISE PERMITTED, LINE DRILLING OR SAW CUTTING WILL BE REQUIRED IN CUTTING EXISTING CONCRETE. CONTRACTOR SHALL USE CAUTION NOT TO DAMAGE EXISTING CONCRETE WALLS AND SLABS TO REMAIN. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY HIS OPERATIONS AT NO ADDITIONAL COST TO THE OWNER.

PENETRATION KEY

1	6"FSL @ EL. 50.50
2	4"SPD @ EL. 54.00
3	4"RD @ EL. 53.00
4	4"PW @ EL. 52.00
5	4"RS @ EL. 51.00
6	3"FSL @ EL. 50.25
7	3"FIL @ EL. 50.25
8	8"AIR @ EL. 49.50
9	8"AIR @ EL. 48.50
10	4"SEP @ EL. 53.50
11	ELEC CONDUIT RUN @ EL. 47.38
12	1-1/2"CW @ EL. 55.02
13	8"DUCT @ EL. 50.38
14	3"FSL @ EL. 54.07

REFERENCES

DIVISION	SHT. No.	COMMENTS
CIVIL	C-3	SITE PIPING
ARCHITECTURAL	A-1	ARCHITECTURAL
STRUCTURAL	S-1	STRUCTURES
ELECTRICAL	E-4 & E-5	LIGHTING &POWER
HVAC	PV-2	HEAT & VENT.
PIPING	P-1	PIPING & DRAINS

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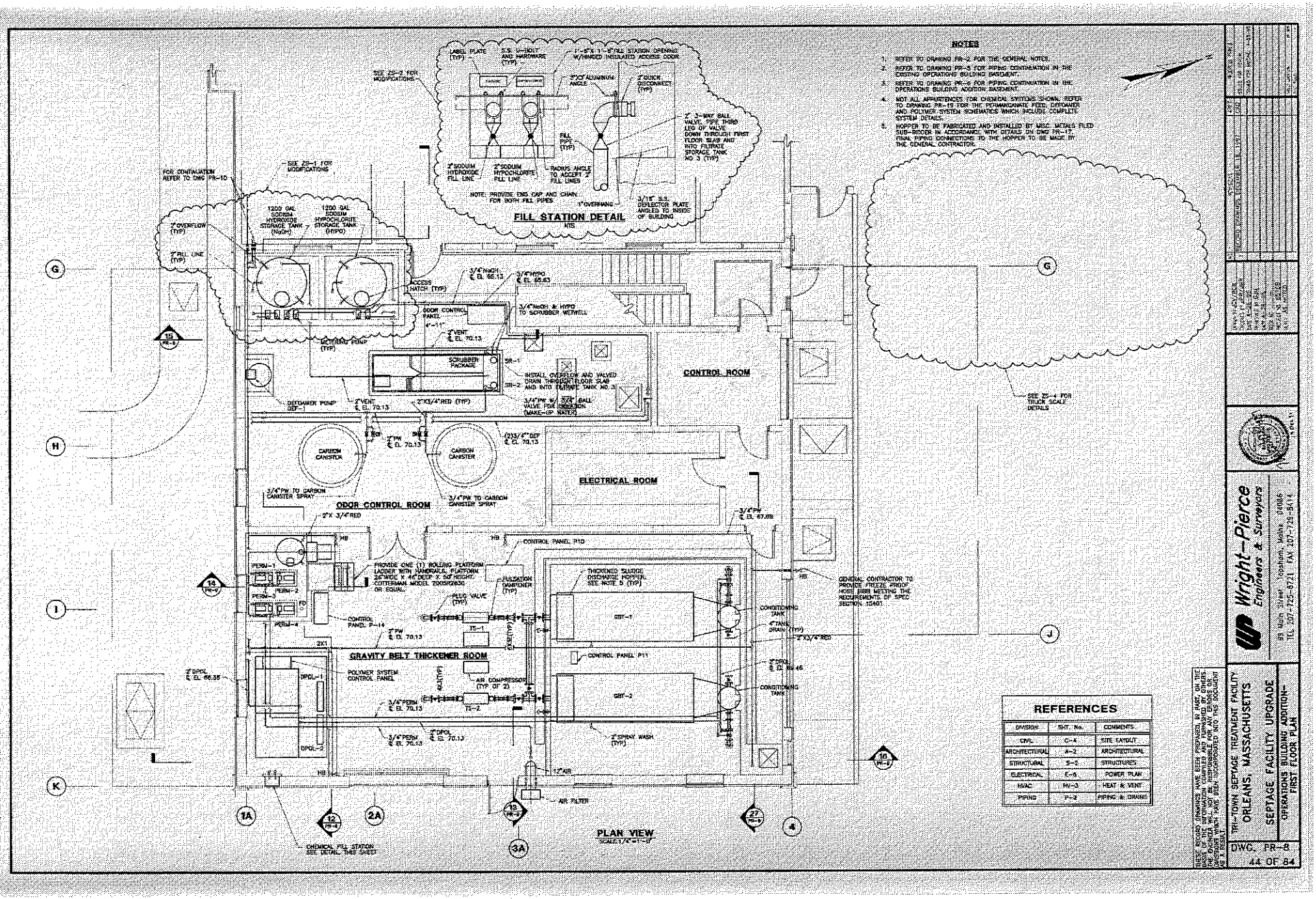
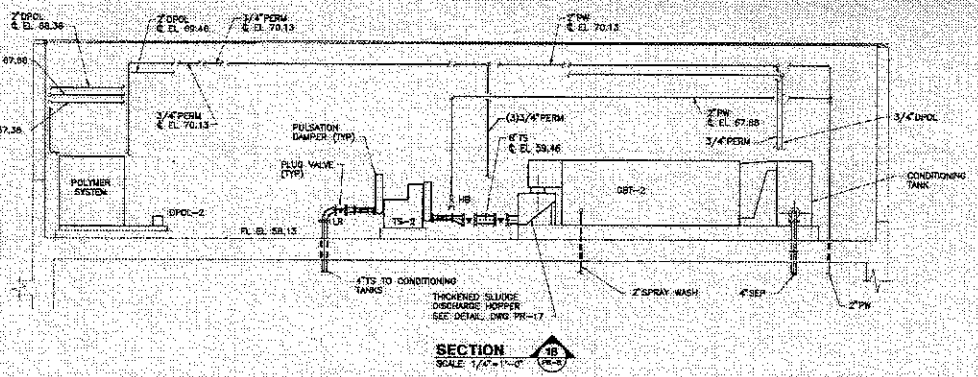
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
OPERATIONS BUILDING ADDITION
BASEMENT SECTIONS

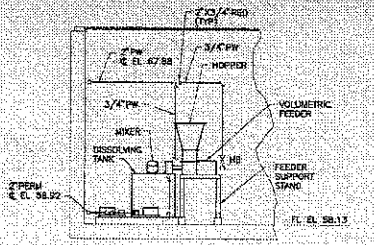
DWG. PR-7
43 OF 84

THESE CONTRACT DRAWINGS, WHICH INCLUDE, BUT ARE NOT LIMITED TO, THESE SPECIFICATIONS AND COPIES THEREOF, ARE AND SHALL REMAIN THE PROPERTY OF WRIGHT-PIERCE. THEY ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY PURPOSE OR PROJECT EXCEPT AS AGREED TO IN WRITING BY WRIGHT-PIERCE. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY APPEAR IN PRINTS MADE FROM THESE DRAWINGS AFTER THEY HAVE BEEN RECIRCULATED AND THIS DISCLAIMER AS REMOVED.


NOTES
1. REFER TO DRAWING PR-2 FOR THE GENERAL NOTES.
2. REFER TO DRAWING PR-5 FOR PIPING CONTINUATION IN THE EXISTING OPERATIONS' BUILDING BASEMENT.
3. REFER TO DRAWING PR-6 FOR PIPING CONTINUATION IN THE OPERATIONS BUILDING ADDITION BASEMENT.
4. NOT ALL APPURTENCES FOR CHEMICAL SYSTEMS SHOWN. REFER TO DRAWING PR-19 FOR THE PERMANGANATE FEED, DEFOAMER AND POLYMER SYSTEM SCHEMATICS WHICH INCLUDE COMPLETE SYSTEM DETAILS.
5. HOPPER TO BE FABRICATED AND INSTALLED BY MISC. METALS FILED SUB-BIDDER IN ACCORDANCE WITH DETAILS ON DWG PR-17. FINAL PIPING CONNECTIONS TO THE HOPPER TO BE MADE BY THE GENERAL CONTRACTOR.
FILL STATION DETAIL
NTS
CONTROL ROOM
ELECTRICAL ROOM
ODOR CONTROL ROOM
GRAVITY BELT THICKENER ROOM
PLAN VIEW
SCALE: 1/4"=1'-0"
REFERENCES
DIVISION | SHT. No. | COMMENTS
CIVIL | C-1 | SITE LAYOUT
ARCHITECTURAL | A-2 | ARCHITECTURAL
STRUCTURAL | S-2 | STRUCTURES
ELECTRICAL | E-6 | POWER PLAN
HVAC | HV-3 | HEAT & VENT
PIPING | P-2 | PIPING & DRAINS
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
OPERATIONS BUILDING ADDITION-
FIRST FLOOR PLAN
DWG. PR-8
44 OF 84
Wright-Pierce
Engineers & Surveyors
99 Main Street Topsham, Maine 04086
TEL 207-725-8721 FAX 207-725-8411

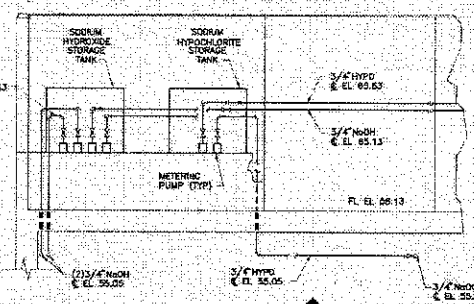


SECTION 18 PR-6
SCALE: 1/4"=1'-0"

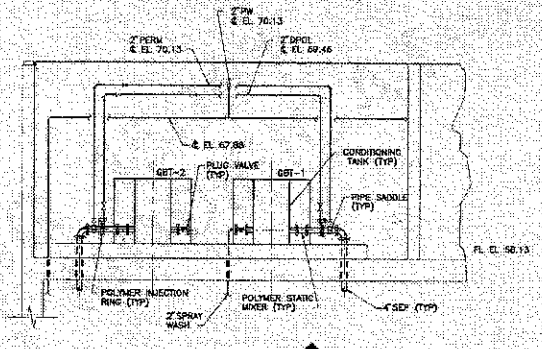


NOTE:
WORK PLATFORM NOT SHOWN FOR CLARITY.

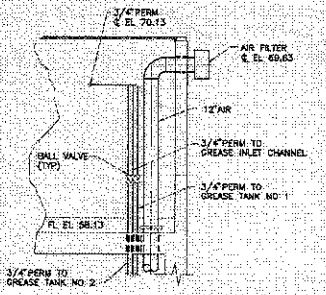
SECTION 14 PR-6
SCALE: 1/4"=1'-0"



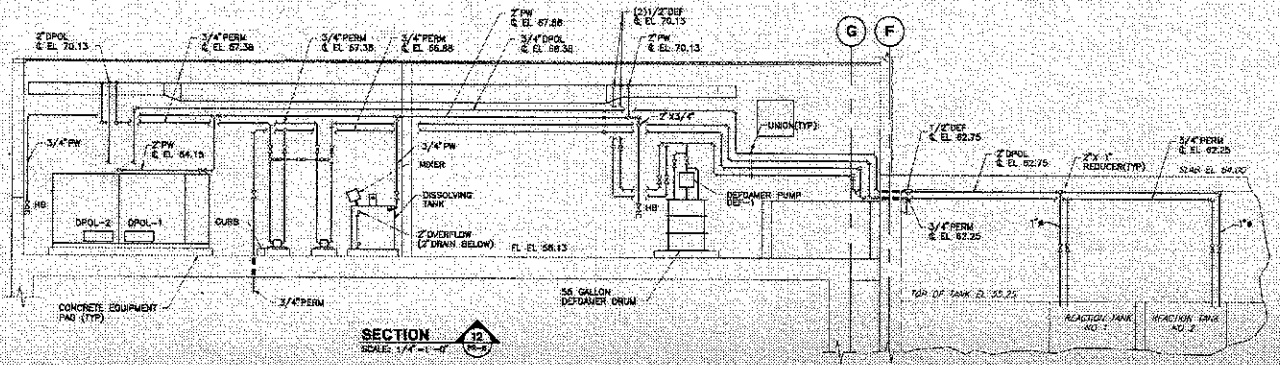
SECTION 15 PR-6
SCALE: 1/4"=1'-0"



SECTION 27 PR-7
SCALE: 1/4"=1'-0"



SECTION 13 PR-6
SCALE: 1/4"=1'-0"



SECTION 12 PR-6
SCALE: 1/4"=1'-0"

REFERENCES

DIVISION	SHT. No.	COMMENTS
CIVIL	C-4	SITE LAYOUT
ARCHITECTURAL	A-2	ARCHITECTURAL
STRUCTURAL	S-2	STRUCTURES
ELECTRICAL	E-1	POWER PLAN
HVAC	HV-3	HEAT & VENT
PIPING	P-2	PIPING & DRAINS

NOTES

1. REFER TO DRAWING PR-2 FOR THE GENERAL NOTES.
2. REFER TO DRAWING PR-5 FOR PIPING CONTINUATION IN THE EXISTING OPERATIONS BUILDING BASEMENT.
3. REFER TO DRAWING PR-4 FOR PIPING CONTINUATION IN THE OPERATIONS BUILDING ADDITION BASEMENT.
4. NOT ALL APPURTENANCES FOR CHEMICAL SYSTEMS SHOWN. REFER TO DRAWING PR-19 FOR THE PERMANGANATE FEED, DEFOAMER AND POLYMER SYSTEM SCHEDULES WHICH INCLUDE COMPLETE SYSTEM DETAILS.

THESE RECORD DRAWINGS WERE PREPARED IN PART ON THE BASIS OF THE INFORMATION COMPILED AND FURNISHED BY OTHERS. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT.

NO.	DATE	BY	DESCRIPTION
1	10/13	DAS	RECORD DRAWINGS COMPLETED

SHEET 4 OF 4 SHEETS
SCALE: 1/4"=1'-0"
DESIGNED BY: DAS
DRAWN BY: DAS
CHECKED BY: DAS
SUBMITTED BY: DAS
DATE: 10/13

Wright–Pierce
Engineers & Surveyors
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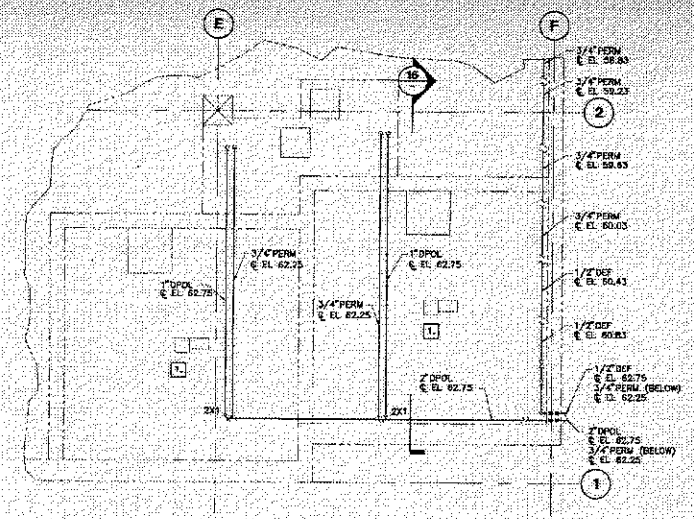
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
OPERATIONS BUILDING BASEMENT
FIRST FLOOR SECTIONS

DWG. PR-9
45 OF 84

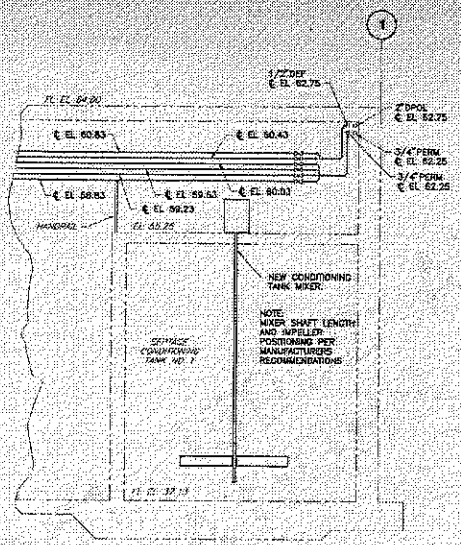


BASEMENT - PARTIAL PLAN

SCALE: 1/4"=1'-0"

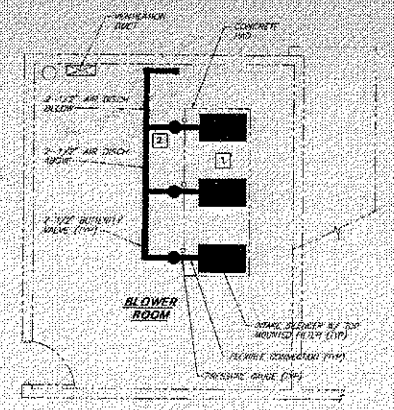
DEMOLITION NOTES

1. REMOVE EXISTING CONDITIONING TANK MIXERS, SHAFTS, BLADES ETC. IN THEIR ENTIRETY.



SECTION

SCALE: 1/4"=1'-0"

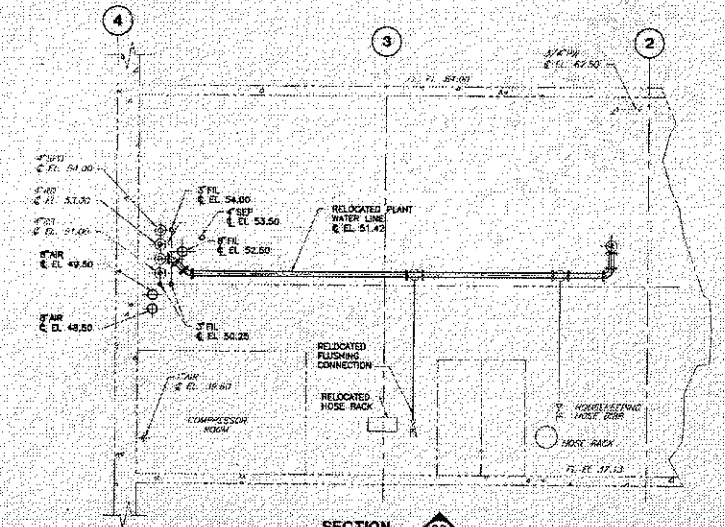


BLOWER ROOM DEMOLITION PLAN

SCALE: 1/4"= 1'-0"

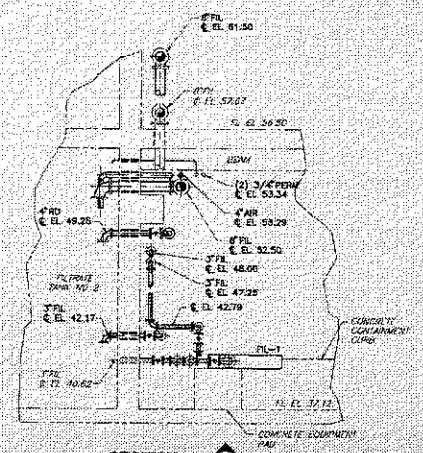
DEMOLITION NOTES

1. CONTRACTOR TO REMOVE EXISTING BLOWERS AND APPURTENANCES IN THEIR ENTIRETY.
2. CONTRACTOR TO REMOVE AIR PIPING FROM BLOWERS TO FLOOR PENETRATIONS, INCLUDING BUT NOT LIMITED TO VALVES, GAUGES, SUPPORTS, ETC.



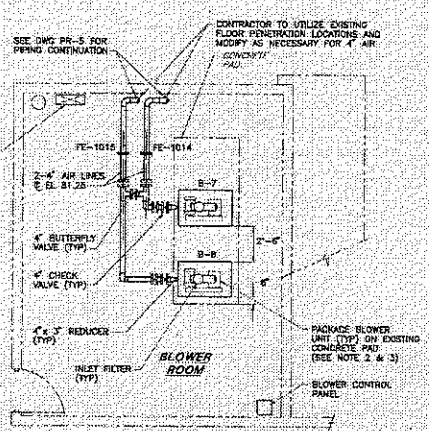
SECTION

SCALE: 3/4"=1'-0"



SECTION

SCALE: 3/4"=1'-0"



BLOWER ROOM PLAN

SCALE: 1/4"= 1'-0"

NOTE:

1. REFER TO DRAWING PR-2 FOR THE GENERAL DEMOLITION NOTES.
2. DISCHARGE SILENCERS SHALL HAVE INTEGRAL PRESSURE RELIEF VALVE.
3. EXISTING LAG BOLTS SHALL BE CUT OFF FLUSH WITH CONCRETE. DRILL HOLES IN EXISTING CONCRETE PAD AND INSTALL NEW LAG BOLTS SIZED PER MANUFACTURERS REQUIREMENTS. LAG BOLTS SHALL HAVE A MIN 6" EMBEDMENT, FILLED WITH NON-SHRINK GROUT.
4. REFER TO DRAWING PR-16 FOR TYPICAL BLOWER UNIT LAYOUT.

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NO.	DATE	BY	DESCRIPTION
1	10/08/08	JMC	ADDENDUM #1
2	12/08/08	JMC	ADDENDUM #2
3	12/22/08	JMC	ADDENDUM #3
4	01/12/09	JMC	ADDENDUM #4

DRAWN BY: J. CLOUGH
CHK'D BY: J. BRENNAN
APP'D BY: J. BRENNAN
DATE: 12/22/08
SCALE: AS SHOWN
PROJECT NO. 8873.B

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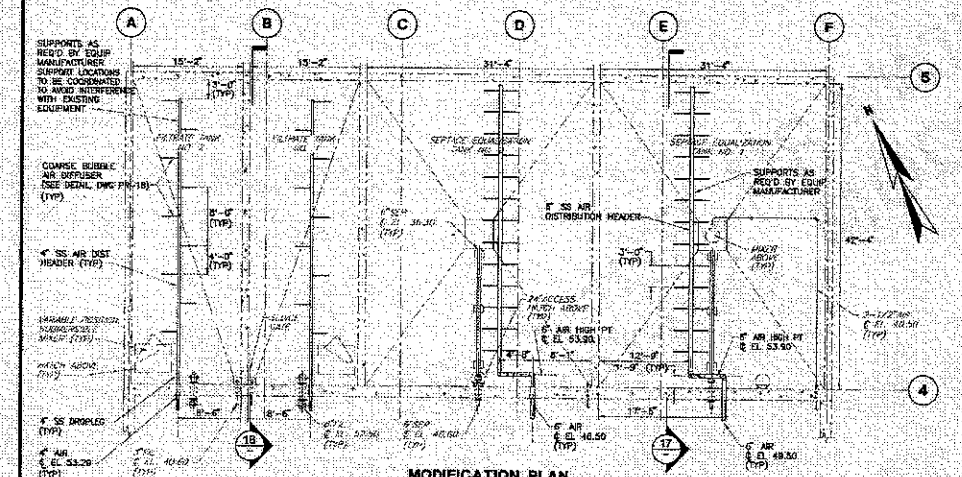
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS

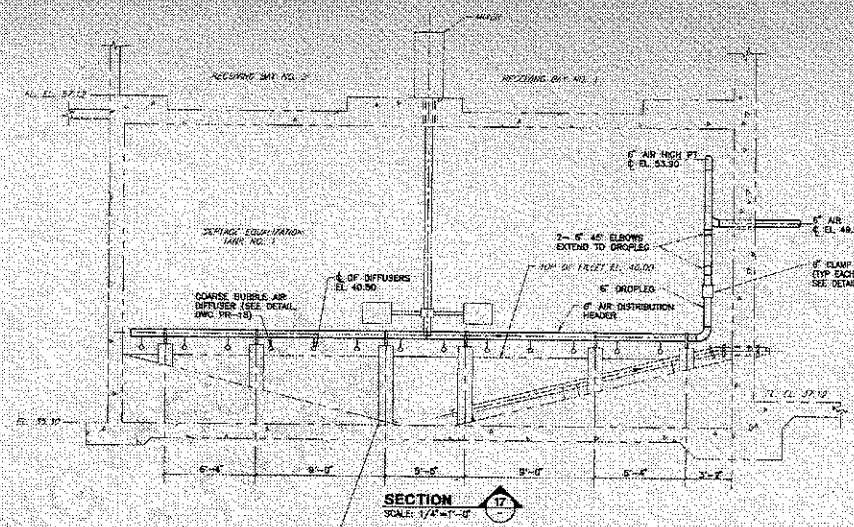
SEPTAGE FACILITY UPGRADE

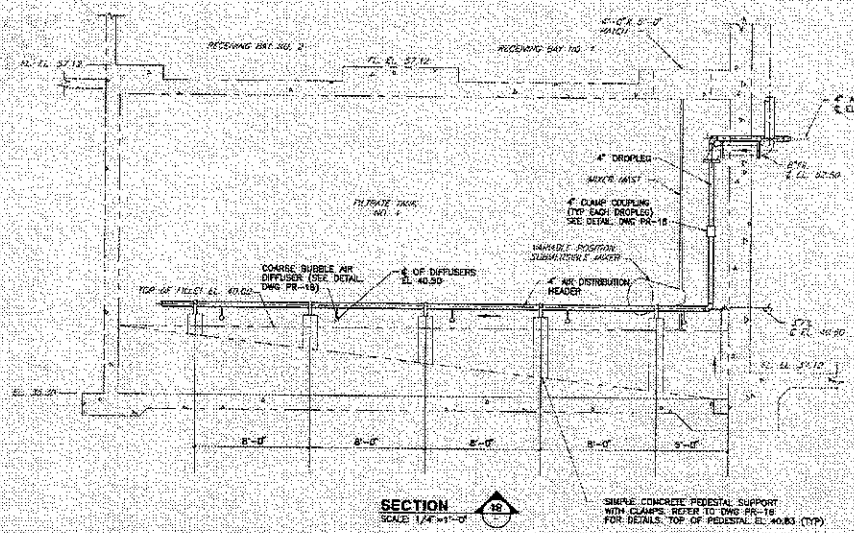
MISCELLANEOUS SECTIONS AND DETAILS

DWG. PR-10

46 OF 84







NO.	DATE	BY	DESCRIPTION
1	4-29-94		ISSUED FOR BIDDING
2	5-20-94		ISSUED FOR BIDDING
3	6-3-94		ISSUED FOR BIDDING
4	7-29-94		ISSUED FOR BIDDING

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TRI-TOWN SEPTAGE TREATMENT FACILITY
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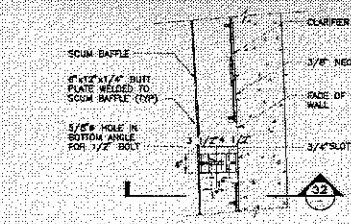
SEPTAGE FACILITY UPGRADE

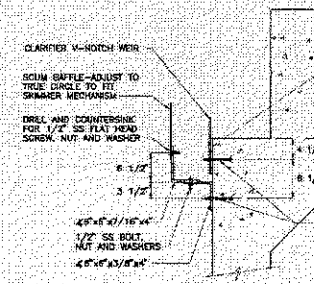
EXISTING FILTRATE & SEPTAGE EQUALIZATION TANKS MODIFICATIONS

DWG. PR-11

47 OF 84

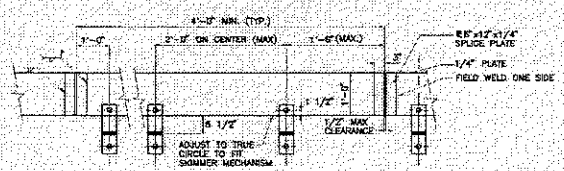


PLAN



SECTION 32
SCALE: 1"=1'-0"

NOTES:
1. ALL JOINTS BETWEEN SECTIONS OF GASKET TO BE WATERTIGHT.
2. MATERIAL OF CONSTRUCTION GALVANIZED STEEL PER SPEC SECTION 05500

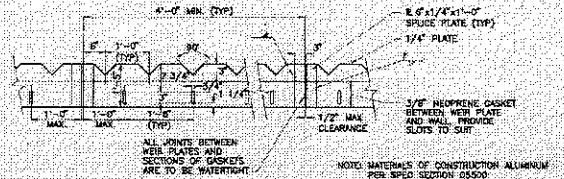


ELEVATION

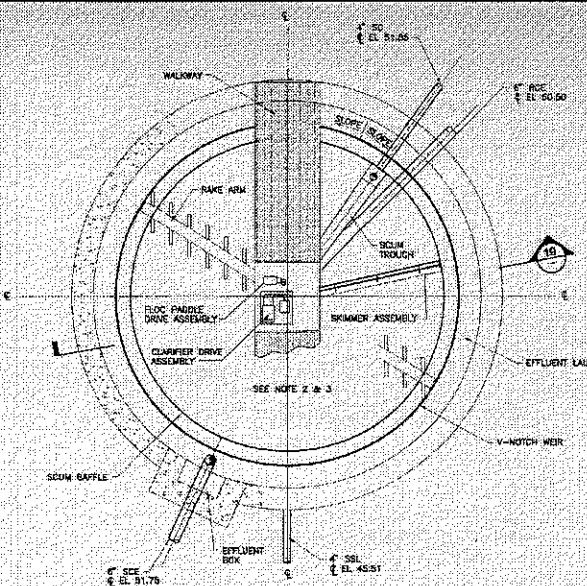
SCUM BAFFLE DETAIL
NTS

NOTES

1. SCUM BAFFLE DEPTH SHALL EXTEND TO 18" BELOW WATER LEVEL AT THE SCUM TROUGH, AND EXTEND 5' ON EITHER SIDE OF THE SCUM TROUGH.
2. MATERIALS OF CONSTRUCTION TO BE ALUMINUM PER SPEC SECTION 05500.

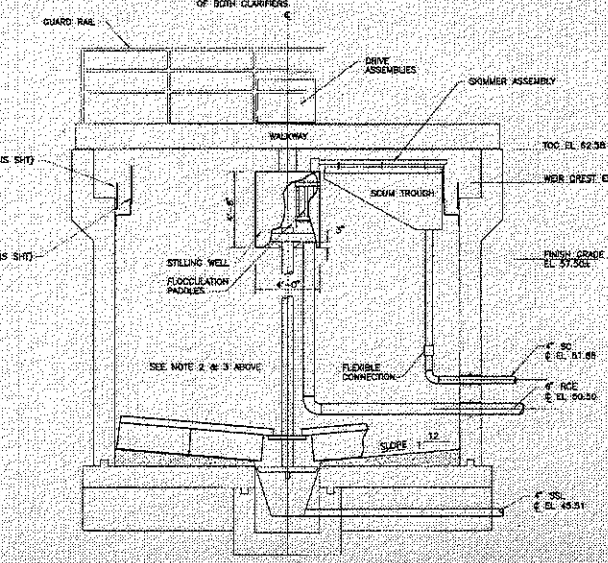


CLARIFIER WEIR DETAIL
NTS

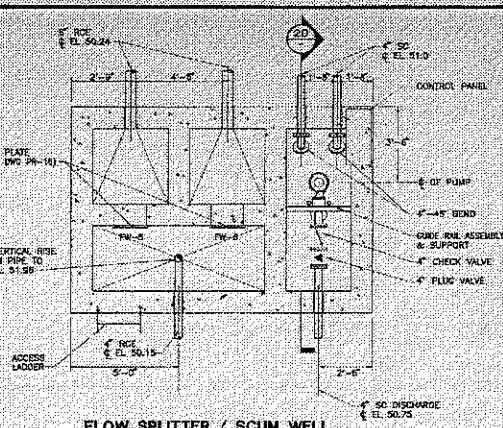


SECONDARY CLARIFIER No. 2
PLAN
SCALE: 3/8"=1'-0"

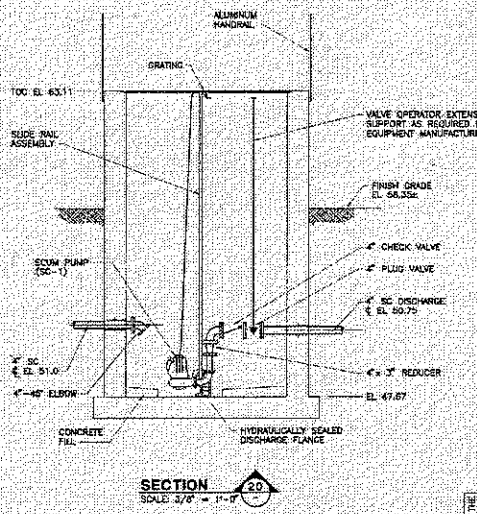
NOTE:
1. REFER TO DRAWING S-11 FOR PIPE ORIENTATION FOR BOTH CLARIFIERS.
2. PIPE CENTERLINE ELEVATIONS SHOWN ARE TYPICAL OF BOTH CLARIFIERS.



SECTION 19
SCALE: 3/8"=1'-0"



FLOW SPLITTER / SCUM WELL
PLAN
SCALE: 3/8" = 1'-0"



SECTION 20
SCALE: 3/8" = 1'-0"

REFERENCES

DIVISION	SHT. No.	COMMENTS
CIVIL	G-3	YARD PIPING
STRUCTURAL	S-12	S-13 ELEVATIONS & PIPE PENETRATIONS

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NO	DESCRIPTION	BY	DATE
1	RECORD DRAWINGS SUBMITTED TO OWNER	PWS	5/24/05

PART PER SPECS 01730 PARAGRAPH 1.4.2

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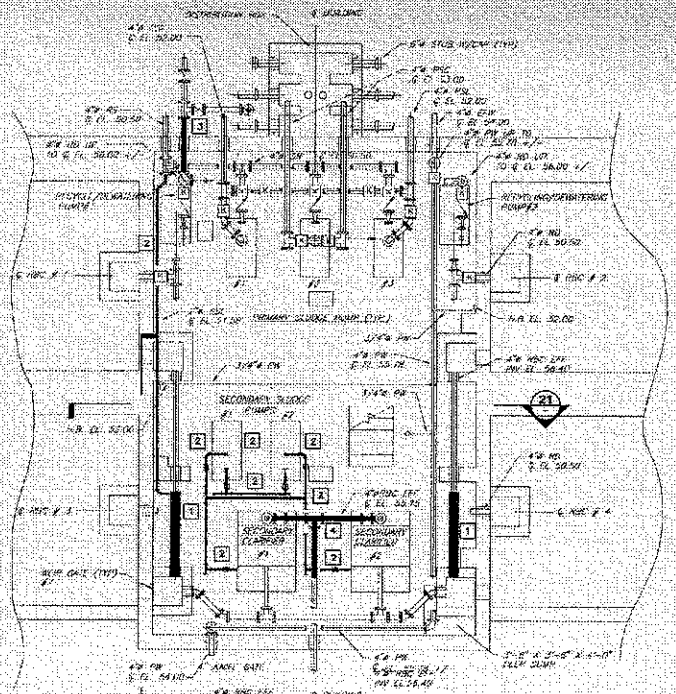
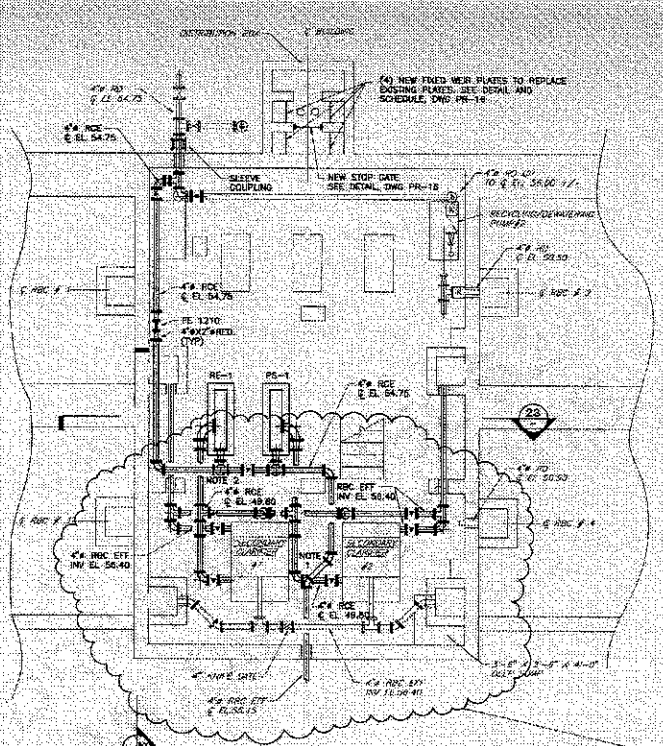
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
SECONDARY CLARIFIER NO. 2 PLAN, SECTIONS AND DETAILS

DWG. PR-12
48 OF 84



SLUDGE PUMPING BUILDING
BASEMENT DEMOLITION PLAN

SCALE: 1/4"=1'-0"

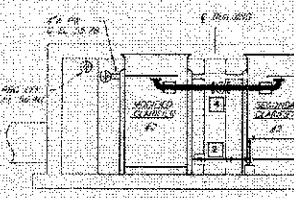


SLUDGE PUMPING BUILDING
BASEMENT MODIFICATION PLAN

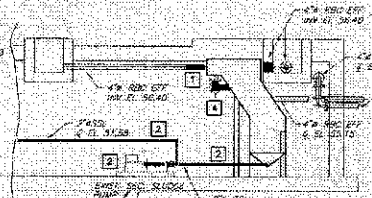
SCALE: 1/4"=1'-0"

DEMOLITION NOTES

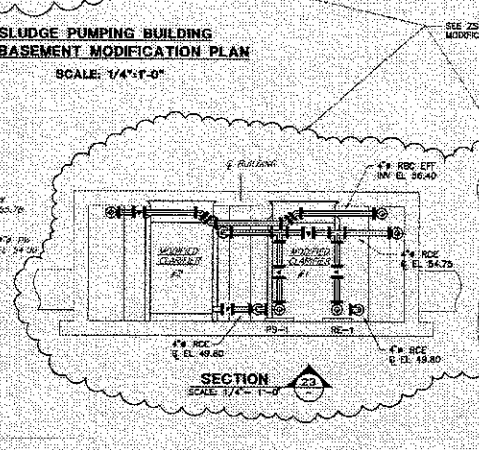
1. REMOVE THE 4" RBC EFF LINE AT INV EL 56.40 WITHIN THE LIMITS SHOWN ON THE DRAWING.
2. REMOVE SLUDGE PUMPS No. 1 & 2, APPURTENANCES AND ASSOCIATED PIPING TO PUMPS AND SECONDARY CLARIFIERS WITHIN THE LIMITS SHOWN ON THE DRAWINGS.
3. REMOVE A SECTION OF THE 4" RD LINE @ EL. 54.75 WITHIN THE LIMITS SHOWN ON THE DRAWING
4. REMOVE A PORTION OF THE 4" SCS EFF LINE AT @ EL. 55.15 WITHIN THE LIMITS SHOWN ON THE DRAWING. THE EXISTING GATE VALVES WILL BE REMOVED.



