The City of Waltham

Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:

240 BEAVER STREET FIELD STATION,
ENVIRONMENTAL REMEDIATION

The GENERAL BID is due: Wednesday February 1st, 2023 at 10:00 AM

The Virtual PRE-BID Briefing: Tuesday January 24th, 2023 at 10:00 AM
(*See City's website for meeting info)*

LAST DAY FOR WRITTEN QUESTIONS: Wednesday January 25th, 2023 at 12:00 PM
(Emailed to cphilpott@city.waltham.ma.us)

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CITY OF WALTHAM
MASSACHUSETTS

NOTICE TO BIDDERS

240 Beaver Street Environmental Remediation

The City of Waltham, Massachusetts invites sealed bids from Contractors for the **240 Beaver Street Environmental Remediation, Waltham, Massachusetts**. The work consists of the environmental clean-up of the sections indicated in this document

PLANS, SPECIFICATIONS and other Contract Documents may be obtained by visiting the City's Web Site at www.city.waltham.ma.us/bids

Copies of Addenda will be e- mailed to the registered Bidders without charge. Addenda will also be posted in the web site above

Sealed **BIDS** for this project will be accepted from eligible bidders at the Purchasing Department, Waltham City Hall, 610 Main Street, Waltham, MA 02452 until **Wednesday February 1st, 2023 at 10:00AM** at which place and time they shall be publicly opened, read aloud via Zoom and recorded for presentation to the Awarding Authority.

A **PRE-BID CONFERENCE AND BRIEFING** will be held for all interested parties at **Tuesday January 24th 2023 at 10:00AM** via Zoom, see the City's website for details. Attendance at this pre-bid conference is strongly recommended but not mandatory for parties submitting a bid.

LAST DAY FOR WRITTEN QUESTIONS is at 12 noon Wednesday January 25th, 2023. Questions are to be sent via **e-mail only** to cphilpott@city.waltham.ma.us

Each general bid shall be accompanied by a bid deposit in the form of a bid bond, certified check, or a treasurer's or cashier's check issued by a responsible bank or trust company, payable to the City of Waltham in the amount of five percent (5%) of the value of the bid

Bids shall be made on the basis of the Minimum Wage Rates as determined by the Commissioner of Labor and Industries, Pursuant to the Provisions of Chapter 149, Sections 26 to 27D inclusive of Massachusetts General Laws, a copy of which is found in the City's Web site at www.city.waltham.ma.us/bids .

Bidders' selection procedures and contract award shall be in conformity with the rules of Commonwealth of Massachusetts statute Chapter 30, 39M.

Performance and Labor and Materials payment bonds each in the full amount of the contract price will be required from the successful bidder.

The Awarding Authority reserves the right to reject any or all general bids, if it be in the public interest to do so, and to reject any sub-bid on any sub-trade if it determines that such sub-bid does not represent the sub-bid of a person competent to perform the work as specified or that less than three such sub-bids were received and that the prices are not reasonable for acceptance without further competition.

The successful bidder will be required to furnish a Certificate of Insurance, naming the City of Waltham as an Additional Named Insured with a waiver of subrogation, for General Liability and Vehicle Liability in the amount of $1,000,000 per occurrence and $1,000,000 in the aggregate and Worker's Compensation Insurance as prescribed by law.

In accordance with the laws of the Commonwealth of Massachusetts the undersigned certifies that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by OSHA that is at least 10 hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

All contract made by any department, board or commission where the amount involved is two thousand dollars ($2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars ($5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

CITY OF WALTHAM

Crystal Philpott, Purchasing Agent
Purchasing Department
City Hall, 610 Main Street
Waltham, MA 02452

SECTION 00 10 00 - INSTRUCTION TO BIDDERS

PART 1 - GENERAL

1.01 SCHEDULE OF DATES

A. Advertisement appears in Central Register, Plans and Specifications ready for Bidders at the City of Waltham's website after 10:00AM on January 11th, 2023.

B. **Pre-bid Briefing: Tuesday January 24th, 2023 at 10:00AM** via Zoom. Please see the City's website for meeting login information.

C. **Questions** and requests for interpretations may be submitted in writing via e-mail ONLY to cphilpott@city.waltham.ma.us up to **12:00PM January 25th, 2023.**

D. Addenda will be issued with interpretations as determined by the Purchasing Department only via e-mail and posting on the web site.

E. **General Bids Deadline**: **Wednesday February 1st, 2023 at 10:00AM,** in the Purchasing Department, City Hall, 610 Main Street, Waltham, MA 02452, Attn: Crystal Philpott, Purchasing Agent, where the bids will be publicly open and read via Zoom.(see City's website for meeting info)

1.02 BIDDING PROCEDURE

A. Bids for the work are subject to the provisions of General Laws, Chapter 149, as amended. Regulations governing the bidding procedures as set forth in the above mentioned amended General Laws must be followed.

B. In the event of any inconsistencies between any of the provisions of these Contract Documents and of the cited statute, anything herein to the contrary notwithstanding, the provisions of the said statute shall control.

C. No General Bid received by the Awarding Authority after the time respectively established herein for the opening of General Bids will be considered, regardless of the cause for the delay in the receipt of any such bid.

1.03 WITHDRAWAL OF BIDS

A. Bids may be withdrawn prior to the time respectively established for the opening of General Bids only on written request to the Awarding Authority.

1.04 INTERPRETATION OF CONTRACT DOCUMENTS

A. No oral interpretation will be made to any bidder. All questions or requests for interpretations must be made in writing to the Architect.

B. Every interpretation made to a bidder will be in the form of an Addendum to the drawings and/or specifications, which will be made available to all persons to whom Contract Documents have been issued.

C. Failure of the Awarding Authority to send or of any bidder to receive any such Addendum shall not relieve any bidder form obligation under his bid as submitted.

D. All such Addenda shall become a part of the Contract Documents.

1.05 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

A. Each bidder may visit the site of the proposed work and fully acquaint himself with conditions as they exist, and may also thoroughly examine the Contract Documents. Failure of any bidder to visit the site and acquaint himself with the Contract Documents shall not relieve any bidder from any obligation with respect to his bid.

B. By submitting a bid, the bidder agrees that the Contract Documents are adequate and that the required result for a full and complete installation can be produced. The successful bidder shall furnish any and all labor, materials, insurance, permits and all other items needed to produce the required result to the satisfaction of the Awarding Authority.

1.06 BID SECURITY

A. The General Contractor’s bid must be accompanied by bid security in the amount of five percent (5%) of the bid.

B. At the option of the bidder, the security may be bid bond, certified, treasurer’s or cashier’s check issued by a responsible bank or trust company. No other type of bid security is acceptable.

Bid Bonds shall be issued by a Surety Company qualified to do business under the laws of the Commonwealth of Massachusetts.

C. Certified, Treasurer’s or Cashier’s check shall be made payable to the City of Waltham, Massachusetts.

D. The bid security shall secure the execution of the Contract and the furnishing of a Performance and Payment Bond by the successful General Bidder for 100% of the contract value.

E. Should any General Bidder to whom an award is made fail to enter into a contract therefore within five (5) days, Saturdays, Sundays and Legal Holidays, excluded, after notice of award has been mailed to him or fail within such time to furnish a Performance Bond and also a Labor and Materials or Payment Bond as required, the amount so received from such General Bidder through his Bid Bond, Certified, Treasurer's or Cashier's check as bid deposit shall become the property of the City of Waltham, Massachusetts as liquidated damages; provided that the amount of the bid deposit, which becomes the property of the City of Waltham, Massachusetts, shall not in any event exceed the difference between his bid price and the bid price of the next lowest responsible and eligible bidder; and provided further that, in case of death, disability, bona fide clerical error or mechanical error of a substantial nature, or other unforeseen circumstances affecting the General Bidder, his deposit shall be returned to him.

1.07 BID FORM

A. General Bids shall be submitted on the "FORM FOR GENERAL BID" enclosed. Erasures or other changes must be explained or noted over the signature of the bidder.

B. Bid forms must be completely filled in. Bids which are incomplete, conditional, or obscure, or which contain additions not called for will be rejected.

C. General Bidders shall submit one set of executed bid forms to the Awarding Authority.

1.08 SUBMISSION OF BIDS AND BID SECURITIES

A. Each bid submitted by a General Contractor shall be enclosed in a sealed envelope that shall be placed with the bid security in an outer envelope. The outer envelope shall be sealed and clearly marked as follows:

(Firm Name): _____

240 Beaver St. Environmental Remediation

1.09 AWARD OF CONTRACT

A. The Contract shall be awarded to the lowest responsible and eligible General Bidder's Total Base Bid on the basis of competitive bids in accordance with the procedure set forth in the provision of Chapter 30, §39M of the General Laws of the Commonwealth of Massachusetts.

B. If the bidder selected as the General Contractor fails to perform his agreement to execute a contract in accordance with the terms of his General Bid, and furnish a Performance Bond and also a Labor and Materials or Payment Bond, as stated in his General Bid an award shall be made to the next lowest responsible and eligible bidder.

C. The words “lowest responsible and eligible bidder” shall be the bidder whose name is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work and 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, on the work. Essential information in regard to such qualifications shall be submitted in such form as the Awarding Authority may require.

D. Action on the award will be taken within ninety (90) days, Saturdays, Sundays and Legal Holidays excluded after the opening of the bids.

1.10 SECURITY FOR FAITHFUL PERFORMANCE

A. The successful bidder must deliver to the Awarding Authority simultaneously with his delivery of the executed contract, an executed Performance Bond, and also a Labor and materials or Payment Bond, each issued by a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of One Hundred Percent (100%) of the Contract Price, as surety for the faithful performance of his contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. Said bonds shall provide that, if the General Contractor fails or refuses to complete the Contract, the Surety Company will be obligated to do so.

B. Premiums are to be paid by the General Contractor, and are to be included in the Contract Price.

1.11 EQUAL OPPORTUNITY

A. The City of Waltham is an Equal Opportunity employer and will require compliance with the minority business enterprise plan (MBE) on file in the Purchasing Department

1.12 PRE-BID BRIEFING

A. A pre-bid conference will be held via Zoom on **Tuesday January 24th, 2023 at 10:00AM.** Please see the City's website for meeting information.

1.13 SITE VISITS

A. N/A

1.14 CONTRACT DOCUMENTS

A. The Awarding Authority shall make available the bid documents and addenda in the City Web site at www.city.waltham.ma.us/ bids. No plans will be mailed.

1.15 EQUALITY

A. Except where otherwise specifically provided to the contrary, the words "or approved equal" are hereby inserted immediately following the name or description of each article, assembly, system, or any component part thereof in the Contract Documents. It is the Contractor's responsibility to provide all the research and documentation that would prove a product or assembly is "equal". Failure to provide research or documentation does not alleviate the Contractor's responsibility to meet the schedule.

1.16 TAX FREE NUMBER

A. The City of Waltham has a tax-free number.

1.17 SCHEDULE

A. The work of the Contract shall be Substantially Complete in **90 calendar days** after the date of the Notice-to-Proceed and **not including winter shut-down**.

1.18 INTENTIONALLY LEFT BLANK

1.19 WEEKLY JOB MEETINGS

A. There will be a weekly job meeting at the site on the same agreed-upon day and time. Time will be provided to discuss and view the progress of the work and to answer questions. The Contractor's job Superintendent and Project Manager shall attend each meeting. The City reserves the right to have job meetings conducted in the location of its choosing.

1.20 PROJECT SUPERINTENDENT

A. The Contractor shall provide the same person as Superintendent for the entire duration of the project. Failure to maintain the same person in this position shall result in a One Thousand Dollar ($1,000.00) penalty per incident which shall cover the Architect's time to re-orient new personnel.

1.21 AWARD

A. The Awarding Authority reserves the right to reject any or all bids if it be in the public interest to do so, and to act upon the bids and make its award in any lawful manner.

1.22 PREVAILING WAGE SCHEDULE

A. Bids shall be made on the basis of the Prevailing Wage Schedule, as determined by the Commissioner of Labor and Industries, pursuant to the provision of the Massachusetts General Laws. The Prevailing wage Schedule for this project can be found in the City's web Site at www.city.waltham.ma.us/ bids

1.23 CONFLICT OF INTEREST

A. A bidder filing a proposal thereby certifies that the proposal is made in good faith, without fraud, collusion, or connection of any kind with any other bidder for the same work, and that the bidder is competing solely on its own behalf without connection with, or obligation to, any undisclosed person or firm.

1.24 PROCEED ORDERS

A. No bidder is to proceed without a proceed order as set out in the contract.

1.25 INTENTIONALLY LEFT BLANK

1.26 COMPLIANCE WITH MASSACHUSETTS GENERAL LAWS

A. Pursuant to Massachusetts General Laws, Chapter 62C, Section 49A, I certify under the penalty of perjury that I, to the best of my knowledge and belief have filed all state tax returns and paid all the state taxes required under law.

1.27 CONSTRUCTION BARRICADES

A. The General Contractor shall provide all barricades to enclose the work area to prevent unauthorized access to the site.

1. The barricades shall provide enough room for all construction activities to be performed while separated from pedestrians, students, and staff on site.

2. Safety is the sole responsibility of the Contractor and any barricades necessary to protect the work and the public shall be provided.

3. Provide entrance protection.

1.28 INSURANCE

A. The contractor shall purchase and maintain, at his expense all insurance required by the Contract. Documents and all insurance required by the applicable laws of Massachusetts, including but not limited to, General Laws, Chapter 146, in connection with all hoisting equipment.

B. The Contractor shall purchase and maintain such insurance as will protect him from claims under workmen's compensation acts and from claims for damages because of bodily injury, including death and all property damage including, without limitation, damage to buildings and adjoining the site of construction which might arise from and during operations under this contract, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them including:

1. Statutory Worker's Compensation and Employer's Liability

The contractor shall provide insurance for the payment of compensation and the furnishing of other benefits under Chapter 152 of the General Laws (so-called Worker's Compensation Act) to all persons to be employed under this contract and shall continue in force such insurance as aforesaid shall be deemed a material breach of this Contract and shall operate as an immediate termination thereof. The contractor shall, without limiting the generality of the foregoing, conform to the

provisions of Section 34A of Chapter 149 of the General Laws, which Section is incorporated herein by reference and made a part of hereof.

2. Comprehensive General Liability Insurance

   Minimum bodily injury limits of $ 1,000,000 per person and $ 1,000,000 per accident, and property damage limits of $ 500,000 per accident and $ 1,000,000 aggregate during any 12 month period, shall include the following:

   a. Public liability (bodily injury and property damage)
   b. X.C.U. (explosion, collapse, and underground utilities)
   c. Independent contractor's protective liability.
   d. Products and completed operations.
   e. Save harmless agreement for Owner and Architects set forth in ARTICLE 10.11 of the GENERAL CONDITIONS.

3. Comprehensive All Risk Motor Vehicle Liability Insurance

   Minimum bodily injury limits of $ 500,000 per person, $ 1,000,000 per accident, and property damage limit of $ 1,000,000 per accident.

4. All Risk Insurance

   Covering all Contractors' equipment with a provision for Waiver of Subrogation against the Owner.

5. Excess Liability Insurance in Umbrella Form with combined Bodily Injury and Property Damage Limit of $ 1,000,000.

6. **City of Waltham shall be a Named Additional Insured with a Waiver of Subrogation on the insurance policy for this project.**

1.29 SITE ACCESS

A. The General Contractor shall gain access to the site via routes approved by the Owner.

1. The General Contractor as part of the bid price will restore all roads, curbs, driveways, walks and grassed or landscaped areas damaged during construction.

1.30 CONSTRUCTION TRAILER

A. The General Contractor shall locate the construction trailer at locations approved by the Owner.

B. The General Contractor shall locate all on site stored or staged materials within the enclosed area designated by the Owner.

1.31 INTENTIONALLY LEFT BLANK

1.32 COMPLETE BID FORMS

A. Please Note: Each bidder must fill in all the blanks on all the bid forms, even if the information is “zero dollars” or “not applicable”. Also, please acknowledge all Addenda issued by the Awarding Authority.

2.00 FUNDS APPROPRIATION and LOAN AUTHORIZATION**.**

A THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

3.0 CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

A All contract made by any department, board or commission where the amount involved is two thousand dollars ($2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other

contracts may, where the contract exceed five thousand dollars ($5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor

Signature of Individual or Corporate Name

By:

_____

(Signature of Corporate Officer if applicable)

Title:_____

Social Security Number or Federal Identification Number: _____

END OF SECTION

SECTION 00 31 00 FORM FOR GENERAL BID

240 Beaver Street, Environmental Remediation

General Bid Opening Date: Wednesday February 1st, 2023 at 10:00 AM

Crystal Philpott, Purchasing Agent
City of Waltham
610 Main Street
Waltham, MA 02452

A. Basic Price

The undersigned: _____
(Please type or print the business name of the bidding firm)
having visited the site of the above project and having familiarized myself with the local conditions affecting the cost of the work and with the contract documents, including Amendments and Addenda No's. ____, ____, ____, ____,_____ hereby proposes to furnish all labor (including Sub Bids), materials, tools, equipment, insurance, permits and taxes, and to do and lawfully perform all things as provided in the specifications, all in accordance with the contract documents, for the sum of:

1. **TOTAL Base Bid (in words)_____**

Dollars, $_____

The Bidder further attest that the above prices are all **Inclusive and Fixed prices.**

2. **UNIT PRICE No. 1: Price per ton for the excavation and disposal of additional soil over and above the volume estimated in the soil characterization report.**

Per Ton Soil Excavation and Disposal $ _____

B. Left Blank Intentionally

C. The undersigned agrees that, if s/he is selected as General Contractor, s/he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the Awarding Authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each issued by a surety company qualified to do business under the laws of the Commonwealth and

satisfactory to the Awarding Authority and each in the sum of the contract price, the premiums for which are to be paid by the General Contractor and are included in the contract price.

D. The undersigned certifies that s/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 and that s/he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A.

E. The undersigned as Bidder certifies that if this proposal is accepted, s/he will furnish to the City of Waltham with the invoice for the material or equipment supplied two copies of any and all Material Safety Data Sheets applicable to such material or equipment, as required by M.G.L. Chapter 111F, so called "Right to Know Law".

F. 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. The word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

G. Substantial Completion

The work of the Contract shall be Substantially Completed in sixty **(60) calendar days not including winter or weather shut-downs**.

H. In accordance with M.G.L., the undersigned certifies that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by OSHA that is at least 10 hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

Sincerely,

_____
(Bidder)

_____
(Address of Bidder)

By: _____
(Title - Owner*, Partner*)

(Seal, if Corporation)

By: _____
(If Corporation - Name and Office)

* If the business owned by the individual or partnership is conducted under a trade or assumed name, a certified copy of doing business under an assumed name should be annexed.

Section 00 50 00
FORM OF CONTRACT

AGREEMENT made between the **CITY OF WALTHAM,** a municipal corporation duly established under the laws of the Commonwealth of Massachusetts, through its Mayor thereunto duly authorized, hereinafter called the OWNER, and _____ having a usual place of business at _____ hereinafter called the CONTRACTOR.

The CONTRACTOR having accepted the Public Bid terms, condition and specifications for the **240 Beaver Street Environmental Remediation** all of which are hereto attached and made a part hereof, hereinafter called the DOCUMENTS, and the CONTRACTOR hereby agrees to provide the labor, materials, services and work in accordance with the quotation, bid, proposal and said DOCUMENTS

If applicable, all contractors must comply with the prevailing wage rate law as required under the provisions of all Massachusetts General Law

All appropriate Bonds and Certificates of Insurance, per specifications, will be submitted before Contract is signed. This Contract shall not be in effect nor any work commenced until the Mayor signs the Contract.

IN WITNESS WHEREOF, the OWNER sets its hand and corporate seal through its Purchasing Agent thereunto duly authorized, and the CONTRACTOR hereunto sets its hand and seal on the day and year first above written.

Bid package and company response are incorporated herewith by reference.

APPROVED AS TO FORM ONLY

_____
John Cervone,
City Solicitor
Date_____

APPROVED, MAYOR

_____
Jeannette A. McCarthy,
Mayor
Date_____

CITY OF WALTHAM

_____
Crystal Philpott
Purchasing Agent
Date: _____

FOR THE COMPANY

_____
Authorized Signature

_____
Print Name
Date _____

WALTHAM BUILDING DEPARTMENT

_____
John Millian, Building Superintendent
Date_____

AUDITING DEPT.

_____
Paul G. Centofanti,
City Auditor
Date_____

SECTION 00 50 10

PERFORMANCE BOND

CITY OF WALTHAM

KNOW ALL MEN BY THESE PRESENT THAT,
_____ as

principal and _____ as surety, are held and firmly bound unto the CITY OF WALTHAM and to such persons, firms, and corporations, who may furnish materials for or perform labor on the work, construction or improvements contemplated in the Contract hereinafter mentioned, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, in the

SUM OF _____DOLLARS ($_____)
(lawful money of the United States of America) for the payment whereof the Contractor and the Surety of Sureties bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT for the above burden (the Contractor) its

_____
heirs, executors, administrators and assigns, shall faithfully perform the Contract, on his part and during the life of any guaranty or warranty, for defective materials and workmanship required under this Contract, and satisfy all claims and demands incurred for the same; and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of failure so to do, and shall fully reimburse and repay the City all outlay and expense which the City may incur in making good any such default, and shall promptly make payment to all persons supplying labor or materials for use in the prosecution of the work provided for in said Contract; and shall indemnify and save harmless the said City, its officers and agents from any and all suits or claims for injury or damage to persons or property resulting from or arising our of the work done under this Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that (except as to the City) no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after two years from the day on which the final payment under the Contract falls due.