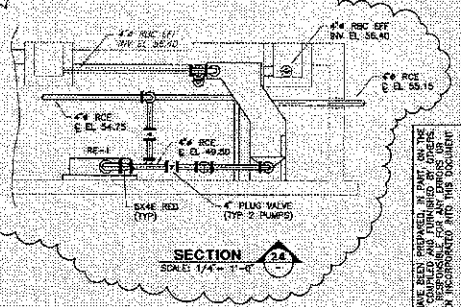
SECTION 21
1/4"=1'-0"



SECTION 22
1/4"=1'-0"



SECTION 23
SCALE: 1/4"=1'-0"



SECTION 24
SCALE: 1/4"=1'-0"

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NO.	DATE	BY	RECORD DRAWINGS REVISIONS (AS BUILT)
1	12/15/11	DJD	

SHEET # WITH ADDENDUM
ADDED # NEW SHEETS
DELETED # SHEETS
SHEET # REVISED
ADDED # NEW SHEETS
DELETED # SHEETS

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TRI-TOWN SEPTAGE TREATMENT FACILITY
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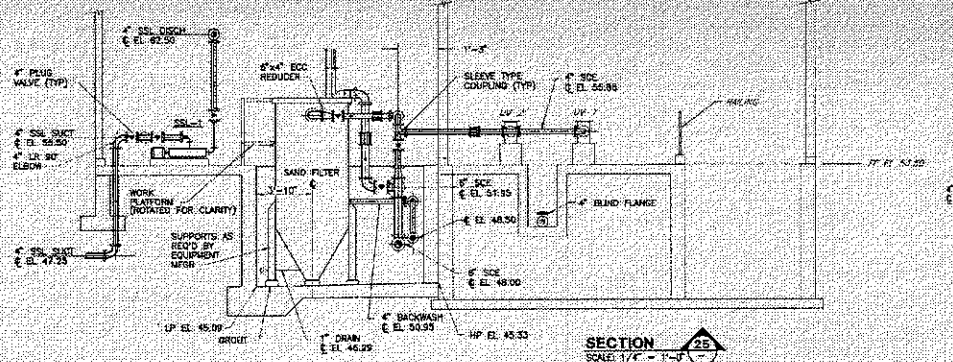
SEPTAGE FACILITY UPGRADE

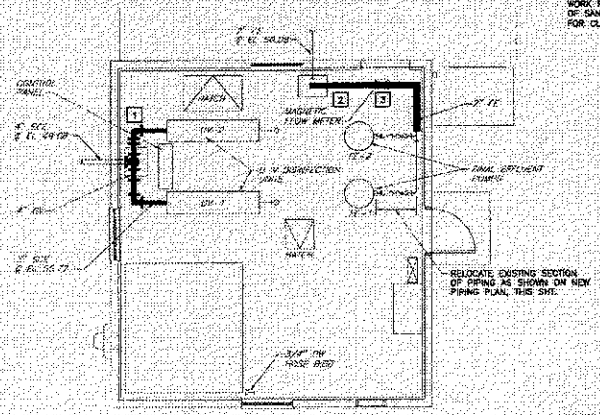
SLUDGE PUMPING BUILDING
BASEMENT DEMOLITION AND MODIFICATION PLANS
SECTIONS

DWG. PR-13
49 OF 84

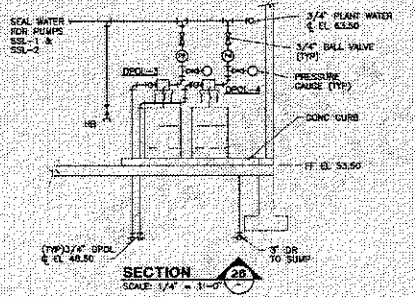


SECTION 25
SCALE: 1/4" = 1'-0"

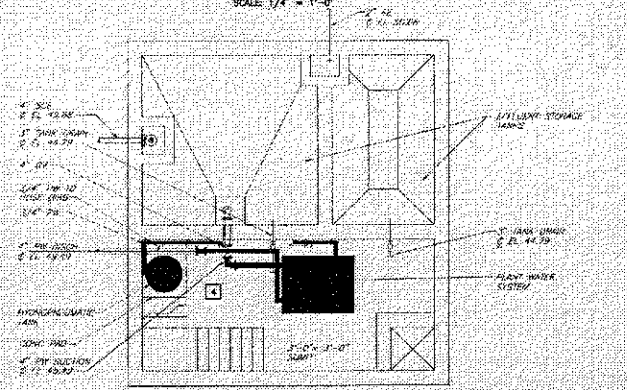
NOTE:
WORK PLATFORM ON BACK SIDE OF SAND FILTER NOT SHOWN FOR CLARITY.



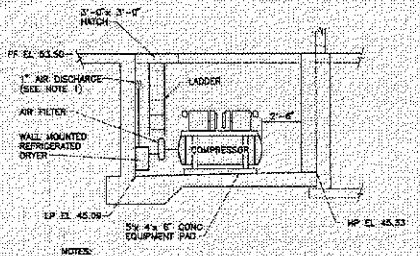
FIRST FLOOR DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



SECTION 26
SCALE: 1/4" = 1'-0"



BASEMENT DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

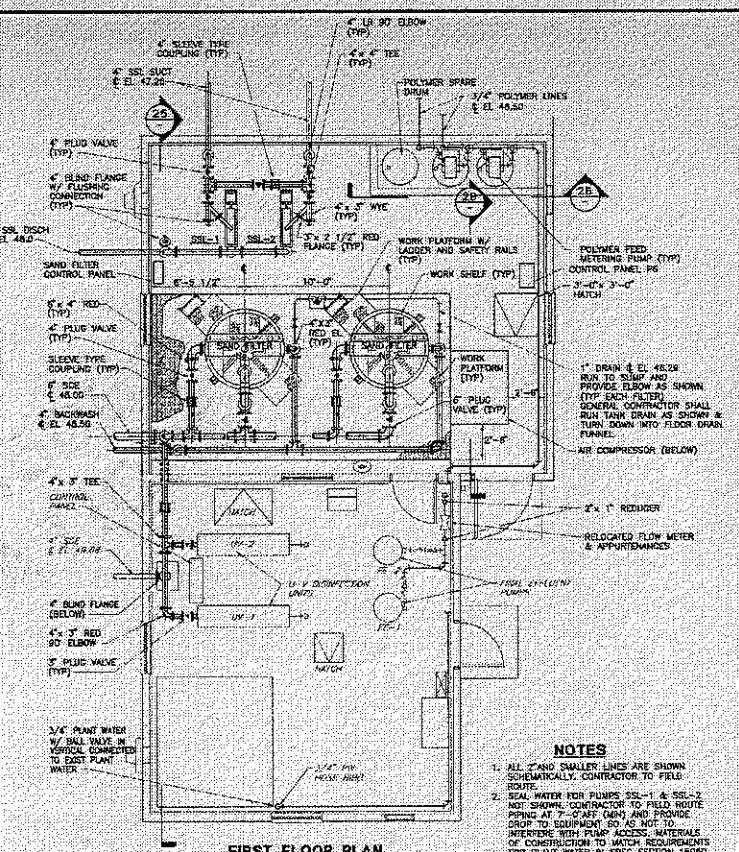


NOTES:
1. CONTRACTOR TO FIELD ROUTE 1" AIR DISCHARGE FROM COMPRESSOR TO EACH SAND FILTER UNIT AS REQUIRED BY EQUIPMENT MANUFACTURER.

SECTION 28
SCALE: 1/4" = 1'-0"

DEMOLITION NOTES

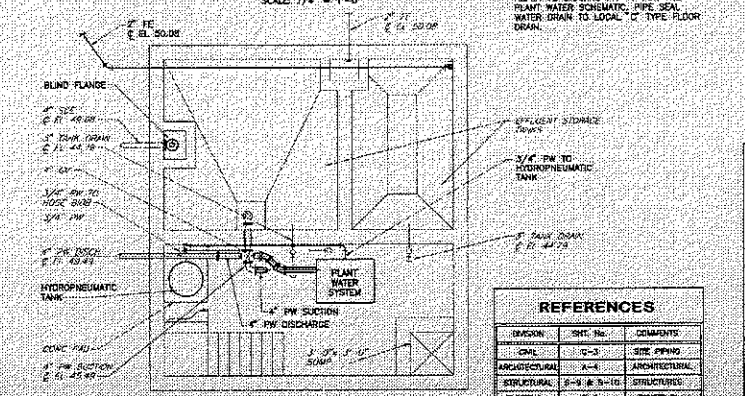
1. REMOVE EXISTING SCE PIPING STARTING AT BUT NOT INCLUDING 4" 90° ELBOW IN SUMP UP TO EACH U-V UNIT. INSTALL 4" BLIND FLANGE ON EXISTING 4" 90° ELBOW.
2. REMOVE EXISTING 2" FINAL EFFLUENT PIPING TO LIMITS SHOWN SHADED.
3. REMOVE AND RELOCATE EXISTING MAGNETIC FLOW METER AS SHOWN. ALL FLOW METER APPURTENANCES SHALL BE RELOCATED AS REQUIRED.
4. REMOVE EXISTING PLANT WATER SYSTEM, HYDROPNEUMATIC TANK AND ASSOCIATED PIPING AS SHOWN SHADED.
5. FOR GENERAL DEMOLITION NOTES, REFER TO DRAWING PR-2.



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

NOTES

1. ALL 2" AND SMALLER LINES ARE SHOWN SCHEMATICALLY. CONTRACTOR TO FIELD ROUTE.
2. SEAL WATER FOR PUMPS SSL-1 & SSL-2 NOT SHOWN. CONTRACTOR TO FIELD ROUTE PIPING AT 7'-0" AFF (MIN) AND PROVIDE DROP TO EQUIPMENT, SO AS NOT TO INTERFERE WITH PUMP ACCESS. MATERIALS OF CONSTRUCTION TO MATCH REQUIREMENTS FOR PLANT WATER IN SPEC. SECTION 15050. REFER TO DRAWING PR-17 FOR THE PLANT WATER SCHEMATIC. PIPE, SEAL WATER DRAIN TO LOCAL 6" TYPE FLOOR DRAIN.



BASEMENT PLAN
SCALE: 1/4" = 1'-0"

REFERENCES

DIVISION	SHT. No.	COMMENTS
CIVIL	C-3	SITE PIPING
ARCHITECTURAL	A-4	ARCHITECTURAL
STRUCTURAL	S-9 & S-10	STRUCTURES
ELECTRICAL	E-6	POWER PLAN
HVAC	HV-5	HVAC
PIPING	P-3	PIPING

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NO.	DESCRIPTION	BY	DATE
1	ADDENDUM NO. 1	JAK	10/96
2	ADDENDUM NO. 2	JAK	11/96
3	ADDENDUM NO. 3	JAK	12/96
4	AS BUILT	JAK	1/97

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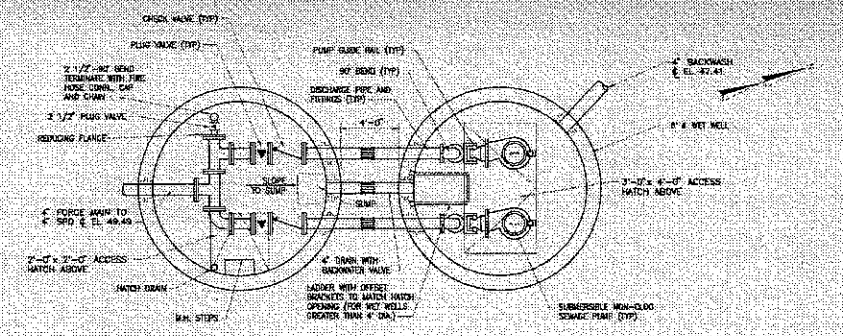
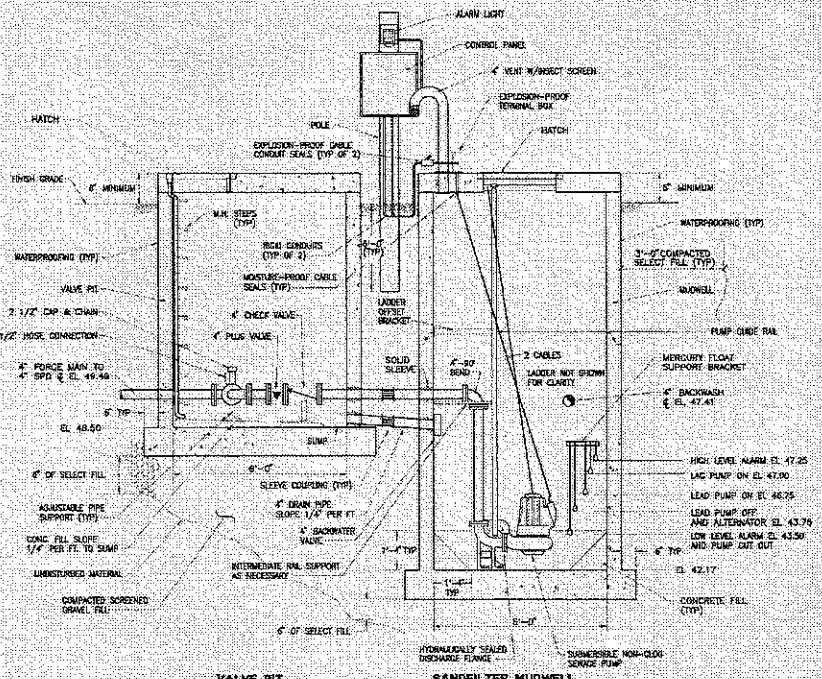
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
DEMOLITION AND MODIFICATIONS
DEMOLITION AND MODIFICATIONS - PLANS AND SECTIONS

DWG. PR-14
50 OF 84



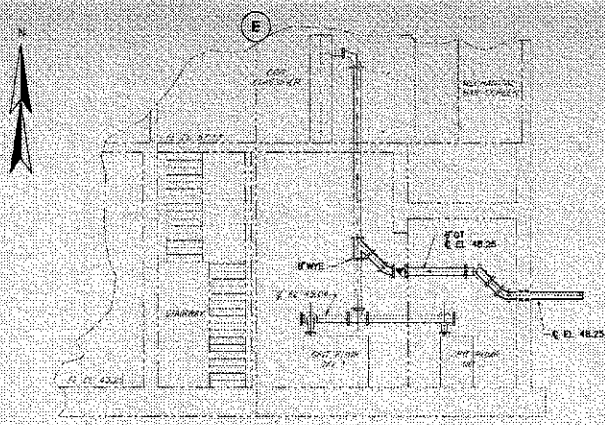
PLAN
NTS



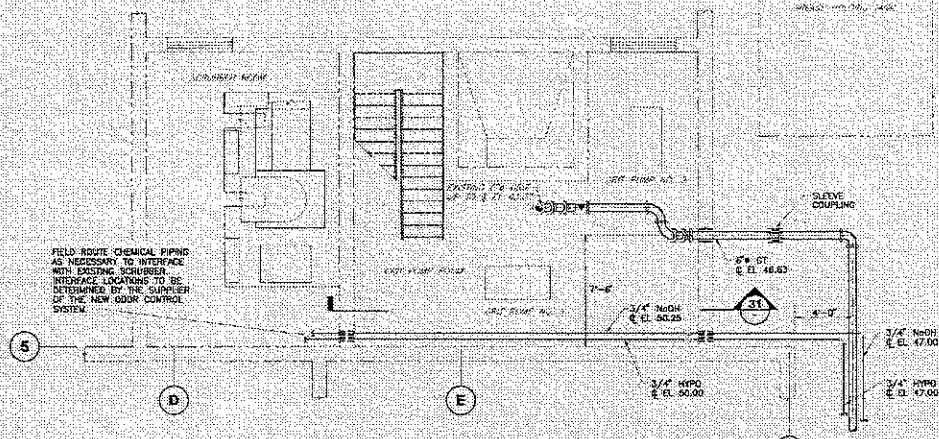
ELEVATION
SAND FILTER MUDWELL
NTS

NOTES

1. LOCATION OF HATCHES AND BENCH BASE MAY BE ADJUSTED SLIGHTLY WITH PRIOR REVIEW AND ACCEPTANCE OF THE ENGINEER.
2. ORIENT DISCHARGE PIPING AS SHOWN ON THE SITE PIPING PLAN (DWG. C-3).
3. PROVIDE RESTRAINED SLEEVE COUPLING (SOLID SLEEVE) CONNECTION TO FORCE MAIN CONNECTIONS 4'-0" FROM VALVE PIT.
4. RESTRAIN PIPING TO PREVENT LATERAL MOVEMENT OF PIPING IN VALVE PIT AND WET WELL.
5. FOR COORDINATION OF HATCH TYPES, SEE SPECIFICATION SECTION 11308.



SECTION 31
SCALE: 1/4"=1'-0"



GRIT PUMP ROOM BASEMENT PLAN
SCALE: 1/4" = 1'-0"

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RECORD DRAWINGS DECEMBER 15, 1997 DDD

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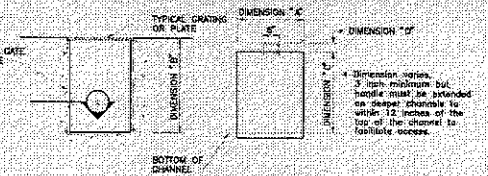
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS

SEPTAGE FACILITY UPGRADE

MUDWELL PUMP STATION AND GRIT SYSTEMS MODIFICATIONS

DWG. PR-15
51 OF 84

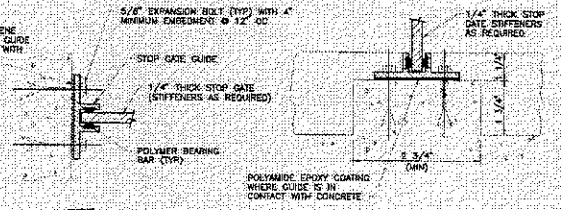


STOP GATE DETAIL
NTS

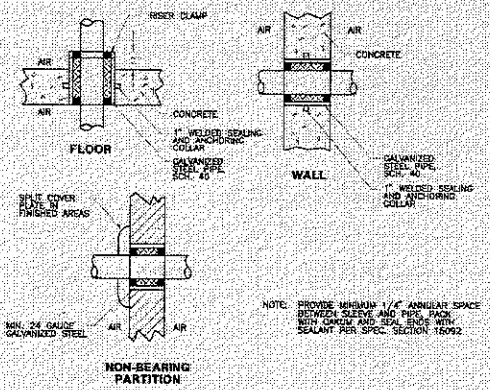
DOWNWARD OPENING WEIR GATE SCHEDULE

LOCATION	GATE No.	GATE SIZE	H.O.	TYPE GATE	OPER. RD. FT. OF MTR.	TYPE OPERATOR	ELEV. A	ELEV. B	ELEV. C
GREASE STORAGE TANK NO. 1	WG-1	12"	12"x12"	DOWN OPEN	3'	OFFSET FLOOR STAND	57.1	51.13	52.13
GREASE STORAGE TANK NO. 2	WG-2	12"	12"x12"	DOWN OPEN	3	OFFSET FLOOR STAND	57.1	51.13	52.13

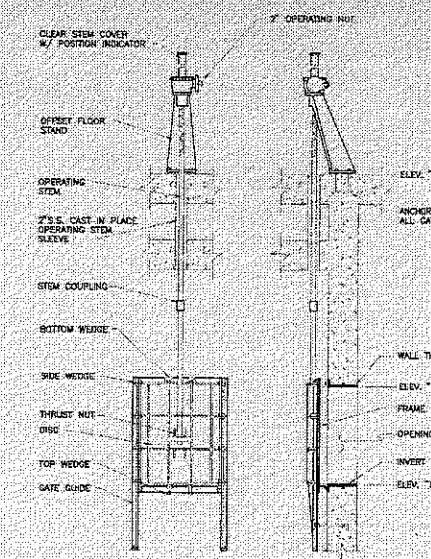
* CONFIRM FINAL ELEVATION WITH INSTALLED SIDEWALK ELEVATION



STOP GATE
NTS



NOTE: PROVIDE MINIMUM 1/4" ANNULAR SPACE BETWEEN SLEEVE AND PIPE. PACK WITH CHECK AND SEAL ENDS WITH SEALANT PER SPEC. SECTION 15052



DOWNWARD OPENING WEIR GATE DETAIL
NTS

FIXED WEIR PLATE SCHEDULE

LOCATION	No.	ELEV. "A" FEET	DIM "B"	DIM "C"
RBC FLOW SPLITTER	FW-1*	59.25	1'-4"	3'-3"
RBC FLOW SPLITTER	FW-2*	59.25	1'-4"	3'-3"
RBC FLOW SPLITTER	FW-3*	59.25	1'-4"	3'-3"
RBC FLOW SPLITTER	FW-4*	59.25	1'-4"	3'-3"
SECONDARY CLARIFIER FLOW SPLITTER	FW-5	61.21	2'-10"	1'-0"
SECONDARY CLARIFIER FLOW SPLITTER	FW-6	61.21	2'-10"	1'-0"

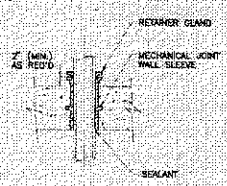
* CONTRACTOR TO FIELD VERIFY RBC FLOW SPLITTER DIMENSIONS AND ADJUST WEIR DIMENSIONS AS REQUIRED TO SUIT FIELD CONDITIONS. NOTE: THESE 4 WEIR PLATES WILL SLIDE INTO EXISTING SLOTS IN THE SPLITTER STRUCTURE. DO NOT PROVIDE MOUNTING NOTCHES IN PLATE FOR THESE WEIRS.

STOP GATE SCHEDULE

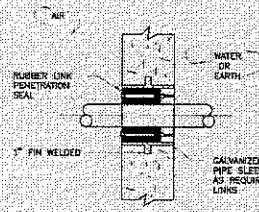
STOP GATE No.	DIMENSIONS "A"	"B"	"C"
SG-1*	2'-0"	5'-8"	5'-0"

* CONTRACTOR TO FIELD VERIFY RBC FLOW SPLITTER DIMENSIONS AND ADJUST GATE DIMENSIONS AS REQUIRED TO SUIT FIELD CONDITIONS.

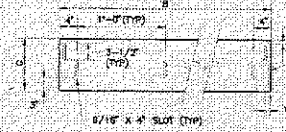
PIPING SLEEVE DETAILS
NTS

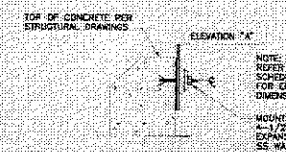


FLOOR PIPE DETAIL
NTS



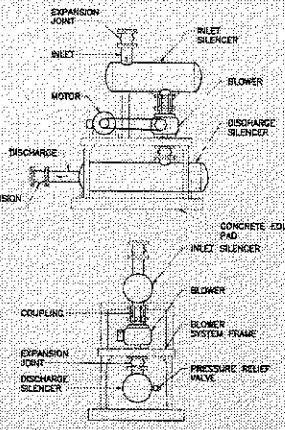
RUBBER LINK SLEEVE DETAIL
NTS



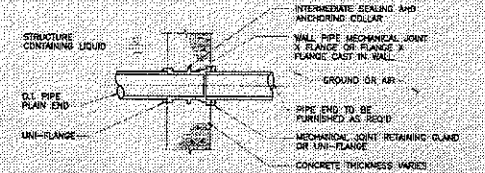


FIXED WEIR PLATE
NTS

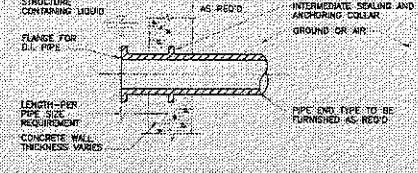
NOTE: MATERIALS OF CONSTRUCTION TO BE ALUMINUM PER SPEC. SECTION 05500



TYPICAL BLOWER LAYOUT
NTS



WALL PIPE DETAIL
NTS



WALL PIPE DETAIL
NTS

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TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
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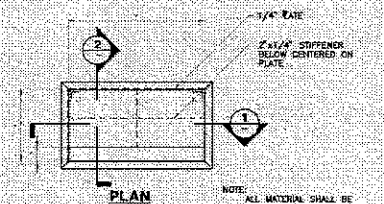
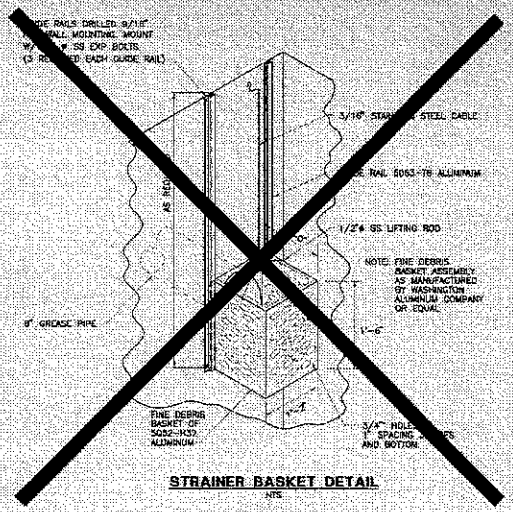
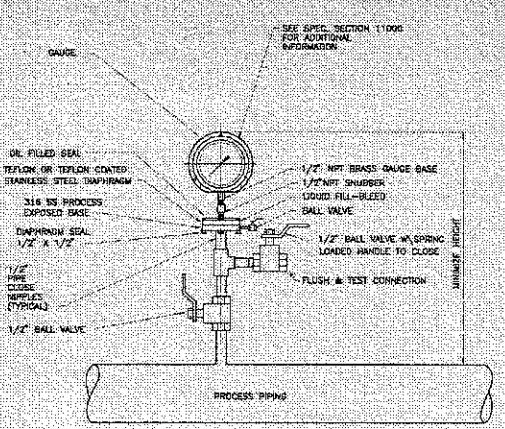
MISCELLANEOUS SECTIONS AND DETAILS

DWG. PR-16
52 OF 84

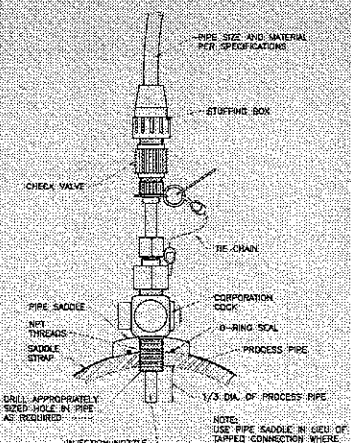




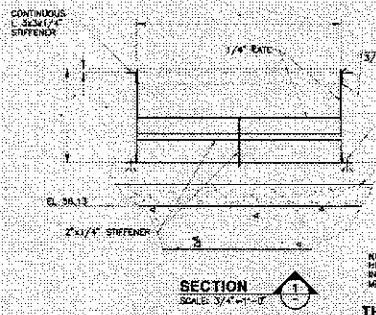
STRAINER BASKET DETAIL
NTS

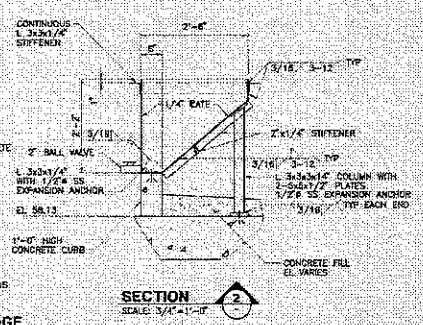


GAUGE ASSEMBLY
NTS



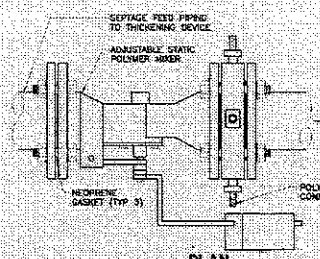
CHEMICAL INJECTION NOZZLE
NTS



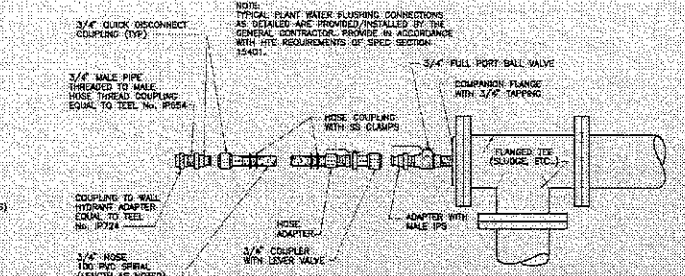


NOTE: HOPPER FABRICATED AND INSTALLED BY MISCELLANEOUS METALS FILED SUB-BIDDER

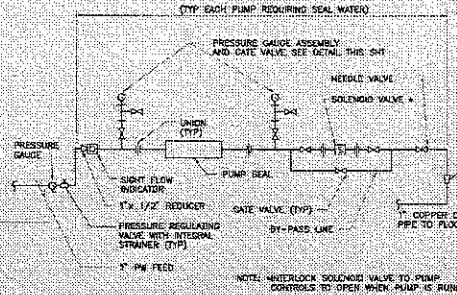
THICKENED SLUDGE DISCHARGE HOPPER



ADJUSTABLE STATIC POLYMER MIXER DETAIL
NTS



TYPICAL FLUSHING CONNECTION
NTS



PUMP SEAL WATER SYSTEM
NTS

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NO.	BY	DATE	REVISION
1			
2			
3			
4			
5			

DESIGNED: MJM
DRAWN: MJM
CHECKED: MJM
APPROVED: MJM
SCALE: AS NOTED
PROJECT NO. 1997

Wright-Pierce
Engineers & Surveyors
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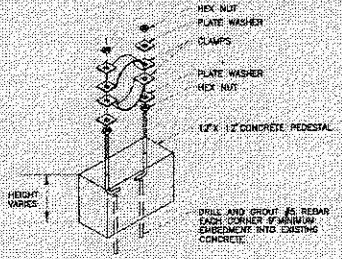
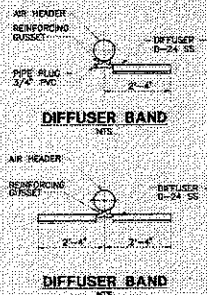
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
MISCELLANEOUS DETAILS

DWG. PR-17
53 OF 84



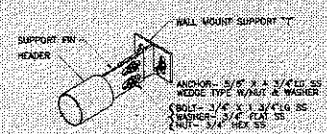
SIMPLE CONCRETE PEDESTAL SUPPORT WITH CLAMPS
NTS

NOTES:
1. REFER TO DRAWING PR-11 FOR SPECIFIC PEDESTAL HEIGHT REQUIREMENTS.