AND PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or any assignment, transfer or subletting of any part of the work, or the giving by the City of any extension of time for the performance of the Contract, or any other forbearance on the part of either the City or the Contractor to the other, shall not in any way release the Contractor and the Surety of Sureties, or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety or Sureties of any such alterations, assignment, transfer, subletting extension or forbearance being hereby waived.

This Bond is made for the use and benefit of all persons, firms, and corporations who may furnish materials, or perform any labor for or on account of said work, construction or improvements, or who may have any suits or claims for injury or damage to persons or property resulting from or arising our of the work done under this Contract, and they and each of them are hereby made obligees hereunder the same as if their own proper names were written herein as such, and they and each of them may sue hereon in their own names for their own use and benefit.

And the 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 hereunder, or the Specifications accompanying the same, shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such changes, extension of time, alteration or addition to the terms of the Contract or to the work, or to the Specifications.

IN WITNESS WHEREOF, said Contractor and Surety have hereunto set their respective names this

_____ day of _____, 20_____.

WITNESSES:

(CONTRACTOR) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____
(SURETY) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____ BY _____
(ATTORNEY-IN-FACT)

POWER OF ATTORNEY
Attorneys-in-fact who sign bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

SECTION 00 50 20

PAYMENT BOND

CITY OF WALTHAM

KNOW ALL MEN BY THESE PRESENT THAT,
_____ as

principal and _____ as surety, are held and firmly bound unto the CITY OF WALTHAM and to such persons, firms, and corporations, who may furnish materials for or perform labor on the work, construction or improvements contemplated in the Contract hereinafter mentioned, or who may have any suits or claims for injury or damage to persons or property resulting from or arising out of the work done under this Contract, in the

SUM OF _____DOLLARS ($_____)
(lawful money of the United States of America) for the payment whereof the Contractor and the Surety of Sureties bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT for the above burden (the Contractor) its

_____
heirs, executors, administrators and assigns, shall faithfully perform the Contract, on his part and during the life of any guaranty or warranty, for defective materials and workmanship required under this Contract, and satisfy all claims and demands incurred for the same; and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of failure so to do, and shall fully reimburse and repay the City all outlay and expense which the City may incur in making good any such default, and shall promptly make payment to all persons supplying labor or materials for use in the prosecution of the work provided for in said Contract; and shall indemnify and save harmless the said City, its officers and agents from any and all suits or claims for injury or damage to persons or property resulting from or arising our of the work done under this Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

PROVIDED, HOWEVER, that (except as to the City) no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after two years from the day on which the final payment under the Contract falls due.

AND PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or any assignment, transfer or subletting of any part of the work, or the giving by the City of any extension of time for the payment of the Contract, or any other forbearance on the part of either the City or the Contractor to the other, shall not in any way release the Contractor and the Surety of Sureties, or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety or Sureties of any such alterations, assignment, transfer, subletting extension or forbearance being hereby waived.

This Bond is made for the use and benefit of all persons, firms, and corporations who may furnish materials, or perform any labor for or on account of said work, construction or improvements, or who

may have any suits or claims for injury or damage to persons or property resulting from or arising our of the work done under this Contract, and they and each of them are hereby made obligees hereunder the same as if their own proper names were written herein as such, and they and each of them may sue hereon in their own names for their own use and benefit.

And the 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 hereunder, or the Specifications accompanying the same, shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such changes, extension of time, alteration or addition to the terms of the Contract or to the work, or to the Specifications.

IN WITNESS WHEREOF, said Contractor and Surety have hereunto set their respective names this

_____ day of _____, 20_____.

WITNESSES:

(CONTRACTOR) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____
(SURETY) (SEAL)

NAME _____ BY _____
(SIGNATURE AND TITLE)

ADDRESS _____ BY _____
(ATTORNEY-IN-FACT)

POWER OF ATTORNEY
Attorneys-in-fact who sign bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

SECTION 00 50 30

GENERAL CONDITIONS

1. INFORMATION

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words "or equal as approved" are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

2. SUITS

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

3. LAWS AND REGULATIONS

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

4. PROTECTION OF PROPERTY

The Contractor shall take all proper precautions to protect the City's property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

5. PROTECTION OF PERSONS

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be

suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

6. INSURANCE

A. WORKMAN'S COMPENSATION: The Contractor shall provide by insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor.

B. COMPREHENSIVE GENERAL LIABILITY

Bodily Injury:	$1,000,000 Each Occurrence
	$2,000,000 Aggregate
Property Damage:	$1,000,000 Each Occurrence
	$2,000,000 Aggregate

C. AUTOMOBILE (VEHICLE) LIABILITY

Bodily Injury	$2,000,000 Each Occurrence
Property Damage	$1,000,000 Aggregate

D. UMBRELLA POLICY

General liability	$2,000,000

Your bid response must include a Certificate of Insurance with the above limits as a minimum. In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: "The City of Waltham is a named Additional Insured for all Insurance". The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent
Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

7. LABOR AND MATERIALS BOND

The Contractor agrees to execute and deliver to the City, a Performance Bond and a Payment Bond **each** equal to 100% of the contract value. This contract shall not be in force until said

bond has been delivered and accepted by the City. Bond to be issued by a company licensed by the Commonwealth of Massachusetts.

INCLUDE A LETTER FROM A SURETY COMPANY CERTIFYING THAT THE CONTRACTOR IS QUALIFIED AND CAPABLE OF OBTAINING THE ABOVE BONDS WITH HIS/HERS BID.

8. **PERSONNEL**:

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

9. PREVAILING WAGES

The Contractor is required to pay the prevailing wages as determined under the provisions of Chapter 149, Sections 26 and 27D of the Massachusetts General Laws, including the submission of weekly payrolls to the awarding authority. Copies of the Prevailing Wage Schedule is found on line at www.city.waltham.ma.us/ bids

10. MATERIALS

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

11. TERMINATION OF CONTRACT

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

12. CONTRACT OBLIGATIONS

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

13. BIDDER EXPERIENCE EVALUATION

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

14. NOT-TO-EXCEED AMOUNT

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

16. FINANCIAL STATEMENTS.

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

17 BREACH OF CONTRACT/ NON PERFORMANCE

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute

Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

18 RIGHT TO AUDIT

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

19. **CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES**.

All contract made by any department, board or commission where the amount involved is two thousand dollars ($2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars ($5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

20. **BID OPENING INCLEMENT WEATHER**

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

21 **FUNDS APPROPRIATION.**

THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

22 THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, OR ANY PART OF ANY BID, WHICH IN THE OPINION OF THE AWARDING AUTHORITY, IS IN THE BEST INTERESTS OF THE CITY OF WALTHAM.

Section 00 50 40

Compliance

The documents in this section shall bear "wet" Original signatures and returned with your bid

Compliance

The compliance documents in this section must be completed, signed and returned **with your bid package**.

Purchasing Department

City of Waltham
610 Main Street
Waltham, MA 02452

Failure to submit the completed documents will cause the disqualification of the proposal.

Section Index

Check when Complete

- Non-collusion form and Tax Compliance form…… _____
- Corporation Identification Form…….. _____
- Certificate of Vote Authorization…….. _____
- Certificate of Insurance (showing all limits of WC &GL)..... _____
- Three (3) References…… _____
- 5% Bid Bond or Certified Check>..... _____
- Debarment Certificate …….. _____
- Prevailing Wage Certificate……. _____
- Right-to-know Law…… _____
- OSHA 10 Certificate for all Assigned Employees (MGL ch30, §39M and Ch 149) _____

Before the commencement of the Job, the contractor must provide to the above office:

- Performance and Payment Bonds **each** for 100% of the contract value and naming the City of Waltham

Your Company's Name: _____

Service or Product Bid_____

NOTE: Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

Wet Signature Required

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

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. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

_____, _____
(Signature of person signing bid or proposal) Date

_____
(Name of business)

Wet Signature Required

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 49A,I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____, _____
Signature of person submitting bid or proposal Date

_____
Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

Wet Signature Required

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of_____hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the_____day of_____at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____(*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seat, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that_____ is duly elected/appointed_____ _____of said corporation

SIGNED:

(Corporate Seal)

_____

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of_____ **Date:**

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me,_____

Notary Public;

My Commission expires: _____

Wet Signature Required

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____
President _____
Treasurer _____
Secretary _____
Federal ID Number_____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?
Yes _____, No _____
If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)
Name of partner _____
Residence _____
Name of partner _____
Residence _____

If an Individual:
Name _____
Residence _____

If an Individual doing business under a firm's name:
Name of Firm _____
Name of Individual _____
Business Address _____
Residence _____
Date _____

Name of Bidder _____
By _____
Signature
_____
Title
_____
Business Address (POST OFFICE BOX NUMBER NOT ACCEPTABLE)
_____
State Telephone Number Today's Date

PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES

1. Company Name:
   Address:
   Contact Name:
   Phone #
   Type of service/product provided to this Company:

   Dollar value of service provided to this Company:

2. Company Name:
   Address:
   Contact Name:
   Phone #
   Type of service/product provided to this Company:

   Dollar value of service provided to this Company:

3. Company Name:
   Address:
   Contact Name:
   Phone #
   Type of service/product provided to this Company:

   Dollar value of service provided to this Company:

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

WEEKLY PAYROLL RECORDS REPORT &
STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided, A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit, on a weekly basis, a copy of his or her weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

_____

STATEMENT OF COMPLIANCE

_____, 200____

I_____, _____
(Name of signatory party) (Title)

I do hereby state that I pay or supervise the payment of the persons employed by

_____ on the_____
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature_____, Title _____

Print_____

WEEKLY PAYROLL REPORT FORM

Company Name: _____

Project Name: _____

Awarding Auth.: _____

Work Week Ending: _____

☐ Final Report

☐ Prime Contractor

☐ Subcontractor
List Prime Contractor: _____

Employer Signature: _____

Print Name & Title: _____

Employee Name & Address	Work Classification	Hours Worked							(A) Tot. Hrs.	(B) Hourly Base Wage	Employer Contributions			(F) [B+C+D+E] Hourly Total Wage (prev. wage)	(G) [A*F] Weekly Total Amount
		S	M	T	W	T	F	S			(C) Health & Welfare	(D) Pension	(E) Supp. Unemp.		

NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority.

Wet Signature Required

RIGHT TO KNOW LAW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

Authorized Signature Indicating Compliance with the Right-to-know laws:

Signature **Date**

Print Name

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

Wet Signature Required

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the city of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, **State**_____, **Zip Code** _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative:

_____

Print name _____,

Date _____

Wet Signature Required

10 HOURS OSHA TRAINING CONFIRMATION

Chapter 306 of the Acts of 2004

CONSTRUCTION PROJECTS

AN ACT RELATIVE TO THE HEALTH AND SAFETY ON PUBLIC

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than $10,000.00 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 payroll report for each employee and will comply with all laws and regulations applicable to awards of subcontracts subject to section 44F.

Company Name: _____

Address: _____

Signature: _____

Title: _____

Print Name _____

Date_____

See Chapter 306 of the Acts of 2004

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

DIVISION 1
Technical Specifications

SOIL REMEDIATION AT
240 BEAVER STREET, WALTHAM, MA

TECHNICAL SPECIFICATIONS

01 11 00 Summary of Work
01 71 13 Mobilization, Staging and Demobilization
02 61 00 Handling, Transportation and Disposal of Excavated Materials
31 00 00 Earthwork

CONTRACT DRAWINGS

C-1.0 Approximate Area of Soil Excavation
FIGURE 1 Access Areas to Be Tested (A, B, C, E, F)

APPENDICES

APPENDIX A Draft Release Abatement Measure Plan and TSCA Performance Based Cleanup Plan, 240 Beaver Street, Waltham, MA, RTN's 3-36027 and 3-36180

SECTION 01 11 00

SUMMARY OF WORK

PART 1 -GENERAL

1.1 PROJECT/WORK IDENTIFICATION

A. General: The name of the project is "240 Beaver Street, Waltham, MA". The project number of 1830.20 as noted on Drawings, Specifications and contract documents produced by CDW Consultants, Inc.

1.2 DESCRIPTION OF WORK

A. The CONTRACTOR'S work includes certain contaminated soil excavation, management and disposal activities to be performed at a portion of the property at 240 Beaver Street, Waltham, MA in compliance with the Draft Release Abatement Measure (RAM) Plan dated September 22, 2022, and prepared in accordance with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000. Specific Contractor activities shall include the following:

- Clearing, grubbing, and preparation of the Site
- The excavation and off-site disposal of up to 500 cubic yards (800 tons) of soil impacted with metals, pesticides and PCBs
- Site restoration and backfill
- All other work and materials as specified, noted, and appurtenant
- All work to be completed 90 days from Notice to Proceed.

B. The CONTRACTOR shall provide a plan to manage, control and secure the work site during the performance of work. The plan shall describe site security, erosion control, and public safety measures as they relate to the use of equipment, access routes, and the management, storage and loading of excavated soil.

C. The Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Numbers (RTNs) associated with the Site are 3-36027 and 3-36180. CONTRACTOR is directed to MassDEP's online searchable site at https://eeaonline.eea.state.ma.us/portal#!/search /wastesite to obtain additional information about the Sites.

D. The CONTRACTOR shall retain an environmental consultant to collect surface soil samples along the access route in Areas 2-A, B, C, E and F as shown on the plan titled "Cornelia Warren Farm and Fieldhouse, City of Waltham Massachusetts." Ten soil samples shall be collected and laboratory analyzed prior to the start of the project, and ten soil samples shall be collected and laboratory analyzed upon completion of the project and after all contaminated soil has left the property. The sample locations shall

be approved by the City's Environmental Consultant and be analyzed for Polychlorinated Biphenyls (PCBs), Total Petroleum Hydrocarbons (TPH), total lead, total chromium, and pesticides.

1.3 COORDINATION

A. General: The Work of the Contract includes the beginning of construction activity through project closeout and warranty periods. The CONTRACTOR shall coordinate all Work with the City of Waltham and ENGINEER.

1.4 QUALITY ASSURANCE:

A. Quality Assurance Plans: The CONTRACTOR shall agree to participate in and conform to all items contained in the Draft RAM Plan and any modifications to that plan.

1.5 PERMITTING REQUIREMENTS:

A. Local and State Permits: The CONTRACTOR will be responsible for obtaining any local and State permits as required by the City of Waltham to perform the Work of the Contract. The CONTRACTOR shall comply with all requirements and conditions identified in the permits.

B. Other Permits: Permits, if required for other work including the development and/or operation of the CONTRACTOR's temporary facilities, shall be the responsibility of the CONTRACTOR.

1.6 CONTRACTOR REQUIREMENTS:

A. All employees of the CONTRACTOR and his Subcontractors shall have, at a minimum, OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training, including all appropriate refresher training, in accordance with 29 CFR 1910.120.

B. The CONTRACTOR shall develop its own site-specific health and safety plan for its workers and visitors to the work site. The CONTRACTOR shall provide its employees with appropriate personal protective equipment as warranted by site conditions and/or the results of employee personal exposure monitoring. The ENGINEER is not responsible for the health and safety of the CONTRACTOR.

END OF SECTION 01 11 00

SECTION 01 71 13

MOBILIZATION, STAGING AND DEMOBILIZATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Includes: The transportation and storage of all equipment, labor and materials to and from the construction site necessary to complete the Work.

B. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and these Specifications.

PART 2 - MATERIALS

NOT USED

PART 3 - EXECUTION

3.1 STORAGE AREA

It shall be the Contractor's sole responsibility to procure and maintain a suitable storage area for tools, materials and equipment necessary to perform the work.

1. The storage area obtained by the Contractor shall not obstruct or interfere with pedestrian or vehicular movement, and shall not occupy any space within a public right-of-way, except with specific permission from the Owner.

2. For temporary construction access and staging, the Contractor shall enter via the driveway from Beaver Street as shown on the drawing. The Contractor shall set up a temporary staging area for construction purposes on the property.

3. The storage / staging and decontamination areas shall be kept neat at all times.

4. The Owner shall not be a party to negotiations related to acquisition of areas for storage or cleanup of the same.

3.2 EQUIPMENT

A. Contractor shall transport all equipment to the site, assemble the equipment, disassemble equipment and remove as needed to proceed with the work. During construction, all equipment and materials shall be maintained as needed during the work.

B. Contractor shall lay and position temporary facilities such as decontamination and equipment/personal trailers to minimize disruption of the work.

PART 4 - MEASUREMENT AND PAYMENT

4.1 GENERAL

A. Separate Measurement or payment shall not be made for all Work of this section, but all costs in connection therewith shall be included in the Contract Lump-Sum price.

B. Lump Sum cost shall be inclusive of additional occurrences or delays (weather), if required to complete the project

END OF SECTION 01 71 13

SECTION 02 61 00

HANDLING, TRANSPORTATION, AND DISPOSAL OF EXCAVATED MATERIALS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Work Included: This Section describes the work activities required to access, excavate, manage, transport, and dispose of excavated materials.

B. CONTRACTOR shall furnish all labor, materials, equipment, and incidentals and perform all operations necessary to properly excavate, segregate, sample, classify, handle/manage, load, transport, and dispose of excavated materials within the Area of Work.

C. CONTRACTOR'S attention is directed to site plans showing the physical limitations of the Area of Work and is fully responsible for managing the sequence of work accordingly.

D. CONTRACTOR shall furnish, operate, and maintain excavated material stockpile/staging areas and equipment decontamination stations for the duration of excavation activities and dismantle and dispose of decontamination stations and stockpile/staging areas at project completion.

E. CONTRACTOR is directed to review the attached "Draft Release Abatement Measure Plan and TSCA Performance Based Cleanup Plan" and shall adhere to the provisions of that plan. The plan will become final when submitted to MassDEP after project award and prior to the start of work.

1.2 RESPONSIBILITIES

A. CONTRACTOR's Responsibilities:

A. The CONTRACTOR shall prepare an Excavated Materials Management Plan (EMMP) that describes their means and methods to complete the work to be performed under this Specification.

B. The CONTRACTOR shall demonstrate that they will conduct the work using the most feasible and least environmentally impactful means and methods. Any additional permitting or mitigation measures required, or delay of time to complete the work as a result of CONTRACTOR means and/or methods or changes thereto, shall be the responsibility of the CONTRACTOR.

C. The CONTRACTOR shall establish sufficient survey controls to accurately remove soils to the horizontal and vertical limits established in the drawings.

D. The CONTRACTOR shall perform excavation work to the extents shown on Site Plan C-1.0 and as marked in the field. CONTRACTOR shall perform additional excavation work, in areas where unacceptable contamination remains in soil, as directed by the City of Waltham's (City) Environmental Consultant.

E. The CONTRACTOR shall assist the City's Environmental Consultant in obtaining representative confirmatory samples of the excavated areas for field screening.

F. The CONTRACTOR shall manage excavated material by securely containing it prior to transport to the disposal, recycling, and reuse facilities.

G. The CONTRACTOR shall wait until all disposal facility approvals have been received prior to the loading and transportation of excavated materials for disposal.

K. The CONTRACTOR shall furnish, operate and maintain equipment decontamination stations for the duration of excavation work.

L. The CONTRACTOR shall develop and implement site-specific emergency response and health and safety protocols and procedures for workers, visitors and trespassers.

M. The CONTRACTOR shall take protective measures during work included in this section, to prevent conditions at the site that could result in any adverse effect on nearby wildlife/aquatic ecosystems.

N. For each shipment of material transported to a disposal facility, the CONTRACTOR shall demonstrate to the City that the least costly means of disposal has been selected. This demonstration shall be made prior to shipment.

O. The CONTRACTOR shall advise the City at least three business days in advance of the schedule for both excavation and transportation off-site of excavated material. No off-site shipments will occur without the approval of the City.

P. The CONTRACTOR shall provide an environmental field technician to oversee the loading of excavated material for off-site disposal.

Q. The CONTRACTOR shall complete the transportation and final disposal of excavated materials within 90 days of initial generation of the materials.

R. The CONTRACTOR shall develop and implement dust control measures.

B. City of Waltham Responsibilities:

A. The City will review and approve the proposed selection of off-site disposal facilities.

B. The City's Environmental Consultant has completed waste disposal sampling and analysis, and shall perform field screening and confirmatory sampling of excavated areas, dust control monitoring, and soil documentation coordination.

C. The City will be the Generator and will sign all waste profiles and MCP Bills of Lading (BOL) as the Generator.

D. The City's Licensed Site Professional (LSP) will complete one waste profile, and sign and stamp BOLs as the LSP of Record. All soil shall be transported under a BOL. The receiving facility shall provide electronic attestation of receipt of soils within five days of

receiving notification from the LSP of the availability of the BOL for that purpose on eDEP. Additional waste profiles beyond the first, will be prepared by the CONTRACTOR.

1.3 QUALITY ASSURANCE AND QUALITY CONTROL

A. The CONTRACTOR shall be responsible for the selection of a final disposal facility for soil. Sampling was conducted in May 2022 by the City's LSP to precharacterize the soil.