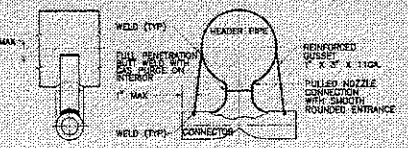


DIFFUSER BAND
NTS

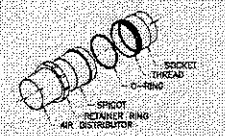
DIFFUSER BAND
NTS



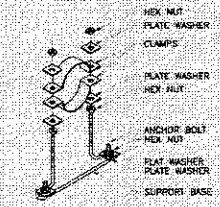
WALL MOUNT FIXED SUPPORT
NTS



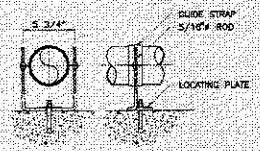
DIFFUSER CONNECTOR
NTS



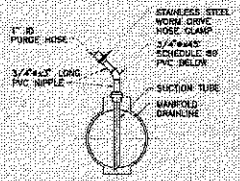
FIXED JOINT
NTS



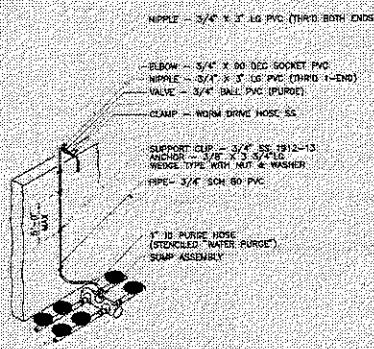
SIMPLE SUPPORT
NTS



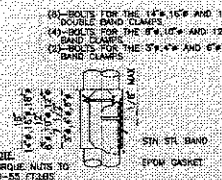
AIR DISTRIBUTOR GUIDE SUPPORT
NTS



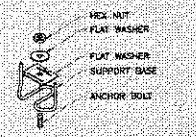
PURGE SUMP
NTS



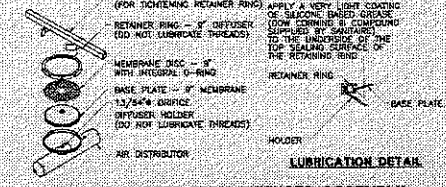
PURGE SUMP ASSEMBLY
NTS



CLAMP COUPLING
NTS



ANCHOR ASSEMBLY
NTS



9" DIAMETER EPDM DIFFUSER ASSEMBLY
NTS

REMOVABLE END CAP
NTS

BASED ON RECORD DRAWINGS WHICH REFLECTS, IN PART, ON THE BASIS OF THE INFORMATION FURNISHED BY OTHERS, AND DRAWINGS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT

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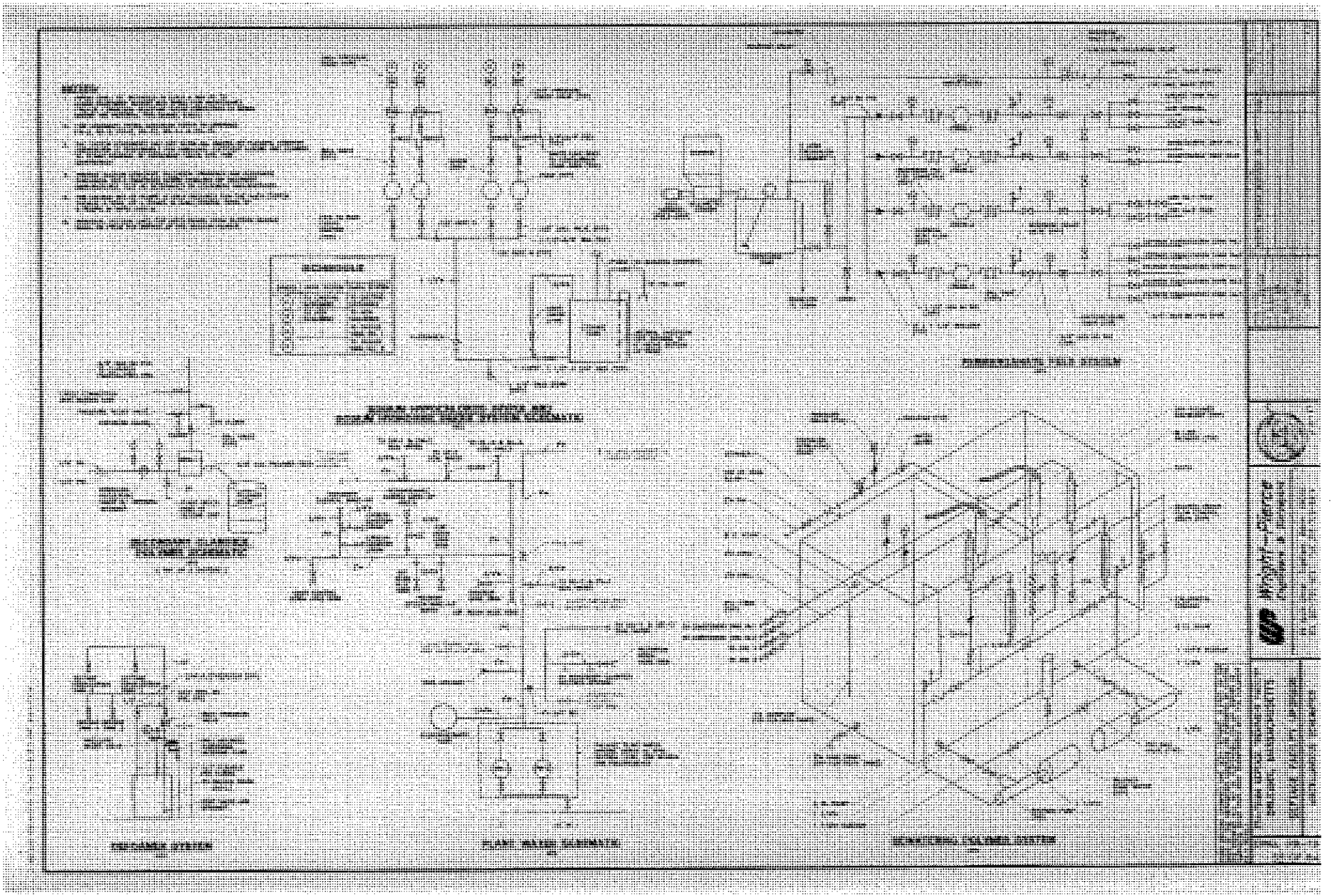
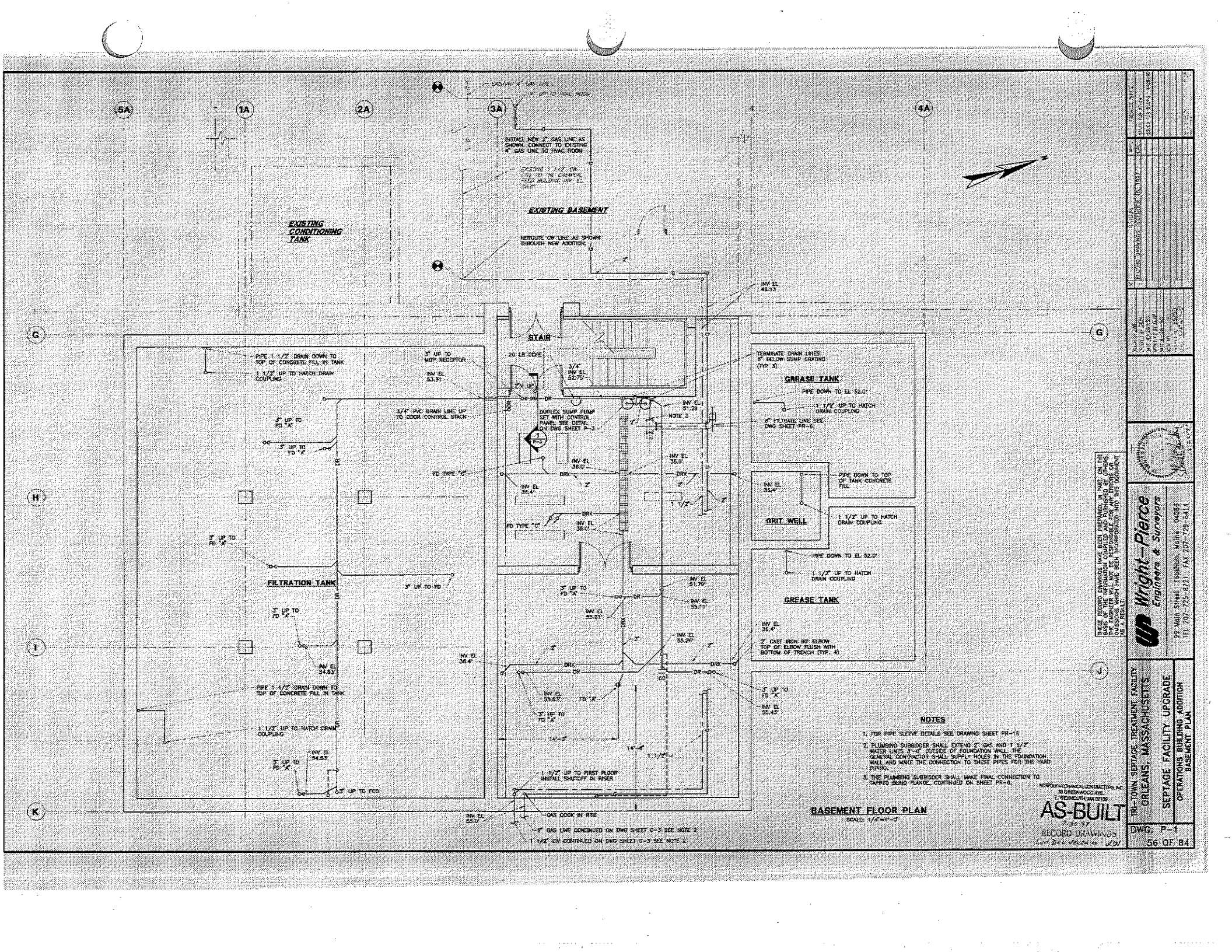
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
AERATION SYSTEM DETAILS

DWG. PR-18
54 OF 84





BASEMENT FLOOR PLAN

SCALE: 1/4"=1'-0"

NOTES

1. FOR PIPE SLEEVE DETAILS SEE DRAWING SHEET PP-15
2. PLUMBING SUBBIDDER SHALL EXTEND 2" GAS AND 1 1/2" WATER LINES 1'-0" OUTSIDE OF FOUNDATION WALL. THE GENERAL CONTRACTOR SHALL SUPPLY HOLES IN THE FOUNDATION WALL AND MAKE THE CONNECTION TO THESE PIPES FOR THE YARD PIPING.
3. THE PLUMBING SUBBIDDER SHALL MAKE FINAL CONNECTION TO TAPPED BLIND FLANGE CONTINUED ON SHEET PP-6.

SCHOFIELD MECHANICAL CONTRACTORS INC.
10 DARTMOUTH AVE.
E. WEYMOUTH, MA 02189

AS-BUILT
7-30-97
RECORD DRAWINGS
CAPE COD & VICINITY

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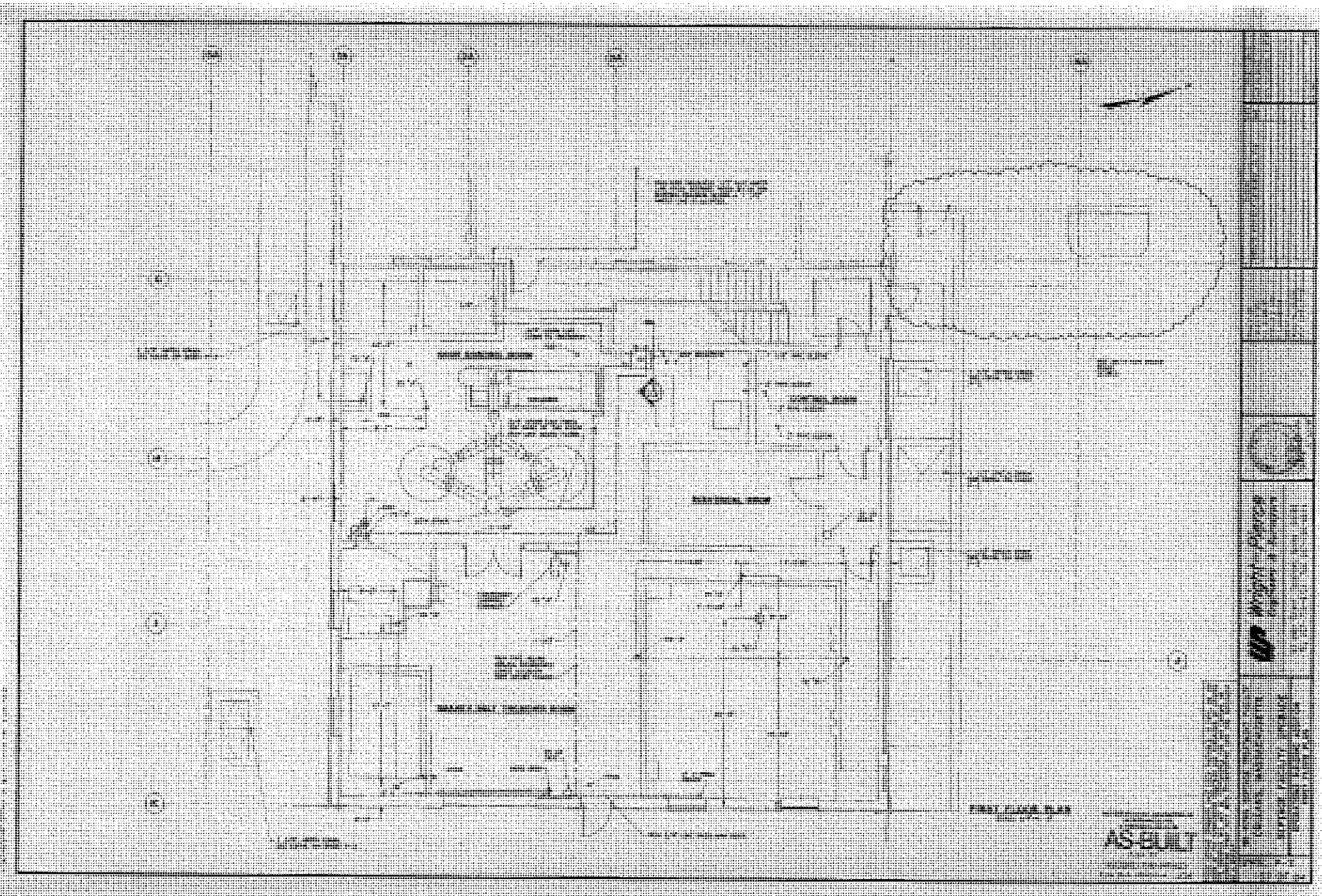
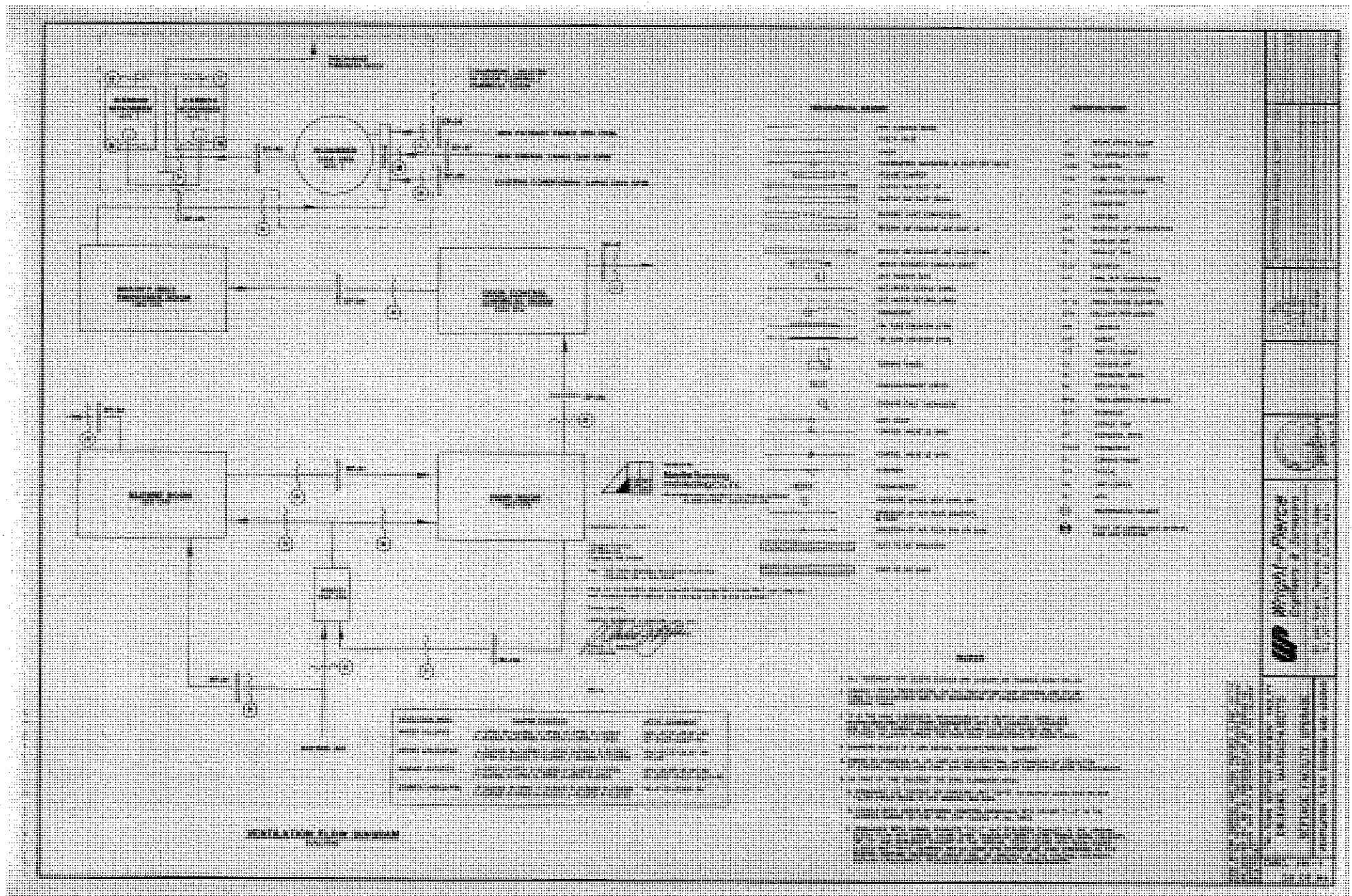
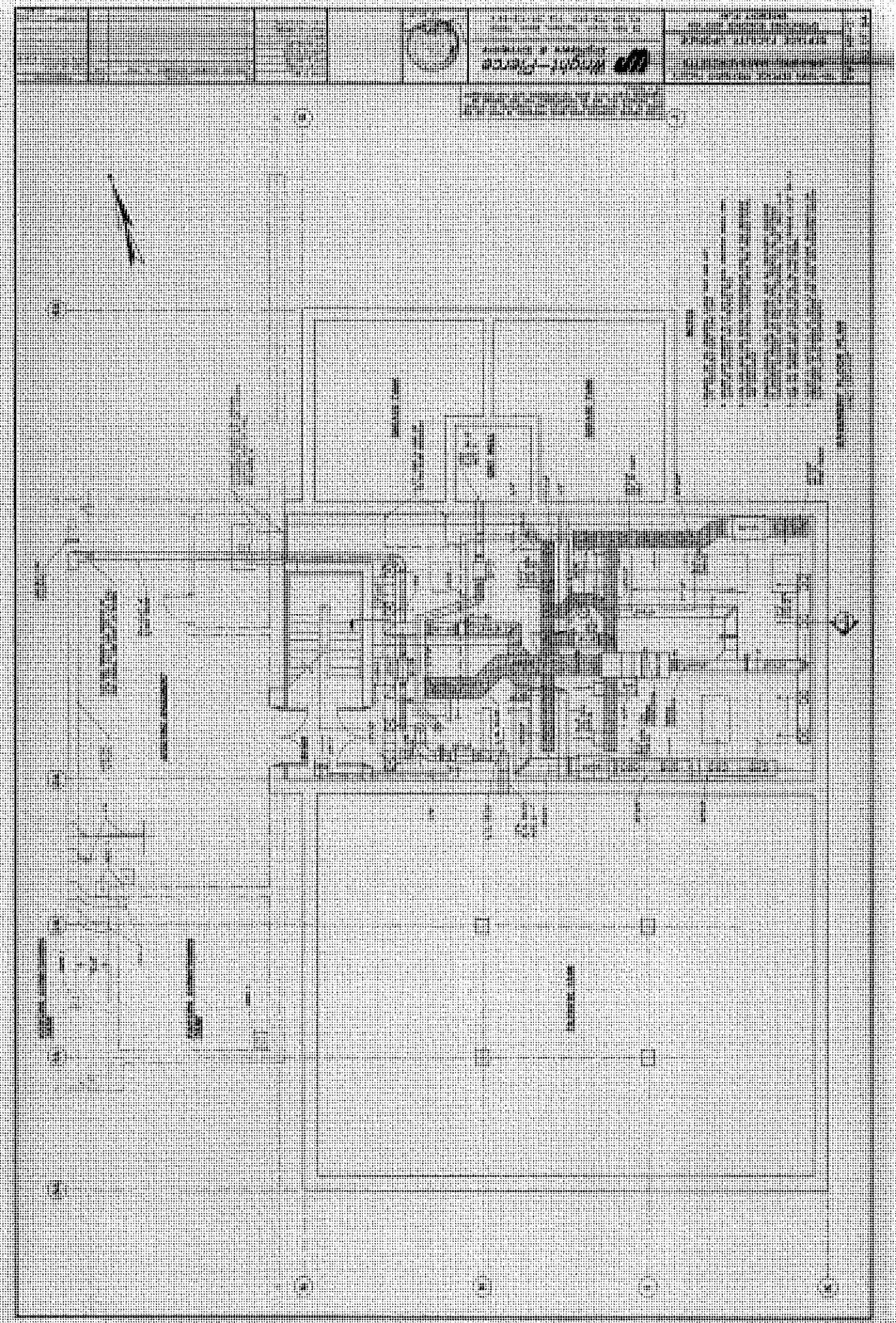
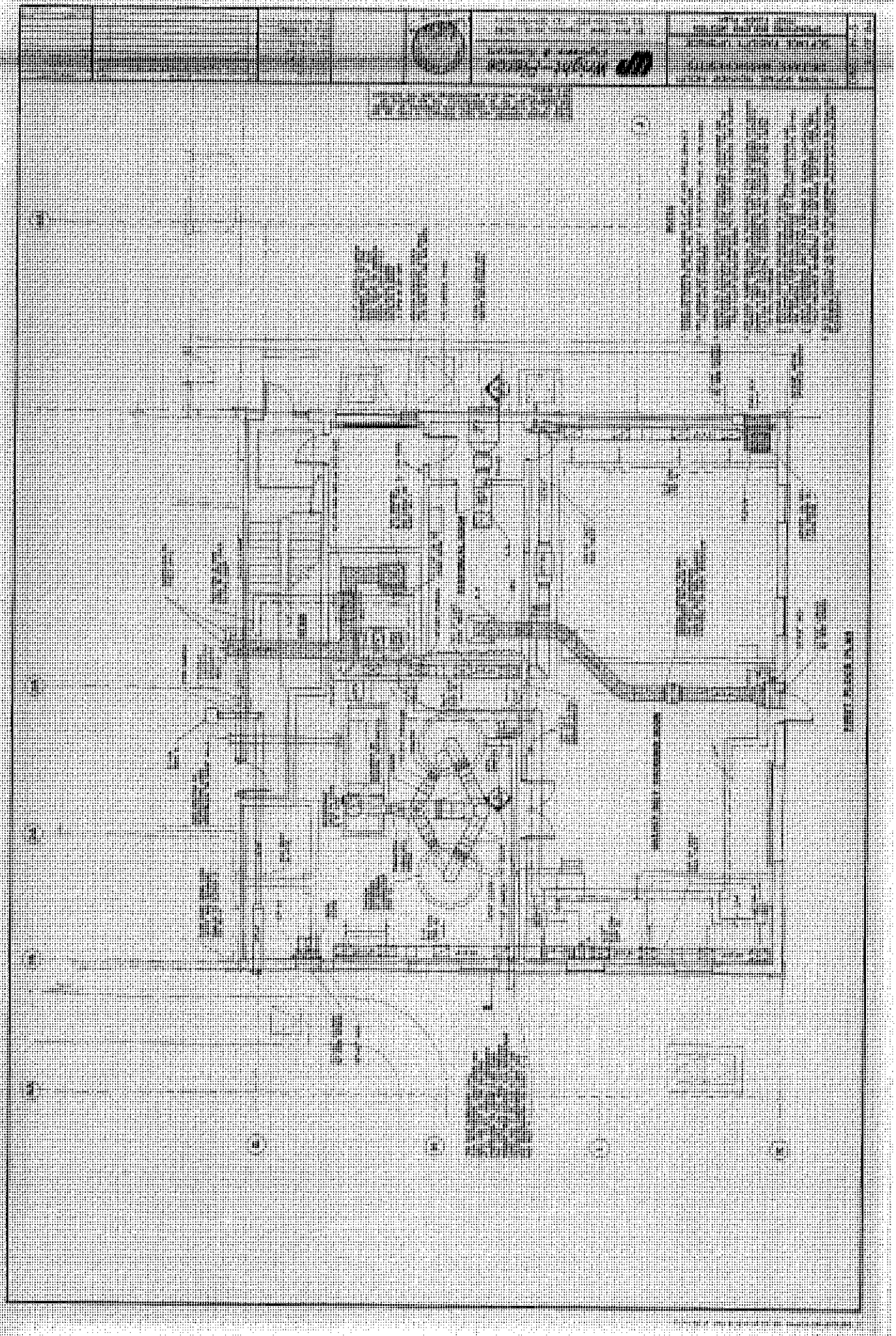
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
OPERATIONS BUILDING ADDITION
BASEMENT PLAN