B. The provided precharacterization data is intended to include sufficient characterization of the soils for disposal without a need for additional testing. In the absence of the need for additional testing due to quantity changes or unexpected soils encountered during excavation, the CONTRACTOR shall be responsible for any additional sampling and analyses of soil samples required by his selected waste disposal facility beyond those provided in the provided data

C. The Contractor shall be responsible for any additional sampling and analysis of soil samples required by his selected waste disposal facility, and/or preparation of additional disposal profiles resulting from a change to the selected disposal facility.

1.4 SUBMITTALS

A. The following shall be submitted within five (5) days after the issuance of the Notice to Proceed. No on-site work can begin until all submittals identified in 1.4(A and B) have been received and approved.

B. A schedule detailing the proposed sequence of work.

C. A detailed site plan indicating the construction staging/stockpile areas as they relate to the active construction area. The detailed site plan shall show the potential layout of the staging area as it relates to the stockpile soil, debris and/or miscellaneous materials and construction materials.

D. A material management system plan to track the excavated materials from generation through final disposition. Plan shall include at a minimum the following:

   a. Provisions for the tracking of the excavated materials from the "point of excavation location" to the location of the stockpile material in the storage/staging area to the final disposition of the stockpiled material including all proposed daily log sheets.

   b. Drawings of the proposed area of excavation and any temporary materials management areas, including locations where trees will be removed.

   c. An Equipment/Vehicle Decontamination Plan.

E. All pertinent information relating to the transport of excavated material. The information, at a minimum, shall include:

   a. Name and address of all transporters.

   b. Transporter identification number (U.S. Environmental Protection Agency (EPA) or Massachusetts Department of Transportation Transporter) and expiration date.

   c. Proof of permit, license, or authorization to transport excavated material in all affected states.

d. Details of methods, vehicle and containers (as applicable) to be used for transporting excavated material.

e. Dust control measures.

f. Plan for on-site pre-treatment of excavated soil that is unsuitable for transport.

F. The CONTRACTOR shall identify each waste stream and propose an appropriate disposal facility that will accept the excavated material as classified. The facility shall provide written confirmation that it is permitted to accept and will accept the classified material of the general quality and quantity described in the Draft RAM Plan.

G. The Contractor shall provide all final disposal documentation, including but limited to:

a. Load sheets completed and signed by the hauler and the receiving facility.

b. Certified weight slips from the receiving facility.

c. The facility and DCR's attestations of shipment and receipt.

1.5 REFERENCES

A. All regulations cited and those of other governing agencies in their most recent version are applicable. This Section refers to many requirements found in these references, but in no way is intended to cite or reiterate all provisions therein or elsewhere. It is the CONTRACTOR's responsibility to know, understand, and abide by all such regulations and common practices. Other provisions contained in these references may from time to time during the execution of this Contract be enforced by the Engineer. In the event of a conflict, the most stringent regulations shall govern.

The following documents and/or publications are made part of this Section by reference herein:

A. Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.

B. Massachusetts Hazardous Waste Regulations, 310 CMR 30.00.

C. Massachusetts Solid Waste Management Facility Regulations, 310 CMR 19.00.

D. Massachusetts Site Assignment Regulations for Solid Waste Facilities, 310 CMR 16.000.

E. Massachusetts Wetlands Protection Act Regulations, 310 CMR 10.00.

F. "Interim Remediation Waste Management Policy for Petroleum Contaminated Soils", MassDEP, Bureau of Waste Site Cleanup Policy #WSC-94-400.

G. "Hazardous Waste Operations and Emergency Response", Federal Occupational Safety and Health Act (OSHA), 29 CFR 1910.120.

H. "General Regulations for Hazardous Waste Management," EPA, 40 CFR 260.

I. "Regulations for Identifying Hazardous Waste, Hazardous Waste Generators and Hazardous Waste Transporters", EPA, 40 CFR 261, 262 and 263.

J. "Standards for Management of Specific Hazardous Wastes and Facilities", EPA, 40 CFR 266.

K. "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills", MassDEP Policy # COMM-97-001.

L. “Compendium of Quality Control Requirements and Performance Standards for Selected Analytical Protocols” (CAM), MassDEP, Bureau of Waste Site Cleanup Policy # WSC-10-320.

M. “Technical Update: Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil,” MassDEP.

N. “Similar Soils Provision Guidance (MassDEP, Bureau of Waste Site Cleanup Policy # WSC#-13-500).

O. “Interim Remediation Waste Management Policy for Petroleum Contaminated Soils, Attachment II, Jar Headspace Analytical Screening Procedure,” MassDEP, Bureau of Waste Site Cleanup Policy #WSC-94-900.

P. Local regulations governing dust control, soil handling, and health and safety.

Q. All other applicable Federal, State, or local requirements.

1.6 DEFINITIONS

A. Area of Work: the approximate area which includes excavation areas, and those ancillary areas where personnel, equipment and materials are transported, managed, filled or removed. Excavated material not destined for off-site disposal can be returned to approximately the same location from which it originated.

B. Contaminated Soil: Material found to contain oil or hazardous material (OHM) at concentrations equal to or exceeding applicable MCP Method 1 Standards (310 CMR 40.0300), Reportable Concentrations (310 CMR 40.1600), or regulated background levels (as defined in the MassDEP “Technical Update: Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil” and 310 CMR 40.00006) or other applicable State or Federal Regulations.

C. Generator: The City will be the Generator, with the exception of materials contaminated by releases from the CONTRACTOR’s vehicles, equipment, or supplies.

D. Hazardous Material/Waste: A waste material or combination of waste material, that because of its quantity, concentration, physical, chemical, or infectious characteristics may cause or significantly contribute to an increase in a serious irreversible or incapacitating reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. This definition also includes, but is not limited to, materials regulated under TSCA, M.G.L., Chapter 21E, RCRA (40 CFR 239-282), Massachusetts Hazardous Waste regulations (310CMR 30.00), the MCP (310 CMR 40.00), and any applicable Federal regulations.

E. Special Waste: Any solid waste that is determined not to be hazardous waste and that exists in such quantities or in such chemical or physical state or any combination thereof so that particular management controls are required to prevent an adverse impact from the collection, transport, transfer, storage, processing, treatment or disposal of the solid waste. Asbestos and PCB-contaminated soils/sediments/fill are examples of special waste.

F. Soil: Any unconsolidated mineral and organic matter, including any fill, overlying bedrock that has been subjected to and influenced by geologic and other environmental factors, excluding sediment.

1.7 PERMIT REQUIREMENTS

A. The CONTRACTOR shall obtain and adhere to all Federal, State, and local permits required for the transport and disposal of excavated material.

B. The CONTRACTOR shall verify that the disposal facilities proposed have all certifications and permits as required by Federal, State, and local regulatory agencies to receive and dispose of the excavated material.

C. If applicable, the CONTRACTOR shall adhere to any special conditions of work established by the local Conservation Commission, MA DEP and US Army Corps of Engineers including close-out documentation.

PART 2 - PRODUCTS

2.1 GENERAL

A. All CONTRACTOR personnel shall wear personal protective equipment and protective clothing consistent with the levels of protection required for this Work.

B. Any material shipment containers must be approved by and labeled in accordance with the U.S. Department of Transportation (DOT). The containers shall have a secure cover which will prevent a release of material during transportation.

C. Temporary stockpiles of soil shall be constructed using 10 mil polyethylene double layered as a base. Stockpiles shall be kept covered with a single layer of polyethylene and surrounded with haybales.

PART 3 - EXECUTION

3.1 GENERAL

A. The CONTRACTOR shall handle and convey all equipment and materials to perform site work described in these Contract documents.

B. The CONTRACTOR shall excavate soils to the depth and extent shown on the contract drawings. ,

C. The CONTRACTOR shall load, transport, and dispose of the excavated soil as specified herein.

D. The CONTRACTOR shall immediately notify the City of visible stains or unnatural odor of any sampled or excavated material, or if potentially contaminated and/or hazardous material is encountered. Work shall not be allowed to continue in this area until approved by the City.

3.2 TEMPORARY STORAGE OF EXCAVATED MATERIALS

A. The stockpiling or consolidating of excavated material near sensitive human health receptors, such as public and private water supply wells, shall be strictly prohibited per 314 CMR 9.07(4)(d).

B. Excavated material to be temporarily stockpiled shall be placed entirely on a 10-mil polyethylene liner, shall be covered at the end of each day's work and at all times when earthwork is not taking place on site, with the same material or so as to minimize the infiltration of precipitation, volatilization of contaminants and erosion of the stockpile. Covers used shall be properly secured and replaced if damaged. Temporary fencing shall be placed entirely around stockpiles to prevent employees and trespassers from access.

F. Excavated material shall be completely covered with a minimum 10 mil-thick layer of plastic tarp at the end of each working day and secured with ropes, ties, anchors or equivalent materials. The covered system shall be capable of resisting actual wind gust at the site, with a minimum wind capacity of 40 miles per hour.

G. Stockpiles are to be segregated based on a review of pre-characterization data, visual and olfactory conditions, sediment sampling and field screening results obtained during excavation.

H. Stockpiles shall include haybale berms around the edges to minimize infiltration of storm water or exfiltration of leachate.

I. Any failure of materials or procedures used in employing the base layer or cover layer shall be immediately repaired, replaced or re-secured so as to minimize precipitation infiltration, volatilization and erosion/runoff of the excavated material.

J. Movement and/or aeration of excavated material shall be limited to those activities that are necessary to manage such stockpiles.

K. Disposal of material that is contaminated as a result of careless handling, cross-contamination or use of unauthorized procedures shall be at the CONTRACTOR'S expense. Delays of Work resulting from temporary storage of excavated material, regardless of the classification, shall be at no additional cost to the City.

L. The stockpiles shall be clearly labeled and securely barricaded from contact with workers and the general public.

3.3 DEBRIS MANAGEMENT

A. The CONTRACTOR is required to recycle/reuse any other recovered materials in lieu of disposal if the material is of acceptable physical quality and chemical quality, and the CONTRACTOR can identify a facility willing and permitted to accept the material at no additional cost.

3.4 MCP NOTIFICATION REQUIREMENTS FOR SOIL

A. Notification to the MassDEP under the MCP shall be the sole responsibility of the City.

B. The CONTRACTOR shall be familiar with the MCP definitions of "two-hour", "72-hour" and "120-day" reportable conditions.

C. The CONTRACTOR shall immediately notify the DCR of any “two-hour”, “72-hour” and “120-day” reporting conditions.

D. Depending upon the nature of the reportable conditions, the MCP may require the cessation of work, implementing a Limited Removal Action (prior to notification), developing and/or implementing an “Immediate Response Action Plan” or a “Release Abatement Measure Plan” prior to continuing work or other actions, which could delay certain aspects of the site work.

E. The City’s LSP shall prepare electronic eDEP MCP filings required during construction, including but not limited to Release Notification Forms (RNF), Release Abatement Measures (RAM), Utility-related Abatement Measures (URAM), and subsequent associated status and closure reports.

F. The CONTRACTOR shall provide all soil management and disposal documentation in support of those eDEP filings.

3.8 ENVIRONMENTAL FIELD MONITORING/DUST CONTROL

A. The air quality program is to be designed to protect public health and the environment from the potential generation of dust and OHM contaminant release during the Work.

B. When there is a potential for visible dust being generated during periods of site activity, air monitoring may be limited to visual assessment and documentation.

C. Dust shall be controlled during excavation and movement of soil to limit potential spread of contaminants and potential exposure of contaminants to workers and the public.

D. Nuisance dust levels shall be reduced by pre-wetting the surface soils and by establishing and maintaining clean access roads. At a minimum, the CONTRACTOR shall provide clean water that is free from salt, oil and other deleterious materials.

E. When feasible, access roads shall be sprayed with water on a regular basis to minimize the generation of dust.

F. All containers and stockpiles shall be covered at all times, except as necessary to place or remove materials from the containers or stockpiles. The CONTRACTOR shall monitor the covers daily to ensure the covers are in place and effectively eliminating the generation of dust.

3.9 DISPOSAL FACILITY CLASSIFICATION

A. The CONTRACTOR shall transport the material for off-site disposal at a permitted TSCA facility that has accepted the material prior to shipment.

B. Material shipped to any disposal facility must meet the selected facility’s chemical and physical acceptance criteria. Selected facilities must be established, fully operational, appropriately insured, and be operating in compliance with all applicable local, state, and federal regulations.

3.10 WASTE PROFILES AND SHIPPING DOCUMENTS

A. The CONTRACTOR shall provide certified tare and gross weight slips for each load received at the accepted facility and these shall be attached to each returned shipping document.

B. The CONTRACTOR shall prepare and submit to the City for review all waste profile applications and questionnaires, and coordinate with disposal facilities and all Federal and State Environmental Agencies.

C. The City's Environmental Consultant shall prepare all draft Bills of Lading for review by the CONTRACTOR'S selected facility prior to shipment. Final copies of Bills of Lading shall be signed by the City as generator and by the City's LSP following approvals of draft Bills of Lading.

3.11 TRANSPORT OF EXCAVATED MATERIAL

A. The CONTRACTOR shall not be permitted to transport materials off-site until all disposal facility documentation has been received, reviewed, and approved by the City.

B. The CONTRACTOR shall transport materials from the site to the disposal facility in accordance with all United States Department of Transportation (USDOT), USEPA, MassDEP, and applicable state and local regulations.

C. The Hauler(s) shall be licensed in all states affected by transport.

D. The CONTRACTOR shall be responsible for ensuring that free liquid in soil is not transported. "Wet soils" with free-draining liquids shall not be loaded for transport. When there is a question as to whether this standard is met, the paint filter test (EPA Method 9095) shall be used to determine the presence of free-draining liquids in a representative sample. The CONTRACTOR shall collect and dispose of or manage any free liquids that may result during transportation at no additional cost to the City.

E. All excavated material transported upon public roadways shall be covered by a tarpaulin or other means to prevent the material from escaping the vehicle during transport, and where necessary, truck tire and undercarriage decontamination shall be employed to prevent the tracking of soils onto public roadways.

PART 4 - MEASUREMENT AND PAYMENT

4.1 GENERAL

A. Measurement and payment for the work of this section is based upon the definitions and classification of the excavated material as described in Sections 1.6 (B and E) and 3.9. The most cost-effective means of managing, transporting, re-use or disposal shall be used.

B. City approval is required prior to transportation and disposal of any materials pre-classified under 1.6 (E).

4.2 MEASUREMENT

A. Excavated materials that are classified for transportation and disposal under 1.6 (B and E), will be measured on a Per Ton basis. The costs covered under the Unit Price shall include all applicable taxes and surcharges.

The quantities and locations of contaminated soil as indicated in the summary of work are

estimated. Accordingly, minor variations (+/- 10%) in quantities of contaminated soil within the regulated area are considered as having no impact on contract price and time requirements of this contract. Where additional soil excavation and disposal is required beyond the above variation, the contractor shall provide unit prices for that additional variation in contaminated soil, and those prices shall be used for additional work required under the contract.

4.3 SCHEDULE OF UNIT PRICES

B. Unit Price No. 1: Group III-1 Soil RCRA non-hazardous waste
   1. Description: Soil Group III-1 Soil that qualifies for disposal at an out-of-state facility that is permitted for RCRA regulated non-hazardous waste, in accordance with Sections 1.6(E) and 3.9.
   2. Unit of Measurement: $ / ton.

4.3 PAYMENT

A. Separate payment shall not be made for all other Work of this section, but all costs in connection therewith shall be included in the Contract Lump-Sum price. All preparation and incidental work necessary to accomplish the work herein will be considered incidental to the Lump Sum price.

4.4 PAYMENT ITEMS

ITEM NO.	DESCRIPTION	UNIT
1	TRANSPORT AND DISPOSE OF CONTAMINATED SOIL	TN

END OF SECTION 02 61 00

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Extent of earthwork as indicated on the Contract Drawings and as specified herein.

B. Furnish labor, materials, equipment, transportation and services required to complete all earthwork requirements as specified herein or indicated on the Contract Drawings. The work includes, but is not limited to the following:

1. Clearing, grubbing, and preparation of the Site.
2. Providing, placing, and compacting all fill materials required to complete the project.
3. Removal and on-site relocation or off-site disposal of all boulders, as defined herein, as they interfere with the work.
4. Excavation and temporary stockpiling of soils impacted with metals, PCBs, and pesticides to depths of 9 feet, or to levels approved by the City's ENGINEER.
5. Temporary protection of adjacent public and private property.
6. Legal off-site disposal of unsuitable or surplus excavated materials including soil impacted with metals, pesticides and PCBs.
7. All sheeting, shoring and bracing necessary to protect truck and equipment access areas from collapse.
8. Rough Grading.
9. Restoration.
10. Dust Control.
11. Segregating, culling and all screening operations, stockpiling and handling of on-site material required to render the material suitable for reuse on-site as indicated herein.
12. Preparation and submittal of a Health and Safety Plan prior to initiating earthwork related activities.

1.2 STANDARDS AND DEFINITIONS

A. The following standards and definitions are applicable to the work of this Section to the extent referenced herein:

1. MDPW Specifications: The Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, including latest revisions.
2. ASTM: American Society for Testing and Materials.
3. AASHTO: American Association of State Highway and Transportation Officials.
4. MCP: Massachusetts Contingency Plan, 310 CMR 40.0000
5. Trench Excavation: Excavations of any length where the width is less than twice the depth and where the shortest distance between payment lines does not exceed ten (10') feet.
6. Open Excavation: All excavations not conforming to the definition of Trench Excavation shall be defined as Open Excavation.
7. Invert or Invert Elevation: The elevation at the inside bottom surface of the pipe or channel.
8. Un-Regulated Soil: Excavated material consisting of natural subsoil, or natural glacial outwash which is completely segregated from existing fill material, and is not impacted by contaminants which may be disposed of off-site without restriction
9. Regulated Soil: Excavated material which is impacted by contaminants and, if transported off-site, must be disposed of at a landfill or similar facility as specified in Section 026100, Handling, Transportation, and Disposal of Excavated Materials.
10. The words "finished grade" as used herein shall mean the required final grade elevations indicated on the Contract Drawings. Spot elevations shall govern over proposed contours. Where not otherwise indicated, project site areas outside of the building shall be given uniform slopes between points for which finished grades are indicated or between such points and existing established grades
11. The word "subgrade" as used herein, means the required surface of natural glacial outwash deposit, or compacted Structural Fill. This surface is immediately beneath the site improvements, specially dimensioned fill, paving, loaming or other surfacing material.

1.3 EXAMINATION OF SITE CONDITIONS AND DOCUMENTS

A. It is hereby understood that the CONTRACTOR has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions as indicated in the Contract Documents, or obvious from observation at the Site

B. Plans, surveys, measurements, and dimensions under which the work is to be performed are believed to be correct, but the CONTRACTOR shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found except as otherwise provided herein.

1.4 SUBSURFACE CONDITIONS

A. It is the CONTRACTOR's sole responsibility to make interpretations and draw conclusions with respect to the character of the materials to be encountered and their impact upon his work based on his expert knowledge.

1.5 PERMITS, CODES AND SAFETY REQUIREMENTS

A. Work shall conform to the Contract Drawings and Specifications and shall comply with applicable codes and regulations. Present in writing to the ENGINEER, all conflicts between the Contract Drawings, Specifications, and applicable codes and regulations, for resolution before commencing the Work.

B. Comply with all rules, regulations, laws and ordinances of the City of Waltham and the Commonwealth of Massachusetts, and of all other authorities having jurisdiction. All labor, materials, equipment and services necessary to make the work comply with such requirements, shall be provided without additional cost to the CITY.

C. The CONTRACTOR shall not close any street, sidewalk or passageway except as indicated on the Contract Drawings. The CONTRACTOR shall so conduct his operations as to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks or other facilities near enough to the work to be affected thereby.

D. The CONTRACTOR shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Contract Drawings at no additional cost to the CITY. Arrange and pay for legal off-site disposal of all excess excavated materials, obtain proper disposal receipts from the applicable disposal facility for verification.

E. Notify "Dig Safe" and the City before starting work; comply fully with utility company requirements.

1.6 LAYOUT AND GRADES

A. The CONTRACTOR shall maintain and/or re-establish benchmarks and survey monuments shown on the Contract Drawings or found to exist on the site to provide a base reference for the construction. Replace any that may become destroyed or disturbed. The CONTRACTOR shall employ and pay all costs for a registered Civil Engineer or Surveyor who is licensed within the jurisdiction of the project site to lay out all lines and grades in accordance with the Contract Drawings and Specifications, and as necessary or required for the construction.

1.7 DISPOSITION OF EXISTING UTILITIES

A. Active utilities existing on the site shall be carefully protected from damage and relocated or removed by others as specified in the Contract Documents. When an active utility line is exposed during construction, its location and elevation shall be plotted on the record Contract Drawings and both the ENGINEER and UTILITY OWNER notified in writing.

B. Inactive or abandoned utilities encountered during construction operations shall be noted on the record Contract Drawings and reported in writing to the ENGINEER.

1.8 DISPOSAL

A. The CONTRACTOR shall manage all on-site excavated soils as specified in Section 026100, Handling, Transportation, and Disposal of Excavated Materials.

B. Solid waste resulting from screening or culling operations shall become the property of the CONTRACTOR and be legally disposed of off-site at no additional cost to the OWNER.