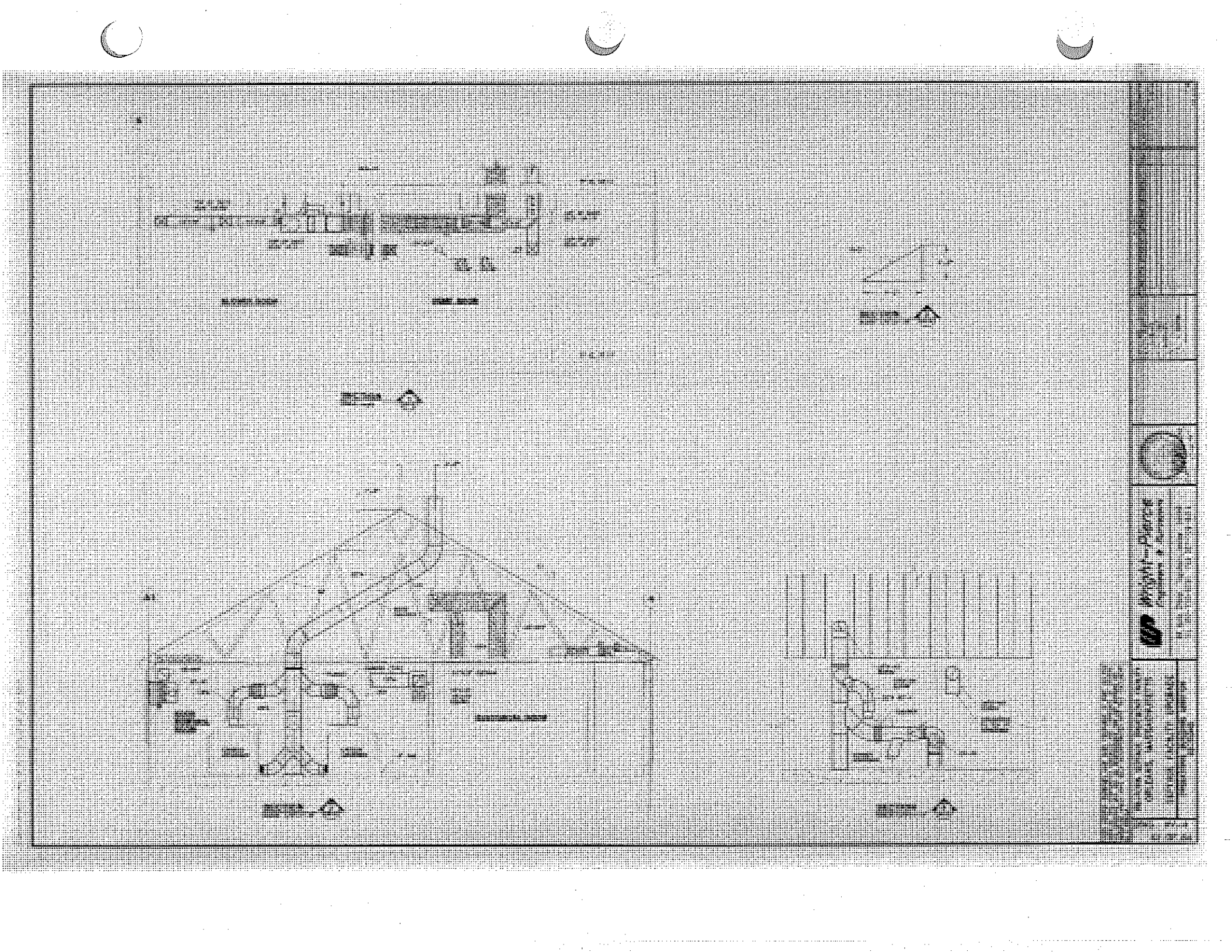
DWG. P-1
56 OF 84

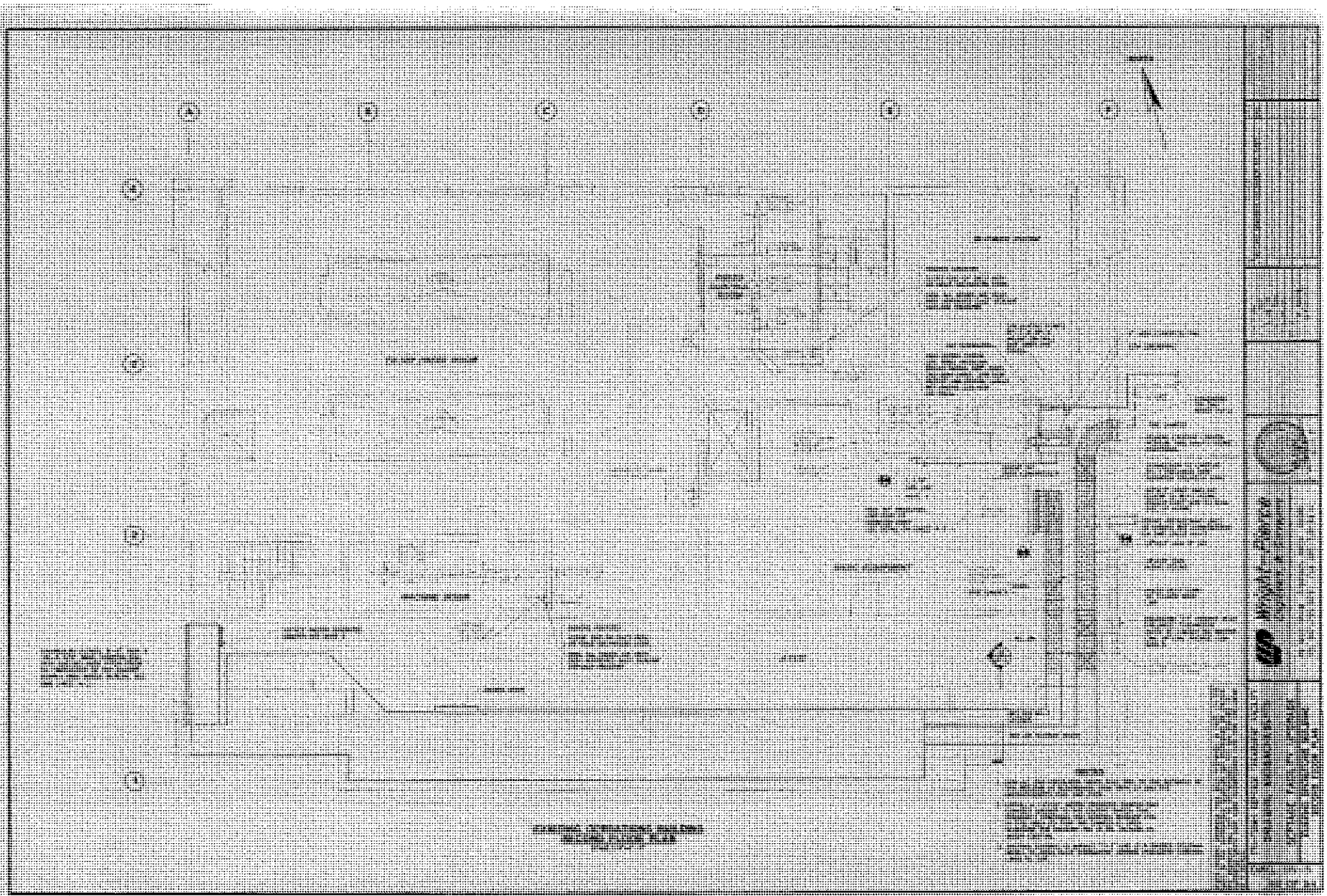


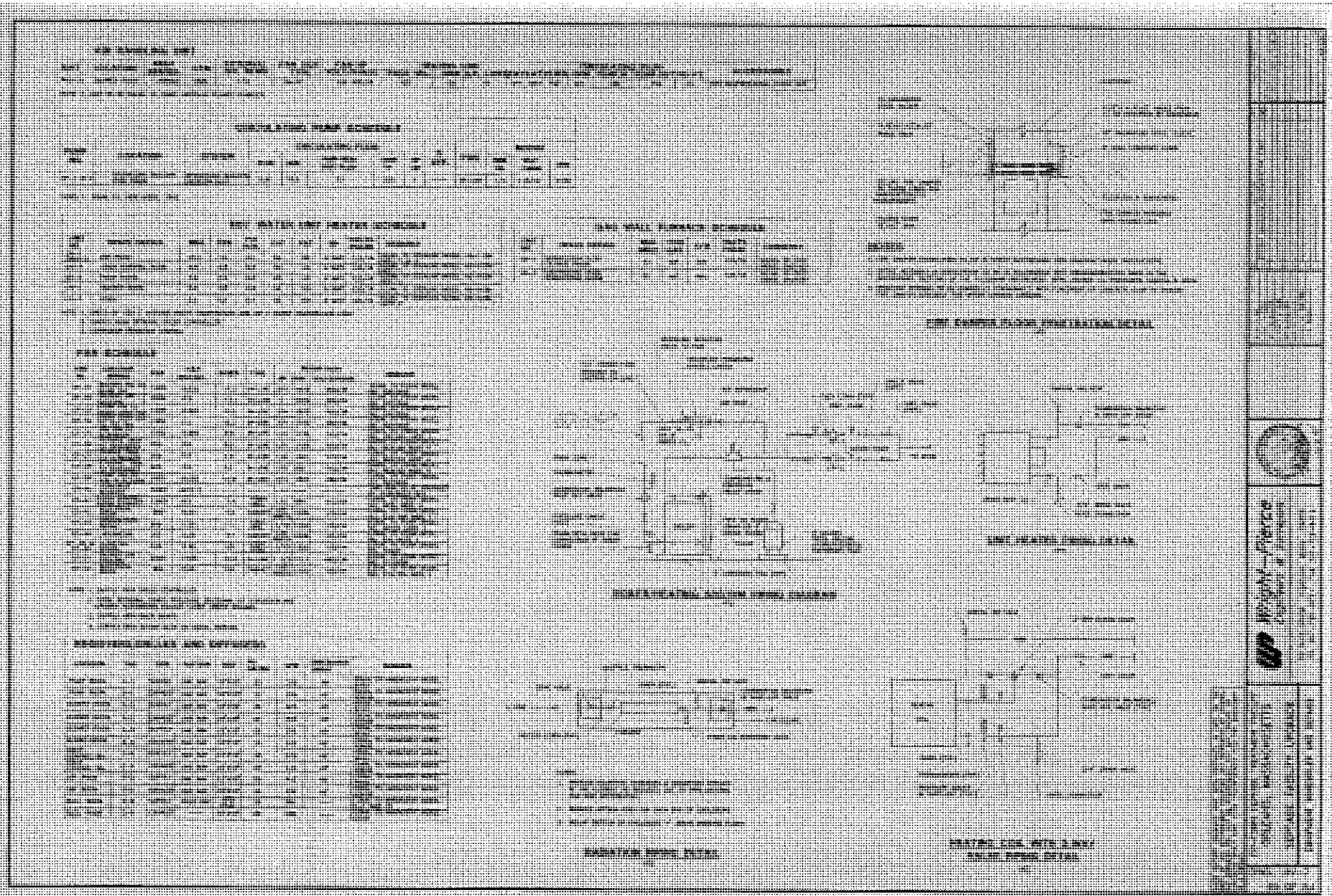


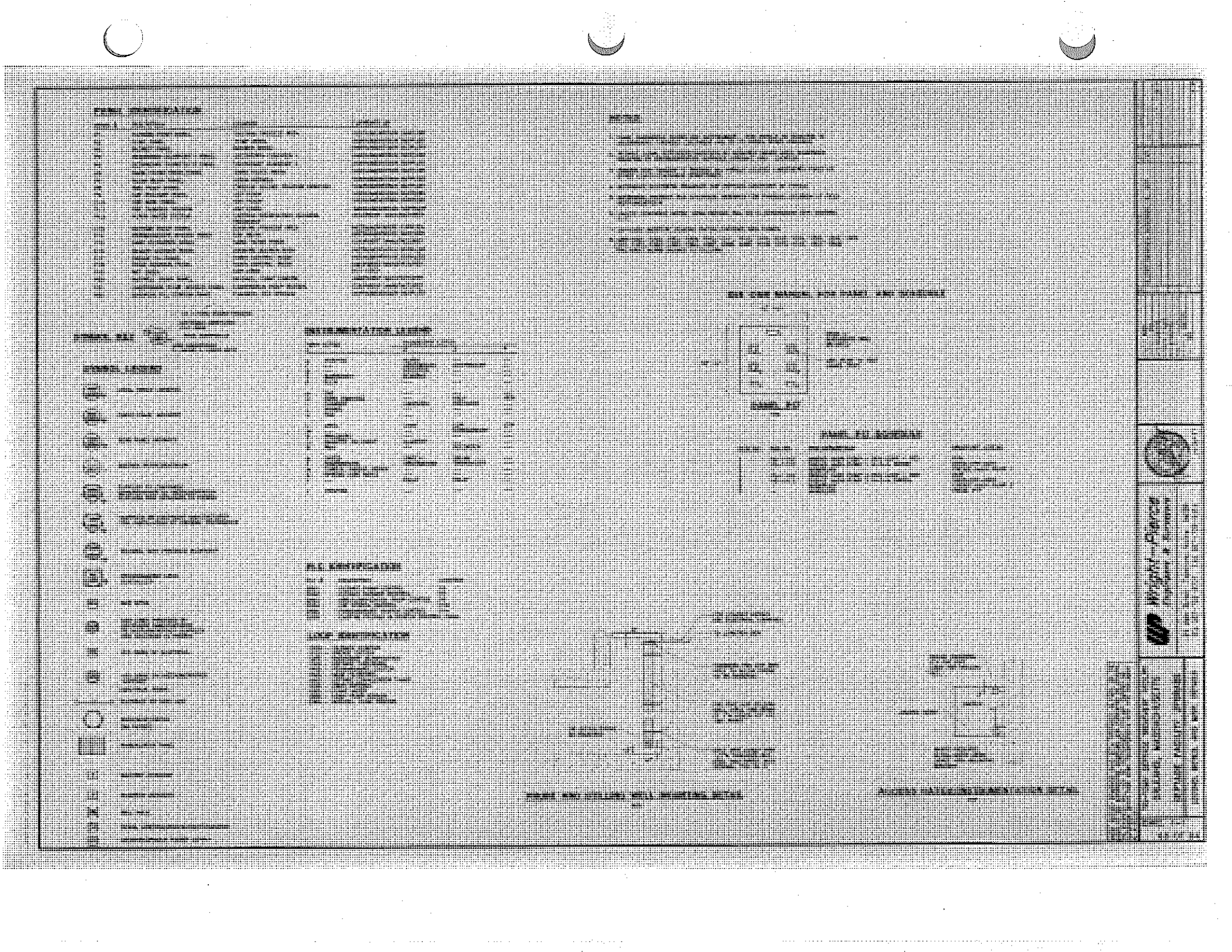


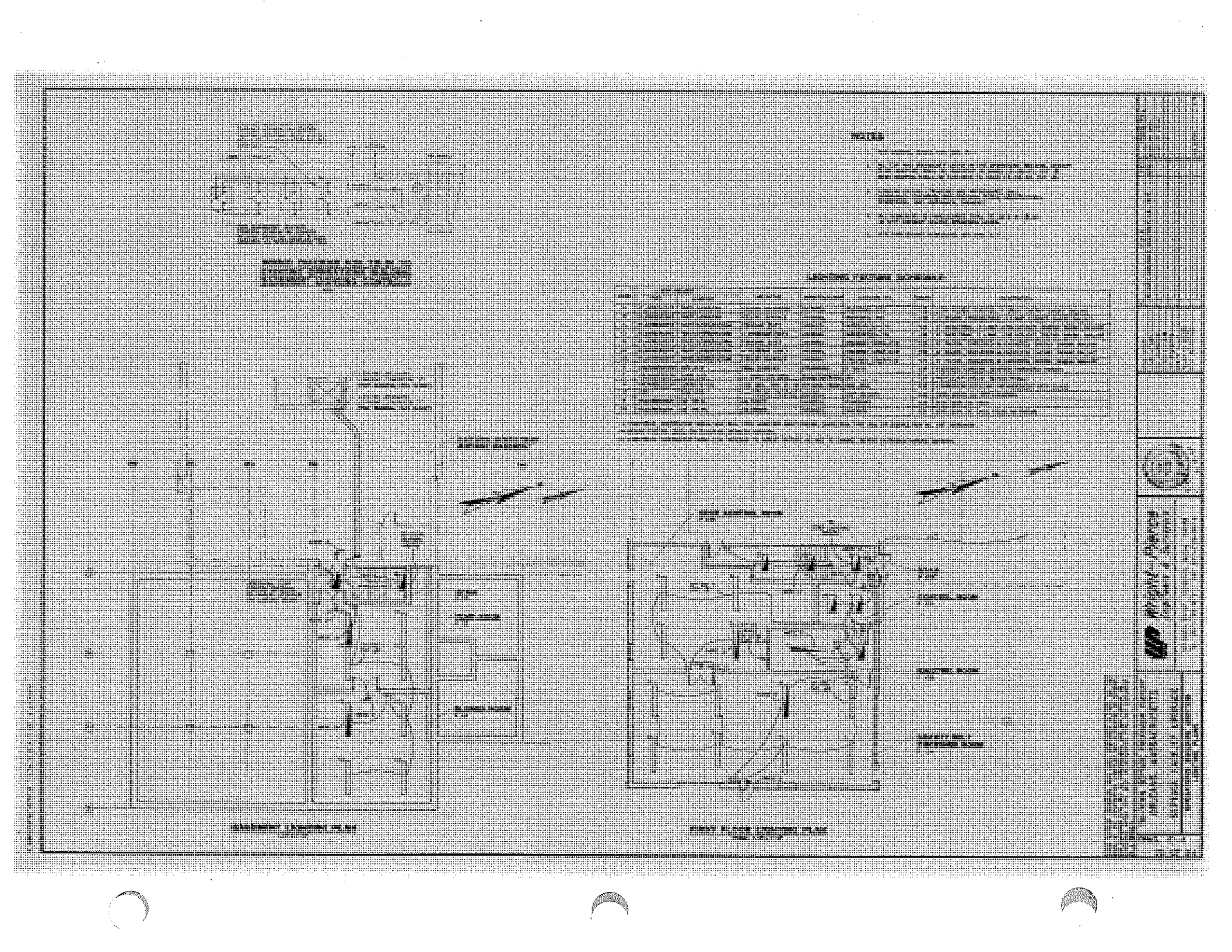


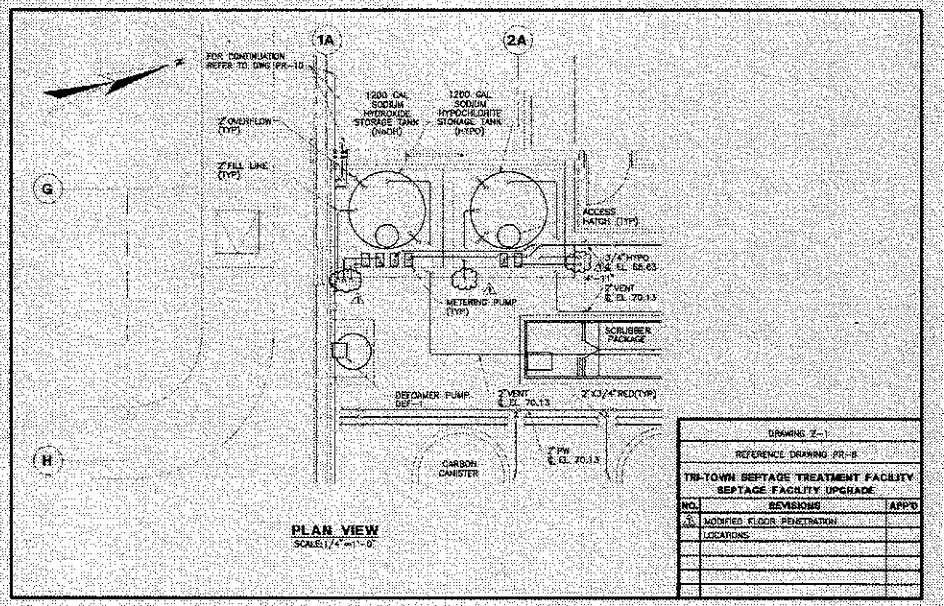








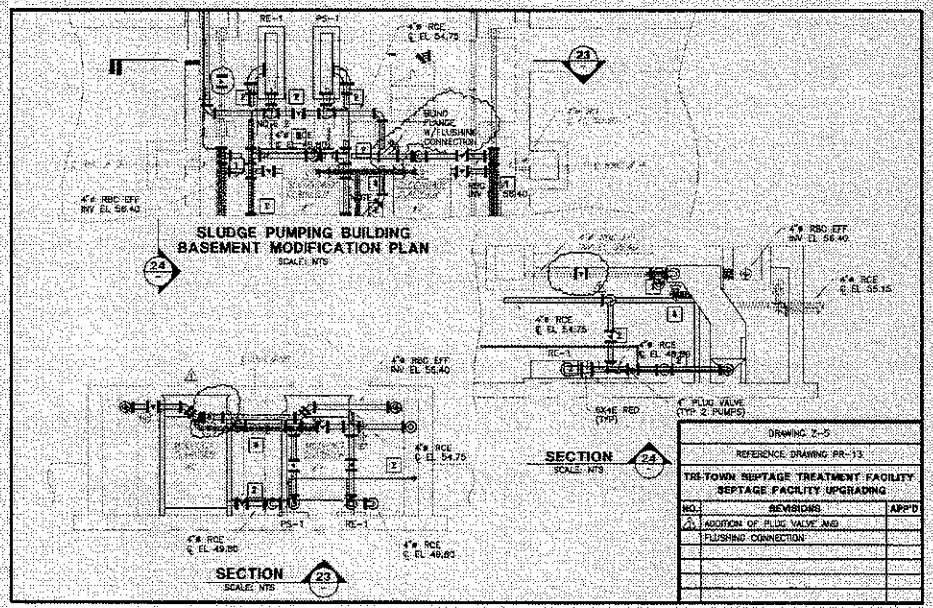




PLAN VIEW
SCALE: 1/4"=1'-0"

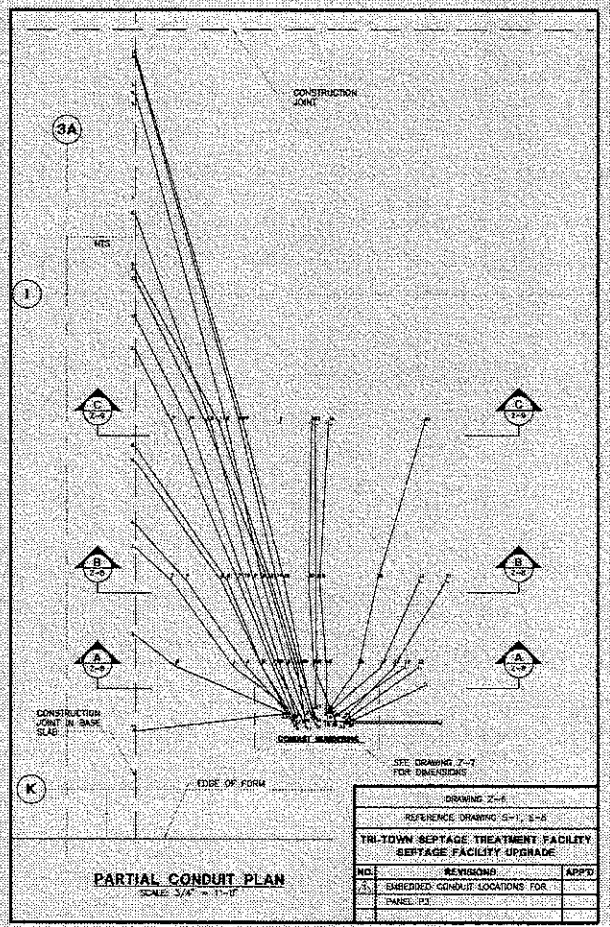
DRAWING Z-1
REFERENCE DRAWING PR-8
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE

NO.	REVISIONS	APP'D
1	MODIFIED FLOOR PENETRATION LOCATIONS	



DRAWING Z-5
REFERENCE DRAWING PR-13
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADING

NO.	REVISIONS	APP'D
1	ADDITION OF PLUG VALVE AND FLUSHING CONNECTION	



PARTIAL CONDUIT PLAN
SCALE: 3/4" = 1'-0"

DRAWING Z-6
REFERENCE DRAWING S-1, S-8
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE

NO.	REVISIONS	APP'D
1	EMBEDDED CONDUIT LOCATIONS FOR PANEL P3	

NOTE:
DRAWINGS ZS-1, ZS-2, ZS-3 AND ZS-4 CONTAIN ADDITIONAL INFORMATION ON AS-BUILT CONDITIONS. "ZS" DRAWINGS ARE COMPILATIONS OF THE "Z" DRAWINGS THAT WERE DEVELOPED DURING CONSTRUCTION, AND ARE NUMBERED CONSECUTIVELY STARTING WITH Z-1. ABSENCE OF CERTAIN NUMBERED "Z" DRAWINGS INDICATES THAT THE INFORMATION CONTAINED WITHIN THE DRAWING WAS NOT INCORPORATED INTO THE PROJECT.

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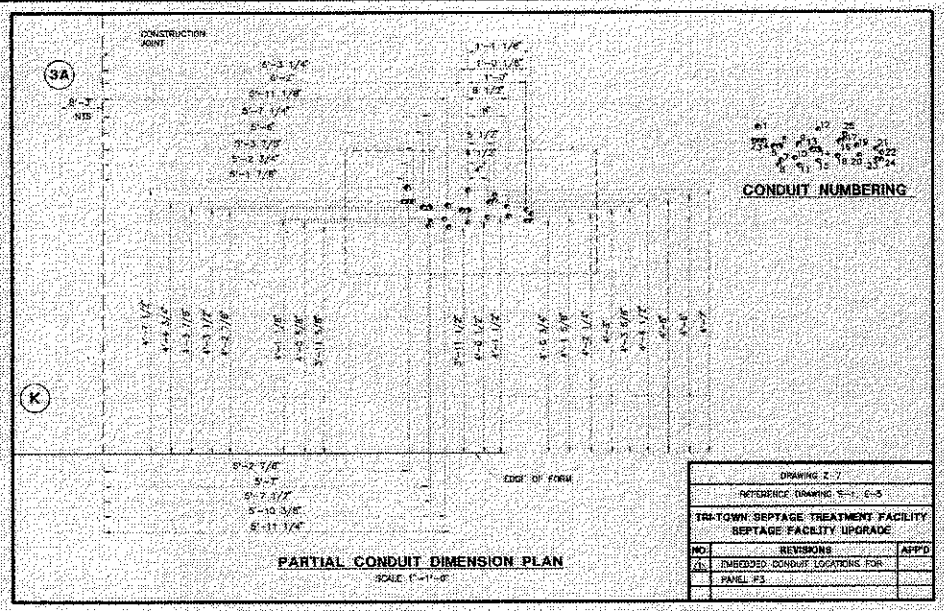
TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS
SEPTAGE FACILITY UPGRADE
Z-SKETCHES
Z-1; Z-5, Z-6

DWG. ZS-1
OF



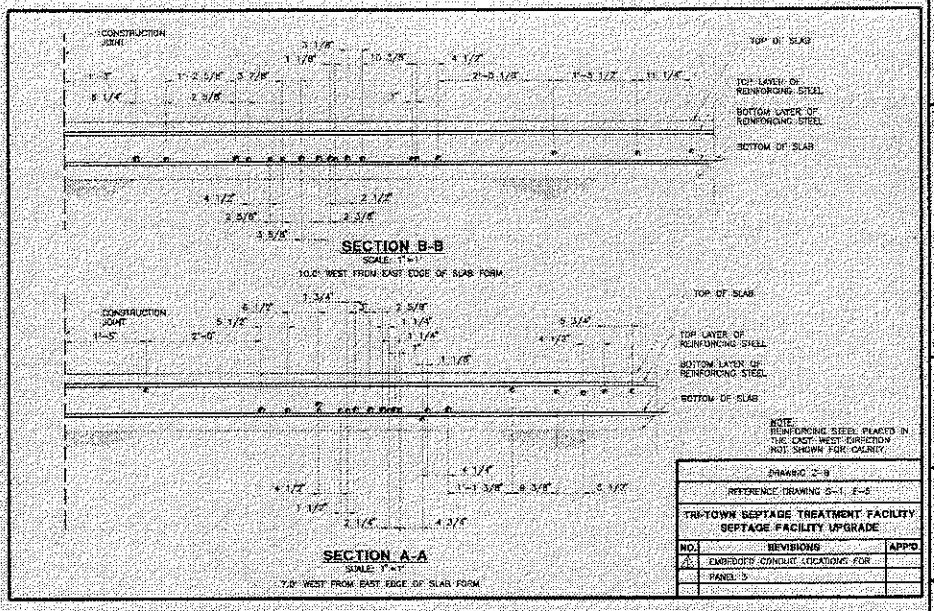
PARTIAL CONDUIT DIMENSION PLAN

SCALE: 1"=1'-0"

CONDUIT NUMBERING

DRAWING Z-7
REFERENCE DRAWING S-1, E-5
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE

NO.	REVISIONS	APP'D
1	EMBEDDED CONDUIT LOCATIONS FOR PANEL #3	



SECTION B-B

SCALE: 1"=1'

10.0' WEST FROM EAST EDGE OF SLAB FORM

SECTION A-A

SCALE: 1"=1'

7.0' WEST FROM EAST EDGE OF SLAB FORM

NOTE:
REINFORCING STEEL PLACED IN THE EAST-WEST DIRECTION NOT SHOWN FOR CALRITY.

DRAWING Z-8
REFERENCE DRAWING S-1, E-5
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE

NO.	REVISIONS	APP'D
1	EMBEDDED CONDUIT LOCATIONS FOR PANEL 5	

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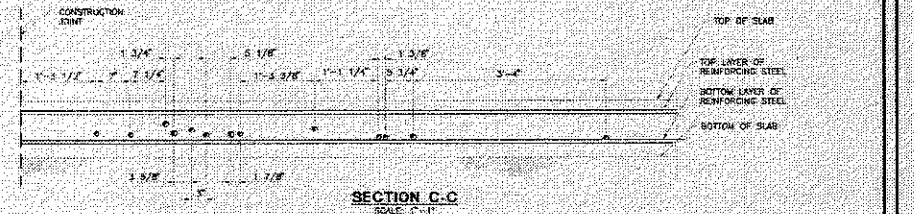


SECTION C-C

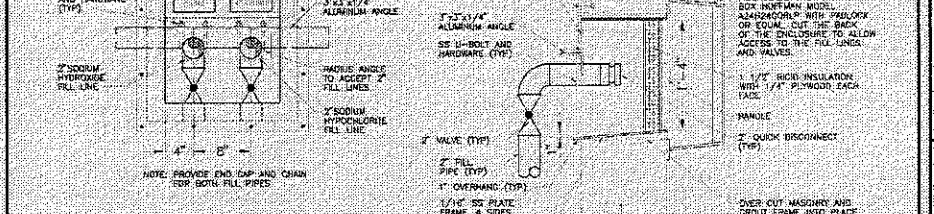
SCALE: 1"=1'

15.0' WEST FROM EAST EDGE OF SLAB FORM

NOTE:
REINFORCING STEEL PLACED IN THE EAST-WEST DIRECTION NOT SHOWN FOR CALRITY.

DRAWING Z-9
REFERENCE DRAWING S-1, E-5
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE

NO.	REVISIONS	APP'D
1	EMBEDDED CONDUIT LOCATIONS FOR PANEL 5	



CHEMICAL FILL STATION DETAIL

NTS

DRAWING Z-12
REFERENCE DRAWING PR-6
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE

NO.	REVISIONS	APP'D
1	MODIFIED CHEMICAL FILL STATION DETAIL	

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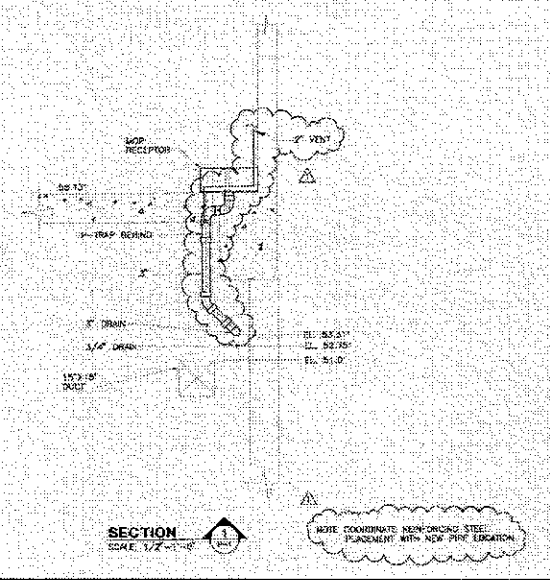
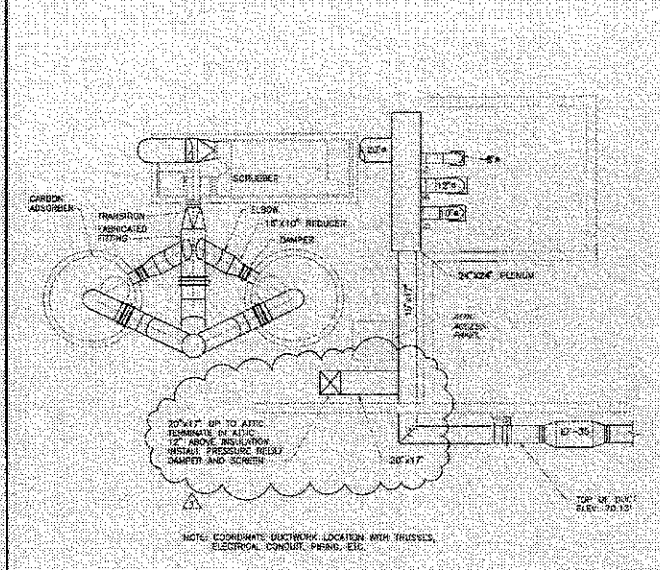
SEPTAGE FACILITY UPGRADE
Z-SKETCHES
Z-7, Z-8, Z-9 AND Z-12

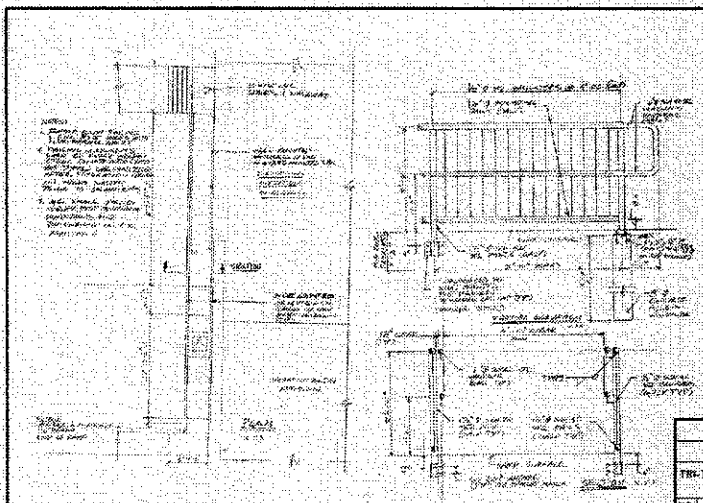
DWG. 2S-2
OF



DRAWING Z-15		
REFERENCE DRAWING P-3		
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE		
NO.	REVISIONS	APP'D
1	MODIFIED MOP RECEPTOR DRAIN AND TRAP LOCATION AND ADDED 2" VENT	



DRAWING Z-20		
REFERENCE DRAWING C-4, C-5		
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE		
NO.	REVISIONS	APP'D
1	MODIFICATIONS TO HANDRAIL AT RAMP/APRON ACCESS RAMP	



DRAWING Z-21		
REFERENCE DRAWING M-3		
TRI-TOWN SEPTAGE TREATMENT FACILITY SEPTAGE FACILITY UPGRADE		
NO.	REVISIONS	APP'D
1	ADD DUCTWORK AND PRESSURE RELIEF DAMPER	

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TRI-TOWN SEPTAGE TREATMENT FACILITY
ORLEANS, MASSACHUSETTS

SEPTAGE FACILITY UPGRADE

Z-SKETCHES
Z-15, Z-20 AND Z-21

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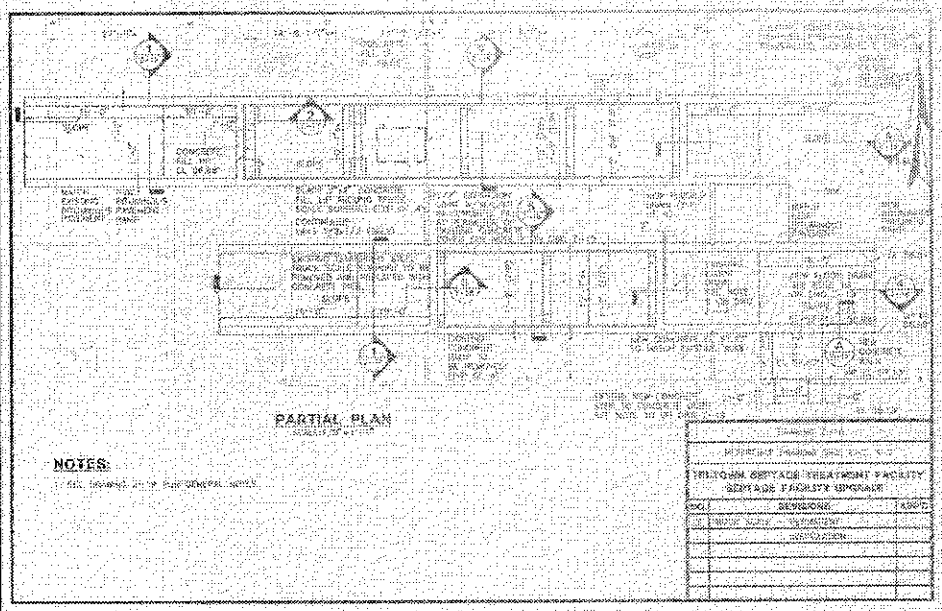
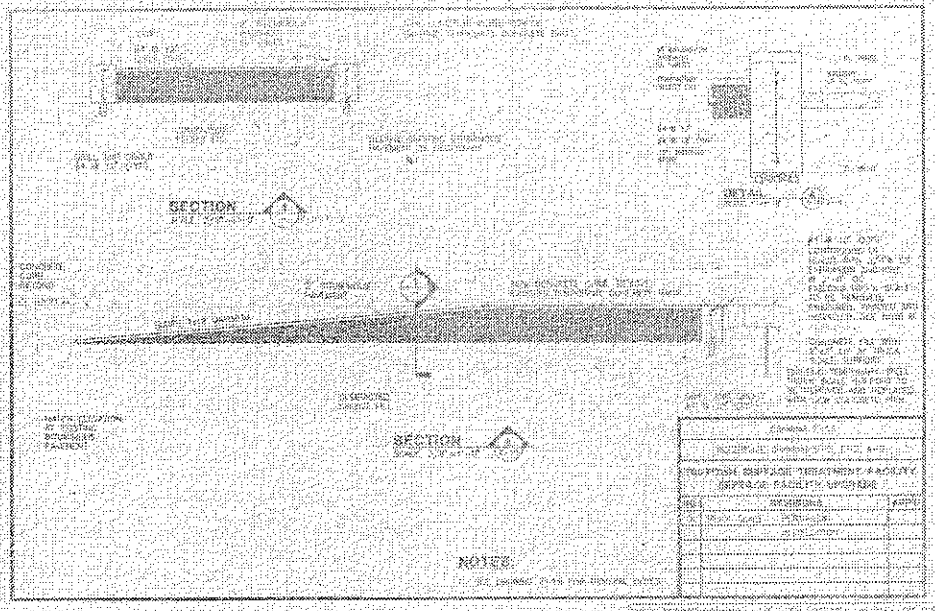
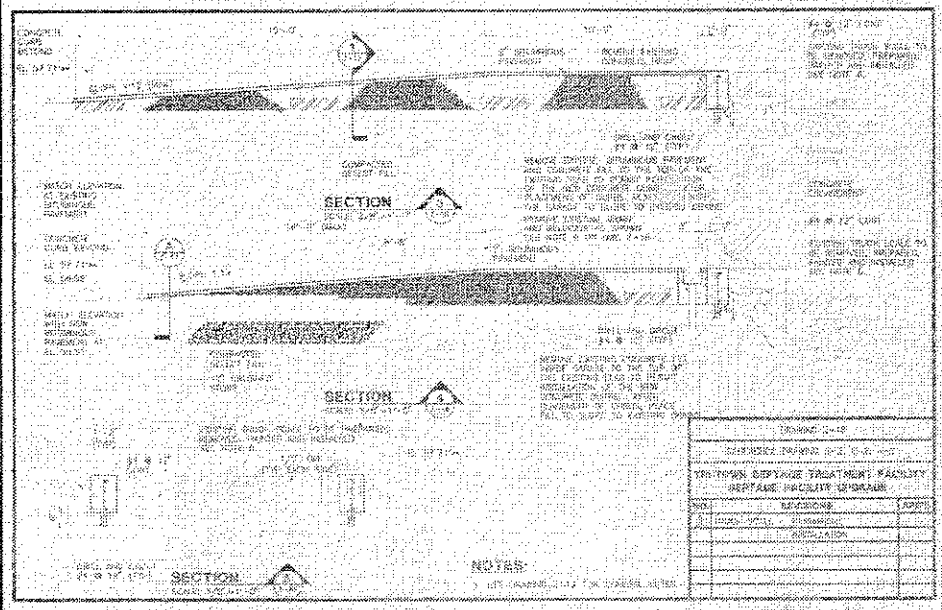
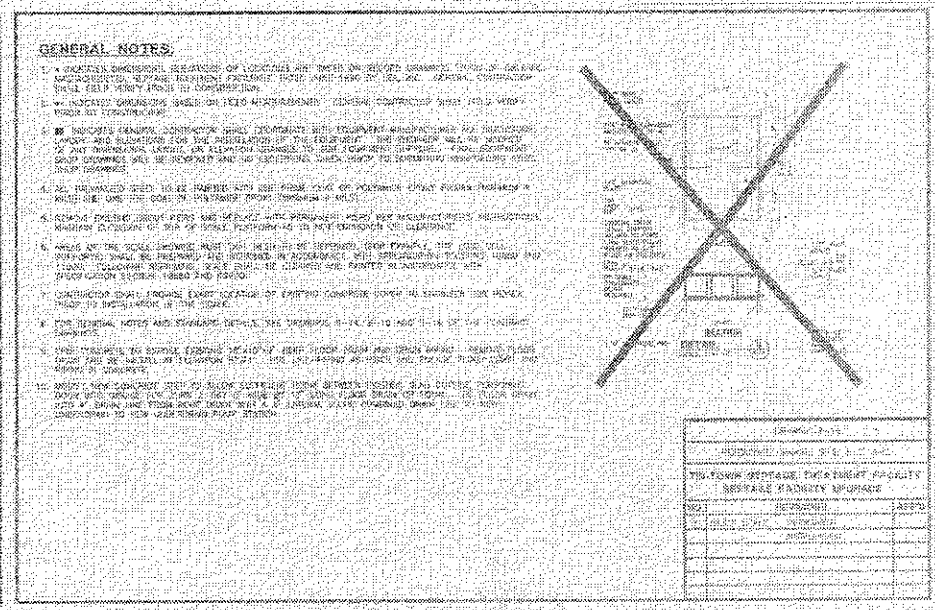
99 Main Street Topsham, Maine 04086
Tel. 207-725-8721 Fax 207-729-8414

DWG. Z5-15
OF









WRIGHT-PIERCE
Engineers & Scientists

TRURO SEPTAGE TREATMENT FACILITY
CAPE COD, MASSACHUSETTS

SEPTAGE FACILITY UPGRADE

Z-16, Z-17, Z-18, AND Z-19

APPENDIX C

TABLE - SUMMARY OF BUILDING DEMOLITION AREAS TRI-TOWN STF

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Tri-Town Septage Treatment Facility
Orleans, MA
Table 1: Summary of Building Demolition Areas, Tri Town Septage Treatment Facility

Objective:
This table provides an overview of the buildings and major equipment to be removed or demolished as part of the decommissioning of the Tri-Town Septage Treatment Facility. This table excludes minor equipment and most equipment located within buildings. Please review the reference drawings below and refer to knowledge gained during the site

References:
Septage Treatment Facilities by Linethanl Eisenberg Anderson Inc. ("LEA")
Tri-Town Septage Treatment Facility - Septage Facility Upgrade by Wright Pierce ("WP")

Buildings/Major Equipment	Quantity	Approximate Dimensions	Slab Thickness	Wall Thickness	Reference Drawing(s)	Notes
Operations and Processing Building	1	3 story (including basement)				
Basement Original	1	105'4"(L) x 98'(W) x 26'10.5" (based on elevator shaft drawing)	varies, 12", 16"	8"	LEA A-1, S-4	Elevator pit goes 4' below basement floor
Receiving Tank	2	43'4"(L)x32'4"(W)		1'	LEA A-1	
Other Tanks	2	43'4"(L)x16'2"(W)		1'	LEA A-1	
Upper Basement	1	additional 27'(L) x 14'(W) lime storage		8"	LEA A-1, S-4	
Basement Addition	1	72'6"(L) x 57'6"(W) + 20'3"(L) x 39'6" (W)			WP A-1, S-1	
Filtrate Tank		43'(L) x 55'6"(W) x 18'(H)	2'	1'6"	WP A-1, S-1	
Grease Storage/Grit Wet Well		20'3"(L) x 39'6" (W) x 17'6"(H)	1'6"	1'3"	WP A-1, S-1	
Pump Room	1	28'(L) x 30'6"(W)	1'		WP A-1, S-1	
Blower Room	1	28'(L) x 27'(W)	1'		WP A-1, S-1	
First Floor	1	original building 59'4"(L) x 98'(W); septage receiving area: 43'4"(L)x98'(W); addition: 59'4"(L) x 57'6"(W); Height=13'9"		8"	LEA A-2, LEA A-3, WP A-2	
Control Room					WP A-2, PR-8	
Odor Control Room					WP A-2, PR-8	
Scrubber Package					WP A-2, PR-8	
Control Panel					WP A-2, PR-8	
Wetwell					WP PR-8	
Carbon Canister	2				WP A-2, PR-8	
Electrical Room	1				WP A-2, PR-8	
Gravity Belt Thickener Room		28'(L) x 59'4"(W)			WP A-2, PR-8	
Gravity Belt Thickeners					WP A-2, PR-8	
Polyer System Control Panel					WP PR-8	
Conditioning Tank					WP PR-8	
Second Floor	1	62'(L) x 98'(W)		8"	LEA A-2	
Chemical Feed Building	1	29'4"(L) x 33'4"(W) x 14'(H)	varies 8", 6"		LEA S-19	
Disinfection Building	1	one story building				
Disinfection Room	1	22'(L) x 23'6"(W) x 10'7"(H)		6"	WP A-4	
Filtration Room	1	28'6"(L) x 24'(W) x 10'7"(H)		6"	WP A-4	
Compost Pad	1	190'x197.5' (main part); 70'x50' (side part)	8" concrete slab on 8" (min) well compacted screen gravel		LEA S-15, S-17, S-18	
Mixing Building	1	Part of Compost Pad			LEA S-16	
Primary Distribution Box	1	7'4"(L) x 5'4"(W) x 5'9" (H)	8"	8"	LEA S-20	approximately 2' above grade, remainder below
Primary Clarifiers	2	20'4"(D), 14' (H)		1'	LEA S-20	approximately 2'2" above grade, remainder below
RBC/Sludge Pumping Station	1	37'(L) x 26' (W) x 10' (H)	1'	1'	LEA S-21, S-22	
Secondary Clarifiers	2	20'4"(D), 17' (H)		1'2"	WP S-12, PR-12	
Flow Splitter/Scum Well	1	15'(L) x 10'6"(W) x 16'6"(H)		1'	WP S-13	
Underground Fuel Oil Tank	1					
Generator Pad	1	14'(L) x 8'(W) x 2'(H)	1' haunched concrete slab			
Conc. Grease Tank	1					
Condensing Unit	1					
SandFilter Mudwell	1	6'(D)				
Valve Pit	1	6'(D				
Retention Basins	6					Remove structure and piping

APPENDIX D

SITE PHOTOGRAPHS

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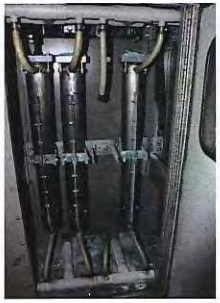
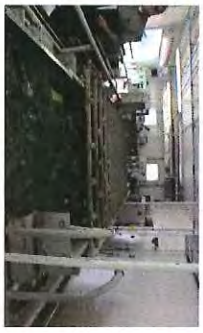
Town of Orlenas, MA
Water Quality and Wastewater Planning
Existing Tri-Town Septage treatment Facility - Overland Way Parcel 1/1A



Town of Orlenas, MA
Water Quality and Wastewater Planning
Existing Tri-Town Septage treatment Facility - Overland Way Parcel 1/1A

Town of Orlenas, MA
Water Quality and Wastewater Planning
Existing Tri-Town Septage treatment Facility - Overland Way Parcel 1/1A

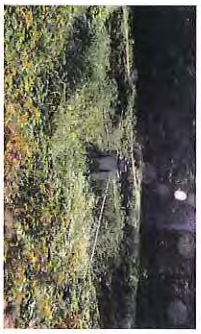
Town of Orleans, MA
Water Quality and Wastewater Planning
Existing Tri-Town Septage treatment Facility - Overland Way Parcel 1/1A



Town of Orlenas, MA
Water Quality and Wastewater Planning
Existing Tri-Town Septage treatment Facility - Overland Way Parcel 1/1A

Town of Orlenas, MA
Water Quality and Wastewater Planning
Existing Tri-Town Septage treatment Facility - Overland Way Parcel 1/1A

Town of Orlenas, MA
Water Quality and Wastewater Planning
Existing Tri-Town Septage treatment Facility - Overland Way Parcel 1/1A



APPENDIX E

HAZARDOUS MATERIALS ASSESSMENT

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AECOM
9 Jonathan Bourne Drive
Pocasset, MA 02559
www.aecom.com

508 833 6950 tel
508 833 6951 fax

September 6, 2016

Tri-Town Septage Treatment Facility Board of Managers
c/o Town of Orleans, MA
Attn: Mr. John Kelly, Town Administrator
19 School Road
Orleans, Massachusetts 02653

RE: Hazardous Materials Assessment Summary Report
Tri-Town Septage Treatment Facility – 29 Overland Road, Orleans, Massachusetts

Dear Board of Managers:

AECOM Technical Services, Inc. (AECOM) was retained by the Tri-Town Septage Treatment Facility Board of Managers (Tri-Town) to complete a hazardous building materials assessment at the Tri-Town Septage Treatment Facility located at 29 Overland Road in Orleans, Massachusetts (the Site). The purpose of the assessment was to identify visible and accessible suspect asbestos-containing materials (ACM), perform a preliminary lead-based paint (LBP) survey, and identify regulated items suspected to contain hazardous materials that will require removal and proper disposal prior to planned demolition activities.

Asbestos Survey

On July 27 and 28, 2016, AECOM's Massachusetts-licensed Asbestos Inspector, Mr. Patrick Guglielmo, visited the Site to collect bulk samples of suspect building materials that are anticipated to be impacted by the planned demolition project. A total of one hundred fourteen (114) bulk samples of materials from within the Site buildings were collected and analyzed for asbestos content.

The samples were delivered, under chain-of-custody protocol to Optimum Analytical and Consulting, LLC (Optimum) of Salem, New Hampshire and were analyzed in accordance with the USEPA recommended analytical method of polarized light microscopy (PLM) with dispersion staining. Optimum is fully accredited to perform bulk sample analysis under the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology (NIST) and is also certified by the MA Department of Labor Standards (DLS) to provide asbestos analytical services. Site photographs are provided in **Attachment A,** and copies of AECOM's Asbestos Inspector accreditations and Optimum's laboratory accreditations are provided in **Attachment B**.