1.9 SUBMITTALS

A. Submit, as specified in Division 01, GENERAL REQUIREMENTS, the following, and as specified in this Section

1. A detailed construction sequence plan for project excavation indicating temporary stockpile areas, side slopes of excavations, limits of any required temporary excavation support and sequence and procedures for slope protection, subgrade protection, excavation, filling, backfill and compaction.

2. No backfill materials shall be brought to the site without prior approval of the City. Submit the following information to the City for review at least two (2) weeks prior to use:

   a. Location of the borrow site, including a street map with the limits of the borrow pit property and the location of the borrow source on the site clearly illustrated.

   b. Present and past usage of the source site and material.

   c. Any previously existing report(s) associated with an assessment of the source site as relates to the presence of oil or other hazardous materials.

4. Results of the sampling and monitoring program as specified herein for the manufactured top soils.

5. Soil samples.

   a. Classification in accordance with ASTM D2487 for each on-site or borrow soil material proposed for fill, backfill, or engineered fill.

   b. Laboratory compaction curve in accordance with ASTM D698 for each on site or borrow soil material proposed for fill, backfill, or engineered fill.

PART 2 PRODUCTS

2.1 MATERIALS

A. Ordinary Fill: Well-graded, natural inorganic soil approved by the ENGINEER and meeting the following requirements:

1. It shall be substantially free of organic or other weak or compressible materials, of frozen materials, and of particles larger than 4 inches maximum dimension.
2. It shall be of such nature and character that it can be compacted to the specified density in a reasonable length of time.
3. It shall be free of highly plastic clays, of all materials subject to decay, decomposition or dissolution, and of cinders or other materials that will corrode piping or other metal.

B. Topsoil: Provide topsoil in accordance with Section 32 90 00.

2.2 UNSUITABLE MATERIAL

A. Material containing organic matter, frozen materials, debris, materials subject to decomposition, silts too wet to be stabilized, existing fill, and solid waste debris that in the opinion of the ENGINEER, do not satisfy the design requirements, shall be unsuitable material.

B. Unsuitable material shall be disposed of off-site by the contractor at no additional cost to the. City.

2.3 EQUIPMENT

A. Provide sufficient equipment units of suitable types to spread, level, and compact fills promptly upon delivery of materials.

B. CONTRACTOR may use any compaction equipment or device that he finds convenient or economical, but the ENGINEER retains the right to disapprove equipment, which, in his opinion, is of inadequate capacity or unsuited to the character of material being compacted.

2.4 SOURCE QUALITY CONTROL

A. Provide samples of each fill material from the proposed source of supply including on-site sources. Allow at least two (2) weeks for testing and evaluation of results before material is needed.

B. All fill material that is imported onto the site shall be substantially free of contamination. The concentrations of contaminants in imported fill material shall not exceed either one-half of the Massachusetts Contingency Plan's (MCP's), 310 CMR 40.0000, RCS-1 reporting thresholds, or the pre-existing contaminant conditions at the site, whichever is lower. The ENGINEER reserves the right to require that the CONTRACTOR perform chemical analysis on the sample being submitted to confirm that the sample is free of contaminants as discussed above. It is not likely that chemical analysis will be required for samples representing fill material originating from a commercial bank-run or rock quarry source. However, it is likely that the ENGINEER will require that chemical analysis be performed on samples originating sources other than commercial bank-run or rock quarry sources. The required chemical analysis will include, but may not be limited to, Extractable Petroleum Hydrocarbons (EPH), Volatile Petroleum Hydrocarbons (VPH), Volatile Organic Compounds (VOC's) by 8260, Polynuclear

Aromatic Hydrocarbons (PAH's) by 8270, Total RCRA-8 Metals, Pesticides/PCB's, and pH. The cost of chemical testing when required by the ENGINEER shall be borne by the CONTRACTOR.

C. Samples of proposed fill material exhibiting concentrations of contaminants in excess of the standards above will be rejected for use on the site by the ENGINEER.

D. For samples of proposed fill material originating from a recycling facility, the CONTRACTOR will also be required to submit documentation demonstrating that the facility is permitted by the Massachusetts Department of Environmental Protection, or the Department provided with the required notification, to perform recycling of Asphalt, Brick, and Concrete (ABC) materials, non-coated or impregnated with any substances, in accordance with the Massachusetts solid waste regulations 310 CMR 16.05 (3) (e).

E. ENGINEER will be sole and final judge of suitability of all materials.

F. Tests of materials, including chemical testing, as delivered may be made from time to time. Materials in question may not be used, pending test results. Remove rejected materials and replace with new, whether in stockpiles or in place.

PART 3 EXECUTION

3.1 GENERAL EXCAVATION

A. Excavate all materials as indicated on the Contract Drawings and specified herein.

B. All excavation shall be performed in the dry. Excavation shall be accomplished by methods that preserve the undisturbed state of subgrade soils.

C. When excavations have reached the prescribed depths, the ENGINEER shall be notified and will make an inspection of the conditions. After inspection, the CONTRACTOR will receive approval to proceed if conditions meet design requirements.

D. Should an excavation be carried beyond the depth indicated on the Contract Drawings or as specified herein as a result of CONTRACTOR's error, the CONTRACTOR shall provide and place Ordinary Fill as directed by the ENGINEER, to the required level at no additional cost.

3.2 USES OF FILL MATERIALS

A. Fill materials listed above shall be utilized as follows and as otherwise indicated on the Contract Drawings, specified or directed.

B. Ordinary Fill: For areas backfilled below a depth of 6 inches.

3.3 PLACING FILLS

A. Provide all specified fill materials.

B. Areas to be filled shall be undisturbed stable soil and shall be free of trash, construction debris, compressible or decayable materials and standing water. Do not place fill when subgrade or layers below it are unsuitable.

C. Notify the ENGINEER when excavations are ready for inspection. Filling shall not be started until conditions have been approved by the ENGINEER.

D. Furnish approved materials. Place fill in layers not exceeding 6 inches in compacted thickness and compact as specified below for various fill conditions.

E. Place Ordinary Fill in uniform lifts not exceeding 6 inches (compacted thickness) and compact to 92 percent of its maximum dry Proctor density.

F. Within lawns and planting areas:

1. All fills to within eighteen inches (18") of finished grade shall be compacted to 90 percent of its maximum modified dry Proctor density.

2. All fills within eighteen inches (18") of finished grade shall be compacted to between 88 percent and 90 percent of its maximum modified dry Proctor density.

G. In the case of lawn and planting areas, compaction requirements for subgrades and fills shall be considered minimums and maximums within the density percentages called for, and any over compaction of subgrades or fills which would be detrimental to lawn or planting objectives shall be corrected by loosening subgrades or fills through tilling or other means and recompacting to specified compaction limits.

H. The CONTRACTOR shall notify the ENGINEER three (3) days in advance when the rough grades are established and ready for formal inspection.

3.4 ROUGH GRADING

A. Rough grading shall include the shaping, trimming, rolling, and refinishing of all surfaces of the subbase, shoulders, and earth slopes, and the preparation of grades as shown on the Contract Drawings. The grading of shoulders and sloped areas may be done by machine methods. All ruts shall be eliminated. Traffic of workers and equipment across the soil subgrade areas shall be prohibited following excavation to the required lines and grades.

B. If, during the progress of work, any pipe, drain, or other construction is damaged due to operations under the Contract, the CONTRACTOR shall repair all damage at no additional cost to the City and restore damaged areas to their original conditions.

C. Perform all other cutting, filling and grading to the lines and limits indicated on the Contract Drawings. Grade evenly to within the dimensions required for grades shown on Contract Drawings and specified herein. No stones larger than four inches (4") in largest diameter shall be placed in upper six inches (6") of fill. Fill shall be left in a compacted state at the end of the workday and sloped to drain.

D. The CONTRACTOR shall bring all areas to grades as shown on the Contract Drawings and in the details. The City however, may make such adjustments in grades and alignments as are found necessary to avoid special conditions encountered.

E. No rubbish of any description shall be allowed to enter fill material. Such material shall be removed from the site.

F. Placed fill materials that become disturbed shall be regraded and re-compacted. Fill materials that become contaminated shall be removed and replaced, as directed by the City.

3.5 SUBGRADE MAINTENANCE

A. The work of this Section shall provide a subgrade which shall be parallel to the finished grades or elevations shown on the Contract Drawings and shall be below finished grades in accordance with the various depths specified herein below.

B. Upon completion of rough grading operations, remove all debris and rubbish and leave areas ready for work by other trades

C. Settlement of fills and washouts shall be corrected by filling and compacting as specified herein.

3.6 DUST CONTROL

A. The CONTRACTOR shall manage dust as specified in Section 026100, Handling, Transportation, and Disposal of Excavated Materials.

B. The CONTRACTOR shall take all necessary measures and provide equipment and/or materials to minimize dust from rising and blowing across the site and from impacting neighboring residential property to the satisfaction of the OWNER. In addition, the CONTRACTOR shall control all dust created by construction operations and movement of construction vehicles, both on the site and paved ways.

C. If dust control is required off-site due to work under this Contract, in addition to watering, sweeping and other methods, the CONTRACTOR shall apply water in the required amounts to properly control dust.

D. The use of calcium chloride, petroleum products, or other chemicals is prohibited. Chemical materials may not be used on subgrades of areas to be seeded or planted.

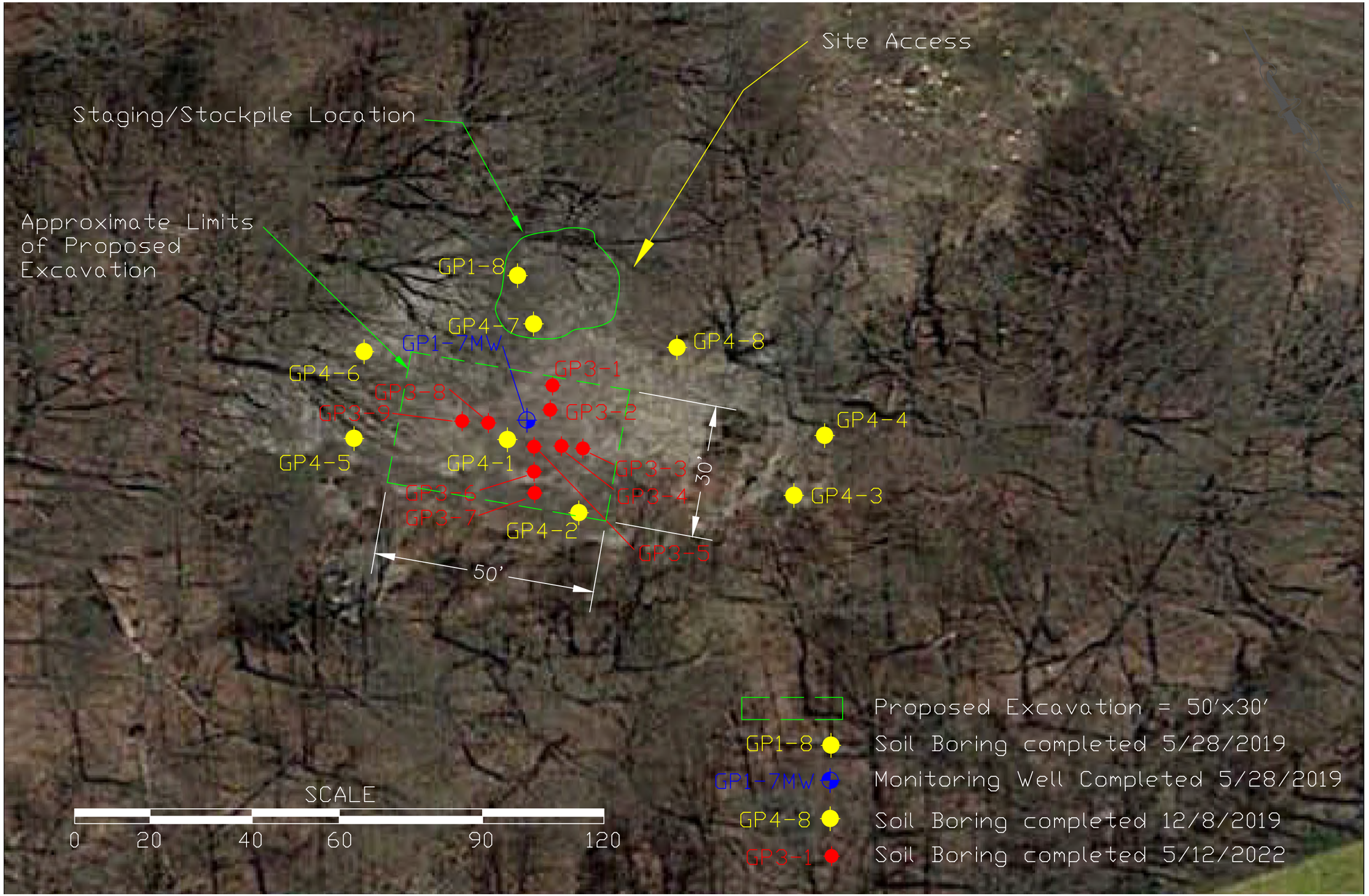
PART 4 - MEASUREMENT AND PAYMENT

4.1 GENERAL

A. Separate Measurement or payment shall not be made for all Work of this section, but all costs in connection therewith shall be included in the Contract Lump-Sum price.

END OF SECTION 31 00 00

DRAWINGS



NO	DATE	REVISIONS
1	9/25/18	LMK
2	10/4/18	LA

SEAL

DATE : 8/2/2022
DRAWN : AS
SCALE : ~1" = 30'

Release Abatement Measure Site Plan and Sampling Locations

240 Beaver Street
Waltham, MA

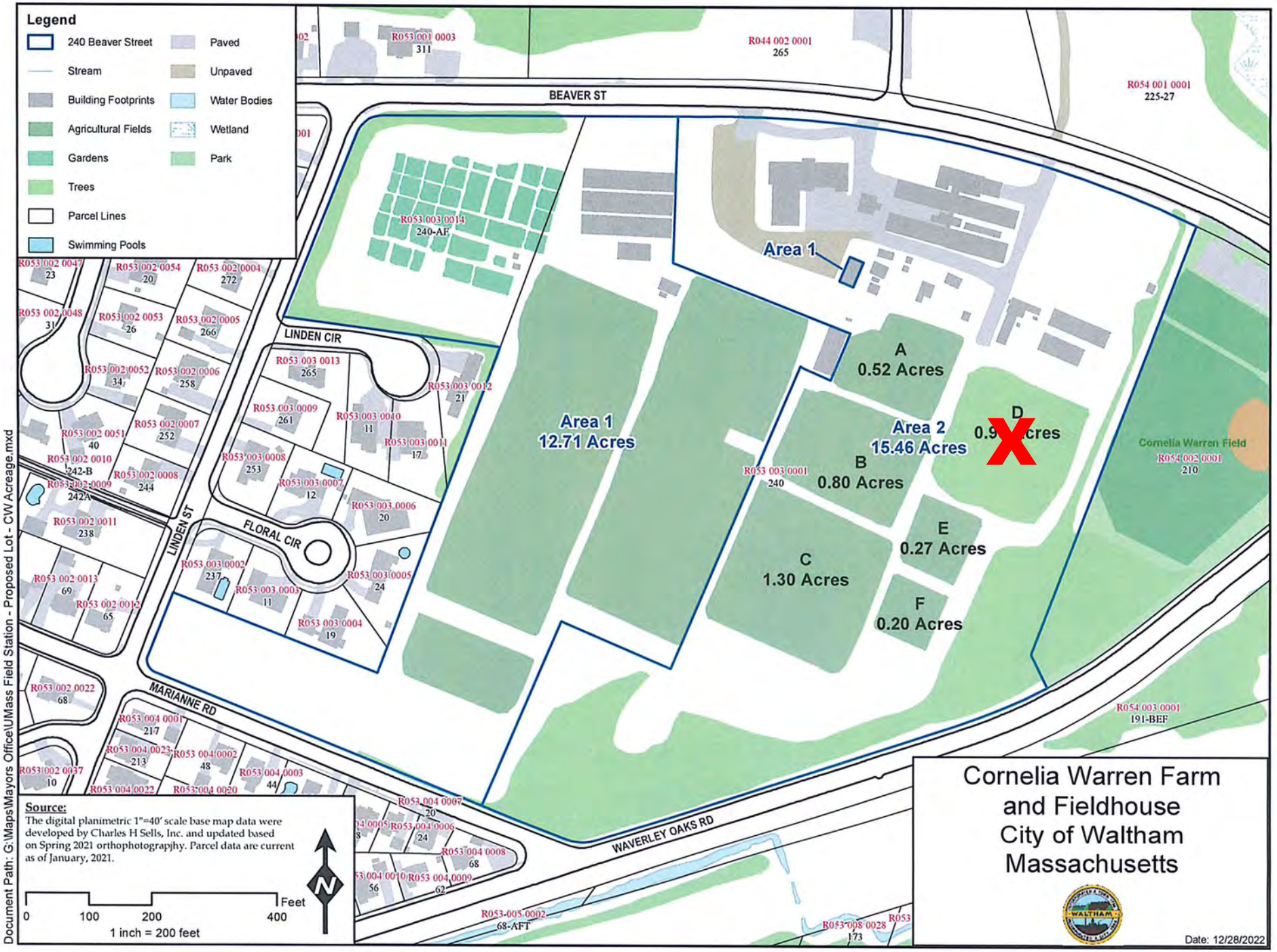
CDW CONSULTANTS
Environmental and Civil Engineering

C-1.0

0' 15' 30'

1830.20

FIGURE 1 - ACCESS AREAS TO BE TESTED (A, B, C, E, F)



APPENDICES

APPENDIX A

RELEASE ABATEMENT MEASURE PLAN
& TSCA PERFORMANCE BASED CLEANUP PLAN
240 Beaver Street
Waltham, MA

RTNs 3-36027 and 3-36180

(Not Submitted to MassDEP)

Prepared for

City of Waltham
119 School Street
Waltham, MA 02451

Prepared by
CDW Consultants, Inc.
4 California Avenue
Framingham, MA 01701

January 3, 2023

CDW Project No. 1830.20

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INTRODUCTION

CDW Consultants, Inc. (CDW) has been retained by the City of Waltham to prepare a Release Abatement Measure (RAM) Plan and Toxic Substances Control Act (TSCA) Performance Based Cleanup Plan for the property located at 240 Beaver Street in Waltham, Massachusetts (the "Site"). The RAM addresses the excavation and off-Site disposal of up to 500 cubic yards of soil from an area contaminated with PCBs, TPH, pesticides and heavy metals. The Site was assigned Release Tracking Numbers (RTN) 3-36027 and 3-36180 by the Massachusetts Department of Environmental Protection (MassDEP) in December 2019 and April 2020, respectively. The purpose of this plan is to comply with 310 CMR 40.0440 and 40.1067 of the Massachusetts Contingency Plan (MCP), which allows the implementation of accelerated response actions to reduce risks at certain disposal sites.

1.0 RESPONSIBILITY

DCR is the potentially responsible party. The person assuming the responsibility for conducting the RAM is the following:

City of Waltham
Ms. Jeannette A. McCarthy
610 Main Street
Waltham, MA 02451
(781) 314-3000

The RAM Plan was prepared by the Licensed Site Professional below:

Brian J. Miller, LSP
CDW Consultants, Inc.
4 California Avenue
Framingham, MA 01701
508-875-2657

2.0 SITE CONDITIONS AND HISTORY

The Site consists of an approximate ¼ acre portion of 240 Beaver Street located within a wooded area on the southern portion of the property. The disposal site is visually defined by a clearing in the wooded area, and where fill material was observed. Visual evidence of filling at the disposal Site showed cinder block, concrete, wood, glass, stone and plastic bottles. There was also evidence of historic fill as defined by the MCP. Soil with concentrations of lead, chromium and 4,4-DDT exceeding MCP Reportable Concentrations was found and is associated with MassDEP RTN 3-

36027. A smaller area of PCBs in soil exceeding RCs is also present within the larger area, and is associated with RTN 3-36180. A Site Plan is included as Figure 2.

The Site was recently acquired by the City of Waltham from the Commonwealth of Massachusetts. The property has been occupied by the University of Massachusetts Agriculture Experiment Station since the 1920's. Various tenants currently occupy the property.

3.0 PREVIOUS ASSESSMENTS AND RESPONSE ACTIONS BY OTHERS

RTN 3-36027

A Phase I and II assessment was conducted at the Site by CDW in 2019 and 2020. Total chromium and lead were detected above MCP Reporting Category RCS-1 thresholds at boring location GP1-7 at a depth of 10-12 feet. 4,4-DDT was detected above MCP RCS-1 thresholds at a depth of 3-5 feet in GP1-7. Dissolved metals, pesticides and VOCs were detected in groundwater at the Site, but no MCP reporting thresholds were exceeded. This release was reported to MassDEP on December 4, 2019. Additional sampling was conducted in the area of GP1-7 in December 2019 to delineate the extent of contamination. Borings GP4-1 through GP4-9 were advanced and microscopic analysis for coal, coal ash and wood ash was conducted to identify if lead was the result of historic fill observed at the Site. As a result, the impacts of metals and pesticides appeared to be limited to GP1-7. Depth to groundwater ranges from approximately 10.82 to 12.69 feet with a southwesterly flow direction.

A Revised Release Notification Form (RNF) was submitted for this RTN on September 20, 2022, based on the results of soil precharacterization sampling. Concentrations of TPH, 4,4'-DDD, dieldrin, and hexachlorobenzene, which were not previously identified, exceeded applicable Reportable Concentrations for S-1 soil. The concentration of 4,4'-DDT identified was significantly higher than initially detected and, therefore, the RNF was revised with the higher concentration.

RTN 3-36180

This release was reported to MassDEP on April 14, 2020, due to the detection of PCBs in soil at location GP4-2 at a depth of 6-8 feet. This boring is located within the disposal site associated with RTN 3-36027. PCBs were detected at a maximum concentration of 66 mg/kg.

4.0 RECENT INVESTIGATIONS

Soil Precharacterization Testing

On May 12, 2022, soil samples were collected with a direct push drill rig from depths between 2 and 10 feet to precharacterize soil for off-site disposal. Soil X Corp. was CDW's subcontractor that

performed the drilling. Nine (9) borings (GP3-1 through GP3-9) were completed to depths of 15 feet. The borings were completed in the fill area where soil excavation is anticipated, and soil samples were collected in five-foot increments in disposable plastic sleeves. Soil from the 2-10 foot depth of borings GP3-2, GP3-4, GP3-5, GP3-6, and GP3-8 were collected and composited into a single sample, Comp #1 (2-10ft). Groundwater was encountered at approximately 12 feet below grade during drilling.

Soils observed were brown and black sandy fill soils over gray, native silty fine to medium sand. The top two feet was observed to be brown and tan fill soils. The interval from approximately 2 to 10 feet was observed to be primarily black fin to medium sand with various solid wastes including brick, concrete, ash layers, coal, and some building materials of pasty caulking, glass and metal. A Site Plan showing sampling locations is included as Figure 2. Soil boring logs are included in Appendix A.

Soil samples were field screened for total organic volatiles (TOVs) with a MiniRae Lite® photoionization detector (PID) calibrated to an isobutylene standard. The results of PID screening showed levels of TOVs between 0.0 and 7.8 parts per million by volume (PPMV) in the samples screened. PID screening results are included in Table 1.

The composite sample was submitted to Contest Laboratories for analyses for Total Petroleum Hydrocarbons (TPH), Semi-Volatile Organic Compounds (SVOCs), Polychlorinated Biphenyls (PCBs), MCP14 metals, TCLP lead, pesticides, herbicides, pH, specific conductance, reactivity, and flashpoint. A discrete sample for VOC analysis was obtained from boring GP3-5 from a depth of 4-6 feet, because that sample exhibited the highest TOVs during field screening.

The results of the analyses are included in Table 2. The complete laboratory results are included in Appendix B.

5.0 SURROUNDING RECEPTORS

There are approximately 50 full-time workers at the property that the Site is located on. These workers primarily work on other portions of the property, and not specifically within the Site boundaries. Potential future human receptors include children and adults. Camp Cedar Hill, a girl scout camp, is the only institution located in the area, but is located further than 500 feet north of the Site. Based on the 2010 census which lists the population density of Waltham as 4,763.3 people per square mile, the estimated residential population within ½ mile of the Site is approximately 3,739 people.

CDW obtained a Priority Resources Map from MassGIS. According to the map, there are no municipal water supply wells, no Interim Wellhead Protection Areas, Approved Zone II Areas, Sole Source Aquifers, Public Water Supplies, High-yield Potentially Productive Aquifers, Surface Water

Supply Zone A, Public Surface Water Supply Areas, certified or potential vernal pools, Natural Heritage and Endangered Species Program (NHESP) Estimated Habitat of Rare Wildlife, or Areas of Critical Environmental Concern (ACECs) located within one-half mile of the Site. The Site parcel is designated as Protected Open Space identified as "Waltham Agricultural Fields". The nearest surface water body is the Beaver Brook located approximately 150 feet south of the Site. The nearest mapped wetlands are located approximately 300 feet southeast of the Site.

The surrounding area is served by the Massachusetts Water Resource Authority (MWRA) municipal drinking water supply system. Drinking water is obtained from surface water reservoirs located in central and western Massachusetts. No water supply wells are known to be located within 500 feet of the Site.

6.0 TSCA APPLICABILITY AND PERFORMANCE BASED PLAN

PCBs that enter the environment under certain circumstances are required to be managed under the Toxic Substances Control Act (TSCA) and the regulations found at 40 CFR 761. Based on the history of the Site as seen through aerial photographs, the PCBs found in soil were likely placed prior to 1970. TSCA's definition of PCB remediation waste includes "materials disposed of prior to April 18, 1978 that are currently at concentrations greater than 50 ppm regardless of the concentrations of the original spill." The soils at the Site meet this definition, therefore remediation is required to be in accordance with TSCA's regulations for PCB remediation waste.

Regulations for TSCA Performance Based Plans in accordance with 761.61(b) require that the area of concern be characterized sufficiently to delineate the extent of PCBs. While only 3 PCB samples have been analyzed (one composite and 2 grab), the area of fill has been visually defined based on 18 borings. Soil containing PCBs at concentrations equal to or above 1 mg/kg will be excavated and disposed at a TSCA approved facility. After excavation, confirmatory soil sampling will be conducted in accordance with TSCA Subpart O.

7.0 REQUIREMENTS FOR RELEASE ABATEMENT MEASURES

In accordance with 310 CMR 40.0441, Release Abatement Measures are intended to reduce risks at a disposal site and/or increase the cost effectiveness of response actions by allowing the implementation of certain accelerated remedial actions to stabilize, treat, control, minimize, or eliminate releases until such a time as a Permanent or Temporary Solution is achieved as described in 310 CMR 40.1000, or until Comprehensive Remedial Actions can be implemented, as described in 310 CMR 40.0800.

Elevated concentrations of lead, chromium, 4,4-DDT, and PCBs were detected in soil at the Site. To reduce overall Site risk, the provisions of this RAM Plan will guide the management of excavated soil. There currently no plans for development at the Site. It is estimated that approximately 500 cubic yards of soil may be excavated for off-site disposal.

8.0 RELEASE ABATEMENT MEASURE - OBJECTIVES

The overall objective of the RAM is to excavate and dispose of soil with elevated concentrations of metals, pesticides and PCBs. The material is also known to contain a certain amount of concrete, glass, and wood. The specific objectives of the RAM are the following:

- Reduce risk to human health, safety, public welfare, and the environment from potential exposure to metals, pesticides, TPH and PCBs in soil.
- Visually monitor for dust during soil excavation or other soil movement activities.
- Excavate, stockpile, and manage the off-site disposal of up to 500 cubic yards of soil.
- Conduct confirmatory soil sampling for EPH, pesticides, and metals, and PCBs in accordance with TSCA Subpart O.

9.0 RELEASE ABATEMENT MEASURE - SPECIFIC PLANS

This RAM Plan addresses the excavation and off-site disposal of contaminated soil from the areas shown on Figures 2 and 3. The proposed RAM Plan will be conducted in accordance with a site-specific Health and Safety Plan. Managed soil will be handled to minimize excessive movement and to reduce the potential for air emissions. Confirmatory sampling will be conducted to evaluate post remedial risk to human health.

9.1 Public Involvement

Written notifications will be provided to the City of Waltham Mayor's Office and the City of Waltham Health Department providing information on the purpose, nature, and expected duration of the RAM, and any personal protective equipment (PPE) that will be used. A copy of each of these notification letters is attached to this report as Appendix C.

9.2 Site Security

The Site is located in the rear of the property in a relatively isolated wooded area. The Site will be secured with temporary construction fence, which will remain during the duration of the excavation activities. This area will continue to be off limits to the general public during construction activities.

9.3 Soil Excavation, Management and Disposal

The current and proposed RAM soil excavation activities involve Site preparation, soil excavation, stockpiling and loading into trucks or containers for off-site disposal or reuse. Level D PPE will be required for work within the excavation area.

Site preparation includes the clearing and preparation of the staging, excavation and loading areas, along with designated stockpile and staging areas.

The proposed area of excavation is approximately 50 feet by 30 feet by 9 feet deep. An estimated soil volume of up to 500 cubic yards is anticipated to be generated based on assessment and precharacterization soil results.

TCLP lead results did not show any exceedances of criteria that would classify the material as a hazardous waste. Soils slated for offsite disposal will be stockpiled on and covered with 10 mil polyethylene sheeting and restricted from public access within the fenced area. Loading will occur at the area of excavation where soil will be stockpiled and transported through the Site on existing gravel access roads. Because the soil is regulated under the MCP, a MassDEP Bill of Lading will be used to transport the soil to the appropriate facility.

Clean fill will be brought on-site to replace excavated contaminated soils. Equipment used at the Site that comes in contact with contaminated soil will be decontaminated with water and detergent prior to leaving the Site.

9.4 Confirmatory Soil Sampling

After excavation, a sufficient number of confirmatory soil samples will be collected to evaluate the soil excavation. In accordance with Subpart O of TSCA, soil samples will be collected every 1.5 meters in a grid pattern. If feasible, and based on visual inspection after excavation, samples may be composited (5-point composites) and results evaluated to ensure that the allowable standard could not be mathematically exceeded.

9.5 Excavation Dewatering

Depth to groundwater on the property was measured between 10.82 and 12.69 feet below grade. Depth to groundwater in well GP1-7MW located at the Site was measured at 12.69 feet below grade. The excavations are expected to terminate at a maximum depth of approximately 8-10 feet based on existing results. Therefore, dewatering is not anticipated. If required, temporary excavation dewatering will be localized and directed into a nearby excavation.

10.0 SCHEDULE

Soil excavation and management will commence upon submittal of this RAM Plan to MassDEP. The duration of RAM activities including any soil excavation and stockpiling and off-site disposal is estimated to last up to two weeks. The RAM will be considered complete when all remediation waste has been removed from the Site.

If needed, a RAM Status Report will be submitted to MassDEP 120 days after initial submission of the RAM Plan and every six months thereafter, if needed. A RAM Completion Report will be submitted within 60 days of the completion of remedial actions at the Site.

11.0 REMEDIATION WASTE

Remediation waste generated at the Site will consist of soil contaminated with metals, pesticides and PCBs. Up to 500 cubic yards of soil is anticipated to be generated as a result of soil excavation activities. Because the soil will managed under a Performance Based Cleanup Plan, disposal is limited to off-site disposal as a TSCA waste.

12.0 ENVIRONMENTAL MONITORING PLAN

The following environmental monitoring plan has been implemented and is proposed to be continued at the Site during the course of the proposed RAM:

12.1 Excavation Air Monitoring

Because SVOCs are expected, ambient air will be monitored every 15 minutes during heavy excavation with a PID using an 10.6 eV lamp. If a level of 10 ppmv of total organic vapors is met or exceeded in ambient air for a period of 15 minutes or longer (two consecutive readings), mitigative measures will be taken. These may include a temporary stop in work, or ventilation with fans to control vapors.

12.2 Dust Monitoring

During implementation of this RAM Plan, short-term exposure to contaminated soil could occur primarily through dust generation while performing necessary excavation and materials handling tasks. To mitigate potential exposure by site workers and/or off-site receptors, engineering controls will be implemented to govern any activity that might disturb or expose contaminated soils. Dust suppression will occur throughout excavation activities to minimize potential off-site migration of airborne contaminants.

To mitigate dust emissions, the Construction Contractor will utilize the following specific measures:

- Wetting agents will be used regularly to control and suppress dust that may come from exposed excavations, chipping, sawing, etc.
- Gravel tracking pads and a wheel wash will be provided at the construction entrance.
- Construction practices will be monitored to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized and that any emissions of dust are minimal.

All soils, when transported upon public roadways, shall be covered to minimize fugitive dust, and where necessary, truck tire and undercarriage washing shall be employed to minimize tracking of soils onto public roadways.

13.0 PERMITS & FEES

Since this RAM Plan is being prepared after Tier Classification for both Disposal Sites, no RAM Plan submittal fee is required. In accordance with 310 CMR 40.0443(2), subsequent to the receipt by MassDEP of a complete RAM Plan, approval is not required from MassDEP to conduct the RAM. The following permits will be obtained from public and private agencies prior to implementation of the RAM Plan:

13.1 Dig-Safe

Utility clearance was requested from Dig-Safe at least 72 hours prior to initiating the RAM activities. Utility marking were incorporated in the Site Plan to show their locations. Entities that are not subscribers to the Dig-Safe network (such as the local water and sewer department) were contacted directly for utility marking.

13.2 Trench Excavation Permit

If applicable, based on the size of the excavation, the excavation contractor will obtain a trench permit from the City of Waltham. The permit will be kept on the Site during excavation activities.

14.0 GREENER CLEANUPS

In accordance with 310 CMR 40.0191(3)(e), Response Action Performance Standard (RAPS), the project work will incorporate relevant and feasible opportunities for achieving green remediation goals. These include:

- Minimizing total energy use while maximizing the use of renewable energy;

- Minimizing emissions of greenhouse gases and other air pollutants;
- Minimizing water use and impacts to water resources;
- Reducing, reusing and recycling materials and waste; and
- Avoiding or reducing adverse impacts to ecosystems and land resources.

Soil excavation and off-site disposal was deemed the most feasible remedial alternative. Soil excavation and off-site disposal was limited to only those soils that reduce overall human health risk.

FIGURES

CDW CONSULTANTS, INC.

240 BEAVER STREET
WALTHAM, MA

Figure 1 - Site Location Map

SOURCE: MASSGIS

SCALE:1 inch = 2,000 feet

NO	DATE	REVISIONS

DATE : 6/20/2019
DRAWN : PRS
SCALE :

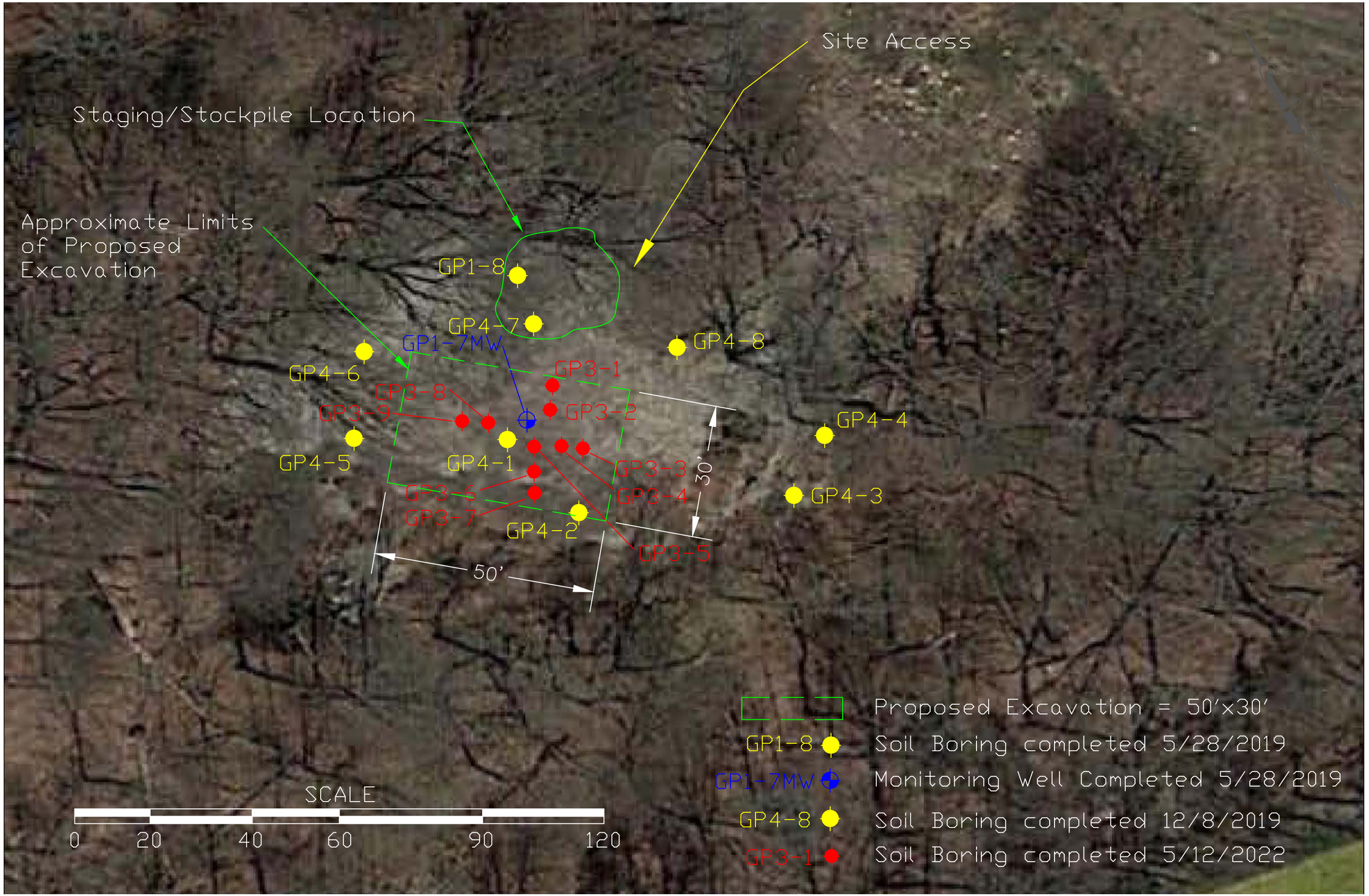
PROJECT AREA OVERVIEW

240 BEAVER STREET
WALTHAM, MA

CDW CONSULTANTS

FIGURE 2

1830.20



NO	DATE	REVISIONS
1	9/25/18	LMK
2	10/4/18	LA

SEAL

DATE : 8/2/2022
DRAWN : AS
SCALE : ~1" = 30'

Release Abatement Measure Site Plan and Sampling Locations

240 Beaver Street
Waltham, MA

CDW CONSULTANTS
Environmental and Civil Engineering

Figure 3

0' 15' 30'

1839.20

TABLES

Table 1
Soil Headspace Screening Results - TOVs (ppmv)
240 Beaver St., Waltham, MA
May 12, 2022

ID#	Depth	PID
GP3-1	0-2'	0.0
	2-4'	0.5
	4-6'	0.1
	6-8'	0.9
	8-10'	0.3
	10-12'	0.0
	12-14'	0.0
	14-15'	0.1
ID#	Depth	PID
GP3-2	0-2'	0.1
	2-4'	0
	4-6'	0.1
	6-8'	0.1
	8-10'	0.3
	10-12'	0.9
	12-14'	0.6
	14-15'	0.1
ID#	Depth	PID
GP3-3	0-2'	0.1
	2-4'	1.4
	4-6'	2.2
	6-8'	0.9
	8-10'	0.1
	10-12'	0.0
	12-14'	0.0
	14-15'	0
ID#	Depth	PID
GP3-4	0-2'	0.1
	2-4'	0.0
	4-6'	0.1
	6-8'	0.1
	8-10'	0.3
	10-12'	0.9
	12-14'	0.6
	14-15'	0.1
ID#	Depth	PID
GP3-5	0-2'	0.1
	2-4'	3.7
	4-6'	7.8
	6-8'	4.2
	8-10'	0.3
	10-12'	0.80
	12-14'	0.1
	14-15'	0.0

ID#	Depth	PID
GP3-6	0-2'	0.1
	2-4'	2.2
	4-6'	0.5
	6-8'	0.1
	8-10'	0.3
	10-12'	0.9
	12-14'	0.6
	14-15'	0.1
ID#	Depth	PID
GP3-7	0-2'	0.1
	2-4'	0.1
	4-6'	0.2
	6-8'	0.1
	8-10'	0.1
	10-12'	0.0
	12-14'	0.0
	14-15'	0
ID#	Depth	PID
GP3-8	0-2'	0.0
	2-4'	0.0
	4-6'	1.2
	6-8'	2.9
	8-10'	0.3
	10-12'	0.4
	12-14'	0.0
	14-15'	0.0
ID#	Depth	PID
GP3-9	0-2'	0.0
	2-4'	0.4
	4-6'	1.9
	6-8'	0.9
	8-10'	0.3
	10-12'	0.0
	12-14'	0.0
	14-15'	0