The Commonwealth of Massachusetts has established a level of equal to or greater than one percent (≥1%) asbestos content for a material to be considered to be asbestos-containing. **According to the analytical results, none of the samples were determined to contain asbestos.** A detailed summary of sampled materials is provided in **Table 1**, and laboratory analytical results are provided in **Attachment C.**

Paint Chip Analysis for Lead

On July 27 and 28, 2016, AECOM's Industrial Hygienist, Mr. Patrick Guglielmo, performed a survey for lead-based paint (LBP) throughout interior and exterior portions of the Site buildings. The purpose of the testing was to confirm or deny the presence of lead in paint, as well as to identify potential impacts to demolition scheduling and worker safety obligations during planned demolition activities. AECOM collected a total of 33 discrete paint chip samples from various painted surfaces of the Site buildings for lead testing. Not every surface was sampled for lead. Instead, representative samples were collected of paint colors that were present in several areas of the building or present across large areas of the building.

Paint chip samples were collected using hand tools by scraping or peeling the paint. Collected samples were placed into polyethylene sample bags and submitted to AmeriSci of Carson, California for analysis of lead content via United States Environmental Protection Agency (EPA) Method 3050B/7000B. AmeriSci is accredited by the American Industrial Hygiene Association (AIHA) Environmental Lead Laboratory Accreditation Program (ELLAP) and the MassDEP. A copy of AmeriSci's accreditation is provided in **Attachment B.**

Lead-in-paint values were compared to the HUD definition of 0.5% lead by weight and to the requirements cited in OSHA's *Lead in Construction Standard* (29 CFR 1926.62). Construction activities which are likely to be employed (i.e., grinding, cutting, and demolishing) that potentially could disturb surfaces containing LBP have been known to expose workers to airborne levels of lead in excess of the permissible exposure limit (PEL).

Detectable concentrations of lead in white paint were identified on basement wall paint, as well as in exterior trim paint associated with the Main Building. Specifically, paint chip samples LBP-15B and LBP-16A revealed lead concentrations of 150 mg/kg and 210 mg/kg, respectively. Work activities that have the potential to impact these paints remain subject to the requirements of 29 CFR 1926.62. Leachability testing is required to determine if the lead concentrations detected in the painted surfaces would constitute a hazardous waste; test results are pending. A detailed summary of LBP analytical results is provided in **Table 2**, and a copy of the laboratory analytical data report is provided in **Attachment D.**

Additional Hazardous and Regulated Materials

During the assessment, AECOM conducted a visual inventory to identify and quantify other potentially hazardous or regulated materials, wastes, or items within the buildings that may require special handling prior to proposed demolition activities. Items inventoried included materials such as mercury fluorescent lamps, polychlorinated biphenyl (PCB) ballasts, paints, mercury thermostat ampoules, used electronic devices, and aerosols. Hazardous/regulated materials/wastes/items visually identified were then categorized according to their potential hazard.

No sampling of suspect chemicals or potentially PCB-containing materials was conducted. The facility was constructed between 1985 and 1987, well after the EPA's ban in 1978 on the use of PCBs in manufacturing or commerce. Therefore, it is highly unlikely that PCBs were present the fluorescent light ballasts. The demolition contractor will be responsible for assessing the light ballasts during the removal of Universal Waste, by checking for the date of manufacture of the ballasts or for a sticker indicating "non-PCB."

A detailed summary of the regulated materials identified at the Site is contained in **Table 3**.

Should additional suspect ACM or other hazardous materials be encountered during any demolition activities, work activities should cease immediately until further evaluation and/or testing of these materials can be completed.

AECOM appreciates the opportunity to assist the Tri-Town Board of Managers with this project, and looks forward to supporting your future industrial hygiene, environmental, and regulatory needs. If you have any questions, please do not hesitate to contact either of the undersigned at (603) 606-4800.

Sincerely,
AECOM Technical Services, Inc.

Patrick Guglielmo
Industrial Hygienist

John McRobbie, CHMM
Deputy Project Manager

Tables:

Table 1: Bulk Sample Summary of Suspect Asbestos-Containing Materials
Table 2: Summary of Lead Concentrations in Paint Chip Samples
Table 3: Summary of Other Hazardous/Regulated Items & Equipment Inventory

Attachments:

Attachment A: Site Photographs
Attachment B: Inspector and Laboratory Accreditations
Attachment C: Laboratory Analytical Report – PLM
Attachment D: Laboratory Analytical Report – LBP

AECOM

TABLES

Table 1: Bulk Sample Summary of Suspect Asbestos-Containing Materials Tri-Town Septage Treatment Facility 29 Overland Road, Orleans, Massachusetts, 02563			
Sample #	**Type of Material**	**Location**	**Asbestos Concentration (%)**
B01A	Black & Red Speckle Shingles	Main Building, Exterior, Roof, North End, Shingle Side, Top Layer	ND (<1%)
B01B	Black & Red Speckle Shingles	Disinfection Building, Exterior, Roof, West Side, Top Layer	ND (<1%)
B02A	Black Vapor Barrier Paper	Main Building, Exterior, Roof, North End, Shingle Side, Bottom Layer	ND (<1%)
B02B	Black Vapor Barrier Paper	Disinfection Building, Exterior, Roof, West Side, Bottom Layer	ND (<1%)
B03A	Black Rubber Roofing	Main Building, Exterior, Roof, North End, Rolled Roofing Side	ND (<1%)
B03B	Black Rubber Roofing	Main Building, Exterior, Roof, South End, Rolled Roofing Side	ND (<1%)
B04A	Yellow Mastic	Main Building, Exterior, Roof, North End, Rolled Roofing Side	ND (<1%)
B04B	Yellow Mastic	Main Building, Exterior, Roof, South End, Rolled Roofing Side	ND (<1%)
B05A	Black Sealant	Main Building, Exterior, Roof, South End, Rolled Roofing Side	ND (<1%)
B05B	Black Sealant	Main Building, Exterior, Roof, North End, Rolled Roofing Side	ND (<1%)
B06A	Asphalt-Like Grip/Matting	Main Building, Exterior, Roof, North End, Rolled Roofing Side	ND (<1%)
B06B	Asphalt-Like Grip/Matting	Main Building, Exterior, Roof, South End, Rolled Roofing Side	ND (<1%)
B07A	White Vapor Barrier Paper	Disenfection Building, Exterior, South, Under Wood Clapboard Siding	ND (<1%)
B07B	White Vapor Barrier Paper	Main Building, Exterior, Northwest Corner by Garage, Under Clapboard Siding	ND (<1%)
B08A	Black Vapor Barrier Paper	Disenfection Building, Exterior, Southeast, Under Wood Clapboard Siding at Corner Trim	ND (<1%)
B08B	Black Vapor Barrier Paper	Disenfection Building, Exterior, Southeast, Under Wood Clapboard Siding at Corner Trim	ND (<1%)
B09A	Light Gray Sealant	Main Building, Exteriror, Roof, South, Intersection of Rolled Roofing Side and Shingle Side	ND (<1%)
B09B	Light Gray Sealant	Main Building, Exteriror, Roof, South, Rolled Roofing Side, On Vents	ND (<1%)
B10A	Dark Gray Sealant	Secondary Clarifier, Exterior, North, Sealant by Door	ND (<1%)

Table 1: Bulk Sample Summary of Suspect Asbestos-Containing Materials Tri-Town Septage Treatment Facility 29 Overland Road, Orleans, Massachusetts, 02563			
Sample #	**Type of Material**	**Location**	**Asbestos Concentration (%)**
B10B	Dark Gray Sealant	Secondary Clarifier, Exterior, North, Sealant by Door	ND (<1%)
B11A	Light Gray Glazing	Secondary Clarifier #1, Exterior, South, at Fiberglass Window and Metal Frame	ND (<1%)
B11B	Light Gray Glazing	Primary Tank #1, Exterior, West, At Fiberglass Window & Metal Frame	ND (<1%)
B12A	Clear Caulking, Clear	Primary Tank #1, Exterior, West, Around Vent	ND (<1%)
B12B	Clear Caulking, Clear	Primary Tank #2, Exterior, East, Around Vent	ND (<1%)
B13A	White Window Glazing	Main Building, Exterior, West, Main Entrance, Small Panel Windows	ND (<1%)
B13B	White Window Glazing	Main Building, Exterior, West, Main Entrance, Small Panel Windows	ND (<1%)
B14A	White Window Glazing	Gravity Belt Thickener Room, Exterior, East, 16'x16, Fiberglass Window	ND (<1%)
B14B	White Window Glazing	Gravity Belt Thickener Room, Exterior, East, 16'x16, Fiberglass Window	ND (<1%)
B15A	White Sealant	2nd Floor, Filter Press Room, By Roof Access Ladder	ND (<1%)
B15B	White Sealant	2nd Floor, Filter Press Room, By Roof Access Ladder	ND (<1%)
B16A	White Adhesive/Glue	2nd Floor, Filter Press Room, Ceiling Panel Adhesive	ND (<1%)
B16B	White Adhesive/Glue	2nd Floor, Filter Press Room, Ceiling Panel Adhesive	ND (<1%)
B17A	Gray Caulking	Main Building, Stairwell to Basement by Control Room and Electric Room, on Landing-by Column and CMU (Concrete Masonry Unit)	ND (<1%)
B17B	Gray Caulking	Main Building, Stairwell to Basement by Control Room and Electric Room, on Landing-by Column and CMU (Concrete Masonry Unit)	ND (<1%)
B18A	Gray Window Glazing	Gravity Belt Thickener Room, Exterior, East, 16'x16, Fiberglass Window	ND (<1%)
B18B	Gray Window Glazing	Gravity Belt Thickener Room, Exterior, East, 16'x16, Fiberglass Window	ND (<1%)
B19A	White Ceiling Tiles, Pinholes & Fissures	Main Building, Control Room, Ceiling	ND (<1%)
B19B	White Ceiling Tiles, Pinholes & Fissures	Main Building, 1st Floor, Custodian Closet, Ceiling	ND (<1%)
B20A	White Wall-Sound Dampener Spaghetti Board	Main Building, Basement, Blower Room, Wall	ND (<1%)
B20B	White Wall-Sound Dampener Spaghetti Board	Main Building, Basement, Blower Room, Wall	ND (<1%)
B21A	Orange Counter Top, Orange/Brown	Main Building, 1st Floor, Receiving Control Room, Desk	ND (<1%)
B21B	Orange Counter Top, Orange/Brown	Main Building, 1st Floor, Receiving Control Room, Desk	ND (<1%)
B22A	Yellow Mastic	Main Building, 1st Floor, Receiving Control Room, Desk	ND (<1%)
B22B	Yellow Mastic	Main Building, 1st Floor, Receiving Control Room, Desk	ND (<1%)

Table 1: Bulk Sample Summary of Suspect Asbestos-Containing Materials Tri-Town Septage Treatment Facility 29 Overland Road, Orleans, Massachusetts, 02563			
Sample #	**Type of Material**	**Location**	**Asbestos Concentration (%)**
B23A	White Plastic-Like Wall Coating	Disinfection Building, Pump Room, Southwest Wall	ND (<1%)
B23B	White Plastic-Like Wall Coating	Main Building, Filter Press Room, Ceiling	ND (<1%)
B24A	Black Lab Sink	Main Building, 2nd Floor, Press Control Room	ND (<1%)
B24B	Black Lab Sink	Main Building, Laboratory	ND (<1%)
B25A	Gray Covebase Molding	Electrical Room, Hallway	ND (<1%)
B25B	Gray Covebase Molding	Electrical Room, Hallway	ND (<1%)
B26A	Yellow Mastic	Electrical Room, Hallway	ND (<1%)
B26B	Yellow Mastic	Electrical Room, Hallway	ND (<1%)
B27A	Black Covebase Molding	Main Building, Stairwell #2, 1st Floor	ND (<1%)
B27B	Black Covebase Molding	Main Building, Stairwell #2, 1st Floor	ND (<1%)
B28A	Yellow Mastic	Main Building, Stairwell #2 1st Floor	ND (<1%)
B28B	Yellow Mastic	Main Building, Stairwell #2 1st Floor	ND (<1%)
B29A	Tan Covebase Molding	Main Building 1st Floor, Chair Storage Room	ND (<1%)
B29B	Tan Covebase Molding	Main Building 1st Floor, Chair Storage Room	ND (<1%)
B30A	Yellow Mastic	Main Building 1st Floor, Chair Storage Room	ND (<1%)
B30B	Yellow Mastic	Main Building 1st Floor, Chair Storage Room	ND (<1%)
B31A	Red Covebase Molding	Main Building 1st Floor, Receiving Control Room, North Wall	ND (<1%)
B31B	Red Covebase Molding	Main Building 1st Floor, Receiving Control Room, North Wall	ND (<1%)
B32A	Yellow Mastic	Main Building 1st Floor, Receiving Control Room, North Wall	ND (<1%)
B32B	Yellow Mastic	Main Building 1st Floor Receiving Control Room, North Wall	ND (<1%)
B33A	Blue Covebase Molding	Main Building 1st Floor, Lunch Room	ND (<1%)
B33B	Blue Covebase Molding	Main Building, 1st Floor, Lunch Room	ND (<1%)
B34A	Yellow Mastic	Main Building, 1st Floor Lunch Room	ND (<1%)
B34B	Yellow Mastic	Main Building, 1st Floor Lunch Room	ND (<1%)
B35A	Sheetrock	Main Building, First Floor, Receiving Control Room, North Wall	ND (<1%)
B35B	Sheetrock	Chemical Storage Building, Ceiling	ND (<1%)
B36A	Joint Compound	Main Building, 1st Building, Receiving Control Room, North Wall	ND (<1%)
B36B	Joint Compound	Chemical Storage Building, Ceiling	ND (<1%)
B37A	Yellow Carpet Mastic	Main Building, 1st Floor, Chief Operators Room	ND (<1%)
B37B	Yellow Carpet Mastic	Main Building, 1st Floor, Operations Center	ND (<1%)
B38A	Red Ceramic Floor Tile	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B38B	Red Ceramic Floor Tile	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B39A	Gray Floor Tile Grout	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B39B	Gray Floor Tile Grout	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B40A	Gray Floor Tile Underlayment	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B40B	Gray Floor Tile Underlayment	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B41A	White Block Wall (Speckled)	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B41B	White Block Wall (Speckled)	Main Building, Screening/Degritting Room, North Wall	ND (<1%)

Table 1: Bulk Sample Summary of Suspect Asbestos-Containing Materials Tri-Town Septage Treatment Facility 29 Overland Road, Orleans, Massachusetts, 02563			
Sample #	**Type of Material**	**Location**	**Asbestos Concentration (%)**
B42A	Gray Grout	Main Building, 2nd Floor, Filter Press Room	ND (<1%)
B42B	Gray Grout	Main Building, Screening/Degritting Room, North Wall	ND (<1%)
B43A	White Ceramic Floor Tile	Main Building, 1st Floor, Men's Bathroom	ND (<1%)
B43B	White Ceramic Floor Tile	Main Building, 1st Floor, Men's Bathroom	ND (<1%)
B44A	Gray Ceramic Floor Tile Grout	Main Building, 1st Floor, Men's Bathroom	ND (<1%)
B44B	Gray Ceramic Floor Tile Grout	Main Building, 1st Floor, Women's Bathroom	ND (<1%)
B45A	Green Cermaic Floor Tile	Main Building, 1st Floor Women's Bathroom	ND (<1%)
B45B	Green Cermaic Floor Tile	Main Building, 1st Floor Women's Bathroom	ND (<1%)
B46A	Pink Ceramic Floor Tile	Main Building, 1st Floor Women's Bathroom	ND (<1%)
B46B	Pink Ceramic Floor Tile	Main Building, 1st Floor Women's Bathroom	ND (<1%)
B47A	Tan (dirty) 24"x24" Floor Tile	Main Building, Electrical Room Hallway	ND (<1%)
B47B	Tan (dirty) 24"x24" Floor Tile	Main Building, Electrical Room Hallway	ND (<1%)
B48A	Yellow Mastic	Main Building, Electrical Room Hallway	ND (<1%)
B48B	Yellow Mastic	Main Building, Electrical Room Hallway	ND (<1%)
B49A	Brown 12"x12" Speckled Floor Tile	Main Building, Stairwell #2	ND (<1%)
B49B	Brown 12"x12" Speckled Floor Tile	Main Building, First Floor, Stairwell #1	ND (<1%)
B50A	Black Mastic	Main Building, Stairwell #2	ND (<1%)
B50B	Black Mastic	Main Building, First Floor, Stairwell #1	ND (<1%)
B51A	Blue 12"x12" Floor Tile	Main Building, 1st Floor, Lunch Room	ND (<1%)
B51B	Blue 12"x12" Floor Tile	Main Building, 1st Floor, Lunch Room	ND (<1%)
B52A	Black Mastic	Main Building, 1st Floor, Lunch Room	ND (<1%)
B52B	Black Mastic	Main Building, 1st Floor, Lunch Room	ND (<1%)
B53A	Tan, Speckled, 12"x12" Floor Tile	Main Building, Stairwell #2, Hallway	ND (<1%)
B53B	Tan, Speckled, 12"x12" Floor Tile	Main Building, First Floor, Main Hallway	ND (<1%)
B54A	Black Mastic	Main Building, Stairwell #2, Main Hallway	ND (<1%)
B54B	Black Mastic	Main Building, First Floor, Main Hallway	ND (<1%)
B55A	Brown 12"x12" Speckled Floor Tile	Main Building, 1st Floor, Outside Lunch Room	ND (<1%)
B55B	Brown 12"x12" Speckled Floor Tile	Main Building, 1st Floor, Outside Lunch Room	ND (<1%)
B56A	Black Mastic	Main Building, 1st Floor, Outside Lunch Room	ND (<1%)
B56B	Black Mastic	Main Building, 1st Floor, Outside Lunch Room	ND (<1%)
B57A	White Paint-like Pipe Wrap Insulation	Main Building, Basement, Main Open Area, 3rd Elevation	ND (<1%)
B57B	White Paint-like Pipe Wrap Insulation	Main Building, Garage Area, Odor Control Room	ND (<1%)

Notes: ND- Not Detected (<1% Asbestos Fibers)

Table 2: Summary of Lead Concentrations in Paint Chip Samples Tri-Town Septage Treatment Facility 29 Overland Road, Orleans, Massachusetts 02653			
Sample ID	**Material Description / Location**	**% Lead**	**Total Lead Concentration (mg/kg)**
LBP-01A	Gray / Exterior, Main Building, West Side, Siding (Wood)	ND (<0.01)	ND (<100)
LBP-01B	Gray / Exterior, Disinfection Building, East Side, Siding (Wood)	ND (<0.01)	ND (<100)
LBP-02A	Gray / Main Building, Basement, Flooring	ND (<0.01)	ND (<100)
LBP-02B	Gray / Disinfection Building, First Floor, Flooring	ND (<0.01)	ND (<100)
LBP-03A	Brown / Main Building, Electrical Room Door	ND (<0.01)	ND (<100)
LBP-03B	Brown / Main Building, Interior Door	ND (<0.01)	ND (<100)
LBP-04A	Burnt Orange / Main Building, Basement, South End, Column	ND (<0.01)	ND (<100)
LBP-04B	Burnt Orange / Main Building, Basement, North End, Column	ND (<0.01)	ND (<100)
LBP-05A	Tan-Light Brown / Disinfection Building, Pump Room, Pipes	ND (<0.01)	ND (<100)
LBP-05B	Tan-Light Brown / Main Building, Gravity Belt Thickening Room, Equipment & Piping	ND (<0.01)	ND (<100)
LBP-06A	Bright Green / Disinfection Building, Basement, Pipes	ND (<0.01)	ND (<100)
LBP-06B	Bright Green / Main Building, Gravity Belt Thickening Room, Pipes	ND (<0.01)	ND (<100)
LBP-07A	Light Green / Main Building, Basement, Blower Room, Equipment	ND (<0.01)	ND (<100)
LBP-07B	Light Green / Main Building, Basement, Blower Room, Pipes	ND (<0.01)	ND (<100)
LBP-08A	Seafoam Green / Main Building, Outsdie Press Garage, Handrails	ND (<0.01)	ND (<100)
LBP-08B	Seafoam Green / Main Building, Stairwell #2, First Floor, Handrails	ND (<0.01)	ND (<100)
LBP-09A	Light Blue / Disinfection Building, Basement, Pipes	ND (<0.01)	ND (<100)
LBP-09B	Light Blue / Main Building, Odor Control Room, North End, Pipes	ND (<0.01)	ND (<100)
LBP-10A	Red / Disinfection Building, Exterior Door (Metal)	ND (<0.01)	ND (<100)
LBP-10B	Red / Main Building, Gravity Belt Thickening Room, Pipes	ND (<0.01)	ND (<100)
LBP-11A	Light Yellow / Main Building, Basement, Main Open Area, Stairwell #2, Wall	ND (<0.01)	ND (<100)
LBP-11B	Light Yellow / Main Building, Basement, Main Open Area, Stairwell #1, Wall	ND (<0.01)	ND (<100)
LBP-12A	Yellow / Disinfection Building, Pump Room, Pump Ladder (Metal)	ND (<0.01)	ND (<100)
LBP-12B	Yellow / Main Building, Gravity Belt Thickening Room, Pipes	ND (<0.01)	ND (<100)
LBP-12C	Yellow / Main Building, Septage Receiving Building (Garage), Scale Area, Roadway Marker	ND (<0.01)	ND (<100)
LBP-13A	Black / Main Building, Odor Control Room, North End, Pipes	ND (<0.01)	ND (<100)
LBP-13B	Black / Disinfection Building, Basement, Pipes	ND (<0.01)	ND (<100)
LBP-14A	Black / Exterior, Secondary Clarifier #2, West Side (Metal Frame)	ND (<0.01)	ND (<100)
LBP-14B	Black / Main Building, First Floor, Chair Storage	ND (<0.01)	ND (<100)
LBP-15A	White / Disinfection Building, Main Room, Walls	ND (<0.01)	ND (<100)
LBP-15B	White / Main Building, Basement, Main Open Area, Wall by Stairwell #1	**0.015**	**150**
LBP-16A	White / Main Building, Exterior, Northwest Area by Garage, Trim (Wood)	**0.021**	**210**
LBP-16B	White / Disinfection Building, Exterior, West Side, Trim (Wood)	ND (<0.01)	ND (<100)

Notes:

* Lead values were compared to the Housing and Urban Development (HUD) requirement of 0.5 % lead by weight and to the requirements cited in OSHA's Lead in Construction Standard.

Reporting Limit is 0.01% weight, or 100 mg/kg prior to any dilutions due to high analyte concentrations or matrix interferences.

< 0.01 % wt. = concentration reported as non-detection from laboratory where the numerical values is the laboratory reporting limit.

mg/kg - milligrams per kilogram

ND -- Not detected at specified quantitation limit.

Values in Bold indicate the compound was detected.

Table 3: Summary of Other Hazardous/Regulated Items & Equipment Inventory
Tri-Town Septage Treatment Facility
29 Overland Road, Orleans, Massachusetts 02653

Location	Item Description	Estimated Quantity
Disinfection Building	4-foot fluorescent light bulbs	20
	8-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	16
	fire alarm	3
	exit signs	1
	emergency lights	2
	emergency light control box	1
	smoke detector	2
	fire extinguisher	1
	ceiling-mounted heater	1
	dry transformer	1
	wall mounted air-conditioning unit	2
	snowblower	2
	ultra-violet machines	2
	eye wash station	1
Sludge Pumping Room	4-foot fluorescent light bulbs	12
	fluorescent light fixture ballasts	6
	dry transformer	1
	ceiling mounted heaters	1
	"Moyno" pumps	2
	"Scum Line" pumps	5
	fire alarm	1
	fire extinguisher	1
	emergency lights	2
	emergency light control box	1
Chemical Feed Building	4-foot fluorescent light bulbs	16
	fluorescent light fixture ballasts	8
	diesel fuel (5 gallon)	1
	diesel fuel (6 gallon)	1
	55-gallon drum (illegible)	1
	gasoline (5 gallon)	2
	gasoline (3 gallon)	1
	SAE motor oil (1 quart)	2
	2-cycle motor oil (1 quart)	1
	eye wash station	1
	55-gallon drum ("Centaur HSV 4x6")	3
	fiberglass tank (unknown capacity), previously contained hydrochloric acid	1
	55-gallon drum ("Carbtrol")	1
	paint cans (1 gallon)	4
	automotive tires	8
	lawnmowers	2
	weed whackers	2
	ceiling mounted heaters (electrical)	3
	motorcycle frame	1
	hedge trimmer	1
	small man lift	1

Table 3: Summary of Other Hazardous/Regulated Items & Equipment Inventory
Tri-Town Septage Treatment Facility
29 Overland Road, Orleans, Massachusetts 02653

Location	Item Description	Estimated Quantity
Gravity Belt Thickener Room	8-foot fluorescent light bulbs	16
	fluorescent light fixture ballasts	8
	exit signs	1
	fire alarm	1
	fire extinguisher	1
	eye wash station	1
	paint cans (12 ounces)	3
	epoxy resin (32 fluid ounces)	1
	shell flour (2.5 pounds)	1
	anti-freeze (1 gallon)	1
	paint thinner (1 gallon)	1
	propane (14 ounces)	1
	starting fluid (1 ounce)	1
	degreaser (1 pound)	1
	2-cycle fuel (1 quart)	1
	microbacterial soap (17.5 ounces)	1
	thread cutting oil (1/2 pint)	1
	SAE motor oil (1 quart)	5
	anti-freeze (1 gallon)	5
	chainsaw	1
	bench grinder	1
	arc welding generator	1
	drill press	1
	battery charger station	1
	automotive battery	3
	weed whacker	1
	power washer	1
	cathode ray tube television	1
Odor Control Room	8-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	4
	eye wash station	1
	exit signs	1
	55-gallon drum (Sodium Hypochlorite Solution)	2
	55-gallon drum (empty)	2
	1,400 gallon container of Hypochlorite	2
	Blast-Vac (UR-007)	1
	automotive tires	8
Electrical Room, Hallway, & Control Room	fire extinguisher	1
	exit signs	2
	fire alarm	1
	smoke detector	2
	dry transformer	2
	8-foot fluorescent light bulbs (loose)	16
	8-foot fluorescent light bulbs (mounted)	2
	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	4
Roof	none	none
Attic	compact fluorescent light bulbs	2

Table 3: Summary of Other Hazardous/Regulated Items & Equipment Inventory
Tri-Town Septage Treatment Facility
29 Overland Road, Orleans, Massachusetts 02653

Location	Item Description	Estimated Quantity
Basement - Blower Room, Adjacent Room (no label), & Stairwell	blower machines	6
	8-foot fluorescent light bulbs	16
	4-foot fluorescent light bulbs	4
	fluorescent light fixture ballasts	10
	fire alarm	2
	exit sign	2
	extra heavy circulating oil (1 gallon)	1
	fire extinguisher	1
	wall-mounted heater	1
Basement - Main Open Arewa (Elevator, Stair #1, Stair #2, & Compressor Room)	eye wash station	5
	8-foot fluorescent light bulbs	8
	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	7
	emergency lights	8
	emergency light control box	2
	Mercury Vapor Bulbs (unconfirmed)	30
	fire extinguisher	3
	fire alarm	5
	exit sign	4
	unknown capactiy container (ferric chloride)	1
Septage Receiving Building (Garage), Odor Control Room, and Screening/Degretting Room	fire extinguisher	1
	exit sign	1
	fire alarm	1
	eye wash station	1
	ceiling-mounted heater	2
	Mercury Vapor Bulbs (unconfirmed)	9
	compact fluorescent light bulbs	10
	weight scale for vehicles	1
	fluorescent light fixture ballasts	3
	emergency lights	4
	exit sign	3
	55-gallon drum ("Centaur HSV 4x6")	1
	High Calcium Hydrated Lime Bags (50 lbs)	13
	Mortar Bags	3
	ceiling-mounted heater	1
	smoke alarm	2
Filter Press Room, Press Control Room, Machine Room, Hallway, & Stairwells	4-foot fluorescent light bulbs	22
	fluorescent light fixture ballasts	11
	exit sign	3
	emergency lights	5
	fire alarm	3
	fire extinguisher	1
	Mercury Vapor Bulbs (unconfirmed)	16
	eye wash station	1
	filter press machines (large)	2
	55-gallon drum (Sodium Hypochlorite Solution)	1
	hydraulic oil (5 gallon)	7
	"shell oil - S2 G 320" (5 gallon)	4
	smoke detector	2
	used equipment motors	10

Table 3: Summary of Other Hazardous/Regulated Items & Equipment Inventory
Tri-Town Septage Treatment Facility
29 Overland Road, Orleans, Massachusetts 02653

Location	Item Description	Estimated Quantity
Blower Room	4-foot fluorescent light bulbs	12
	fluorescent light fixture ballasts	6
	emergency lights	1
	fire alarm	1
	ceiling-mounted heater	1
	cathode ray tube televisions/monitors	8
HVAC Equipment Room	4-foot fluorescent light bulbs	26
	fluorescent light fixture ballasts	13
	fire extinguisher	1
	fire alarm	1
	emergency lights	2
	emergency light control box	1
	Grainger Equipment Oil	4
	hot water heater tank	1
	ceiling-mounted heater	1
Attic (Storage by HVAC Equipment Room)	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	3
	compact fluorescent light bulbs (round)	8
	cathode ray tube televisions/monitors	3
Garage (At North End of Building, Below the Filter Press Room) & Stairwell	55-gallon drum (motor oil)	6
	automotive battery	3
	gear oil (1 quart)	4
	spray paint (16 fluid ounces)	1
	power steering fluid (12 fluid ounces)	1
	anti-freeze (1 gallon)	2
	windshield washer fluid (1 gallon)	3
	propane (small)	1
	"DTE" extra heavy oil (1 gallon)	3
	15w-40 oil (5 gallon)	2
	ceiling-mounted heater	5
	compact fluorescent light bulbs	6
	winch system	1
	eye wash station	1
	fire alarm	2
	fire extinguisher	1
	emergency lights	3
	exit sign	2
Receiving Control Room	exit sign	1
	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	3
Mechanical Storage	plumbers putty (14 ounces)	1
	PVC cement (32 fluid ounces)	1
	paint cans (1 gallon)	6
Custodial Closet	bleach (1 gallon)	5
	"Resolve" carpet cleaner (32 fluid ounces)	1
	floor cleaner (1 gallon)	3
Electric Room (by Men's Bathroom)	4-foot fluorescent light bulbs	6
	fluorescent light fixture ballasts	3
Chief Operator's Office	4-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	4
	air-conditioning unit (window)	1

Table 3: Summary of Other Hazardous/Regulated Items & Equipment Inventory
Tri-Town Septage Treatment Facility
29 Overland Road, Orleans, Massachusetts 02653

Location	Item Description	Estimated Quantity
Administrator's Office	4-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	4
Entry Way	2-foot fluorescent light bulbs	4
	fluorescent light fixture ballasts	2
	compact fluorescent light bulbs	7
	exit sign	1
	emergency lights	2
	fire alarms	2
Meeting Room	4-foot fluorescent light bulbs	20
	fluorescent light fixture ballasts	10
	compact fluorescent light bulbs	5
	compact fluorescent light bulbs (round)	1
Break Room	4-foot fluorescent light bulbs	8
	fluorescent light fixture ballasts	4
	exit sign	1
	emergency lights	1
	emergency light control box	1
	fire extinguisher	1
Laboratory & Hallway	4-foot fluorescent light bulbs	30
	fluorescent light fixture ballasts	10
	exit sign	3
	fire alarm	4
	fire extinguisher	2
	Muriatic Acid (1 gallon)	1
	emergency lights	1
	eye wash station	1
	shower station	2
	refridgerator	2
Exterior	motion sensing lights	14
	compact fluorescent light bulbs	3

AECOM

ATTACHMENT A

PHOTO LOG REPORT

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1495	7/28/16

Direction Photo Taken:

East

Description:

Main Building Entrance

Photo No.	Date:
1496	7/28/16

Direction Photo Taken:

Southwest

Description:

Disinfection Building, Main Entrance

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1791	7/28/16

Direction Photo Taken:

North

Description:

Storage Area

Photo No.	Date:
1795	7/28/16

Direction Photo Taken:

Northeast

Description:

Storage Area

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1592	7/28/16

Direction Photo Taken:

Southwest

Description:

Chemical Feed Building Exterior

Photo No.	Date:
1646	7/28/16

Direction Photo Taken:

Southeast

Description:

Main Building, Roof, Showing the Intersection of the Rolled Roofing Section & the Shingled Area

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1756	7/28/16

Direction Photo Taken:

East

Description:

Main Building, Laboratory

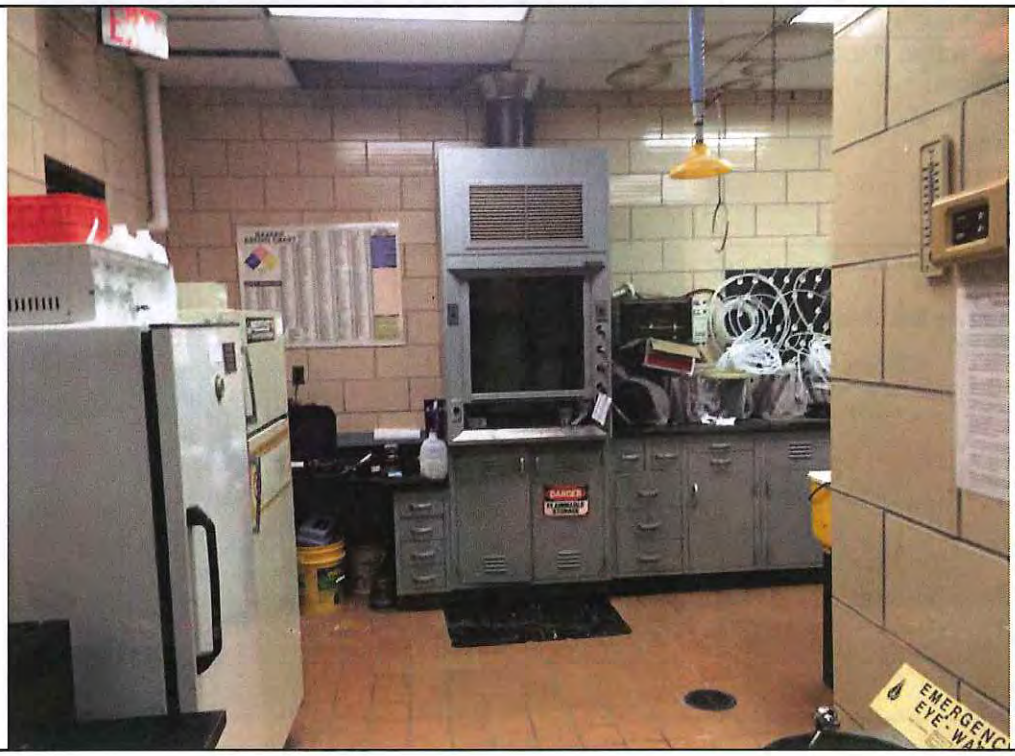
Photo No.	Date:
1757	7/28/16

Direction Photo Taken:

West

Description:

Main Building, Laboratory



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
0487	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Basement, Blower Room, Machines

Light Green Paint

Photo No.	Date:
1598	7/28/16

Direction Photo Taken:

East

Description:

Gravity Belt Thickening Room

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1577	7/28/16

Direction Photo Taken:

East

Description:

Chemical Feed Building, 55-Gallon Drums of Centaur HSV 4x6

Photo No.	Date:
1535-1536	7/28/16

Direction Photo Taken:

North

Description:

Disinfection Building, 55 Gallon Drums, Praestol K2005A

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
0473	7/28/16

Direction Photo Taken:

South

Description:

Main Building, Exterior, Roof

Black Rubber Roofing & Yellow Mastic

Photo No.	Date:
0475	7/28/16

Direction Photo Taken:

South

Description:

Main Building, Exterior, Roof, North End, Intersection of Rolled Roofing and Shingle Area

Light Gray Sealant

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
0482	7/28/16

Direction Photo Taken:

South

Description:

Main Building, Exterior, Roof, Rolled Roofing Section

Sealant on Metal Vents

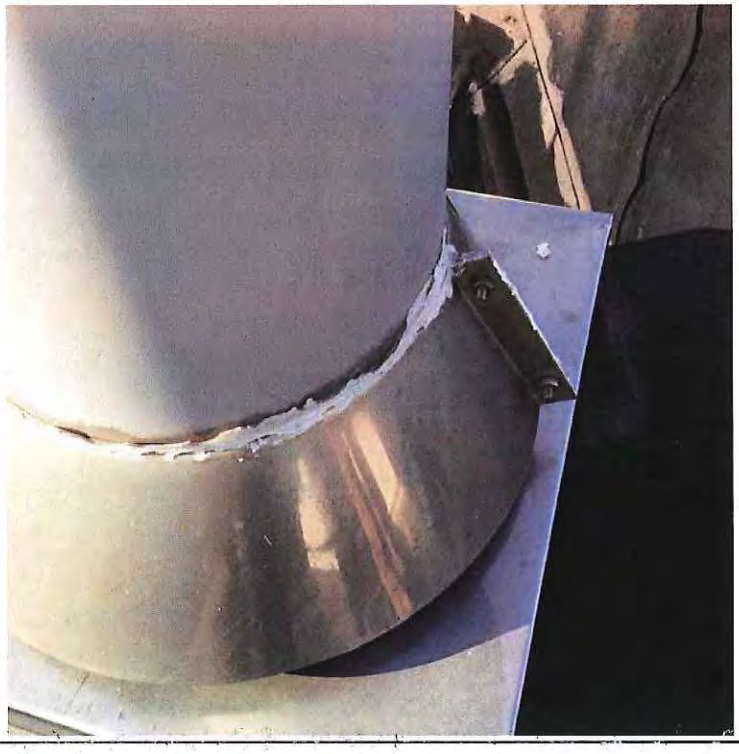


Photo No.	Date:
1520	7/28/16

Direction Photo Taken:

West

Description:

Disinfection Building, Exterior, Wooden Clapboard Siding

Gray Paint

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
0495	7/28/16

Direction Photo Taken:

West

Description:

Main Building, Filter Press Room

Red Ceramic Floor Tile, Gray Floor Tile Grout, and Gray Floor Tile Underlayment

Photo No.	Date:
0498	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Filter Press Room

White Block Wall (Speckled) and Gray Grout

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
0502	7/28/16

Direction Photo Taken:

East

Description:

Main Building, Handrail Outside of Garage

Sea-foam Green Paint

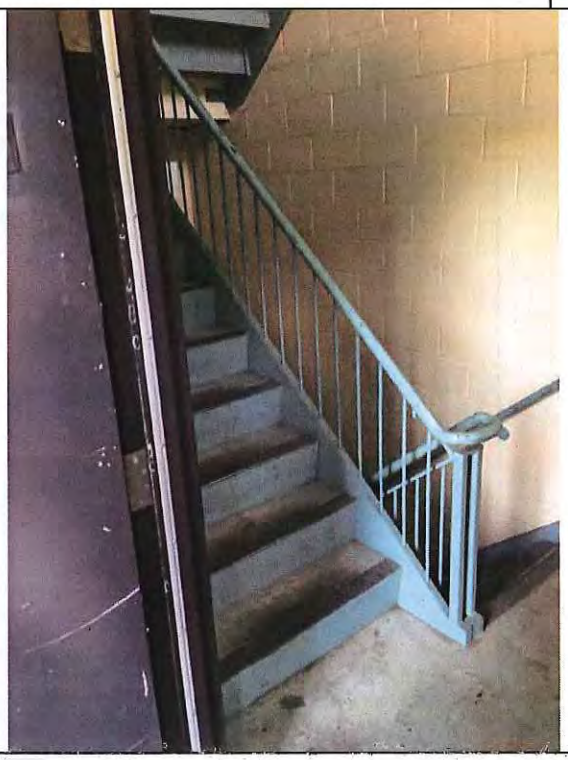


Photo No.	Date:
0504	7/28/16

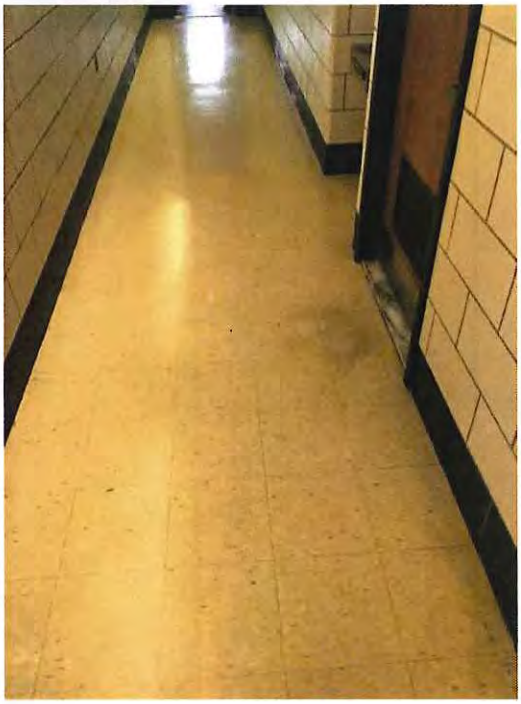
Direction Photo Taken:

West

Description:

Main Building, 1st Floor, Hallway

Tan Tile and Associated Yellow Mastic



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
0507	7/28/16

Direction Photo Taken:

West

Description:

Main Building, 1st Floor, Chief Operating Room

Yellow Carpet Mastic

Photo No.	Date:
0512	7/28/16

Direction Photo Taken:

South

Description:

Main Building, 1st Floor, Lunch room

Blue Cove Base Molding, Blue 12"x12" Floor Tile, and Associated Yellow Mastic

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1507	7/28/16

Direction Photo Taken:

Northwest

Description:

Disinfection Building, Main Room, Walls

White Paint

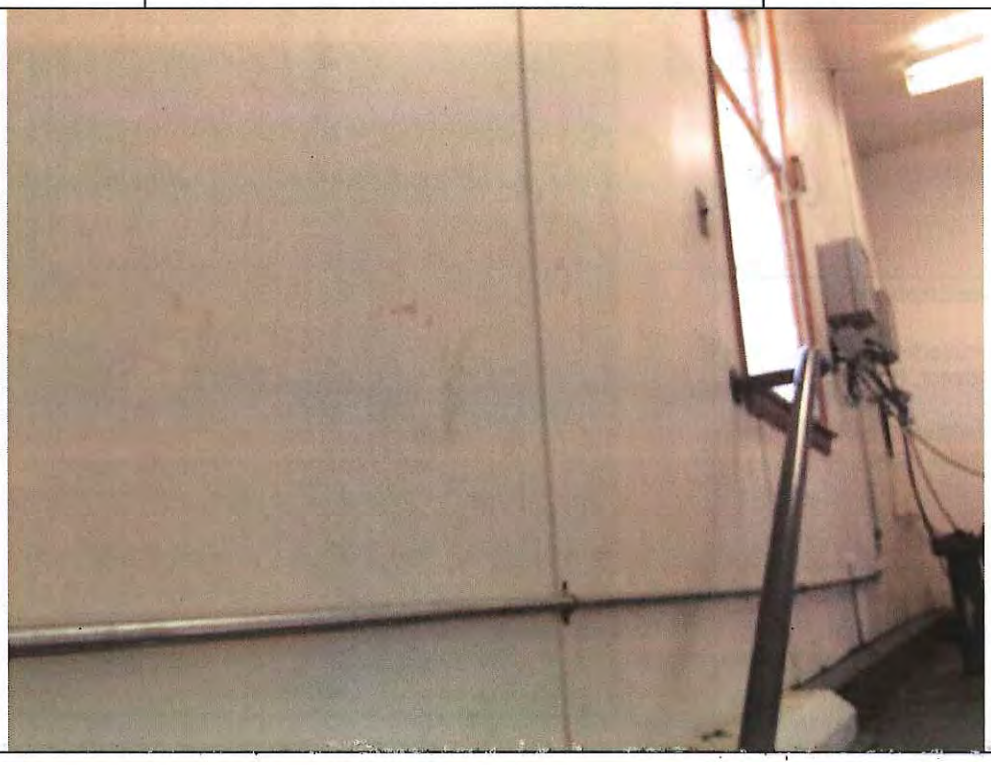


Photo No.	Date:
1509	7/28/16

Direction Photo Taken:

North

Description:

Disinfection Building, Main Room, Floor

Gray Paint

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1562	7/28/16

Direction Photo Taken:

West

Description:

Disinfection Building, Exterior, Roof

Shingles and Black Vapor Barrier Paper

Photo No.	Date:
1580	7/28/16

Direction Photo Taken:

South

Description:

Chemical Feed Building, Hydrochloric Acid Storage Tank (Presumed Empty)

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1613	7/28/16

Direction Photo Taken:

Northeast

Description:

Main Building, Odor Control room, & Sodium Hypochlorite Solution, 55-Gallon Drums

Photo No.	Date:
1617	7/28/16

Direction Photo Taken:

North

Description:

Sodium Hypochlorite Solution, 55-Gallon Drum Label

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1676	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Basement, Ferric Chloride Storage Tank

Photo No.	Date:
1727	7/28/16

Direction Photo Taken:

South

Description:

Main Building, Garage, 55-Gallon Drums of Motor Oil

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1762	7/28/16

Direction Photo Taken:

North

Description:

Main Building, 1st floor, Receiving Control Room

Sheetrock, Joint Compound, Red Covebase Molding & Associated Mastic

Photo No.	Date:
1764	7/28/16

Direction Photo Taken:

East

Description:

Main Building, 1st Floor, Receiving Control Room

Orange Countertop & Yellow Mastic

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
0485	7/28/16

Direction Photo Taken:

South

Description:

Main Building, Exterior, Roof

Black Asphalt Grip- Mats

Photo No.	Date:
1677	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Basement, floor paint, gray

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1766	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Laboratory, List of Hazardous Waste Chemicals

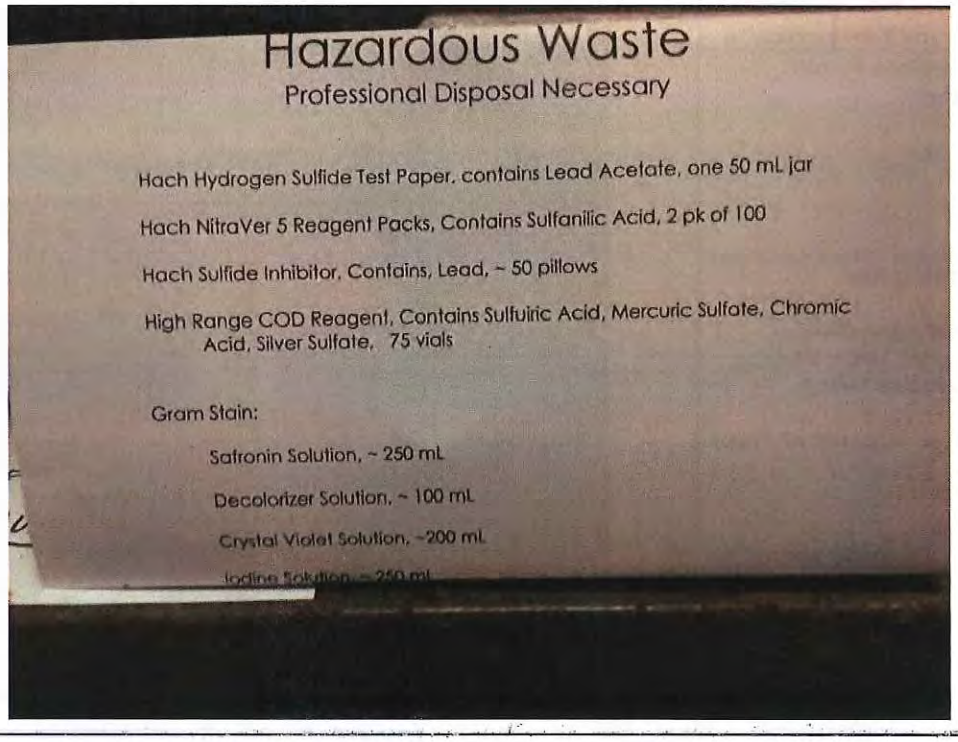


Photo No.	Date:
1767	7/28/16

Direction Photo Taken:

North

Description:

Main Building, Laboratory, List of Hazardous Waste Chemicals

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1523	7/28/16

Direction Photo Taken:

South

Description:

Disinfection Building, Exterior, Under Wooden Clapboard Siding

White Vapor Barrier Paper

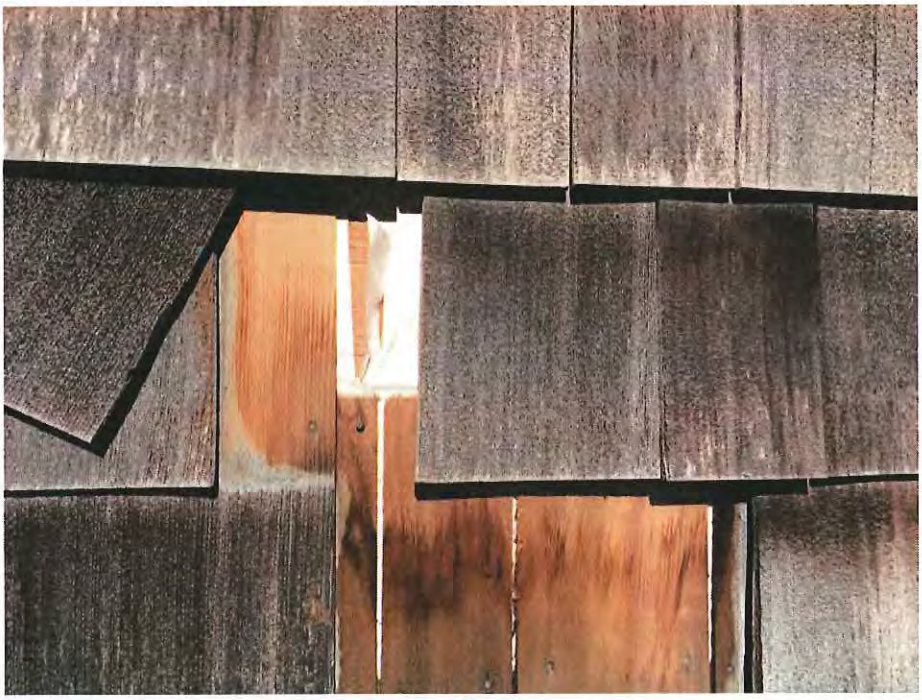


Photo No.	Date:
1542	7/28/16

Direction Photo Taken:

Northwest

Description:

Disinfection Building, exterior, southeast corner, under wood,

Black Vapor Barrier Paper

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1532	7/28/16

Direction Photo Taken:

South

Description:

Disinfection Building, "GE, NEMA CLASS AA DRY TYPE TRANSFORMER," Label

Photo No.	Date:
1540	7/28/16

Direction Photo Taken:

West

Description:

Disinfection Building, Main Room, Ultra Violet Machines

AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1559	7/28/16

Direction Photo Taken:

North

Description:

Sludge Pumping Station, MOYNO Pumps

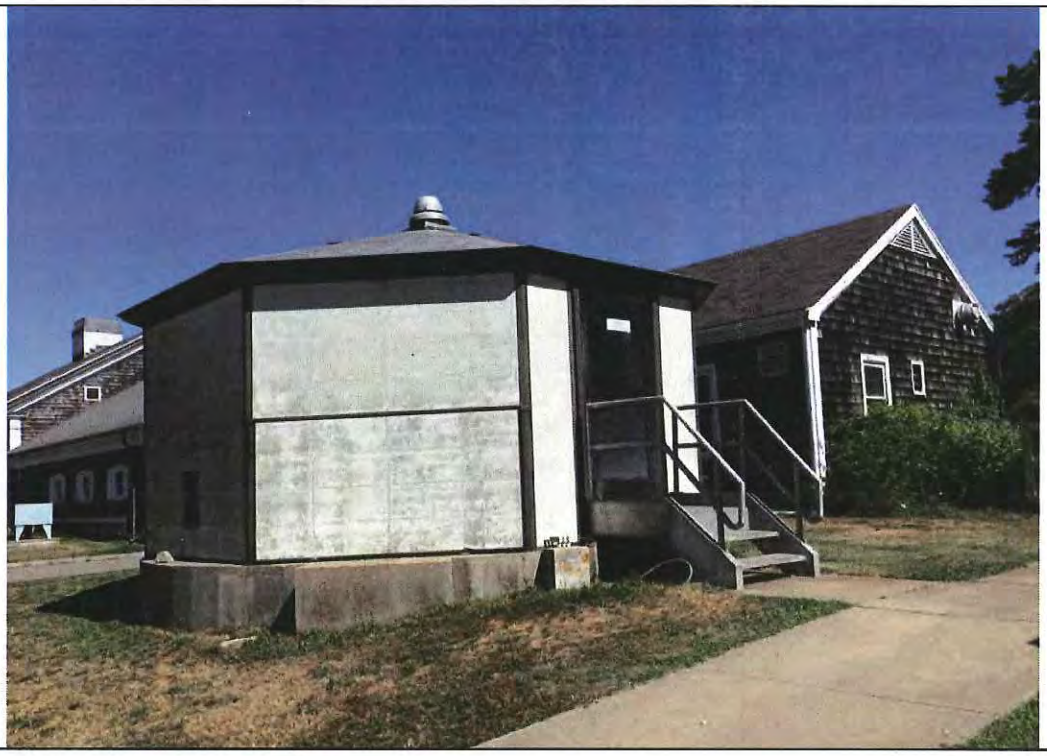
Photo No.	Date:
1563	7/28/16

Direction Photo Taken:

Northeast

Description:

Primary Tank Number 1



AECOM

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tri-town Septage Treatment Facility	29 Overland Road, Orleans, MA 02653	60508473

Photo No.	Date:
1730	7/28/16

Direction Photo Taken:

South

Description:

Garage, Showing 55-Gallon Drum Storage Area

Photo No.	Date:
1738	7/28/16

Direction Photo Taken:

South

Description:

Elevator Failure Notice

AECOM

ATTACHMENT B

ASBESTOS INSPECTOR & LABORATORY ACCREDITATIONS

Certificate No: **A045085**

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
19 STANIFORD STREET, BOSTON, MASSACHUSETTS 02114

CERTIFICATION FOR ASBESTOS ANALYTICAL SERVICES

OPTIMUM ANALYTICAL AND CONSULTING, LLC
85 STILES ROAD
SUITE 201
SALEM NH 03079

LICENSE: **AA000175** EXPIRES: **Friday, January 20, 2017**

IN ACCORDANCE WITH MGL CH. 149 § 6B AND 453 CMR 6.08 THIS CERTIFICATE IS ISSUED BY THE DEPARTMENT OF LABOR STANDARDS TO THE ABOVE NAMED ENTITIY TO PROVIDE THE ASBESTOS ANALYTICAL SERVICES SPECIFICALLY LISTED BELOW.

CLASS A CERTIFICATE
CLASS C CERTIFICATE

William D. McKinney

WILLIAM D. MCKINNEY, DIRECTOR

Mailing Address:

OPTIMUM ANALYTICAL AND CONSULTING, LLC
85 STILES ROAD
SUITE 201
SALEM, NH 03079

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Optimum Analytical & Consulting LLC
85 Stiles Road
Suite 201
Salem, NH 03079
Ms. Jamie L. Noel
Phone: 603-706-0263
Email: jamie.noel@optimumanalytical.com
http://www.optimumanalytical.com

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101433-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

David F. Alderman
For the National Voluntary Laboratory Accreditation Program

Effective 2016-04-01 through 2017-03-31

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101433-0

Optimum Analytical & Consulting LLC

Salem, NH

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2016-04-01 through 2017-03-31
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

David F. Alderman
For the National Voluntary Laboratory Accreditation Program

AIHA
Laboratory Accreditation Programs, LLC

December 23, 2015

Laboratory ID: 100087

Jamie Noel
Optimum Analytical and Consulting LLC
85 Stiles Road Suite 201
Salem, NH 03079

Dear Jamie Noel:

Congratulations! The AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC's Analytical Accreditation Board (AAB) has approved Optimum Analytical and Consulting LLC as an accredited Industrial Hygiene laboratory.

Accreditation documentation includes the IHLAP accreditation certificate, scope of accreditation document and a copy of the current AIHA-LAP, LLC license agreement (if your completed agreement is not on file at AIHA-LAP, LLC). The accreditation symbol has been designed for use by all AIHA-LAP, LLC accredited laboratories. If your laboratory chooses to use the symbol in its advertising the laboratory's accreditation, you must complete and return the AIHA-LAP, LLC license agreement to a Laboratory Accreditation Specialist. Once submitted, an electronic copy of the accreditation symbol will be sent to you. Please inform us if your laboratory does not wish to use the symbol in advertising.

Laboratory accreditation shall be maintained by continued compliance with IHLAP requirements *(see Policy Modules 2B and 6),* which includes proficient participation in AIHA-LAP, LLC approved proficiency testing, demonstration of competency, or round robin program as indicated on the AIHA-LAP "Approved PT and Round Robin" webpage, its associated Scope/PT table, and as required in Policy Module 6, for all Fields of Testing (FoTs) for which the laboratory is accredited. An accredited laboratory that wishes to expand into a new FoT must submit an updated accreditation application to AIHA-LAP, LLC for review by the AAB.

Any changes in ownership, laboratory location, personnel, FoTs/Methods, or significant procedural changes shall be reported to AIHA-LAP, LLC in writing within twenty (20) business days of the change.

The accreditation certificate is the property of AIHA-LAP, LLC and must be returned to us should your laboratory withdraw or be removed from the IHLAP.

Again, congratulations. If you have any questions, please contact Lauren Schnack, Laboratory Accreditation Specialist, at (703) 846-0716.

Sincerely,

Cheryl O. Morton

Cheryl O. Morton
Managing Director
AIHA Laboratory Accreditation Programs, LLC

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Optimum Analytical and Consulting LLC

85 Stiles Road Suite 201, Salem, NH 03079

Laboratory ID: 100087

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: 10/01/2017
☐	**ENVIRONMENTAL LEAD**	Accreditation Expires:
☐	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires:
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Gerald R Schultz

Gerald Schultz, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 14: 03/26/2014

Date Issued: 12/23/2015

AIHA

Laboratory Accreditation Programs, LLC

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

Optimum Analytical and Consulting LLC
85 Stiles Road Suite 201, Salem, NH 03079

Laboratory ID: **100087**
Issue Date: 12/23/2015

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 01/01/1990

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte *(for internal methods only)*
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

AmeriSci Los Angeles

24416 South Main Street Suite 308

Carson, CA 90745

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2322**

Expiration Date: **09/30/2016**

Effective Date: **10/01/2014**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

AmeriSci Los Angeles

24416 South Main Street Suite 308
Carson, CA 90745
Phone: (310) 834-4868

Certificate No.: 2322
Renew Date: 9/30/2016

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.030	001	Mercury	SM3112B
103.040	002	Antimony	SM3113B
103.040	003	Arsenic	SM3113B
103.040	010	Lead	SM3113B
103.040	013	Selenium	SM3113B
103.060	001	Aluminum	SM3120B
103.060	007	Chromium	SM3120B
103.060	008	Copper	SM3120B
103.060	009	Iron	SM3120B
103.060	011	Manganese	SM3120B
103.060	015	Silver	SM3120B
103.060	017	Zinc	SM3120B
103.130	001	Aluminum	EPA 200.7
103.130	007	Chromium	EPA 200.7
103.130	008	Copper	EPA 200.7
103.130	009	Iron	EPA 200.7
103.130	011	Manganese	EPA 200.7
103.130	012	Nickel	EPA 200.7
103.130	015	Silver	EPA 200.7
103.130	017	Zinc	EPA 200.7
103.130	018	Boron	EPA 200.7
103.150	002	Antimony	EPA 200.9
103.150	003	Arsenic	EPA 200.9
103.150	009	Lead	EPA 200.9
103.150	012	Selenium	EPA 200.9
103.150	014	Thallium	EPA 200.9
103.160	001	Mercury	EPA 245.1
103.300	001	Asbestos	EPA 100.1
103.301	001	Asbestos	EPA 100.2

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.112	001	Boron	EPA 200.7
108.447	001	Boron	SM3120B-1999
108.490	001	Hydrogen Ion (pH)	SM4500-H+ B-2000

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7

As of 2/25/2015 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.190	001	Mercury	EPA 245.1
109.430	001	Aluminum	SM3120B-1999
109.430	002	Antimony	SM3120B-1999
109.430	003	Arsenic	SM3120B-1999
109.430	004	Barium	SM3120B-1999
109.430	005	Beryllium	SM3125B-2009
109.430	007	Cadmium	SM3120B-1999
109.430	009	Chromium	SM3120B-1999
109.430	010	Cobalt	SM3120B-1999
109.430	011	Copper	SM3125B-2009
109.430	012	Iron	SM3120B-1999
109.430	013	Lead	SM3120B-1999
109.430	015	Manganese	SM3120B-1999
109.430	016	Molybdenum	SM3120B-1999
109.430	017	Nickel	SM3120B-1999
109.430	019	Selenium	SM3120B-1999
109.430	021	Silver	SM3120B-1999
109.430	023	Thallium	SM3120B-1999
109.430	024	Vanadium	SM3120B-1999
109.430	025	Zinc	SM3120B-1999
109.809	002	Chromium (VI)	SM3500-Cr B (20th)

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010B
114.010	002	Arsenic	EPA 6010B
114.010	003	Barium	EPA 6010B
114.010	004	Beryllium	EPA 6010B
114.010	005	Cadmium	EPA 6010B
114.010	006	Chromium	EPA 6010B
114.010	007	Cobalt	EPA 6010B
114.010	008	Copper	EPA 6010B
114.010	009	Lead	EPA 6010B

114.010	010	Molybdenum	EPA 6010B
114.010	011	Nickel	EPA 6010B
114.010	012	Selenium	EPA 6010B
114.010	013	Silver	EPA 6010B
114.010	014	Thallium	EPA 6010B
114.010	015	Vanadium	EPA 6010B
114.010	016	Zinc	EPA 6010B
114.130	001	Lead	EPA 7420
114.140	001	Mercury	EPA 7470A
114.141	001	Mercury	EPA 7471A
Field of Testing: 115 - Extraction Test of Hazardous Waste			
115.021	001	TCLP Inorganics	EPA 1311
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312
Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020

Commonwealth of Massachusetts
Department of Labor Standards
William D. McKinney, Director
Asbestos Inspector

PATRICK GUGLIELMO

Eff. Date 05/25/16
Exp. Date 05/24/17
AI900498
Member of C.O.N.E.S
HV-R HV-10/14/16

17

State of Maine
Asbestos Abatement Program

Patrick L. Guglielmo

Inspector

Cert No. AI-0687
Trn.Exp.Date 10/14/2016

Expiration Date 10/31/2016

This is not a legal form of official identification

VERMONT DEPARTMENT OF HEALTH

Asbestos & Lead Regulatory Program

Asbestos Site Inspector

Not a Legal Form of ID

PATRICK GUGLIELMO

Eff. Date 12/15/15
Exp. Date 12/15/16

Renewal

CONES

AI107206

VT

Rhode Island Department of Health

Asbestos Program

Asbestos Inspector

PATRICK GUGLIELMO

Exp. Date: 03/02/2017
License #: AAC-0945
Member of C.O.N.E.S.

This is to certify that

Patrick Guglielmo

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

October 14, 2015
Course Dates

15-0421-106-253700
Certificate Number

October 14, 2015
Examination Date

October 14, 2016
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

This is to certify that

Patrick Guglielmo

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location

Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

October 24, 2014
Course Dates

14-9109-106-253700
Certificate Number

October 24, 2014
Examination Date

October 24, 2015
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

This is to certify that

Patrick Guglielmo

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

October 25, 2013
Course Dates

13-8444-106-253700
Certificate Number

October 25, 2013
Examination Date

October 25, 2014
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

This is to certify that

Patrick Guglielmo

has completed the requisite training, and has passed an examination for accreditation as:

Asbestos Inspector

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

September 19-21, 2012
Course Dates

12-7562-102-253700
Certificate Number

September 21, 2012
Examination Date

September 21, 2013
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

State of Rhode Island and Providence Plantations
DEPARTMENT OF HEALTH
HEALTHY ENVIRONMENT TEAM – ASBESTOS PROGRAM
CERTIFICATION

Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the General Laws entitled "Health and Safety" as amended, and the Rules and Regulations for Asbestos Control, this Certificate is hereby issued as designated below. This Certificate is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in effect and to any conditions specified below.

Certificate Holder: PATRICK GUGLIELMO
Address: AECOM
1155 ELM ST STE 401
MANCHESTER NH 03101

Certification Number: AAC-0945
Type of Certification: Asbestos Inspector
Expiration Date: 03/02/2017

Except as specifically provided otherwise in this Certificate, Certificate holders shall conduct their program in accordance with statements, procedures and representations contained in the documents, including any enclosures, listed below. The Rhode Island Rules and Regulations for Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and correspondence are more restrictive than the regulations.

Raquel Barrera

Raquel Barrera
Sr. Community Program Liaison Worker
Healthy Homes and Environment

AECOM

ATTACHMENT C

LABORATORY ANALYTICAL REPORT – PLM

OPTIMUM
Analytical and Consulting, LLC

85 Stiles Road, Suite 201
Salem, NH 03079
603-458-5247

James Petras
AECOM
250 Apollo Drive
Chelmsford MA 01824

Project Reference:	60508473
Laboratory Batch #:	1617163
Date Samples Received:	08/02/2016
Date Samples Analyzed:	08/08/2016
Date of Final Report:	08/09/2016

SAMPLE IDENTIFICATION:

One Hundred Fourteen (114) samples from Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653 project were submitted by Patrick Guglielmo on 2016/08/02

This bulk sample(s) was delivered to Optimum Analytical Consulting, LLC (Optimum) located in Salem, New Hampshire for asbestos content determination.

ANALYTICAL METHOD:

Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020, EPA-600/ R-93-116). This report relates only to those samples analyzed, and may not be indicative of other similar appearing materials existing at this, or other sites. Quantification of asbestos content was determined by Calibrated Visual Estimation. Optimum is not responsible for sample collection activities or analytical method limitations. The laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

In any given material, fibers with a small diameter (<0.25mm) may not be detected by the PLM method. Floor tile and other resinously bound material may yield a false negative if the asbestos fibers are too small to be resolved using PLM. Additional analytical methods may be required. Optimum recommends using Transmission Electron Microscopy (TEM) for a more definitive analysis.

Optimum will retain all samples for a minimum of three months. Further analysis or return of samples must be requested within this three month period to guarantee their availability. This report may not be reproduced except in full, without the written approval of Optimum Analytical and Consulting, LLC.

Use of the NVLAP and AIHA Logo in no way constitutes or implies product certification, approval, or endorsement by the National Institute of Standards and Technology or the American Industrial Hygiene Association.

Detection Limit <1%, Reporting Limits: CVES = 1%, 400 Point Count = .25%, 1000 Point Count = 0.1%; Present or Absent are observations made during a qualitative analysis.

This report is considered preliminary until signed by both the Laboratory Analyst and Laboratory Director or Supervisor. If you have any questions regarding this report, please do not hesitate to contact us.

Jamie L. Noel
Laboratory Director

Kristina Scaviola
Laboratory Supervisor

NVLAP Lab ID#: 101433-0

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-001	MB, Exterior, Roof, North End, Shingle Side-Top Layer					
B01A	Black & Red Speckled Shingles,	LAYER 1 100%	None Detected		Cellulose Fiber Fibrous Glass Binder/Filler	1% 55% 44%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-002	DB, Exterior, Roof, West Side-Top Layer					
B01B	Black & Red Speckled Shingles,	LAYER 1 100%	None Detected		Cellulose Fiber Fibrous Glass Binder/Filler	1% 55% 44%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-003	MB, Exterior, Roof, North End, Shingle Side-Bottom Layer					
B02A	Black Vapor Barrier Paper,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	80% 20%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-004	DB, Exterior, Roof, West Side-Bottom Layer					
B02B	Black Vapor Barrier Paper,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	80% 20%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-005	MB, Exterior, Roof, North End, RR Side					
B03A	Black Rubber Roofing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-006	MB, Exterior, Roof, South End, RR Side					
B03B	Black Rubber Roofing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-007	MB, Exterior, Roof, North End, RR Side					
B04A	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	3% 97%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-008	MB, Exterior, Roof, South End, RR Side					
B04B	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	3% 97%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-009	MB, Exterior, Roof, South End, RR Side					
B05A	Black Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-010	MB, Exterior, Roof, North End, RR Side					
B05B	Black Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-011	MB, Exterior, Roof, North End, RR Side					
B06A	Asphalt-Like Grip/Matting,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-012	MB, Exterior, Roof, South End, RR Side					
B06B	Asphalt-Like Grip/Matting,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-013	DB, Exterior, South, Under Wood Clapboard Siding					
B07A	White Vapor Barrier Paper,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	95% 5%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-014	MB, Exterior, Northwest Corner by Garage, Under Clapboard Siding					
B07B	White Vapor Barrier Paper,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	95% 5%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-015	DB, Exterior, Southeast, Under Wood Clapboard Siding at Corner Trim					
B08A	Black Vapor Barrier Paper,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	85% 15%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-016	DB, Exterior, Southeast, Under Wood Clapboard Siding at Corner Trim					
B08B	Black Vapor Barrier Paper,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	85% 15%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-017	MB, Exterior, Roof, South, Intersection of RR Side and Shingle Side					
B09A	Light Gray Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-018	MB, Exterior, Roof, South, RR Side, on Vents					
B09B	Light Gray Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-019	Secondary Clarifier, Exterior, North, Sealent by Door					
B10A	Dark Gray Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-020	Secondary Clarifier, Exterior, North, Sealent by Door					
B10B	Dark Gray Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-021	Secondary Clarifier #1, Exterior, South, at Fiberglass Window and Metal Fra					
B11A	Light Gray Glazing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-022	Primary Tank #1, Exterior, West, at Fiberglass Window and Metal Frame					
B11B	Light Gray Glazing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-023	Primary Tank #1, Exterior, West, Around Vent					
B12A	Clear Caulking, Clear	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-024	Primary Tank #2, Exterior, East, Around Vent					
B12B	Clear Caulking, Clear	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-025	MB, Exterior, West, Main Entrance, Small Panel Windows					
B13A	White Window Glazing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-026	MB, Exterior, West, Main Entrance, Small Panel Windows					
B13B	White Window Glazing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-027	GBTR, Exterior, East, 16'x16', Fiberglass Window					
B14A	White Window Caulking,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-028	GBTR, Exterior, East, 16'x16', Fiberglass Window					
B14B	White Window Caulking,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-029	2nd Floor, Filter Press Room, By Roof Access Ladder					
B15A	White Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-030	2nd Floor, Filter Press Room, By Roof Access Ladder					
B15B	White Sealant,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-031	2nd Floor, Filter Press Room, Ceiling Panel Adhesive					
B16A	White Adhesive/Glue,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-032	2nd Floor, Filter Press Room, Ceiling Panel Adhesive					
B16B	White Adhesive/Glue,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-033	MB, Stairwell to Basement by CR and ER, on Landing-by Column and CMV					
B17A	Gray Caulking,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-034	MB, Stairwell to Basement by CR and ER, on Landing-by Column and CMV					
B17B	Gray Caulking,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-035	GBTR, Exterior, East, 16'x16', Fiberglass Window					
B18A	Gray Window Glazing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-036	GBTR, Exterior, East, 16'x16', Fiberglass Window					
B18B	Gray Window Glazing,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-037	CR, Ceiling					
B19A	White Ceiling Tiles Pinholes & Fissure, Gray	LAYER 1 100%	None Detected		Cellulose Fiber Fibrous Glass Mineral Wool Binder/Filler	65% 10% 5% 20%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-038	MB, 1st Floor, Custodian Closet, Ceiling					
B19B	White Ceiling Tiles Pinholes & Fissure, Gray	LAYER 1 100%	None Detected		Cellulose Fiber Fibrous Glass Mineral Wool Binder/Filler	65% 10% 5% 20%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-039	MB, B-BR, on Wall-Sound Dampener					
B20A	Spaghetti Board, White/Tan	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	75% 25%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-040	MB, B-BR, on Wall-Sound Dampener					
B20B	Spaghetti Board, White/Tan	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	75% 25%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-041	1st Floor, Receiving Control Room, Desk					
B21A	Orange Counter Top, Orange/Brown	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	80% 20%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-042	1st Floor, Receiving Control Room, Desk					
B21B	Orange Counter Top, Orange/Brown	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	80% 20%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-043	1st Floor, Receiving Control Room, Desk					
B22A	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-044	1st Floor, Receiving Control Room, Desk					
B22B	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-045	DB, Pump Room, Southwest Wall					
B23A	Plastic Like Wall Coating, White	LAYER 1 100%	None Detected		Cellulose Fiber Fibrous Glass Binder/Filler	1% 65% 34%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-046	MB, 2nd Floor, Filter Press Room, Ceiling					
B23B	Plastic Like Wall Coating, White	LAYER 1 100%	None Detected		Cellulose Fiber Fibrous Glass Binder/Filler	1% 65% 34%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-047	MB, 2nd Floor, Press Control Room					
B24A	Black Lab Sink,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-048	MB, Laboratory					
B24B	Black Lab Sink,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-049	Electrical Room, Hallway					
B25A	Gray Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-050 B25B	Electrical Room, Hallway Gray Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-051 B26A	Electrical Room, Hallway Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-052 B26B	Electrical Room, Hallway Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-053 B27A	MB, Stairwell #2, 1st Floor Black Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-054 B27B	MB, Stairwell #2, 1st Floor Black Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-055 B28A	MB, Stairwell #2, 1st Floor Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-056 B28B	MB, Stairwell #2, 1st Floor Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-057 B29A	MB, 1st Floor, Chair Storage Room Tan Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-058	MB, 1st Floor, Chair Storage Room					
B29B	Tan Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-059	MB, 1st Floor, Chair Storage Room					
B30A	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-060	MB, 1st Floor, Chair Storage Room					
B30B	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-061	MB, 1st Floor, Receiving Control Room, North Wall					
B31A	Red Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-062	MB, 1st Floor, Receiving Control Room, North Wall					
B31B	Red Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-063	MB, 1st Floor, Receiving Control Room, North Wall					
B32A	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-064	MB, 1st Floor, Receiving Control Room, North Wall					
B32B	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
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		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-065	MB, 1st Floor, Lunch Room					
B33A	Blue Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-066	MB, 1st Floor, Lunch Room					
B33B	Blue Covebase Molding,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-067	MB, 1st Floor, Lunch Room					
B34A	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-068	MB, 1st Floor, Lunch Room					
B34B	Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-069	MB, 1st Floor, Receiving Control Room, North Wall					
B35A	Sheetrock, Gray	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	10% 90%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-070	CSB, Ceiling					
B35B	Sheetrock, Gray	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	10% 90%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-071	MB, 1st Floor, Receiving Control Room, North Wall					
B36A	Joint Compound, White	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-072	CSB, Ceiling					
B36B	Joint Compound, White	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-073 B37A	MB, 1st Floor, Chief Operators Room Yellow Carpet Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	3% 97%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-074 B37B	MB, 1st Floor, Operations Center Yellow Carpet Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	3% 97%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-075 B38A	MB, 2nd Floor, Filter Press Room Red Ceramic Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-076 B38B	MB, 2nd Floor, Filter Press Room Red Ceramic Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-077 B39A	MB, 2nd Floor, Filter Press Room Gray Floor Tile Grout,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-078 B39B	MB, 2nd Floor, Filter Press Room Gray Floor Tile Grout,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-079 B40A	MB, 2nd Floor, Filter Press Room Gray Floor Tile Underlayment,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-080 B40B	MB, 2nd Floor, Filter Press Room Gray Floor Tile Underlayment,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