Table 2
Soil Precharacterization Results
240 Beaver Street, Waltham
May 12, 2022

Parameter	Reportable Concentrations (RCs) RCS-1	Comm-97 Limits for In-state Lined Landfill	Comm-97 Limits for In-state Unlined Landfill	SAMPLING LOCATION	
				Comp #1 (2-10ft)	GP 3-5 (4-6ft)
Sampling Date				5/12/2022 12:00:00 PM	5/12/2022 12:00:00 PM
Sample Depth				2-10 Feet	4-6 Feet
SM 2540G (% Wt)					
% Solids	~	~	~	73.0	73.0
SM21-23 2510B Modified (µmhos/cm)					
SPECIFIC CONDUCTANCE	~	8000	4000	9.7	NT
SW-846 1010A-B (°F)					
FLASHPOINT	~	~	>140 °F	> 212 °F	NT
SW-846 6010D (mg/Kg dry) Metals Digestion					
ANTIMONY	20			ND (2.2)	NT
ARSENIC	20	40	40	9.8	NT
BARIUM	1000			82	NT
BERYLLIUM	90			0.36	NT
CADMIUM	70	80	30	0.47	NT
CHROMIUM	100	1000	1000	24	NT
LEAD	200	2000	1000	170	NT
NICKEL	600			24	NT
SELENIUM	400			ND (4.4)	NT
SILVER	100			ND (0.44)	NT
THALLIUM	8			ND (2.2)	NT
VANADIUM	400			160	NT
ZINC	1000			160	NT
SW-846 7471B (mg/Kg dry) Metals Digestion					
MERCURY	20	10	10	0.40	NT
SW-846 6010D (mg/Kg dry) Metals Digestion					
TCLP Lead	~	5	5	0.9	NT
SW-846 8081B (mg/Kg dry)					
ALDRIN	0.08			**ND (1.4) ***	NT
ALPHA-BHC	50			ND (1.4)	NT
BETA-BHC	10			ND (1.4)	NT
DELTA-BHC	10			ND (1.4)	NT
GAMMA-BHC (LINDANE)	0.003			**ND (0.55) ***	NT
CHLORDANE	5			**ND (5.5) ***	NT
4,4'-DDD	8			**34**	NT
4,4'-DDE	6			3.2	NT
4,4'-DDT	6			**1400**	NT
DIELDRIN	0.08			**7.8**	NT
ENDOSULFAN I	0.5			**ND (1.4) ***	NT
ENDOSULFAN II	0.5			**ND (2.2) ***	NT
ENDOSULFAN SULFATE	~			ND (2.2)	NT
ENDRIN	10			ND (2.2)	NT
ENDRIN KETONE	~			ND (2.2)	NT
HEPTACHLOR	0.3			**ND (1.4) ***	NT
HEPTACHLOR EPOXIDE	0.1			**ND (1.4) ***	NT
HEXACHLOROBENZENE	0.7			**ND (1.6) ***	NT
METHOXYCHLOR	200			ND (14)	NT
SW-846 8082A (mg/Kg dry)					
PCB 1016	1			**ND (11) ***	NT
PCB 1221	1			**ND (11) ***	NT
PCB 1232	1			**ND (11) ***	NT
PCB 1242	1			**ND (11) ***	NT
PCB 1248	1			**ND (11) ***	NT
PCB 1254	1			**ND (11) ***	NT
PCB 1260	1			**ND (11) ***	NT
PCB 1262	1			**ND (11) ***	NT
PCB 1268	1			**ND (11) ***	NT
Total PCBs		2	2		
SW-846 8100 Modified (mg/Kg dry)					
TPH	1000	5000	2500	**2600**	NT
SW-846 8151A (µg/kg dry)					
2,4-D	100000			ND (140)	NT
2,4-DB	100000			ND (140)	NT
2,4,5-TP (SILVEX)	100000			ND (14)	NT
2,4,5-T	100000			ND (14)	NT
DALAPON	~			ND (340)	NT
DICAMBA	500000			ND (14)	NT
DICHLOROPROP	~			ND (140)	NT
MCPA	100000			ND (14000)	NT
MCPP	~			ND (14000)	NT
SW-846 8260D (mg/Kg dry)					
ACETONE	6			NT	0.038
TERT-AMYL METHYL ETHER	~			NT	ND (0.0014)
BENZENE	2			NT	0.0011
BROMOBENZENE	100			NT	ND (0.0027)
BROMOCHLOROMETHANE	~			NT	ND (0.0027)
BROMODICHLOROMETHANE	0.1			NT	ND (0.0027)
BROMOFORM	0.1			NT	ND (0.0027)
BROMOMETHANE	0.5			NT	ND (0.014)
2-BUTANONE (MEK)	4			NT	ND (0.055)
N-BUTYLBENZENE	~			NT	ND (0.0027)
SEC-BUTYLBENZENE	~			NT	ND (0.0027)
TERT-BUTYLBENZENE	100			NT	ND (0.0027)
TERT-BUTYLETHYL ETHER	~			NT	ND (0.0014)
CARBON DISULFIDE	100			NT	0.017
CARBON TETRACHLORIDE	5			NT	ND (0.0027)
CHLOROBENZENE	1			NT	ND (0.0027)

Table 2
Soil Precharacterization Results
240 Beaver Street, Waltham
May 12, 2022

Parameter	Reportable Concentrations (RCs) RCS-1	Comm-97 Limits for In-state Lined Landfill	Comm-97 Limits for In-state Unlined Landfill	SAMPLING LOCATION	
				Comp #1 (2-10ft)	GP 3-5 (4-6ft)
Sampling Date				5/12/2022 12:00:00 PM	5/12/2022 12:00:00 PM
Sample Depth				2-10 Feet	4-6 Feet
CHLORODIBROMOMETHANE	0.005			NT	ND (0.0014)
CHLOROETHANE	100			NT	ND (0.027)
CHLOROFORM	0.2			NT	ND (0.0055)
CHLOROMETHANE	100			NT	ND (0.014)
2-CHLOROTOLUENE	100			NT	ND (0.0027)
4-CHLOROTOLUENE	100			NT	ND (0.0027)
1,2-DIBROMO-3-CHLOROPROPANE	10			NT	ND (0.0027)
1,2-DIBROMOETHANE (EDB)	0.1			NT	ND (0.0014)
DIBROMOMETHANE	500			NT	ND (0.0027)
1,2-DICHLOROBENZENE	9			NT	ND (0.0027)
1,3-DICHLOROBENZENE	3			NT	ND (0.0027)
1,4-DICHLOROBENZENE	0.7			NT	ND (0.0027)
DICHLORODIFLUOROMETHANE	1000			NT	ND (0.027)
1,1-DICHLOROETHANE	0.4			NT	ND (0.0027)
1,2-DICHLOROETHANE	0.1			NT	ND (0.0027)
1,1-DICHLOROETHYLENE	3			NT	ND (0.0055)
CIS-1,2-DICHLOROETHYLENE	0.1			NT	ND (0.0027)
TRANS-1,2-DICHLOROETHYLENE	1			NT	ND (0.0027)
1,2-DICHLOROPROPANE	0.1			NT	ND (0.0027)
1,3-DICHLOROPROPANE	500			NT	ND (0.0014)
2,2-DICHLOROPROPANE	0.1			NT	ND (0.0027)
1,1-DICHLOROPROPENE	0.01			NT	ND (0.0027)
CIS-1,3-DICHLOROPROPENE	0.01			NT	ND (0.0014)
TRANS-1,3-DICHLOROPROPENE	0.01			NT	ND (0.0014)
DIETHYL ETHER	100			NT	ND (0.027)
DIISOPROPYL ETHER	100			NT	ND (0.0014)
1,4-DIOXANE	0.2			NT	ND (0.14)
ETHYLBENZENE	40			NT	ND (0.0027)
HEXACHLOROBUTADIENE	30			NT	ND (0.0027)
2-HEXANONE	100			NT	ND (0.027)
ISOPROPYLBENZENE	1000			NT	ND (0.0027)
P-ISOPROPYLTOLUENE	100			NT	ND (0.0027)
METHYL TERT-BUTYL ETHER (MTBE)	0.1			NT	ND (0.0055)
METHYLENE CHLORIDE	0.1			NT	ND (0.027)
4-METHYL-2-PENTANONE (MIBK)	0.4			NT	ND (0.027)
NAPHTHALENE	4			NT	ND (0.0055)
N-PROPYLBENZENE	100			NT	ND (0.0027)
STYRENE	3			NT	ND (0.0027)
1,1,1,2-TETRACHLOROETHANE	0.1			NT	ND (0.0027)
1,1,2,2-TETRACHLOROETHANE	0.005			NT	ND (0.0014)
TETRACHLOROETHYLENE	1			NT	ND (0.0027)
TETRAHYDROFURAN	500			NT	ND (0.014)
TOLUENE	30			NT	ND (0.0027)
1,2,3-TRICHLOROBENZENE	~			NT	ND (0.0027)
1,2,4-TRICHLOROBENZENE	2			NT	ND (0.0027)
1,1,1-TRICHLOROETHANE	30			NT	ND (0.0027)
1,1,2-TRICHLOROETHANE	0.1			NT	ND (0.0027)
TRICHLOROETHYLENE	0.3			NT	ND (0.0027)
TRICHLOROFLUOROMETHANE	1000			NT	ND (0.014)
1,2,3-TRICHLOROPROPANE	100			NT	ND (0.0027)
1,2,4-TRIMETHYLBENZENE	1000			NT	ND (0.0027)
1,3,5-TRIMETHYLBENZENE	10			NT	ND (0.0027)
VINYL CHLORIDE	0.7			NT	ND (0.014)
M/P-XYLENE	100			NT	ND (0.0055)
O-XYLENE	100			NT	ND (0.0027)
Total VOCs		10	4		0.0561
SW-846 8270E (mg/Kg dry)					
BIPHENYL	0.05			**ND (4.6) ***	NT
ACENAPHTHENE	4			ND (1.2)	NT
ACENAPHTHYLENE	1			**ND (1.2) ***	NT
ACETOPHENONE	1000			ND (2.3)	NT
ANILINE	1000			ND (2.3)	NT
ANTHRACENE	1000			ND (1.2)	NT
BENZO(A)ANTHRACENE	7			ND (1.2)	NT
BENZO(A)PYRENE	2			ND (1.2)	NT
BENZO(B)FLUORANTHENE	7			ND (1.2)	NT
BENZO(G,H,I)PERYLENE	1000			ND (1.2)	NT
BENZO(K)FLUORANTHENE	70			ND (1.2)	NT
BIS(2-CHLOROETHOXY)METHANE	500			ND (2.3)	NT
BIS(2-CHLOROETHYL)ETHER	0.7			**ND (2.3) ***	NT
BIS(2-CHLOROISOPROPYL)ETHER	0.7			**ND (2.3) ***	NT
BIS(2-ETHYLHEXYL)PHTHALATE	90			ND (2.3)	NT
4-BROMOPHENYL PHENYL ETHER	100			ND (2.3)	NT
BUTYLBENZYLPHTHALATE	100			ND (2.3)	NT
4-CHLOROANILINE	1			**ND (4.5) ***	NT
2-CHLORONAPHTHALENE	1000			ND (2.3)	NT
2-CHLOROPHENOL	0.7			**ND (2.3) ***	NT
CHRYSENE	70			ND (1.2)	NT
DIBENZ(A,H)ANTHRACENE	0.7			**ND (1.2) ***	NT
DIBENZOFURAN	100			ND (2.3)	NT
DI-N-BUTYLPHTHALATE	50			ND (2.3)	NT
1,2-DICHLOROBENZENE	9			ND (2.3)	NT
1,3-DICHLOROBENZENE	3			ND (2.3)	NT
1,4-DICHLOROBENZENE	0.7			**ND (2.3) ***	NT

Table 2
Soil Precharacterization Results
240 Beaver Street, Waltham
May 12, 2022

Parameter	Reportable Concentrations (RCs) RCS-1	Comm-97 Limits for In-state Lined Landfill	Comm-97 Limits for In-state Unlined Landfill	SAMPLING LOCATION	
				Comp #1 (2-10ft)	GP 3-5 (4-6ft)
Sampling Date				5/12/2022 12:00:00 PM	5/12/2022 12:00:00 PM
Sample Depth				2-10 Feet	4-6 Feet
3,3'-DICHLOROBENZIDINE	3			ND (1.2)	NT
2,4-DICHLOROPHENOL	0.7			**ND (2.3) ***	NT
DIETHYLPHTHALATE	10			ND (2.3)	NT
2,4-DIMETHYLPHENOL	0.7			**ND (2.3) ***	NT
DIMETHYLPHTHALATE	0.7			**ND (2.3) ***	NT
2,4-DINITROPHENOL	3			**ND (4.5) ***	NT
2,4-DINITROTOLUENE	0.7			**ND (2.3) ***	NT
2,6-DINITROTOLUENE	100			ND (2.3)	NT
DI-N-OCTYLPHTHALATE	1000			ND (2.3)	NT
1,2-DIPHENYLHYDRAZINE (AZOBENZENE)	50			ND (2.3)	NT
FLUORANTHENE	1000			ND (1.2)	NT
FLUORENE	1000			ND (1.2)	NT
HEXACHLOROBENZENE	0.7			**0.73**	NT
HEXACHLOROBUTADIENE	30			ND (2.3)	NT
HEXACHLOROETHANE	0.7			**ND (2.3) ***	NT
INDENO(1,2,3-CD)PYRENE	7			ND (1.2)	NT
ISOPHORONE	100			ND (2.3)	NT
2-METHYLNAPHTHALENE	0.7			**ND (1.2) ***	NT
O-CRESOL	500			ND (2.3)	NT
M/P-CRESOL	500			ND (2.3)	NT
NAPHTHALENE	4			ND (1.2)	NT
NITROBENZENE	500			ND (2.3)	NT
2-NITROPHENOL	100			ND (2.3)	NT
4-NITROPHENOL	100			ND (4.5)	NT
PENTACHLOROPHENOL	3			ND (2.3)	NT
PHENANTHRENE	10			ND (1.2)	NT
PHENOL	1			**ND (2.3) ***	NT
PYRENE	1000			ND (1.2)	NT
PYRIDINE	500			ND (2.3)	NT
1,2,4-TRICHLOROBENZENE	2			**ND (2.3) ***	NT
2,4,5-TRICHLOROPHENOL	4			ND (2.3)	NT
2,4,6-TRICHLOROPHENOL	0.7			**ND (2.3) ***	NT
Total SVOCs		100	100	0.73	
SW-846 9014 (mg/Kg)					
REACTIVE CYANIDE	~	~	~	ND (3.9)	NT
SW-846 9030A (mg/Kg)					
REACTIVE SULFIDE	~	~	~	ND (19)	NT
SW-846 9045C (pH Units)					
PH	~	~	~	7.9	NT

NOTES:
1. An asterisk (*) following a detection limit indicates that the minimum laboratory reporting limit exceeds one or more of the regulatory criteria.
2. ND = Not detected above the lab reporting limits shown in parenthesis.
3. NT = Not tested.
4. ~ = No Method 1 Standard or limit available
5. Shaded values exceed the MCP Reportable Concentrations (RCs).

APPENDIX A

SOIL BORING LOGS
AND WELL CONSTRUCTION DIAGRAMS

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP1-7MW**
Total Depth:	20 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/28/2019	Completed:	5/28/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					0.0	tan to gray fine to silty fine SAND, little medium sand with wood and glass; dry	
-3							
					4		
-4					4		
			5'		0.1		
-5	S2		5'	48"			
					6		
-6					6		
					0.1	black fine to silty fine SAND, trace medium sand, with broken glass, asphalt pieces, concrete pebbles; dry	
-7							
					8		
-8					8		
					0.3		
-9							
			10'		10		
-10	S3		10'	60"	10		
					0.9	See Above	
-11							
					12		
-12					12	Approximate Water Table	
					0.6	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; moist to wet	
-13							
					14		
-14					14		
			15'		0.1		
-15	S4		15'				
					16		
-16					16		
					0.0	gray fine to silty fine SAND, trace medium sand, trace coarse sand with silt lenses; wet	
-17							
					18		
-18					18		
					0.0		
-19							
			20'		20		
-20						**End of Boring at 20 feet; No Refusal**	

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	20'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-1**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	60"	0	tan to brown fine SAND, little coarse sand trace medium sand and gravel; dry (FILL)	
					0.0		
-1							
					2		
-2					2		
					0.5	brown to black fine to silty fine SAND, black fine sand. ash layers; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.1		
-5	S2		5'	48"			
					6		
-6					6		
					0.9	black fine to medium SAND with ash and broken with gravel and orange sand lenses; dry	
-7							
					8		
-8					8		
					0.3		
-9						black tan fine to silty fine SAND, gray silt seams; moist	
			10'		10		
-10	S3		10'	60"	10	gray silty fine SAND, trace medium sand moist to wet	
					0.0		
-11							
					12		
-12					12	Approximate Water Table	
					0.0	gray fine to silty fine SAND, trace medium sand, trace coarse sand; wet	
-13							
					14		
-14					14		
			15'		0.1		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-2**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	48"	0		
					0.1	tan to brown fine SAND, little coarse sand	
-1						trace medium sand with wood and gravel; dry	
					2	(FILL)	
-2					2		
					0.0		
-3						brown to black fine to silty fine SAND,	
					4	layered broken brick, concrete, tan fine sand.	
-4					4	ash layers; dry	
			5'		0.1	(FILL)	
-5	S2		5'	48"		note: building materials of pasty caulking, glass and metals pieces	
					6		
-6					6		
					0.1	black fine to medium SAND with ash and broken	
-7						with gravel and orange sand lenses; dry	
					8		
-8					8		
					0.3		
-9						black tan fine to silty fine SAND,	
			10'		10	gray silt seams; moist	
-10	S3		10'	60"	10		
					0.9	gray silty fine SAND, trace medium sand	
-11						moist to wet	
					12		
-12					12	Approximate Water Table	
					0.6	gray fine to silty fine SAND, trace medium sand,	
-13						trace coarse sand with gravel pieces; wet	
					14		
-14					14		
			15'		0.1		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-3**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	42"	0	tan to brown fine SAND, little coarse sand trace medium sand and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					1.4		
-3							
					4		
-4					4	brown to black fine to silty fine SAND, black coarse sand with crushed brick dry (FILL)	
			5'		2.2		
-5	S2		5'	48"			
					6		
-6					6		
					0.9	black fine to medium SAND with ash and broken with gravel and orange sand lenses; dry (FILL)	
-7							
					8		
-8					8		
					0.1		
-9						black tan fine to silty fine SAND, gray silt seams; moist	
			10'		10		
-10	S3		10'	48"	10	gray silty fine SAND, trace medium sand moist to wet	
					0.0		
-11							
					12		
-12					12	Approximate Water Table	
					0.0	trace coarse sand; wet	
-13							
					14		
-14					14		
			15'		0.0		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-4**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	48"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					0.0	brown to black fine to silty fine SAND, layered broken brick, concrete, tan fine sand. ash layers; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.1		
-5	S2		5'	48"			
					6		
-6					6		
					0.1	black fine to medium SAND with ash and broken brick and coal pieces; dry	
-7							
					8		
-8					8		
					0.3		
-9						black tan fine to silty fine SAND, gray silt layers; moist	
			10'		10		
-10	S3		10'	60"	10	gray silty fine SAND, trace medium sand moist to wet	
					0.9		
-11							
					12		
-12					12	Approximate Water Table	
					0.6	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; wet	
-13							
					14		
-14					14		
			15'		0.1		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-5**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					3.7	brown to black fine to silty fine SAND, layered broken brick, concrete, tan fine sand. ash layers; dry (FILL) note: building materials of pasty caulking, glass and metals pieces	
-3							
					4		
-4					4		
			5'		7.8		
-5	S2		5'	48"			
					6		
-6					6		
					4.2	black fine to medium SAND with ash and broken concrete and coal pieces; dry	
-7							
					8		
-8					8		
					0.3		
-9						black tan fine to silty fine SAND, gray silt seams; moist	
			10'		10		
-10	S3		10'	60"	10	gray silty fine SAND, trace medium sand moist to wet	
					0.8		
-11							
					12		
-12					12	Approximate Water Table	
					0.1	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; wet	
-13							
					14		
-14					14		
			15'		0.0		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-6**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Blows per 6 Inches	Depth Range	Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	48"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					2.2	brown to black fine to silty fine SAND, coal pieces, concrete, tan fine sand. ash layers; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.5		
-5	S2		5'	48"			
					6		
-6					6		
					0.1	black fine to medium SAND with ash and broken concrete and coal pieces; dry	
-7							
					8		
-8					8		
					0.3		
-9						black tan fine to silty fine SAND, gray silt seams; moist	
			10'		10		
-10	S3		10'	60"	10		
					0.9		
-11							
					12		
-12					12	Approximate Water Table	
					0.6	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; wet	
-13							
					14		
-14					14		
			15'		0.1		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-7**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	50"	0	tan to brown fine SAND, little coarse sand trace medium sand and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					0.1		
-3							
					4		
-4					4	brown to black fine to silty fine SAND, black coarse sand with crushed brick dry (FILL)	
			5'		0.2		
-5	S2		5'	48"			
					6		
-6					6		
					0.1	black fine to medium SAND with ash and broken with gravel and rounded pebbles; dry (FILL)	
-7							
					8		
-8					8		
					0.1		
-9						black tan fine to silty fine SAND, gray silt seams; moist	
			10'		10		
-10	S3		10'	60"	10	gray silty fine SAND, trace medium sand moist to wet	
					0.0		
-11							
					12		
-12					12	Approximate Water Table	
					0.0	trace coarse sand; wet	
-13							
					14		
-14					14		
			15'		0.0		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-8**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	48"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.0		
-1							
					2		
-2					2		
					0.0		
-3							
					4		
-4					4	black fine to silty fine SAND, crushed brick, concrete, tan fine sand. ash layers with gravel; dry (FILL)	
			5'		1.2		
-5	S2		5'	48"			
					6		
-6					6		
					2.9	black fine to medium SAND with ash and broken concrete and coal pieces; dry	
-7							
					8		
-8					8		
					0.3		
-9						black tan fine to silty fine SAND, gray silt seams; moist	
			10'		10		
-10	S3		10'	60"	10	gray silty fine SAND, trace medium sand moist to wet	
					0.4		
-11							
					12		
-12					12	Approximate Water Table	
					0.0	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; wet	
-13							
					14		
-14					14		
			15'		0.0		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830.20	Client:	City of Waltham	BORING ID:	**GP3-9**
Total Depth:	15'	Location:	240 Beaver St	Logged By:	AMS
Date Started:	5/12/2022	Completed:	5/12/2022	Contractor:	Soil Ex
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Blows per 6 Inches	Depth Range	Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	42"	0	tan to brown fine SAND, little coarse sand trace medium sand and gravel; dry (FILL)	
					0.0		
-1							
					2		
-2					2		
					0.4	brown to black fine to silty fine SAND, black coarse sand dry (FILL)	
-3							
					4		
-4					4		
			5'		1.9		
-5	S2		5'	48"			
					6		
-6					6		
					0.9	black fine to medium SAND with ash and broken with gravel and orange sand lenses; dry (FILL)	
-7							
					8		
-8					8		
					0.3		
-9						black tan fine to silty fine SAND, gray silt seams; moist	
			10'		10		
-10	S3		10'	48"	10	gray silty fine SAND, trace medium sand moist to wet	
					0.0		
-11							
					12		
-12					12	Approximate Water Table	
					0.0	trace coarse sand; wet	
-13							
					14		
-14					14		
			15'		0.0		
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
					15		
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-1**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					0.0	tan to gray fine to silty fine SAND, little medium sand with glass; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.1		
-5	S2		5'	48"			
					6		
-6					6		
					0.1	black fine to silty fine SAND, trace medium sand, with broken glass, concrete pieces; dry (FILL)	
-7							
					8		
-8					8		
					0.3		
-9							
			10'		10		
-10	S3		10'	60"	10		
					0.9	See Above	
-11							
					12		
-12					12	Approximate Water Table	
					0.6	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; moist to wet	
-13							
					14		
-14							
			15'				
-15	S4		15'			**End of Boring at 15 feet; No Refusal**	
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-2**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.1		
-1							
					2		
-2					2		
					0.0	tan to gray fine to silty fine SAND, little medium sand with wood and glass; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.1		
-5	S2		5'	48"		black fine to silty fine SAND, trace medium sand, with broken glass, asphalt pieces, concrete pieces; dry (FILL)	
					6		
-6					6		
					0.1		
-7							
					8		
-8					8		
					0.3	See Above	
-9							
			10'		10		
-10	S3		10'	60"	10	gray fine to silty fine SAND, trace medium sand, moist	
					0.9		
-11							
					12		
-12					12	Approximate Water Table	
					0.6	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; moist to wet	
-13							
					14		
-14							
			15'				
-15						**End of Boring at 15 feet; No Refusal**	
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-3**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.0		
-1							
					2		
-2					2		
					0.0	tan to gray fine to silty fine SAND, little medium sand with wood and glass; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.9		
-5	S2		5'	48"		black fine to silty fine SAND, trace medium sand, with broken glass, brick and wood; dry (FILL)	
					6		
-6					6		
					1.2		
-7							
					8		
-8					8		
					0.7		
-9							
			10'		10	gray fine to silty fine SAND, trace medium sand, moist	
-10	S3		10'	40"	10		
					0.2		
-11							
					12		
-12					12	Approximate Water Table	
					0.1	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; moist to wet	
-13							
					14		
-14							
			15'				
-15						**End of Boring at 15 feet; No Refusal**	
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-4**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.0		
-1							
					2		
-2					2		
					0.0	tan to gray fine to silty fine SAND, little medium sand with wood and glass; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.9		
-5	S2		5'	48"		black fine to silty fine SAND, trace medium sand, with broken glass, asphalt pieces, concrete pieces; dry (FILL)	
					6		
-6					6		
					1.2		
-7							
					8		
-8					8		
					0.7		
-9							
			10'		10		
-10	S3		10'	40"	10	gray to black fine SAND, little gravel, trace silt with wood; moist (FILL)	
					0.2		
-11							
					12		
-12					12	Approximate Water Table	
					0.1	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; moist to wet	
-13							
					14		
-14							
			15'				
-15						**End of Boring at 15 feet; No Refusal**	
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-5**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.0		
-1							
					2		
-2					2		
					0.9	tan to gray fine to silty fine SAND, little medium sand with wood and glass; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.1		
-5	S2		5'	48"		black fine to silty fine SAND, trace medium sand, with broken glass, metal; dry (FILL)	
					6		
-6					6		
					0.6		
-7							
					8		
-8					8		
					0.4		
-9							
			10'		10		
-10	S3		10'	40"	10	gray to black fine SAND, little gravel, trace silt with wood; moist (FILL)	
					0.0		
-11							
					12		
-12					12	Approximate Water Table	
					0.1	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; moist to wet	
-13							
					14		
-14							
			15'				
-15						**End of Boring at 15 feet; No Refusal**	
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-6**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample Type & Num.	Sample Blows per 6 Inches	Sample Depth Range	Sample Recovery	PID Hdspace (ppmv)	Sample Description	Well Diagram
0	S1		0'	40"	0	tan to brown fine SAND, little coarse sand trace medium sand with wood and gravel; dry (FILL)	
					0.0		
-1							
					2		
-2					2		
					0.0	tan to gray fine to silty fine SAND, little medium sand with wood and glass; dry (FILL)	
-3							
					4		
-4					4		
			5'		0.1		
-5	S2		5'	48"		black fine to silty fine SAND, trace medium sand, with broken glass, metal; dry (FILL)	
					6		
-6					6		
					0.0		
-7							
					8		
-8					8		
					1.6		
-9							
			10'		10		
-10	S3		10'	45"	10	gray to black fine SAND, little gravel, trace silt with wood; moist (FILL)	
					0.0		
-11							
					12		
-12					12	Approximate Water Table	
					0.1	gray fine to silty fine SAND, trace medium sand, trace coarse sand with gravel pieces; moist to wet	
-13							
					14		
-14							
			15'				
-15						**End of Boring at 15 feet; No Refusal**	
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements

Date	Time	Depth to Groundwater	Measuring Point

Summary

Overburden:	Fill; Sand
Rock:	NA
Well Depth:	NA
Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-7**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample				PID Hdspace (ppmv)	Sample Description	Well Diagram
	Type & Num.	Blows per 6 Inches	Depth Range	Recovery			
0	S1		0'	40"	0	black asphalt and graded base	
					0.0		
-1						tan to gray fine SAND, trace gravel with broken concrete pieces; dry (FILL)	
					2		
-2					2		
					1.3		
-3						tan to gray fine to silty fine SAND, little medium sand; dry	
					4		
-4					4		
			5'		1.1		
-5	S2		5'	48"			
					6		
-6					6		
					0.9	black fine to silty fine SAND, trace medium sand, with wood; dry (FILL)	
-7							
					8		
-8					8		
					0.3		
-9						see above with 6" concrete layer (FILL)	
			10'		10		
-10	S3		10'	60"	10		
					2.6		
-11							
					12	black fine to silty fine SAND, trace medium sand, trace coarse sand; moist to wet	
-12					12		
					1.3		
-13							
					14		
-14							
			15'			**End of Boring at 15 feet; No Refusal**	
-15							
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements				Summary	
Date	Time	Depth to Groundwater	Measuring Point	Overburden:	Fill; Sand
				Rock:	NA
				Well Depth:	NA
				Boring:	15'

TEST BORING LOG

CDW Consultants, Inc.

Project No.:	1830	Client:	City of Waltham	BORING ID:	**GP4-8**
Total Depth:	15 ft	Location:	240 Beaver St	Logged By:	AMS
Date Started:	12/9/2019	Completed:	12/9/2019	Contractor:	Crawford
Casing ID:		Ground El.		Sheet #:	1
Remarks:	6610 DT Geoprobe				

Depth (Feet)	Sample				PID Hdspace (ppmv)	Sample Description	Well Diagram
	Type & Num.	Blows per 6 Inches	Depth Range	Recovery			
0	S1		0'	48"	0	black asphalt and graded base	
					0.0		
-1						tan to gray fine SAND, trace gravel with broken concrete pieces; dry	
					2		
-2					2	(FILL)	
					0.0		
-3						tan to gray fine to silty fine SAND, little medium sand; dry	
					4		
-4					4	(FILL)	
			5'		0.9		
-5	S2		5'	40"			
					6		
-6					6		
					1.9	black fine to silty fine SAND, trace medium sand, with wood; dry	
-7						(FILL)	
					8		
-8					8		
					0.0		
-9						see above with 6" concrete layer	
			10'		10		
-10	S3		10'	48"	10		
					0.8		
-11							
					12	black fine to silty fine SAND, trace medium sand, trace coarse sand; moist to wet	
-12					12	(FILL)	
					0.7		
-13							
					14		
-14							
			15'			**End of Boring at 15 feet; No Refusal**	
-15							
-16							
-17							
-18							
-19							
-20							

Groundwater Measurements				Summary	
Date	Time	Depth to Groundwater	Measuring Point	Overburden:	Fill; Sand
				Rock:	NA
				Well Depth:	NA
				Boring:	15'

APPENDIX B

LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY RECORDS

con-test®
A Pace Analytical® Laboratory

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

May 31, 2022

Alan Sundquist
CDW Consultants, Inc.
4 California Drive, Suite 301
Framingham, MA 01760

Project Location: 240 Beaver St., Waltham, MA
Client Job Number:
Project Number: 1830.1
Laboratory Work Order Number: 22E0834

Enclosed are results of analyses for samples as received by the laboratory on May 12, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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CDW Consultants, Inc.
4 California Drive, Suite 301
Framingham, MA 01760
ATTN: Alan Sundquist

REPORT DATE: 5/31/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 1830.1

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22E0834

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: 240 Beaver St., Waltham, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Comp #1 (2-10ft)	22E0834-01	Soil		SM 2540G	
				SM21-23 2510B Modified	
				SW-846 1010A-B	
				SW-846 6010D	
				SW-846 7471B	
				SW-846 8081B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8151A	
				SW-846 8270E	
				SW-846 9014	
				SW-846 9030A	
				SW-846 9045C	
GP 3-5 (4-6ft)	22E0834-02	Soil		SM 2540G	
				SW-846 8260D	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8151 samples were derivatized on 05/27/22.

For method 8151 samples analysis bracketed by LCS to monitor esterification. All recoveries in the bracketing LCS met method criteria.

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SW-846 6010D

Qualifications:

M-10

The reporting limit verification for the AIHA lead program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the high side.

Analyte & Samples(s) Qualified:

Lead
22E0834-01[Comp #1 (2-10ft)], B308621-SRM1

SW-846 8081B

Qualifications:

RL-11

Elevated reporting limit due to high concentration of target compounds.

Analyte & Samples(s) Qualified:

22E0834-01[Comp #1 (2-10ft)]

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl
22E0834-01[Comp #1 (2-10ft)]

Decachlorobiphenyl [2C]
22E0834-01[Comp #1 (2-10ft)]

Tetrachloro-m-xylene
22E0834-01[Comp #1 (2-10ft)]

Tetrachloro-m-xylene [2C]
22E0834-01[Comp #1 (2-10ft)]

SW-846 8082A

Qualifications:

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

Decachlorobiphenyl
22E0834-01[Comp #1 (2-10ft)]

Decachlorobiphenyl [2C]
22E0834-01[Comp #1 (2-10ft)]

Tetrachloro-m-xylene
22E0834-01[Comp #1 (2-10ft)]

Tetrachloro-m-xylene [2C]
22E0834-01[Comp #1 (2-10ft)]

SW-846 8100 Modified

Qualifications:

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

2-Fluorobiphenyl
22E0834-01[Comp #1 (2-10ft)]

SW-846 8151A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

22E0834-01[Comp #1 (2-10ft)]

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S-12

Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.

Analyte & Samples(s) Qualified:

2,4-Dichlorophenylacetic acid
22E0834-01[Comp #1 (2-10ft)]

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

MCPP
B309280-BLK1, B309280-BS1, B309280-BSD1

SW-846 8260D

Qualifications:

S-17

Surrogate recovery is outside of control limits. Data validation is not affected since all associated results are less than the reporting limit and bias is on the high side.

Analyte & Samples(s) Qualified:

1,2-Dichloroethane-d4
22E0834-02[GP 3-5 (4-6ft)]

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
B308386-BSD1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

Bromomethane
22E0834-02[GP 3-5 (4-6ft)], B308386-BLK1, B308386-BS1, B308386-BSD1, S071520-CCV1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

2-Butanone (MEK)
B308386-BS1, B308386-BSD1, S071520-CCV1

2-Hexanone (MBK)
B308386-BS1, B308386-BSD1, S071520-CCV1

SW-846 8270E

Qualifications:

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

2,4-Dinitrophenol
22E0834-01[Comp #1 (2-10ft)], B308526-BLK1, B308526-BS1, B308526-BSD1

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Aniline
22E0834-01[Comp #1 (2-10ft)], B308526-BLK1, B308526-BS1, B308526-BSD1, S071740-CCV1

Bis(2-chloroisopropyl)ether
B308526-BLK1, B308526-BS1, B308526-BSD1, S071740-CCV1

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V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:

4-Chloroaniline

22E0834-01[Comp #1 (2-10ft)], B308526-BLK1, B308526-BS1, B308526-BSD1, S071740-CCV1

Bis(2-chloroisopropyl)ether

22E0834-01[Comp #1 (2-10ft)]

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

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Project Location: 240 Beaver St., Waltham, MA Sample Description: Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Biphenyl	ND	4.6	0.36	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Acenaphthene	ND	1.2	0.47	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Acenaphthylene	ND	1.2	0.46	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Acetophenone	ND	2.3	0.45	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Aniline	ND	2.3	0.40	mg/Kg dry	5	V-05	SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Anthracene	ND	1.2	0.47	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Benzo(a)anthracene	ND	1.2	0.41	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Benzo(a)pyrene	ND	1.2	0.40	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Benzo(b)fluoranthene	ND	1.2	0.41	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Benzo(g,h,i)perylene	ND	1.2	0.50	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Benzo(k)fluoranthene	ND	1.2	0.40	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Bis(2-chloroethoxy)methane	ND	2.3	0.44	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Bis(2-chloroethyl)ether	ND	2.3	0.45	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Bis(2-chloroisopropyl)ether	ND	2.3	0.62	mg/Kg dry	5	V-34	SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Bis(2-Ethylhexyl)phthalate	ND	2.3	0.46	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
4-Bromophenylphenylether	ND	2.3	0.43	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Butylbenzylphthalate	ND	2.3	0.42	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
4-Chloroaniline	ND	4.5	0.30	mg/Kg dry	5	V-34	SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2-Chloronaphthalene	ND	2.3	0.40	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2-Chlorophenol	ND	2.3	0.47	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Chrysene	ND	1.2	0.43	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Dibenz(a,h)anthracene	ND	1.2	0.46	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Dibenzofuran	ND	2.3	0.46	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Di-n-butylphthalate	ND	2.3	0.41	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
1,2-Dichlorobenzene	ND	2.3	0.42	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
1,3-Dichlorobenzene	ND	2.3	0.41	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
1,4-Dichlorobenzene	ND	2.3	0.41	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
3,3-Dichlorobenzidine	ND	1.2	0.31	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2,4-Dichlorophenol	ND	2.3	0.45	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Diethylphthalate	ND	2.3	0.43	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2,4-Dimethylphenol	ND	2.3	0.59	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Dimethylphthalate	ND	2.3	0.45	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2,4-Dinitrophenol	ND	4.5	2.0	mg/Kg dry	5	R-05	SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2,4-Dinitrotoluene	ND	2.3	0.48	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2,6-Dinitrotoluene	ND	2.3	0.51	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Di-n-octylphthalate	ND	2.3	0.67	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
1,2-Diphenylhydrazine/Azobenzene	ND	2.3	0.45	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Fluoranthene	ND	1.2	0.43	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Fluorene	ND	1.2	0.47	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Hexachlorobenzene	0.73	2.3	0.45	mg/Kg dry	5	J	SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Hexachlorobutadiene	ND	2.3	0.46	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Hexachloroethane	ND	2.3	0.44	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Indeno(1,2,3-cd)pyrene	ND	1.2	0.52	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Isophorone	ND	2.3	0.47	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR

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Project Location: 240 Beaver St., Waltham, MA | Sample Description: | Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) | Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylnaphthalene	ND	1.2	0.51	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2-Methylphenol	ND	2.3	0.49	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
3/4-Methylphenol	ND	2.3	0.49	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Naphthalene	ND	1.2	0.46	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Nitrobenzene	ND	2.3	0.47	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2-Nitrophenol	ND	2.3	0.49	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
4-Nitrophenol	ND	4.5	1.0	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Pentachlorophenol	ND	2.3	0.93	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Phenanthrene	ND	1.2	0.47	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Phenol	ND	2.3	0.51	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Pyrene	ND	1.2	0.45	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
Pyridine	ND	2.3	0.33	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
1,2,4-Trichlorobenzene	ND	2.3	0.44	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2,4,5-Trichlorophenol	ND	2.3	0.45	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR
2,4,6-Trichlorophenol	ND	2.3	0.44	mg/Kg dry	5		SW-846 8270E	5/16/22	5/19/22 0:08	IMR

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	50.9	30-130		5/19/22 0:08
Phenol-d6	48.4	30-130		5/19/22 0:08
Nitrobenzene-d5	47.5	30-130		5/19/22 0:08
2-Fluorobiphenyl	61.4	30-130		5/19/22 0:08
2,4,6-Tribromophenol	59.8	30-130		5/19/22 0:08
p-Terphenyl-d14	58.1	30-130		5/19/22 0:08

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Project Location: 240 Beaver St., Waltham, MA | Sample Description: | Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) | Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Sample Flags: RL-11

Organochloride Pesticides by GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aldrin [1]	ND	1.4	0.12	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
alpha-BHC [1]	ND	1.4	0.58	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
beta-BHC [1]	ND	1.4	0.49	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
delta-BHC [1]	ND	1.4	0.66	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
gamma-BHC (Lindane) [1]	ND	0.55	0.13	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Chlordane [1]	ND	5.5	2.1	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
4,4'-DDD [2]	34	1.1	0.099	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
4,4'-DDE [1]	3.2	1.1	0.11	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
4,4'-DDT [1]	1400	110	13	mg/Kg dry	20000		SW-846 8081B	5/13/22	5/22/22 13:57	JMB
Dieldrin [1]	7.8	1.1	0.10	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Endosulfan I [1]	ND	1.4	0.47	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Endosulfan II [1]	ND	2.2	0.47	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Endosulfan sulfate [1]	ND	2.2	0.50	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Endrin [1]	ND	2.2	0.47	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Endrin ketone [1]	ND	2.2	0.61	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Heptachlor [1]	ND	1.4	0.15	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Heptachlor epoxide [1]	ND	1.4	0.12	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Hexachlorobenzene [1]	ND	1.6	0.62	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB
Methoxychlor [1]	ND	14	1.7	mg/Kg dry	200		SW-846 8081B	5/13/22	5/22/22 13:30	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	*	30-150	S-01	5/22/22 13:30
Decachlorobiphenyl [2]	*	30-150	S-01	5/22/22 13:30
Tetrachloro-m-xylene [1]	*	30-150	S-01	5/22/22 13:30
Tetrachloro-m-xylene [2]	*	30-150	S-01	5/22/22 13:30

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Project Location: 240 Beaver St., Waltham, MA | Sample Description: | Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) | Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1221 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1232 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1242 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1248 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1254 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1260 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1262 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA
Aroclor-1268 [1]	ND	11	mg/Kg dry	400		SW-846 8082A	5/13/22	5/19/22 8:47	JEA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	*	30-150	S-01	5/19/22 8:47
Decachlorobiphenyl [2]	*	30-150	S-01	5/19/22 8:47
Tetrachloro-m-xylene [1]	*	30-150	S-01	5/19/22 8:47
Tetrachloro-m-xylene [2]	*	30-150	S-01	5/19/22 8:47

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 240 Beaver St., Waltham, MA Sample Description: Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Sample Flags: O-32

Herbicides by GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2,4-D [2]	ND	140	12	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
2,4-DB [2]	ND	140	27	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
2,4,5-TP (Silvex) [2]	ND	14	1.5	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
2,4,5-T [2]	ND	14	1.9	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
Dalapon [2]	ND	340	21	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
Dicamba [2]	ND	14	1.9	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
Dichloroprop [2]	ND	140	26	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
MCPA [2]	ND	14000	2100	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB
MCPP [2]	ND	14000	1800	µg/kg dry	4		SW-846 8151A	5/25/22	5/29/22 10:10	JMB

Surrogates	% Recovery		Recovery Limits	Flag/Qual		
2,4-Dichlorophenylacetic acid [1]	**566**	*	30-150	S-12	5/29/22 10:10	
2,4-Dichlorophenylacetic acid [2]	101		30-150		5/29/22 10:10	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 240 Beaver St., Waltham, MA | Sample Description: | Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) | Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	2600	570	mg/Kg dry	50		SW-846 8100 Modified	5/16/22	5/19/22 0:39	SFM

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
2-Fluorobiphenyl	*	40-140	S-01				5/19/22 0:39