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POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
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LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-081 B41A	MB, 2nd Floor, Filter Press Room White Block Wall (Speckled),	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-082 B41B	SDR, North Wall White Block Wall (Speckled),	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-083 B42A	MB, 2nd Floor, Filter Press Room Gray Grout,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-084 B42B	SDR, North Wall Gray Grout,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-085 B43A	MB, 1st Floor, Men's Bathroom White Ceramic Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-086 B43B	MB, 1st Floor, Men's Bathroom White Ceramic Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-087 B44A	MB, 1st Floor, Men's Bathroom Gray Ceramic Floor Tile Grout,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-088 B44B	MB, 1st Floor, Women's Bathroom Gray Ceramic Floor Tile Grout,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-089 B45A	MB, 1st Floor, Women's Bathroom Green Ceramic Floor Tile, Gray	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-090 B45B	MB, 1st Floor, Women's Bathroom Green Ceramic Floor Tile, Gray	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-091 B46A	MB, 1st Floor, Women's Bathroom Pink Ceramic Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-092 B46B	MB, 1st Floor, Women's Bathroom Pink Ceramic Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-093 B47A	MB, Electrical Room Hallway Tan (dirty) 24"x24" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-094 B47B	MB, Electrical Room Hallway Tan (dirty) 24"x24" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-095 B48A	MB, Electrical Room Hallway Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-096 B48B	MB, Electrical Room Hallway Yellow Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-097 B49A	MB, Stairwell #2 Brown Speckled Floor Tile 12"x12",	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-098 B49B	MB, 1st Floor, Stairwell #1 Brown Speckled Floor Tile 12"x12",	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-099 B50A	MB, Stairwell #2 Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-100 B50B	MB, 1st Floor, Stairwell #1 Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-101 B51A	MB, 1st Floor, Lunch Room Blue 12"x12" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-102 B51B	MB 1st Floor, Lunch Room Blue 12"x12" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-103 B52A	MB, 1st Floor, Lunch Room Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-104 B52B	MB, 1st Floor, Lunch Room Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-105 B53A	MB, Stairwell #2, Hallway Tan, Speckled, 12"x12" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-106 B53B	MB, 1st Floor, Main Hallway Tan, Speckled, 12"x12" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-107 B54A	MB, Stairwell #2, Hallway Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-108 B54B	MB, 1st Floor, Main Hallway Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-109 B55A	MB, 1st Floor, Outside Lunch Room Brown, Speckled 12"x12" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-110 B55B	MB, 1st Floor, Outside Lunch Room Brown, Speckled 12"x12" Floor Tile,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-111 B56A	MB, 1st Floor, Outside Lunch Room Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-112 B56B	MB, 1st Floor, Outside Lunch Room Black Mastic,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	2% 98%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

OPTIMUM
Analytical and Consulting, LLC
85 Stiles Road, Suite 201, Salem, NH 03079 Phone: (603)-458-5247

BULK SAMPLE ANALYSIS REPORT
POLARIZED LIGHT MICROSCOPY

PLM (EPA-600/M4-82-020, EPA-600/ R-93-116) NVLAP Lab Code: 101433-0

CLIENT:	AECOM	**ORDER #:**	1617163
ADDRESS:	250 Apollo Drive	**PROJECT #:**	60508473
CITY / STATE / ZIP:	Chelmsford MA 01824	**DATE COLLECTED:**	07/27/2016
CONTACT:	James Petras	**COLLECTED BY:**	Patrick Guglielmo
DESCRIPTION:	PLM Analysis	**DATE RECEIVED:**	08/02/2016
LOCATION:	Tri-Town Septage Treatment Facility; 29 Overland Rd., Orleans, MA 02653	**ANALYSIS DATE:**	08/08/2016
		REPORT DATE:	08/09/2016
		ANALYST:	Jamie Noel

REPORT OF ANALYSIS

Laboratory ID Sample No.	Sample Location Description	Layer No. Layer %	Asbestos Type	(%)	Non-Asbestos Components	(%)
1617163-113	MB, B-MOA, 3rd Elevation					
B57A	White Paint-like Pipe Wrap Insulation,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%
1617163-114	MB, Off Garage OCR					
B57B	White Paint-like Pipe Wrap Insulation,	LAYER 1 100%	None Detected		Cellulose Fiber Binder/Filler	1% 99%
		Total % Asbestos:	No Asbestos Detected		**Total % Non-Asbestos:**	100.0%

Analyst Signatory:
Jamie Noel

NVLAP®
Lab Code: 101433-0

1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date: 7/27/16 & 7/28/16

PROJECT NAME: Tri-Town Septage Treatment Facility
PROJECT NUMBER: 60508173
SITE ADDRESS: 29 Overland Rd, Orleans, MA 02653
REPORT TO: Patrick.Guglielmo@AECOM.com
PROJECT MANAGER: James Petras
SAMPLER: Patrick Guglielmo
SAMPLER LICENSE NUMBER:
TAT: ASAP 3Hour 24 Hour 48 Hour (Standard)
POSITIVE STOP: YES (NO)

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B01A	Black & Red Speckled Shingles	MB, Ext, Roof, N. End, Shingle Side - Top Layer	
B	↓	DB, Ext, Roof, West Side - Top Layer	
02A	Black Vapor Barrier Paper	MB, Ext, Roof, N. End, Shingle Side - Bottom Layer	
B	↓	DB, Ext, Roof, West Side - Bottom Layer	
03A	Black Rubber Roofing	MB, Ext, Roof, N. End, RR Side	
B	↓	MB, Ext, Roof, S. End, RR Side	
04A	Yellow Mastic	w/ B03A	
B	↓	w/ B03B	
05A	Black Sealant	MB, Ext, Roof, S. End, RR Side	
B	↓	↓ , ↓ , ↓ , N. End, ↓	

RELINQUISHED BY: (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:
		7/29/16		8:00	8/2/16
RELINQUISHED BY (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:

1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: Tri-Town	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B06 A	Asphault-like grip/matting	MB, Ext, Roof, N. End, RR side	
↓ B	↓	↓ , ↓ , ↓ , S. End, ↓	
07 A	White Vapor Barrier Paper	DB, Ext, South, Under Wood Clapboard Siding	
↓ B	↓	MB, Ext, NW Corner by Garage, Under Wood Clapboard Siding	
08 A	Black Vapor Barrier Paper	DB, Ext, SE, Under Wood Clapboard Siding at Corner Trim	
↓ B	↓	↓	
09 A	Light Gray Sealant	MB, Ext, Roof, South, Intersection of RR side & Shingle Side	
↓ B	↓	MB, Ext, Roof, South, RR side, On Vents	
10 A	Dark Gray Sealant	Secondary Clarifier, Ext, North, Sealant by door	
↓ B	↓	↓	

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				8:00	8/2/16
RELINQUISHED BY (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:

1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: Tri-Town	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B11 A	Light Gray Glazing	Secondary Clarifier #1, Ext, South, At fiberglass window & metal frame	
↓ B	↓	Primary tank #1, Ext, West, At fiberglass window & metal frame	
12 A	Clear Caulking	Primary tank #1, Ext, West, Around vent	
↓ B	↓	Primary tank #2, Ext, East, Around vent	
13 A	White Window Glazing	MB, Ext, West, Main Entrance, Small panel window's	
↓ B	↓	↓	
14 A	White Window Caulking	GBTR, Ext, East, 16'x16', fiberglass window	
↓ B	↓	↓	
15A	White Sealant	2nd floor, E. Hall Press Room, By Roof Access Ladder	
↓ B	↓	↓	

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				8:00	8/2/16
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1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: Tri-Town	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B16 A	White Adhesive/glue	2nd floor, Filter Press Rm, Ceiling Panel Adhesive	
↓ B	↓	↓	
17 A	Gray Caulking	MB, Stairwell to Basement by CR & ER, on landing (by column 3 CMU)	
↓ B	↓	↓	
18A	Gray Window Glazing	GBTR, Ext, East, 16x16', fiberglass Window	
↓ B	↓	↓	
19A	White Ceiling tiles w/ pinholes & fissures	CR, Ceiling	
↓ B	↓	MB, 1st floor, Custodian Closet, Ceiling	
20A	Spaghetti Board	MB, B-BR, On Wall (Sound dampener)	
B	↓	↓	

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				8:00	8/2/16
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1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: TRI-TOWN	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B21A	Orange Countertop	1st floor, Receiving Control Rm, Desk	
↓B	↓	↓	
22A	Yellow Mastic		
↓B	↓	↓	
23A	Plastic-like Wall Coating	DB, Pump Room, SW Wall	
↓B	↓	MB, 2nd Floor, Filter Press Rm, Ceiling	
24A	Black Lab Sink	MB, 2nd floor, Press Control Room	
↓B	↓	MB, Laboratory	
25A	Gray Cove base Molding	Electrical Rm, Hallway	
↓B	↓	↓	

RELINQUISHED BY: (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:
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1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: Tri-Town	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
BZ6A	Yellow Mastic	w/ BZ5A	
↓B	↓	w/ BZ5B	
Z7A	Black Cove base Molding	MB, Stairwell #2, 1st Floor	
↓B	↓	↓	
Z8A	Yellow Mastic	w/ BZ7A	
↓B	↓	w/ BZ7B	
Z9A	Tan Cove base Molding	MB, 1st Floor, Chair Storage Rm	
↓B	↓	↓	
30A	Yellow Mastic	w/ BZ9A	
↓B	↓	w/ BZ9B	

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1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME:	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B31A	Red Cove base Molding	MB, 1st Floor, Receiving Control Rm, North Wall	
↓ B	↓	↓	
32A	Yellow Mastic	w/ B31A	
↓ B	↓	w/ B31B	
33A	Blue Cove base Molding	MB, 1st Floor, Lunch Room	
↓ B	↓	↓	
34A	Yellow Mastic	w/ B33A	
↓ B	↓	w/ B33B	
35A	Sheet Rock	MB, 1st floor, Receiving Control Room, North Wall	
↓ B	↓	CSB, Ceiling	

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				8:00	8/2/16
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1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: Tri-Town
PROJECT NUMBER:
SITE ADDRESS:
REPORT TO:
PROJECT MANAGER:
SAMPLER:
SAMPLER LICENSE NUMBER:
TAT: ASAP 3Hour 24 Hour 48 Hour Standard
POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B36A	Joint Compound	MB, 1st Floor, Receiving Control Room, North Wall	
↓B	↓	CSB, Ceiling	
37A	Yellow Carpet Mastic	MB, 1st Floor, Chief Operators Rm	
↓B	↓	MB, 1st Floor, Operations Center	
38A	Red Ceramic Floor Tile	MB, 2nd Floor, [redacted] Filter Press Rm	
↓B	↓		
39A	Gray Floortile Grout		
↓B	↓		
40A	Gray Floortile Underlayment		
↓B	↓	↓	

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1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: TB. -Town	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B41A	White Block Wall (Spackled)	MB, 2nd Floor, Filter Press Rm	
↓ B	↓	SDR, North Wall	
42A	Gray Grout	w/ B41A	
↓ B	↓	w/ B41B	
43A	White Ceramic Floor tile	MB, 1st Floor, Men's Bathroom	
↓ B	↓	↓	
44A	Gray Ceramic Floor tile Grout	w/ B43A	
↓ B	↓	w/ B45A & B46A	
45A	Green Ceramic Floor tile	MB, 1st Floor, Women's Bathroom	
↓ B	↓	↓	

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				8:00	8/2/16
RELINQUISHED BY (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:

1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: TRI-TOWN	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B46A	Pink Ceramic Floor tile	MB, 1st Floor, Women's Bathroom	
↓ B	↓	↓	
47A	Tan (Dirty) 24"x24" Floor tile	MB, Electrical Rm. Hallway	
↓ B	↓	↓	
48A	Yellow Mastic	w/ B47A	
↓ B	↓	↓ ↓ B	
49A	Brown Speckled Floor tile 12"x12"	MB, Stairwell #2	
↓ B	↓	MB, 1st floor, Stairwell #1	
50A	Black mastic	w/ B49A	
↓ ↓ B	↓	↓ ↓ B	

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				8:00	8/2/16
RELINQUISHED BY (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:

1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: Tri-Town
PROJECT NUMBER:
SITE ADDRESS:
REPORT TO:
PROJECT MANAGER:
SAMPLER:
SAMPLER LICENSE NUMBER:
TAT: ASAP 3Hour 24 Hour 48 Hour Standard
POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B51A	Blue, 12"x12", Floortile	MB, First Floor, Lunch Room	
↓B	↓	↓	
52A	Black Mastic	w/ B51A	
↓B	↓	↓ ↓ B	
53A	Tan, Speckled, 12"x12", Floortile	MB, Stairwell #2, Hallway	
↓B	↓	MB, 1st Floor, Main Hallway	
54A	Black Mastic	w/ 53A	
↓B	↓	↓ ↓ B	
55A	Brown, Speckled, 12"x12" Floortile	MB, 1st Floor, Outside Lunch Room	
↓B	↓	↓	

RELINQUISHED BY: (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:
[signature]			[signature]	8:00	8/2/16
RELINQUISHED BY (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:

1617163

AECOM

AECOM TECHNICAL SERVICES, INC.
ASBESTOS BULK
CHAIN OF CUSTODY

Sampling Date:

PROJECT NAME: Tri-Town	PROJECT NUMBER:
SITE ADDRESS:	REPORT TO:
PROJECT MANAGER:	
SAMPLER:	TAT: ASAP 3Hour 24 Hour 48 Hour Standard
SAMPLER LICENSE NUMBER:	POSITIVE STOP: YES NO

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
B56 A	Black Mastic	w/ B 55A	
↓ B	↓	↓ B	
57 A	White paint-like pipe wrap insulation	MB, B-MOA, 3rd Elevation	
↓ B	↓	MB, off Garage OCR	

RELINQUISHED BY: (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:
				8:00	8/2/16
RELINQUISHED BY (SIGNATURE)	TIME:	DATE:	RECEIVED BY: (SIGNATURE)	TIME:	DATE:

AECOM

ATTACHMENT D

LABORATORY ANALYTICAL REPORT – LBP

Please Reply To:

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

FACSIMILE TELECOPY TRANSMISSION

To: Jamie Noel
Optimum Analytical & Consulting
Fax #:
Email: jamie.noel@optimumanalytical.com,kristina.scaviola@optimumanalytical.com

From:
AmeriSci Job #: 416081031
Subject: Lead (paint) 48 hour Results
Client Project: 1617164; Tri - Town Septage Treatment Facility

Date: Thursday, August 04, 2016
Time: 13:29:59
Comments:

Number of Pages: 07 (including cover sheet)

CONFIDENTIALITY NOTICE: Unless otherwise indicated, the information contained in this communication is confidential information intended for use of the individual named above. If the reader of this communication is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is prohibited. If you have received this communication in error, please immediately notify the sender by telephone and return the original message to the above address via the US Postal Service at our expense. Preliminary data reported here will be verified before final report is issued. Samples are disposed of in 60 days or unless otherwise instructed by the protocol or special instructions in writing. Thank you.

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

AmeriSci Job #: 416081031

Date Received: 08/03/16
Date Analyzed: 08/04/16

Lead Analysis Results

Paint

EPA Method 3050B/7000B

Optimum Analytical & Consulting

Salem, NH

Job Site: 1617164; Tri - Town Septage Treatment Facility

AmeriSci # 416081031	Client Number	Sample Location	% Lead (w/w)	Lead Content (mg/kg = ppm)
01	LBP-01A	Gray Paint / MB, Ext, West Side, Siding (Wood)	<0.01	<100
02	LBP-01B	Gray Paint / DB, Ext, East Side, Siding (Wood)	<0.01	<100
03	LBP-02A	Gray Paint / MB, Basement, Flooring	<0.01	<100
04	LBP-02B	Gray Paint / DB, Main Room, Flooring	<0.01	<100
05	LBP-03A	Brown Paint / MB, Electrical Rm Door	<0.01	<100
06	LBP-03B	Brown Paint / MB, Interior Door	<0.01	<100
07	LBP-04A	Burnt Orange Paint / MB, Basement, South, Column	<0.01	<100
08	LBP-04B	Burnt Orange Paint / MB, Basement, North, Column	<0.01	<100
09	LBP-05A	Tan / Light Brown Paint / DB, Pump Rm, Piping Of Pumps (Secondary Carrie Ef	<0.01	<100
10	LBP-05B	Tan / Light Brown Paint / GBTR, Equip & Piping	<0.01	<100
11	LBP-06A	Bright Green Paint / DB, Basement, Piping	<0.01	<100
12	LBP-06B	Bright Green Paint / GBTR, Piping	<0.01	<100
13	LBP-07A	Light Green Paint / MB, B-BR, Machines	<0.01	<100
14	LBP-07B	Light Green Paint / MB, B-BR, Piping	<0.01	<100
15	LBP-08A	Seafoam Green Paint / MB, Outside Press Garage, Handrail	<0.01	<100
16	LBP-08B	Seafoam Green Paint / MB, Stairwell #2, 1st Floor, Handrail	<0.01	<100
17	LBP-09A	Light Blue Paint / DB, Basement, Piping	<0.01	<100
18	LBP-09B	Light Blue Paint / OCR, North End, Piping	<0.01	<100
19	LBP-10A	Red Paint / DB, Ext, Door (Metal)	<0.01	<100
20	LBP-10B	Red Paint / GBTR, Piping	<0.01	<100
21	LBP-11A	Light Yellow Paint / MB, B-MOA, Stairwell #2, Wall	<0.01	<100
22	LBP-11B	Light Yellow Paint / MB, B-MOA, Stairwell #1, Wall	<0.01	<100
23	LBP-12A	Yellow Paint / DB, Pump Room, Pump Ladder	<0.01	<100
24	LBP-12B	Yellow Paint / GBTR, Piping	<0.01	<100

AmeriSci Reporting Limit is 0.01%, or 100mg/kg prior to any dilutions due to high analyte concentrations or matrix interferences. AmeriSci does not correct sample results by the blank value. All analytical batch data met quality control criteria unless otherwise noted. CA ELAP No. 2322.

Reviewed by: _____

Analyzed by: _____
Soheir Galess, Chemist

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

AmeriSci Job #: 416081031

Date Received: 08/03/16
Date Analyzed: 08/04/16

Lead Analysis Results

Paint

EPA Method 3050B/7000B

Optimum Analytical & Consulting

Salem, NH

Job Site: 1617164; Tri - Town Septage Treatment Facility

AmeriSci # 416081031	Client Number	Sample Location	% Lead (w/w)	Lead Content (mg/kg = ppm)
25	LBP-12C	Yellow Paint / SRB, Scale Area, Roadway Ma.	<0.01	<100
26	LBP-13A	Black Paint / OCR, N End, Piping	<0.01	<100
27	LBP-13B	Black Paint / DB, Basement, Piping	<0.01	<100
28	LBP-14A	Black Paint / Ext, Secondary Clarifier #2, W Side - Metal Frame	<0.01	<100
29	LBP-14B	Black Paint / MB, 1st Floor, Chair Storage	<0.01	<100
30	LBP-15A	White Paint / DB, Main Rm, Walls	<0.01	<100
31	LBP-15B	White Paint / MB, Basement, MOA Wall By Stairwell # 1	0.015	150
32	LBP-16A	White Paint / MB, Ext, NW By Garage, Trim	0.021	210
33	LBP-16B	White Paint / DB, Ext, West, Trim	<0.01	<100

AmeriSci Reporting Limit is 0.01%, or 100mg/kg prior to any dilutions due to high analyte concentrations or matrix interferences. AmeriSci does not correct sample results by the blank value. All analytical batch data met quality control criteria unless otherwise noted. CA ELAP No. 2322.

Reviewed by: _____

Analyzed by: _____
Soheir Galess, Chemist

AMERI SCI

www.amerisci.com

CHAIN OF CUSTODY RECORD

AMERISCI LOS ANGELES
24416 South Main Street, Suite 308
Carson, CA 90745
310.834.4868 Phone~310.834.4772 Fax

AMERISCI JOB NO: 411081031

PAGE 1 OF 1

DUE DATE:
☐ 1 DAY ☒ 2 DAY ☐ 3 DAY ☐ 5 DAY ☐ 7 DAY ☐ 10 DAY

TEMP UPON RECEIPT:

DATA PACKAGE:

P.O.#

COMPANY: Optimum Analytical and Consulting, LLC

ADDRESS: 85 Stiles Road Suite 201, Salem NH 03079

PHONE: 603-458-5247 FAX 1: FAX 2:

CLIENT CONTACT: Jamie Noel, Kristina Scaviola EMAIL: Jamie.Noel@optimumanalytical.com Kristina.Scaviola@optimumanalytical.com

PROJECT NAME: Tri-Town Septage Treatment Facility PROJECT NUMBER: 16017164 PROJECT STATE:

MATRIX: A-WATER S-SOIL/SOLIDS SL-SLUDGE OIL-OIL CH-CHIPS WI-WIPES C-CASSETTES W-WASTE O-OTHER

CONTAINER: P-PLASTIC G-GLASS V-VOA

LAB ID	CLIENT SAMPLE IDENTIFICATION	MATRIX	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING INFORMATION DATE	SAMPLING INFORMATION TIME	SAMPLING INFORMATION TECH	GRAB (G) OR COMPOSITE (C)	PRESERVATIVES	SAMPLE PH AT LOGIN	Lead Analysis	Notes:
	SEE ATTACHED COC	CH										X	

SAMPLED BY: (PRINT)
(SIGN)
DATE:
TIME:

RELINQUISHED BY: (PRINT) Molly Morris
(SIGN)
DATE: 8/2/16
TIME: 10:45

RELINQUISHED BY: (PRINT)
(SIGN)
DATE:
TIME:

RECEIVED BY: (PRINT)
(SIGN)
DATE: 8/3/16
TIME: 9:50

RECEIVED BY: (PRINT)
(SIGN)
DATE:
TIME:

RECEIVED FOR LABORATORY BY:
(SIGN)
DATE:
TIME:

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
LBP-01A	Gray Paint	MB, Ext, West Side, Siding (Wood)	41V08103
↓ B	↓	DB, Ext, East Side, Siding (Wood)	
02A		MB, Basement, Flooring	
↓ B	↓	DB, Main Room, Flooring	
03A	Brown Paint	MB, Electrical Rm. Door	
↓ B	↓	↓, Interior Door	
04A	Burnt Orange Paint	MB, Basement, South, Column	
↓ B	↓	↓, ↓, North, Column	
05A	Tan/Light Brown Paint	DB, Pump Rm, Piping to Pumps (Secondary Carrier Effluent)	
↓ B	↓	GBTR, Equip & Piping	

1 of 4

Relinquished By [signature] 8/2/16

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
LBP-06A	Bright Green Paint	DB, Basement, Piping	41608108
↓B	↓	GBTR, Piping	
07A	Light Green Paint	MB, B-BR, Machines	
↓B	↓	MB, B-BR, Piping	
08A	Sentform Green Paint	MB, Outside Press Garage, Handrail	
↓B	↓	MB, Stairwell #2, 1st Floor, Handrail	
09A	Light Blue Paint	DB, Basement, Piping	
↓B	↓	OCR, North End, Piping	
10A	Red Paint	DB, Ext, Door (metal)	
↓B	↓	GBTR, Piping	

Relinquished By [signature] 8/2/16

SAMPLE ID	SAMPLE DESCRIPTION		
LBP-11A	Light Yellow Paint	MB, B-MOA, Stairwell #2, Wall	41608103
B		#1, Wall	
12A	Yellow Paint	DB, Pump Room, Pump Ladder	
B		GBTR, Piping	
C		SRB, Scale Area, Roadway, Markers	
LBP-13A	Black Paint	OCR, N. End, Piping	
B		DB, Basement, Piping	
14A		Ext, Secondary Chamber #2, W. Side -metal frame	
B		MB, 1st floor, Chair Storage	

Relinquished By [signature] 8/2/16

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	QUANTITY
LBP - 15A	White Paint	DB, Main Rm, Walls	41608103
↓ B	↓	MB, Basement, MOA, Wall by Stairwell # 1	
16A		MB, Ext, NW by Garage, Trim	
↓ B	↓	DB, Ext, West, Trim	

4 of 4

Relinquished By MBorrig 8/2/16

APPENDIX F

LETTER FROM MASSACHUSETTS HISTORICAL COMMISSION RELATIVE TO TRI-TOWN STF DEMOLITION

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September 23, 2016

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth

Massachusetts Historical Commission

John Kelly
Town Administrator
Town of Orleans
19 School Road
Orleans MA 02653

RE: Tri-Town Septage Treatment Facility Decommissioning and Demolition, Orleans, MA.
MHC #RC.15015.

Dear Mr. Kelly:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the Project Notification Form (PNF) submitted for the proposed project referenced above, which was received at this office on September 16, 2016.

The PNF indicates that the decommissioning and demolition project requires a National Pollution Discharge Elimination System Permit from the US Environmental Protection Agency, and approval of the Department of Environmental Protection and the Cape Cod Commission.

The PNF indicates that the modern septage facility proposed for decommissioning and demolition was constructed between 1985 and 1987 and upgraded and modified in 1995. The project information submitted indicates that the demolition will occur within previously disturbed locations. The project does not include any new construction.

The location of the project is within the Old King's Highway Regional Historic District (ORL.E), included in the State Register of Historic Places.

After review of the information submitted and the MHC's files, the MHC has determined that the proposed demolition project will have "no adverse effect" on the Old King's Highway Regional Historic District (950 CMR 71.07 (2)(b)(2); 36 CFR 800.5(b)).

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800) and MGL c. 9, ss. 26-27C (950 CMR 71). If you have any questions, please contact Edward L. Bell, Deputy State Historic Preservation Officer and Senior Archaeologist.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: see attached

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

xc:
Michael Stover, EPA Region 1
Millie Garcia-Serrano, DEP-SE Regional Office
Sarah Korjeff, Cape Cod Commission
Old King's Highway Regional Historical Commission--Orleans
Orleans Historical Commission
James Petras, AECOM

APPENDIX G

SITE AND SEWAGE PLAN (1986)

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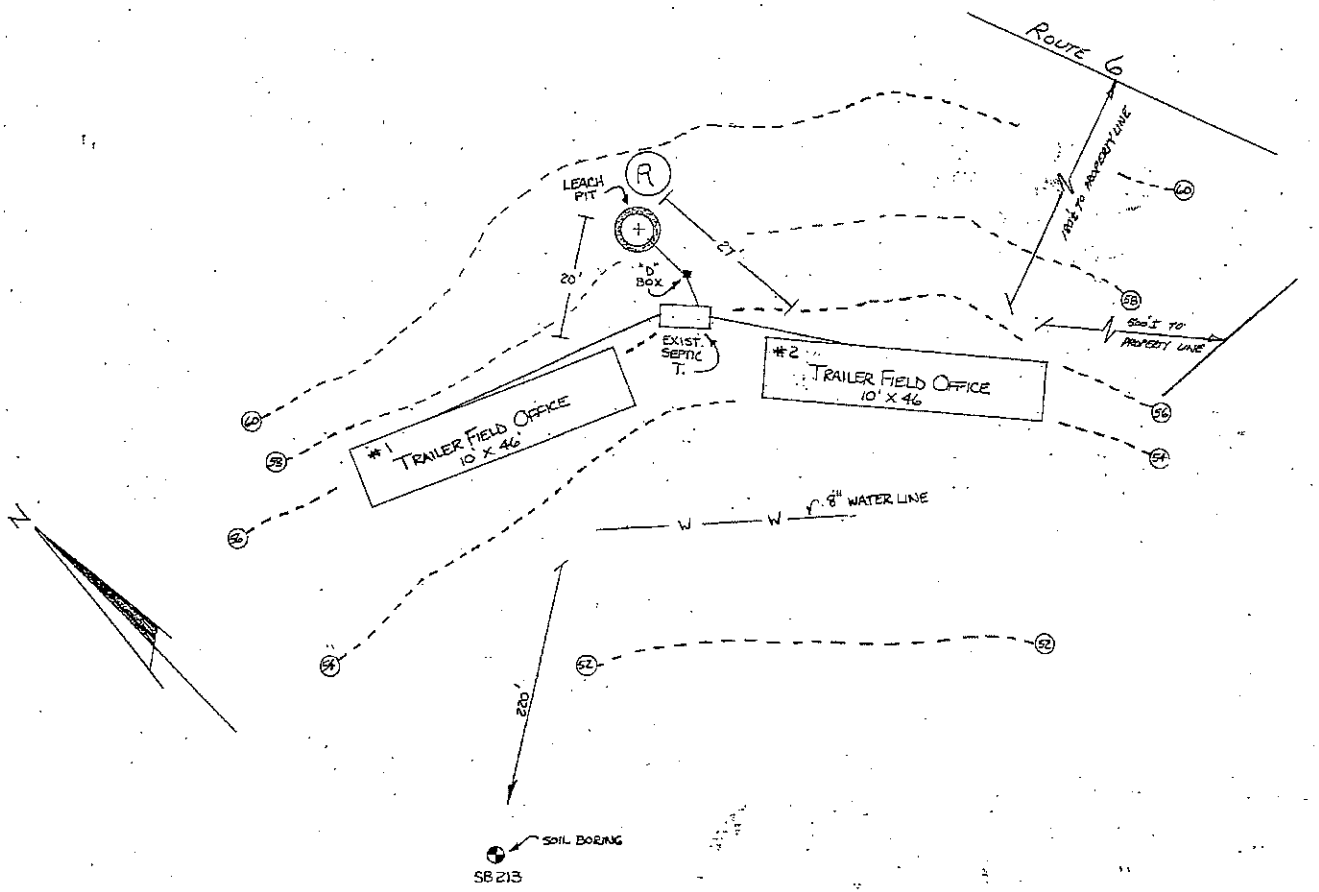
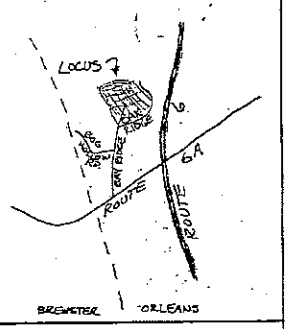


LOCUS MAP



FRANCIS E. LAJOIE
REG. PROFESSIONAL ENGINEER

SITE and SEWAGE PLAN

LOCUS: ORLEANS SEPTAGE TREATMENT FACILITY OAKRIDGE LANE ORLEANS, MA

REF:

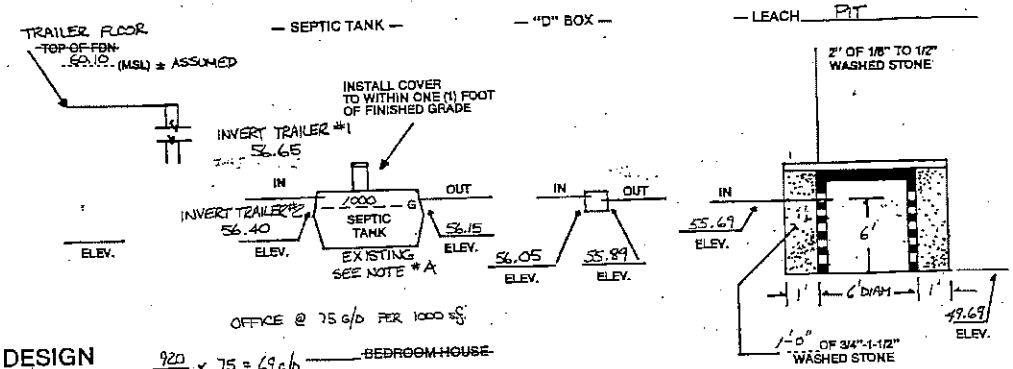
PREPARED FOR: BONFATTI - WHITE

SCALE 1" = 20' DATE 10/18/86

CONTOURS (EXISTING) ---------- (PROPOSED) —o—o—o—o—

This plan is for Sewage Design only and is not intended to be a survey plot plan. Verify zoning and Utility Set-back dimensions prior to construction.

SECTION - SEWAGE



OFFICE @ 75 G/D PER 1000 SF

DESIGN

$\frac{920}{1000} \times 75 = 69$ G/D ~~BEDROOM HOUSE~~

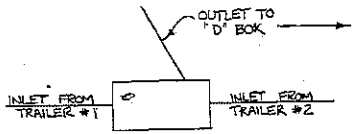
	~~NO DISPOSER~~	~~DISPOSER~~
PERC RATE	< 2 MIN/IN.	
FLOW RATE	69.0 (GAL/DAY)	
SEPTIC TANK	69. (1.5) = 104.	
REQ'D SEPTIC TANK SIZE	1000	

LEACH FACILITY

SIDE WALL	150.78	(2.5) =	376.95 G/D.
BOTTOM	50.27	(1.0) =	50.27 G/D.
TOTAL		=	427.22

USE: (1) 6' DIAM X 6' DEEP LEACHING PIT WITH 1' NO INCHES OF STONE

* NOTE * A



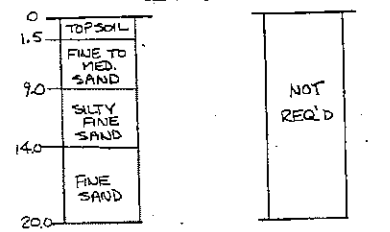
PUNCH OUTLET HOLE IN SIDE OF EXISTING SEPTIC TANK 3" BELOW INLET HOLE FROM TRAILER #2. INSTALL SANITARY TEE ON OUTLET LINE TO "D" BOX.

TEST HOLE LOG

TEST BY GOLDBERG/ZOINO ASSOC. INC. WITNESS

TEST DATE

SOIL BORING ~~T.H. #1~~ ELEV. 58 ± T.H. #2 ELEV.



TEST RESULTS

1. ~~Lot #~~ ____ meets with requirements of the state sanitary code (Title V) & is considered "BUILDABLE".
2. Percolation Rate is < 2 MIN/INCH in FINE TO MEDIUM SAND
3. NO Water encountered
4. ____

NOTES: (UNLESS OTHERWISE NOTED)

1. DATUM (MSL) ± TAKEN FROM ASSUMED QUADRANGLE MAP
2. MUNICIPAL WATER IS AVAILABLE
3. PIPE PITCH: 1/4" PER FOOT
4. DESIGN LOADING FOR ALL PRE-CAST UNITS: AASHO-
5. MIN. GROUND COVER OVER ALL SEWAGE FACILITIES: (1) FT.
6. PIPE JOINTS SHALL BE MADE WATER TIGHT
7. CONSTRUCTION DETAILS TO BE ACCORDANCE WITH COMM. OF MASS. STATE ENVIRONMENTAL CODE TITLE V
8. VERIFY SOIL CONDITIONS TO INSURE PROPER INSTALLATION. NOTIFY ~~ENGR.~~ IF CONDITIONS DIFFER. (PROJECT ENGR.)
9. EXCAVATE UNSUITABLE SOIL AROUND LEACH AREA DOWN TO SAND AND REPLACE WITH CLEAN MEDIUM SAND.

NOTE # 10

ENG TO PROBE DURING CONSTRUCTION TO INSURE SOIL WITH A PERC RATE OF LESS THAN 2 MIN/IN

NOTE # 11

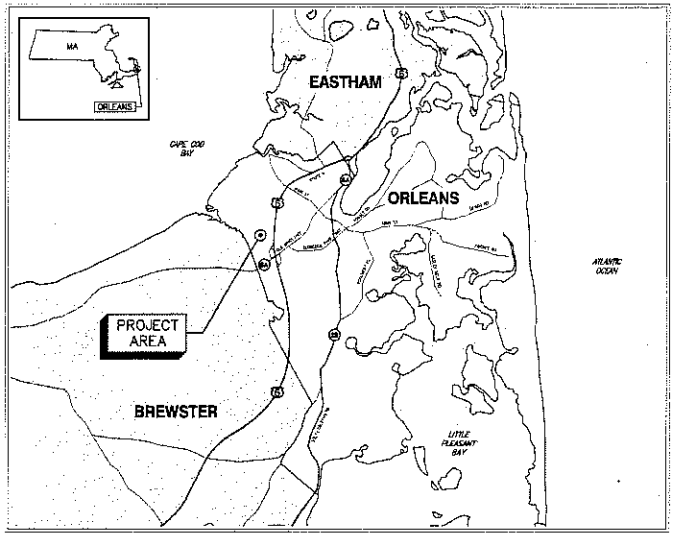
THE SEPTAGE SYSTEM SHALL BE REMOVED UPON COMPLETION OF THE ORLEANS SEPTAGE FACILITY CONSTRUCTION PROJECT.

COMMONWEALTH OF MASSACHUSETTS — FRANCIS E. LAJOIE — NO. [illegible] — REGISTERED PROFESSIONAL ENGINEER

APPROVED ____ DATE ____ BOARD OF HEALTH ORLEANS MA

FRANCIS E LAJOIE
REG. PROFESSIONAL ENGINEER

TRI–TOWN SEPTAGE TREATMENT FACILITY DEMOLITION ORLEANS, MA DECEMBER 2016



LOCATION PLAN

APPROXIMATE SCALE: 1" = 5000'

0 5000 10,000 20,000

SCALE 1"=5000'

INDEX OF DRAWINGS

SHEET NO.	TITLE
G-001	COVER SHEET AND INDEX OF DRAWINGS
G-002	GENERAL NOTES
C-101	AERIAL PLAN
C-102	EXISTING CONDITIONS SITE PLAN
C-103	SITE PREPARATION PLAN
C-104	SITE GRADING PLAN
C-501	CIVIL DETAILS

AECOM

PROJECT

Tri-Town Septage Treatment Facility Demolition
Orleans, MA

CLIENT

Orleans Brewster Eastham Groundwater Protection District
C/O JOHN KELLY, ORLEANS TOWN ADMINISTRATOR
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700 Ext. 415

CONSULTANT

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
(508) 833-6650
www.aecom.com

CONSULTANTS

REGISTRATION

THOMAS J. PARISE CIVIL No. 36440 REGISTERED PROFESSIONAL ENGINEER
12/9/16

ISSUE/REVISION

NR	DATE	DESCRIPTION
0	2016-12-07	FINAL - ISSUE FOR BID

PROJECT NUMBER

60478844

Designed By:	M. Curran
Drawn By:	M. Curran
Dept Check:	T. Parise
Proj Check:	J. Petras
Date:	December 2016
Scale	N/A

DISCIPLINE

GENERAL

SHEET TITLE

COVER SHEET AND INDEX

SHEET NUMBER

G-001

Last saved by: CURRANM (2016-12-01) Last Plotted: 2016-12-05
Filename: C:\USERS\CURRANM\DESKTOP\PROJECTS\ORLEANS\SHEETS\G-001.DWG

Project Management Initials Designed:____ Checked:____ Approved:____

GENERAL NOTES

1. PLANS IN THIS SET WERE DIGITIZED FROM ORIGINAL RECORD DRAWINGS PROVIDED BY THE TRI-TOWN DISTRICT. TOPOGRAPHY SHOWN ON THE PLANS IS APPROXIMATE AND SHOULD BE VALIDATED BY THE CONTRACTOR PRIOR TO THE START OF WORK.
2. HORIZONTAL COORDINATES OF THE ORIGINAL RECORD DRAWINGS ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD-83) MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE.
3. VERTICAL ELEVATIONS OF THE ORIGINAL RECORD DRAWINGS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NGVD)
4. REFER TO REFERENCE DRAWINGS LISTED ON THIS SHEET FOR INFORMATION NOT SHOWN ON PLANS.
5. UNDERGROUND UTILITIES SHOWN ARE BASED UPON PLANS OF RECORD. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
6. PROPERTY BOUNDARIES SHOWN ARE FROM TOWN PROVIDED GIS PARCEL FILES. PROPERTY LINES SHOULD BE CONSIDERED APPROXIMATE ONLY.
7. THE CONTRACTOR SHALL INSTALL ALL TEMPORARY EROSION CONTROLS AS SHOWN PRIOR TO START OF CONSTRUCTION AND IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
8. THE CONTRACTOR SHALL NOT USE BLASTING OR EXPLOSIVES AS PART OF DEMOLITION ACTIVITIES, OR ANY OTHER ACTIVITIES, AT THIS SITE.
9. THE CONTRACTOR SHALL FIELD CHECK ALL DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL EXCAVATE TO VERIFY POTENTIAL UTILITY CONFLICTS. ANY DISCREPANCIES OR CONFLICTS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
10. LOCATION OF ALL EXISTING UTILITIES AND SUBSURFACE STRUCTURES ARE CONSIDERED APPROXIMATE AS TO BOTH SIZE AND LOCATION, AND ARE INDICATED ON THESE DRAWINGS TO GIVE THE CONTRACTOR A GENERAL IDEA OF EXISTING CONDITIONS TO BE INVESTIGATED BY THE CONTRACTOR. IT IS UNDERSTOOD AND AGREED THAT CONTRACTOR WILL NOT RELY ON THESE DRAWINGS FOR SUCH INFORMATION, BUT THAT CONTRACTOR SHALL MAKE EXAMINATIONS IN THE FIELD BY VARIOUS AVAILABLE RECORDS AND UTILITY COMPANIES AS TO THE LOCATION OF ALL SUBSURFACE STRUCTURES.
11. THE LOCATIONS OF THE EXISTING STRUCTURES SUCH AS SEWERS, DRAINS, WATER MAINS AND OTHER UTILITIES ARE ONLY APPROXIMATE AND THE ENGINEER DOES NOT GUARANTEE THEIR NUMBER OR LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WITH THE PROPER UTILITY ENGINEERING DEPARTMENT/COMPANY BEFORE EXCAVATING.
12. NO EXISTING PUBLIC UTILITY STRUCTURES SHALL BE ABANDONED AND/OR DISMANTLED WITHOUT AUTHORIZATION FROM THE ENGINEER.
13. THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING OPERATIONS AND FOR HANDLING STORM WATER RUNOFF TO PREVENT SILT OR DEBRIS FROM ENTERING EXISTING DRAINAGE FACILITIES OR CREATING NUISANCES. IF CONTRACTOR'S WORK RESULTS IN SEDIMENTATION BEYOND THE LIMITS OF DEMOLITION, CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THOSE AREAS TO PRE-EXISTING CONDITIONS, AND SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS NECESSARY FOR SUCH RESTORATION.
14. DAMAGE OF PROPERTY BEYOND THE WORK LIMITS CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, SUBJECT TO THE APPROVAL OF THE ENGINEER AND ACCEPTANCE OF THE PROPERTY OWNER
15. THE CONTRACTOR SHALL PROVIDE ROADSIDE TREE PROTECTION OR INDIVIDUAL TREE PROTECTION ALONG THE LIMITS OF CLEARING AND GRUBBING TO PROTECT EXISTING STANDS OF QUALITY VEGETATION FROM CONSTRUCTION ACTIVITIES AND FROM EQUIPMENT AND MATERIALS BEING STORED ADJACENT TO TREE TRUNKS. RESIDENT ENGINEER SHALL REVIEW TREE PROTECTION AND FENCING PRIOR TO START OF ANY MOBILIZATION OR CONSTRUCTION ACTIVITIES
16. THE CONTRACTOR SHALL DISPOSE OF ALL WASTE MATERIAL IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS AT HIS OWN EXPENSE IF NOT OTHERWISE SPECIFIED, OUTSIDE OF THE PROJECT LIMITS.
17. IF THE CONTRACTOR DAMAGES UTILITY SERVICES, HE SHALL IMMEDIATELY NOTIFY THE RESPECTIVE UTILITY COMPANY AND SHALL IMMEDIATELY REPLACE OR REPAIR, UNLESS INDICATED OTHERWISE BY THE RESPECTIVE UTILITY OWNER.
18. ALL EXISTING DRAINAGE STRUCTURES AND PIPE TO REMAIN WITHIN THE PROJECT LIMITS SHALL BE CLEANED AND SEDIMENT LEGALLY DISPOSED OF
19. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESEEDED PRIOR TO THE END OF THE PROJECT. EXPOSED SOIL AREAS THAT CANNOT BE SEEDED WITH SPECIFIED SEED MIX SHALL BE COVERED WITH COMPOST MULCH
20. ALL BACKFILL SHALL BE MECHANICALLY TAMPED; JETTING SHALL NOT BE ALLOWED.
21. IF DURING THE WORK, THE PRESENCE OF POTENTIALLY HAZARDOUS MATERIALS OR CONDITIONS IS EVIDENT, WORK IN THE AREA SHALL BE SUSPENDED, WITH IMMEDIATE NOTIFICATION TO THE OWNER. THESE CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO, ENCOUNTERING BURIED CONTAINERS, DRUMS OR TANKS. THE AREA WILL BE SECURED TO PREVENT THE EXISTENCE OF A HEALTH RISK OR RELEASE INTO THE ENVIRONMENT. THE SOURCES OF THE EVENT CAUSING THE MATERIAL TO BE CONSIDERED SUSPECT WILL BE EVALUATED BY THE OWNER. IN THE EVENT THAT BURIED CONTAINERS, DRUMS, OR TANKS ARE ENCOUNTERED OR IF A RELEASE OF OIL OR POTENTIALLY HAZARDOUS MATERIALS HAS OCCURRED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, THE OWNER, AND MASSDEP INCIDENT RESPONSE WITHIN THE REQUIRED REPORTING TIME PERIOD. THE REMOVAL OF BURIED TANKS, CONTAINERS, OR DRUMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 520 CMR 9.00 TANKS AND CONTAINERS
22. ALL CATCH BASINS TO BE RETAINED WITHIN THE LIMITS OF WORK SHALL HAVE TEMPORARY CATCH BASIN PROTECTION INSTALLED.

REFERENCE DRAWINGS

1. PROJECT NO. 59523, SEPTAGE TREATMENT FACILITIES, TOWN OF ORLEANS MA. RECORD DRAWINGS - JUNE 1990.
2. CONTRACT NO. 95-1, SEPTAGE FACILITY UPGRADE, TRI-TOWN SEPTAGE TREATMENT FACILITY, ORLEANS MA RECORD DRAWINGS - DECEMBER 1997.

SUGGESTED CONSTRUCTION WORK SEQUENCE

1. SUBMIT ALL REQUIRED WORK SUBMITTALS, PERMITS, PLANS FOR ENGINEER REVIEW AND APPROVAL IN ACCORDANCE WITH SUBMITTAL DEADLINES.
2. SURVEY AND STAKE OUT LIMITS OF DISTURBANCE.
3. MOBILIZE PERSONNEL, EQUIPMENT, INCIDENTALS ON SITE.
4. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS ON THE PLAN AND DRAWINGS AND DOWN GRADIENT OF EARTH DISTURBANCE ACTIVITIES WHERE NECESSARY/APPROPRIATE. MAINTAIN THE E&S CONTROLS THROUGHOUT THE COURSE OF THE WORK.
5. PREPARE AND INSTALL ALL REQUIRED TEMPORARY FACILITIES AND CONTROLS INCLUDING FENCING, TEMPORARY TRAILERS, DECONTAMINATION FACILITIES, STOCKPILE AREA.
6. PERFORM REGULATED WASTE REMOVAL OF ALL BUILDING AND EQUIPMENT TO BE REMOVED AND DEMOLISHED. REMOVE AND/OR DISPOSE/RECYCLE ALL REMAINING EQUIPMENT AND MATERIALS.
7. COMPLETE UTILITY DISCONNECTS PRIOR TO DEMOLITION
8. COMPLETE CUT AND CAP OF UTILITIES PRIOR TO DEMOLITION ACTIVITIES.
9. CONTRACTOR TO PROTECT TWO WATER MAINS THAT CROSS THE SITE DURING DEMOLITION ACTIVITIES.
10. CONDUCT DEMOLITION AND FOUNDATION REMOVAL ACTIVITIES AS SHOWN ON THE DRAWINGS. THIS INCLUDES ALL EXCAVATION AND STAGING OF SOIL NEEDED TO ACCESS SLABS, BASEMENTS AND FOUNDATIONS. DEMOLITION AREAS ARE SHOWN ON DRAWINGS INCLUDING, BUT NOT LIMITED TO,
    a. COMPOSTING SHED
    b. SEPTAGE UNLOADING BAYS
    c. SEPTAGE HOLDING TANKS
    d. CONCRETE GREASE TANKS
    e. BURIED FUEL TANKS
    f. GENERATOR PADS
    g. CONTROL BUILDING
    h. CHEMICAL FEED BUILDING
    i. OPERATIONS AND PROCESSING BUILDING
    j. PRIMARY CLARIFIERS 1 AND 2
    k. SLUDGE PUMPING STATION
    l. SCUM WELL AND FLOW SPLITTER
    m. ROTATING BIOLOGICAL CONTRACTORS (RBC) (4 TOTAL)
    n. DISINFECTION BUILDING
    o. PUMP STATION AND VALVE PIT
    p. SECONDARY CLARIFIERS 1 AND 2
    q. GROUNDWATER RECHARGE BEDS (3 TOTAL)
11. REMOVE ALL GRANITE CURBING, UNDERGROUND PIPING, PAVEMENT, MACADAM, ASPHALT, TREES WITHIN THE LIMITS OF DEMOLITION.
12. TRANSPORTATION AND DISPOSAL OF ALL BUILDINGS, EQUIPMENT, AND SURFACE FEATURES WITHIN THE LIMITS OF DEMOLITION.
13. PLACE BACKFILL AND ROUGH GRADE SITE SHOWN ON THE PLAN DRAWINGS MINUS DEPTH OF TOPSOIL
14. PLACE TOPSOIL, PERFORM FINAL GRADING, COMPLETE FINAL CLEAN-UP, SEED AND MULCH.
15. DEMOBILIZE FROM SITE.
16. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROLS ONCE ENTIRE SITE HAS BEEN STABILIZED BY MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER. STABILIZE AREAS DISTURBED DURING REMOVAL OF EROSION AND SEDIMENT CONTROLS IMMEDIATELY.

ENGINEERING GOVERNING CODES

2012 INTERNATIONAL EXISTING BUILDING CODE (IEBC):

A.CHAPTER 14 - PERFORMANCE COMPLIANCE METHOD FOR EXISTING BUILDINGS

INVASIVE SPECIES CONTROL

1. FOR A LIST OF INVASIVE AND OTHER UNACCEPTABLE PLANT SPECIES REFER TO THE MASSACHUSETTS INVASIVE PLANT ADVISORY GROUP (MIPAG) EVALUATION OF NON-NATIVE PLANT SPECIES FOR INVASIVENESS IN MASSACHUSETTS (APRIL 1, 2005). PLANT MATERIALS LISTED AS AN INVASIVE SPECIES OR UNACCEPTABLE PLANT SPECIES SHALL NOT BE USED ON THE PROJECT.
2. SOIL MATERIAL BROUGHT TO THE SITE SHALL NOT BE FROM SOURCES KNOWN TO CONTAIN INVASIVE SPECIES.
3. SOIL EXCAVATED AND REMOVED THAT CONTAINS INVASIVE PLANT SEEDS OR FRAGMENTS SHOULD BE TREATED AS CONTAMINATED. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL OF THIS MATERIAL

AECOM

PROJECT

Tri-Town Septage Treatment Facility Demolition
Orleans, MA

CLIENT

Orleans Brewster Eastham Groundwater Protection District
C/O JOHN KELLY, ORLEANS TOWN ADMINISTRATOR
19 SCHOOL ROAD
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REGISTRATION

ISSUE/REVISION

ID	DATE	DESCRIPTION
0	2016-12-07	FINAL - ISSUE FOR BID

PROJECT NUMBER

60478644

Designed By:	M. Curran
Drawn By:	M. Curran
Dept Check:	T. Ponsoa
Proj Check:	J. Pebbs
Date:	December 2016
Scale:	N/A

DISCIPLINE

GENERAL

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G-002

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AERIAL PLAN

SCALE: 1" = 50'

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Filename: C:\USERS\CURRAHM\DESKTOP\ORLEANS\SHEETS\C\C-101_104.DWG

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AECOM

PROJECT

Tri-Town Septage Treatment Facility Demolition
Orleans, MA

CLIENT

Orleans Brewster Eastham Groundwater Protection District
C/O JOHN KELLY, ORLEANS TOWN ADMINISTRATOR
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REGISTRATION

THOMAS E. PARECE CIVIL No. 34103 REGISTERED PROFESSIONAL ENGINEER
12/5/16

ISSUE/REVISION

NO.	DATE	DESCRIPTION
0	2016-12-07	FINAL - ISSUE FOR BID

PROJECT NUMBER

60476644

Designed By:	M. Curran
Drawn By:	M. Curran
Dept Check:	T. Parece
Proj Check:	J. Petras
Date:	December 2016
Scale:	N/A

DISCIPLINE

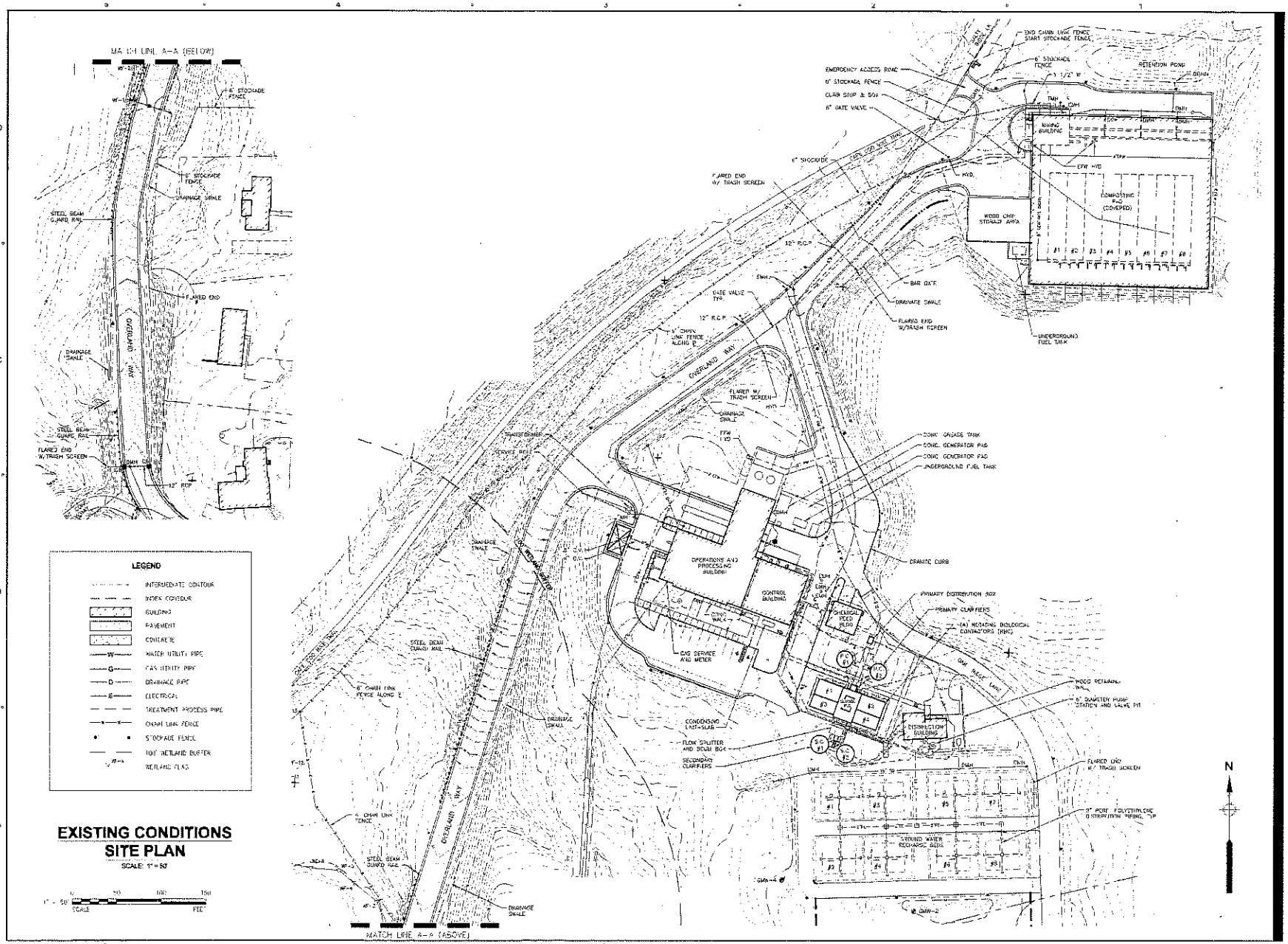
GENERAL

SHEET TITLE

AERIAL PLAN

SHEET NUMBER

C-101



LEGEND

- INTERMEDIATE CONTOUR
- INDEX CONTOUR
- BUILDING
- PAVEMENT
- CONCRETE
- W — WATER UTILITY PIPE
- G — GAS UTILITY PIPE
- D — DRAINAGE PIPE
- E — ELECTRICAL
- TREATMENT PROCESS PIPE
- CHAIN LINK FENCE
- STOCKADE FENCE
- 100' WETLAND BUFFER
- WETLAND FLAG

EXISTING CONDITIONS SITE PLAN

SCALE: 1" = 50'

1" = 50' SCALE 0 50 100 150 FEET

AECOM

PROJECT

Tri-Town Septage Treatment Facility Demolition
Orleans, MA

CLIENT

Orleans Brewster Eastham Groundwater Protection District
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REGISTRATION

ISSUE/REVISION

MR	DATE	DESCRIPTION
0	2016-12-07	FINAL - ISSUE FOR BID

PROJECT NUMBER

60478644

Designed By:	M. Curran
Drawn By:	M. Curran
Dept Check:	T. Pappa
Proj Check:	J. Petras
Date	December 2016
Scale	N/A

DISCIPLINE

GENERAL

SHEET TITLE

EXISTING CONDITIONS SITE PLAN

SHEET NUMBER

C-102

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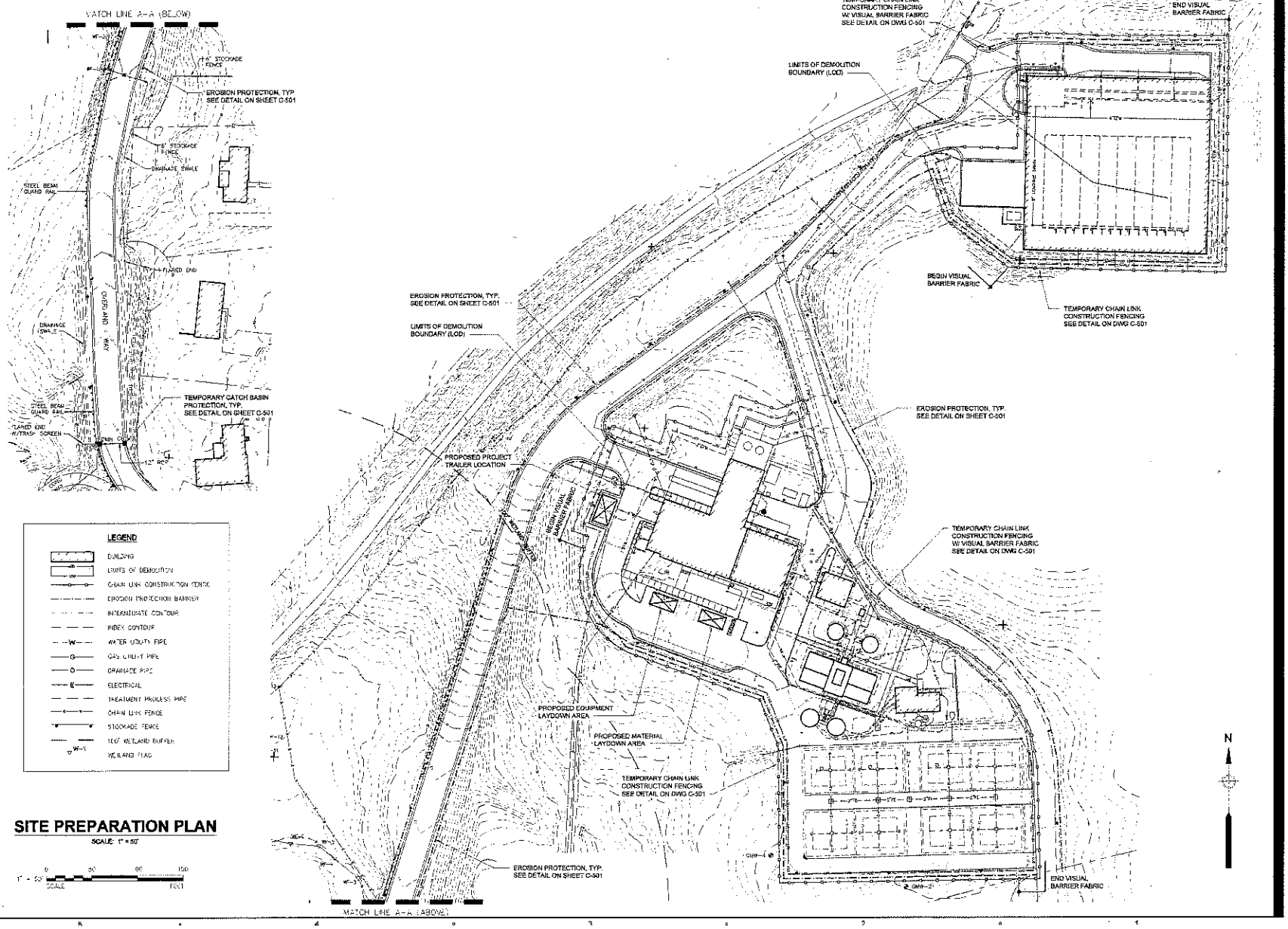

SITE PREPARATION PLAN

SCALE: 1" = 50'

1" = 50' SCALE 0 30 60 120 FEET

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PROJECT

Tri-Town Septage Treatment Facility Demolition
Orleans, MA

CLIENT

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REGISTRATION

THOMAS E. PARESE No. 34453 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

ISSUE/REVISION

NR	DATE	DESCRIPTION
0	2016-12-07	FINAL - ISSUE FOR BID

PROJECT NUMBER

60478544

Designed By:	M. Curran
Drawn By:	M. Curran
Dept Check:	T. Parese
Proj Check	J. Porras
Date:	December 2016
Scale:	N/A

DISCIPLINE

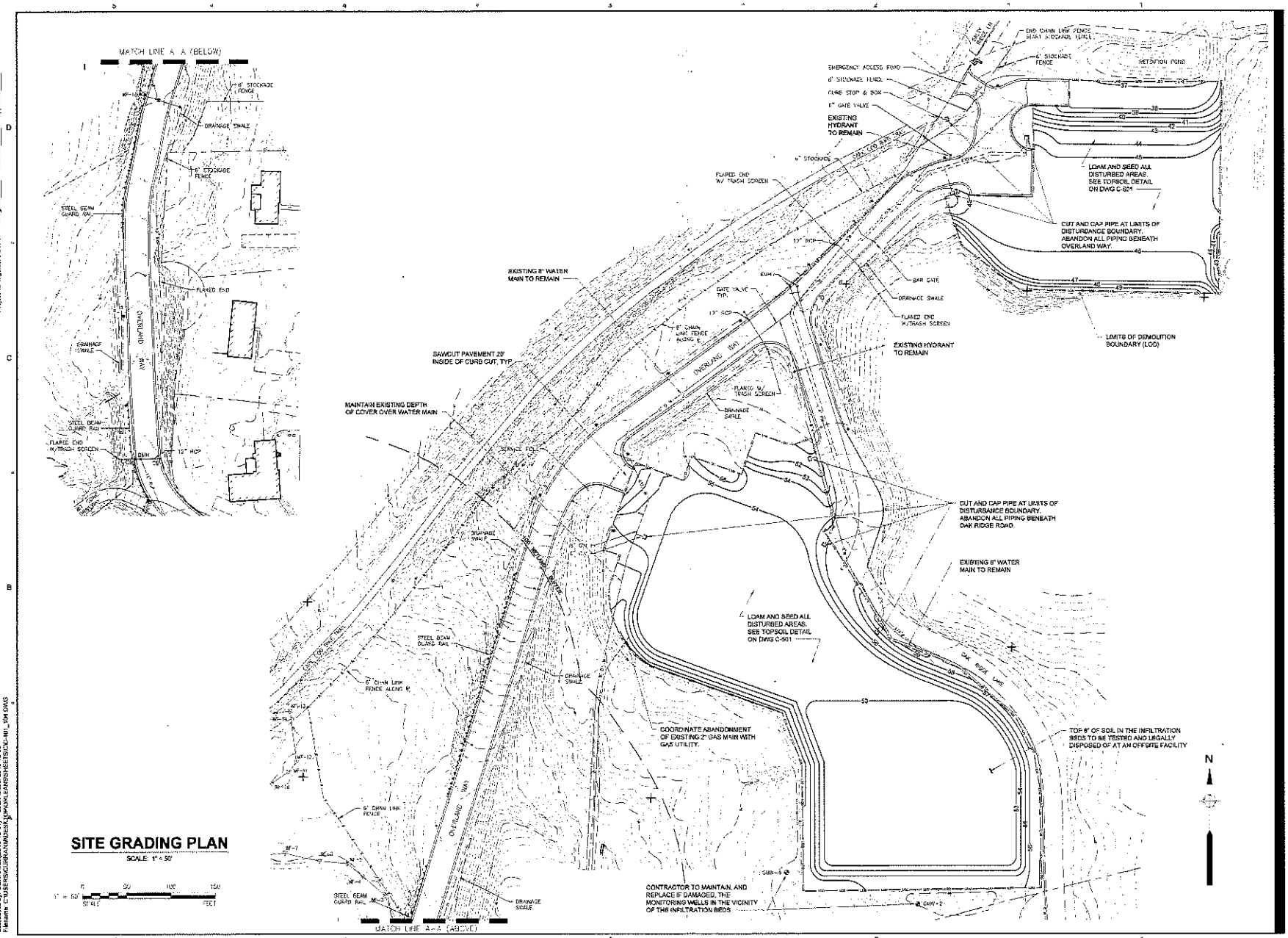
GENERAL

SHEET TITLE

SITE PREPARATION PLAN

SHEET NUMBER

C-103



SITE GRADING PLAN

SCALE: 1" = 50'

0 50 100 150

1" = 50' SCALE FEET

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Project Management Initials: Designer: Checked: Approved:

AECOM

PROJECT

Tri-Town Septage Treatment Facility Demolition
Orleans, MA

CLIENT

Orleans Brewster Eastham Groundwater Protection District
C/O JOHN KELLY, ORLEANS TOWN ADMINISTRATOR
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REGISTRATION

THOMAS E. PARRISH 36113 REGISTERED PROFESSIONAL ENGINEER
12/7/16

ISSUE/REVISION

0	2016-12-07	FINAL - ISSUE FOR BID
NR.	DATE	DESCRIPTION

PROJECT NUMBER

60476544

Designed By:	M. Curran
Drawn By:	M. Curran
Dept Check:	T. Parrish
Proj Check:	J. Potras
Date:	December 2016
Scale:	N/A

DISCIPLINE

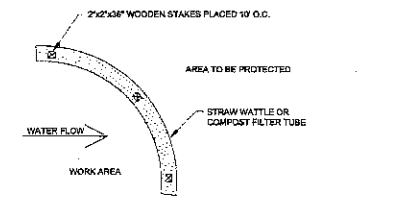
GENERAL

SHEET TITLE

SITE GRADING PLAN

SHEET NUMBER

C-104



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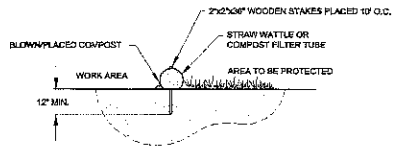
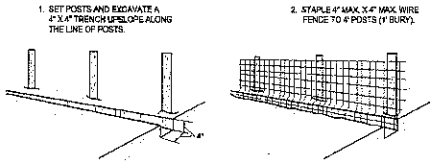


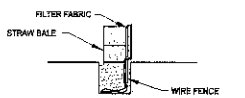
SECTION

NOTES:
1. SEE SPECIFICATION FOR STRAW WATTLE AND FILL MATERIAL REQUIREMENTS.

STRAW WATTLE OR COMPOST FILTER TUBE

NOT TO SCALE





SECTION

SILT FENCE

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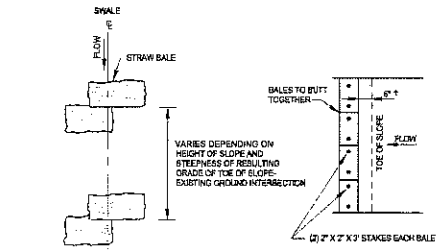

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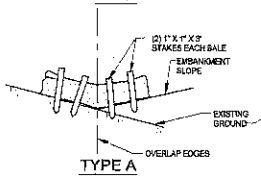
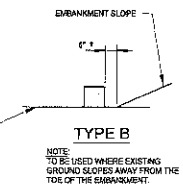


TYPE A

NOTE:
TO BE USED IN LOCATION WHERE THE EXISTING GROUND SLOPES IN TOWARD THE TOE OF THE EMBANKMENT.

PLAN

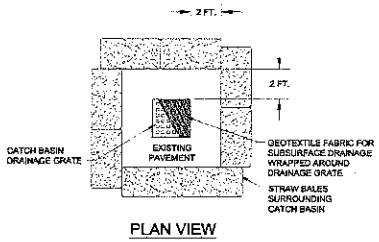


TYPE B

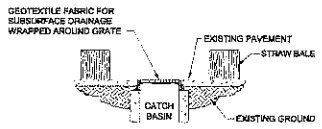
NOTE:
TO BE USED WHERE EXISTING GROUND SLOPES AWAY FROM THE TOE OF THE EMBANKMENT.

STRAW BALE EROSION CONTROL

NOT TO SCALE



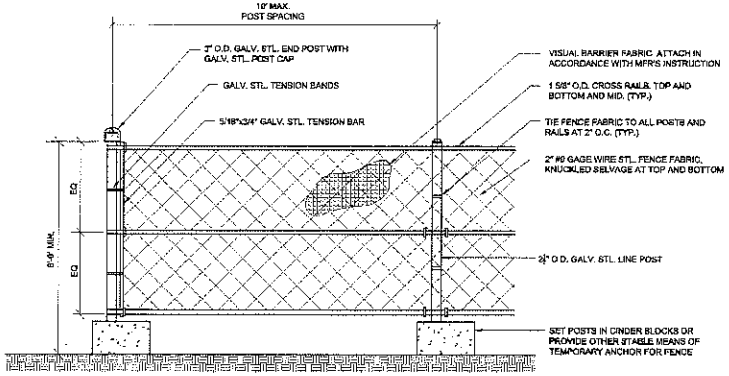
PLAN VIEW



ELEVATION

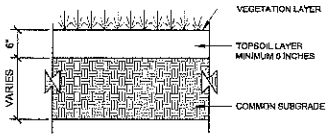
TEMPORARY CATCH BASIN PROTECTION

NOT TO SCALE



TEMPORARY CHAIN LINK CONSTRUCTION SAFETY FENCE

NOT TO SCALE



TOPSOIL DETAIL

NOT TO SCALE

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AECOM

PROJECT

Tri-Town Septage Treatment Facility Demolition
Orleans, MA

CLIENT

Orleans Brewster Eastham Groundwater Protection District
C/O JOHN KELLY, ORLEANS TOWN ADMINISTRATOR
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CONSULTANTS

REGISTRATION

ISSUE/REVISION

NR.	DATE	DESCRIPTION
0	2016-12-07	FINAL - ISSUE FOR BID

PROJECT NUMBER

60476644

Designed By:	M. Curran
Drawn By:	M. Curran
Dept Check:	T. Parece
Proj Check:	J. Petros
Date:	December 2016
Scale:	As Noted

DISCIPLINE

CIVIL

SHEET TITLE

CIVIL DETAILS I

SHEET NUMBER

C-501