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Project Location: 240 Beaver St., Waltham, MA Sample Description: Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	2.2	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Arsenic	9.8	4.4	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Barium	82	2.2	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Beryllium	0.36	0.22	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Cadmium	0.47	0.44	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Chromium	24	0.89	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Lead	170	0.67	mg/Kg dry	1	M-10	SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Mercury	0.40	0.035	mg/Kg dry	1		SW-846 7471B	5/23/22	5/23/22 18:15	TDK
Nickel	24	0.89	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Selenium	ND	4.4	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Silver	ND	0.44	mg/Kg dry	1		SW-846 6010D	5/17/22	5/24/22 16:57	MJH
Thallium	ND	2.2	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Vanadium	160	0.89	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH
Zinc	160	0.89	mg/Kg dry	1		SW-846 6010D	5/17/22	5/21/22 21:41	MJH

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Project Location: 240 Beaver St., Waltham, MA Sample Description: Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: Comp #1 (2-10ft) Sampled: 5/12/2022 12:00

Sample ID: 22E0834-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	73.0		% Wt	1		SM 2540G	5/20/22	5/21/22 10:16	BLS
Flashpoint	> 212 °F		°F	1		SW-846 1010A-B	5/17/22	5/17/22 14:50	DET
pH @20.3°C	7.9		pH Units	1		SW-846 9045C	5/12/22	5/12/22 21:05	JEC
Reactive Cyanide	ND	3.9	mg/Kg	1		SW-846 9014	5/17/22	5/18/22 17:25	EC
Reactive Sulfide	ND	19	mg/Kg	1		SW-846 9030A	5/17/22	5/18/22 16:10	EC
Specific conductance	9.7	2.0	µmhos/cm	1		SM21-23 2510B Modified	5/14/22	5/14/22 13:00	EC

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Project Location: 240 Beaver St., Waltham, MA Sample Description: Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: GP 3-5 (4-6ft) Sampled: 5/12/2022 12:00

Sample ID: 22E0834-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	0.038	0.14	0.013	mg/Kg dry	1	J	SW-846 8260D	5/13/22	5/13/22 10:35	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0014	0.00050	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Benzene	0.0011	0.0027	0.00075	mg/Kg dry	1	J	SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Bromobenzene	ND	0.0027	0.00050	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Bromochloromethane	ND	0.0027	0.0012	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Bromodichloromethane	ND	0.0027	0.00067	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Bromoform	ND	0.0027	0.00085	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Bromomethane	ND	0.014	0.0022	mg/Kg dry	1	V-34	SW-846 8260D	5/13/22	5/13/22 10:35	MFF
2-Butanone (MEK)	ND	0.055	0.0078	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
n-Butylbenzene	ND	0.0027	0.00080	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
sec-Butylbenzene	ND	0.0027	0.0013	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
tert-Butylbenzene	ND	0.0027	0.0011	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0014	0.00068	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Carbon Disulfide	0.017	0.014	0.0096	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Carbon Tetrachloride	ND	0.0027	0.0012	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Chlorobenzene	ND	0.0027	0.00081	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Chlorodibromomethane	ND	0.0014	0.00078	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Chloroethane	ND	0.027	0.0017	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Chloroform	ND	0.0055	0.00080	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Chloromethane	ND	0.014	0.0014	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
2-Chlorotoluene	ND	0.0027	0.00068	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
4-Chlorotoluene	ND	0.0027	0.00057	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0027	0.0012	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2-Dibromoethane (EDB)	ND	0.0014	0.00092	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Dibromomethane	ND	0.0027	0.0010	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2-Dichlorobenzene	ND	0.0027	0.00060	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,3-Dichlorobenzene	ND	0.0027	0.00068	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,4-Dichlorobenzene	ND	0.0027	0.00073	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.027	0.0014	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,1-Dichloroethane	ND	0.0027	0.00095	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2-Dichloroethane	ND	0.0027	0.00090	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,1-Dichloroethylene	ND	0.0055	0.00097	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
cis-1,2-Dichloroethylene	ND	0.0027	0.00077	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
trans-1,2-Dichloroethylene	ND	0.0027	0.00092	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2-Dichloropropane	ND	0.0027	0.00077	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,3-Dichloropropane	ND	0.0014	0.00071	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
2,2-Dichloropropane	ND	0.0027	0.0011	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,1-Dichloropropene	ND	0.0027	0.0013	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
cis-1,3-Dichloropropene	ND	0.0014	0.00069	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
trans-1,3-Dichloropropene	ND	0.0014	0.00068	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Diethyl Ether	ND	0.027	0.00098	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Diisopropyl Ether (DIPE)	ND	0.0014	0.00078	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,4-Dioxane	ND	0.14	0.049	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Ethylbenzene	ND	0.0027	0.00074	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF

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Project Location: 240 Beaver St., Waltham, MA | Sample Description: | Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: GP 3-5 (4-6ft) | Sampled: 5/12/2022 12:00

Sample ID: 22E0834-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0027	0.0010	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
2-Hexanone (MBK)	ND	0.027	0.0078	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Isopropylbenzene (Cumene)	ND	0.0027	0.00097	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0027	0.00077	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0055	0.00049	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Methylene Chloride	ND	0.027	0.0020	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.027	0.0057	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Naphthalene	ND	0.0055	0.00074	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
n-Propylbenzene	ND	0.0027	0.00065	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Styrene	ND	0.0027	0.00057	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,1,1,2-Tetrachloroethane	ND	0.0027	0.00077	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,1,2,2-Tetrachloroethane	ND	0.0014	0.00071	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Tetrachloroethylene	ND	0.0027	0.00091	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Tetrahydrofuran	ND	0.014	0.0046	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Toluene	ND	0.0027	0.00071	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2,3-Trichlorobenzene	ND	0.0027	0.00074	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2,4-Trichlorobenzene	ND	0.0027	0.00066	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,1,1-Trichloroethane	ND	0.0027	0.0011	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,1,2-Trichloroethane	ND	0.0027	0.00063	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Trichloroethylene	ND	0.0027	0.00090	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Trichlorofluoromethane (Freon 11)	ND	0.014	0.00066	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2,3-Trichloropropane	ND	0.0027	0.0014	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,2,4-Trimethylbenzene	ND	0.0027	0.00091	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
1,3,5-Trimethylbenzene	ND	0.0027	0.00072	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
Vinyl Chloride	ND	0.014	0.00088	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
m+p Xylene	ND	0.0055	0.0018	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF
o-Xylene	ND	0.0027	0.00059	mg/Kg dry	1		SW-846 8260D	5/13/22	5/13/22 10:35	MFF

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	**134**	*	70-130	S-17	5/13/22 10:35
Toluene-d8	95.2		70-130		5/13/22 10:35
4-Bromofluorobenzene	90.8		70-130		5/13/22 10:35

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Project Location: 240 Beaver St., Waltham, MA | Sample Description: | Work Order: 22E0834

Date Received: 5/12/2022

Field Sample #: GP 3-5 (4-6ft) | Sampled: 5/12/2022 12:00

Sample ID: 22E0834-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	73.0		% Wt	1		SM 2540G	5/20/22	5/25/22 12:36	JLC

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Sample Extraction Data

Prep Method: % Solids **Analytical Method: SM 2540G**

Lab Number [Field ID]	Batch	Date
22E0834-01 [Comp #1 (2-10ft)]	B308891	05/20/22
22E0834-02 [GP 3-5 (4-6ft)]	B308891	05/20/22

SM21-23 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308429	1.00	05/14/22

SW-846 1010A-B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308571	50.0	50.0	05/17/22

Prep Method: SW-846 3050B **Analytical Method: SW-846 6010D**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308621	1.54	50.0	05/17/22

Prep Method: SW-846 7471 **Analytical Method: SW-846 7471B**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B309067	0.581	50.0	05/23/22

Prep Method: SW-846 3546 **Analytical Method: SW-846 8081B**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308354	10.0	10.0	05/13/22

Prep Method: SW-846 3546 **Analytical Method: SW-846 8082A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308353	10.0	10.0	05/13/22

Prep Method: SW-846 3546 **Analytical Method: SW-846 8100 Modified**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308525	30.0	1.00	05/16/22

Prep Method: SW-846 8151 **Analytical Method: SW-846 8151A**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B309280	20.0	5.00	05/25/22

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 5035 **Analytical Method: SW-846 8260D**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-02 [GP 3-5 (4-6ft)]	B308386	5.00	10.0	05/13/22

Prep Method: SW-846 3546 **Analytical Method: SW-846 8270E**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308526	30.1	1.00	05/16/22

SW-846 9014

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308564	25.7	250	05/17/22

SW-846 9030A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308563	25.7	250	05/17/22

SW-846 9045C

Lab Number [Field ID]	Batch	Initial [g]	Date
22E0834-01 [Comp #1 (2-10ft)]	B308341	20.0	05/12/22

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308386 - SW-846 5035										
Blank (B308386-BLK1)				Prepared & Analyzed: 05/13/22						
Acetone	ND	0.10	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.010	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.020	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.020	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.020	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.020	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B308386 - SW-846 5035											
Blank (B308386-BLK1)				Prepared & Analyzed: 05/13/22							
n-Propylbenzene	ND	0.0020	mg/Kg wet								
Styrene	ND	0.0020	mg/Kg wet								
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet								
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet								
Tetrachloroethylene	ND	0.0020	mg/Kg wet								
Tetrahydrofuran	ND	0.010	mg/Kg wet								
Toluene	ND	0.0020	mg/Kg wet								
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet								
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet								
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet								
Trichloroethylene	ND	0.0020	mg/Kg wet								
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet								
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet								
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet								
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet								
Vinyl Chloride	ND	0.010	mg/Kg wet								
m+p Xylene	ND	0.0040	mg/Kg wet								
o-Xylene	ND	0.0020	mg/Kg wet								
Surrogate: 1,2-Dichloroethane-d4	*0.0549*		mg/Kg wet	0.0500		110	70-130				
Surrogate: Toluene-d8	*0.0488*		mg/Kg wet	0.0500		97.6	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0486*		mg/Kg wet	0.0500		97.3	70-130				
LCS (B308386-BS1)				Prepared & Analyzed: 05/13/22							
Acetone	0.228	0.10	mg/Kg wet	0.200		114	40-160				†
tert-Amyl Methyl Ether (TAME)	0.0225	0.0010	mg/Kg wet	0.0200		113	70-130				
Benzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
Bromobenzene	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130				
Bromochloromethane	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
Bromodichloromethane	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
Bromoform	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
Bromomethane	0.0225	0.010	mg/Kg wet	0.0200		113	40-160			V-34	†
2-Butanone (MEK)	0.247	0.040	mg/Kg wet	0.200		124	40-160			V-36	†
n-Butylbenzene	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130				
sec-Butylbenzene	0.0203	0.0020	mg/Kg wet	0.0200		101	70-130				
tert-Butylbenzene	0.0199	0.0020	mg/Kg wet	0.0200		99.3	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0189	0.0010	mg/Kg wet	0.0200		94.3	70-130				
Carbon Disulfide	0.218	0.010	mg/Kg wet	0.200		109	70-130				
Carbon Tetrachloride	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
Chlorobenzene	0.0196	0.0020	mg/Kg wet	0.0200		97.8	70-130				
Chlorodibromomethane	0.0211	0.0010	mg/Kg wet	0.0200		105	70-130				
Chloroethane	0.0212	0.020	mg/Kg wet	0.0200		106	70-130				
Chloroform	0.0206	0.0040	mg/Kg wet	0.0200		103	70-130				
Chloromethane	0.0211	0.010	mg/Kg wet	0.0200		106	40-160				†
2-Chlorotoluene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130				
4-Chlorotoluene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0216	0.0020	mg/Kg wet	0.0200		108	70-130				
1,2-Dibromoethane (EDB)	0.0208	0.0010	mg/Kg wet	0.0200		104	70-130				
Dibromomethane	0.0211	0.0020	mg/Kg wet	0.0200		106	70-130				
1,2-Dichlorobenzene	0.0198	0.0020	mg/Kg wet	0.0200		98.9	70-130				
1,3-Dichlorobenzene	0.0196	0.0020	mg/Kg wet	0.0200		97.8	70-130				
1,4-Dichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B308386 - SW-846 5035											
LCS (B308386-BS1)				Prepared & Analyzed: 05/13/22							
Dichlorodifluoromethane (Freon 12)	0.0176	0.020	mg/Kg wet	0.0200		88.1	40-160			J	†
1,1-Dichloroethane	0.0209	0.0020	mg/Kg wet	0.0200		105	70-130				
1,2-Dichloroethane	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130				
1,1-Dichloroethylene	0.0207	0.0040	mg/Kg wet	0.0200		103	70-130				
cis-1,2-Dichloroethylene	0.0199	0.0020	mg/Kg wet	0.0200		99.6	70-130				
trans-1,2-Dichloroethylene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
1,2-Dichloropropane	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130				
1,3-Dichloropropane	0.0211	0.0010	mg/Kg wet	0.0200		105	70-130				
2,2-Dichloropropane	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
1,1-Dichloropropene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
cis-1,3-Dichloropropene	0.0210	0.0010	mg/Kg wet	0.0200		105	70-130				
trans-1,3-Dichloropropene	0.0185	0.0010	mg/Kg wet	0.0200		92.6	70-130				
Diethyl Ether	0.0199	0.020	mg/Kg wet	0.0200		99.5	70-130			J	
Diisopropyl Ether (DIPE)	0.0201	0.0010	mg/Kg wet	0.0200		101	70-130				
1,4-Dioxane	0.200	0.10	mg/Kg wet	0.200		100	40-160				†
Ethylbenzene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
Hexachlorobutadiene	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130				
2-Hexanone (MBK)	0.242	0.020	mg/Kg wet	0.200		121	40-160			V-36	†
Isopropylbenzene (Cumene)	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130				
p-Isopropyltoluene (p-Cymene)	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0199	0.0040	mg/Kg wet	0.0200		99.4	70-130				
Methylene Chloride	0.0200	0.020	mg/Kg wet	0.0200		100	70-130				
4-Methyl-2-pentanone (MIBK)	0.235	0.020	mg/Kg wet	0.200		118	40-160				†
Naphthalene	0.0206	0.0040	mg/Kg wet	0.0200		103	70-130				
n-Propylbenzene	0.0207	0.0020	mg/Kg wet	0.0200		103	70-130				
Styrene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130				
1,1,1,2-Tetrachloroethane	0.0205	0.0020	mg/Kg wet	0.0200		103	70-130				
1,1,2,2-Tetrachloroethane	0.0210	0.0010	mg/Kg wet	0.0200		105	70-130				
Tetrachloroethylene	0.0198	0.0020	mg/Kg wet	0.0200		99.1	70-130				
Tetrahydrofuran	0.0205	0.010	mg/Kg wet	0.0200		102	70-130				
Toluene	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130				
1,2,3-Trichlorobenzene	0.0187	0.0020	mg/Kg wet	0.0200		93.5	70-130				
1,2,4-Trichlorobenzene	0.0182	0.0020	mg/Kg wet	0.0200		90.8	70-130				
1,1,1-Trichloroethane	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130				
1,1,2-Trichloroethane	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130				
Trichloroethylene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130				
Trichlorofluoromethane (Freon 11)	0.0218	0.010	mg/Kg wet	0.0200		109	70-130				
1,2,3-Trichloropropane	0.0211	0.0020	mg/Kg wet	0.0200		106	70-130				
1,2,4-Trimethylbenzene	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130				
1,3,5-Trimethylbenzene	0.0207	0.0020	mg/Kg wet	0.0200		103	70-130				
Vinyl Chloride	0.0214	0.010	mg/Kg wet	0.0200		107	70-130				
m+p Xylene	0.0420	0.0040	mg/Kg wet	0.0400		105	70-130				
o-Xylene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0505*		mg/Kg wet	0.0500		101	70-130				
Surrogate: Toluene-d8	*0.0506*		mg/Kg wet	0.0500		101	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0488*		mg/Kg wet	0.0500		97.6	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B308386 - SW-846 5035											
LCS Dup (B308386-BSD1)				Prepared & Analyzed: 05/13/22							
Acetone	0.229	0.10	mg/Kg wet	0.200		115	40-160	0.534	20		†
tert-Amyl Methyl Ether (TAME)	0.0227	0.0010	mg/Kg wet	0.0200		114	70-130	0.972	20		
Benzene	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130	0.794	20		
Bromobenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130	0.964	20		
Bromochloromethane	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	0.00	20		
Bromodichloromethane	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	1.34	20		
Bromoform	0.0214	0.0020	mg/Kg wet	0.0200		107	70-130	1.89	20		
Bromomethane	0.0223	0.010	mg/Kg wet	0.0200		112	40-160	0.891	20	V-34	†
2-Butanone (MEK)	0.254	0.040	mg/Kg wet	0.200		127	40-160	2.83	20	V-36	†
n-Butylbenzene	0.0209	0.0020	mg/Kg wet	0.0200		105	70-130	0.571	20		
sec-Butylbenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	0.495	20		
tert-Butylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130	1.40	20		
tert-Butyl Ethyl Ether (TBEE)	0.0185	0.0010	mg/Kg wet	0.0200		92.6	70-130	1.82	20		
Carbon Disulfide	0.214	0.010	mg/Kg wet	0.200		107	70-130	2.06	20		
Carbon Tetrachloride	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130	0.497	20		
Chlorobenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.6	70-130	0.815	20		
Chlorodibromomethane	0.0210	0.0010	mg/Kg wet	0.0200		105	70-130	0.0950	20		
Chloroethane	0.0210	0.020	mg/Kg wet	0.0200		105	70-130	0.853	20		
Chloroform	0.0205	0.0040	mg/Kg wet	0.0200		102	70-130	0.487	20		
Chloromethane	0.0208	0.010	mg/Kg wet	0.0200		104	40-160	1.53	20		†
2-Chlorotoluene	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130	0.481	20		
4-Chlorotoluene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130	0.0966	20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0218	0.0020	mg/Kg wet	0.0200		109	70-130	1.10	20		
1,2-Dibromoethane (EDB)	0.0209	0.0010	mg/Kg wet	0.0200		104	70-130	0.288	20		
Dibromomethane	0.0215	0.0020	mg/Kg wet	0.0200		107	70-130	1.60	20		
1,2-Dichlorobenzene	0.0198	0.0020	mg/Kg wet	0.0200		98.8	70-130	0.101	20		
1,3-Dichlorobenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130	0.821	20		
1,4-Dichlorobenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.4	70-130	0.104	20		
Dichlorodifluoromethane (Freon 12)	0.0174	0.020	mg/Kg wet	0.0200		87.2	40-160	1.03	20	J	†
1,1-Dichloroethane	0.0209	0.0020	mg/Kg wet	0.0200		105	70-130	0.0956	20		
1,2-Dichloroethane	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	0.494	20		
1,1-Dichloroethylene	0.0204	0.0040	mg/Kg wet	0.0200		102	70-130	1.07	20		
cis-1,2-Dichloroethylene	0.0197	0.0020	mg/Kg wet	0.0200		98.4	70-130	1.21	20		
trans-1,2-Dichloroethylene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	3.48	20		
1,2-Dichloropropane	0.0217	0.0020	mg/Kg wet	0.0200		109	70-130	1.48	20		
1,3-Dichloropropane	0.0213	0.0010	mg/Kg wet	0.0200		107	70-130	1.32	20		
2,2-Dichloropropane	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130	4.24	20		
1,1-Dichloropropene	0.0198	0.0020	mg/Kg wet	0.0200		99.1	70-130	1.30	20		
cis-1,3-Dichloropropene	0.0211	0.0010	mg/Kg wet	0.0200		106	70-130	0.380	20		
trans-1,3-Dichloropropene	0.0186	0.0010	mg/Kg wet	0.0200		93.0	70-130	0.431	20		
Diethyl Ether	0.0200	0.020	mg/Kg wet	0.0200		100	70-130	0.701	20		
Diisopropyl Ether (DIPE)	0.0197	0.0010	mg/Kg wet	0.0200		98.7	70-130	1.91	20		
1,4-Dioxane	0.236	0.10	mg/Kg wet	0.200		118	40-160	16.2	20	V-16	†
Ethylbenzene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130	0.587	20		
Hexachlorobutadiene	0.0185	0.0020	mg/Kg wet	0.0200		92.3	70-130	2.36	20		
2-Hexanone (MBK)	0.247	0.020	mg/Kg wet	0.200		123	40-160	2.04	20	V-36	†
Isopropylbenzene (Cumene)	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	0.0992	20		
p-Isopropyltoluene (p-Cymene)	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130	1.68	20		
Methyl tert-Butyl Ether (MTBE)	0.0198	0.0040	mg/Kg wet	0.0200		99.2	70-130	0.201	20		
Methylene Chloride	0.0199	0.020	mg/Kg wet	0.0200		99.5	70-130	0.501	20	J	
4-Methyl-2-pentanone (MIBK)	0.240	0.020	mg/Kg wet	0.200		120	40-160	2.20	20		†
Naphthalene	0.0205	0.0040	mg/Kg wet	0.0200		102	70-130	0.584	20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308386 - SW-846 5035										
LCS Dup (B308386-BSD1)				Prepared & Analyzed: 05/13/22						
n-Propylbenzene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130	0.290	20	
Styrene	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130	0.381	20	
1,1,1,2-Tetrachloroethane	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130	0.970	20	
1,1,2,2-Tetrachloroethane	0.0216	0.0010	mg/Kg wet	0.0200		108	70-130	3.19	20	
Tetrachloroethylene	0.0195	0.0020	mg/Kg wet	0.0200		97.7	70-130	1.42	20	
Tetrahydrofuran	0.0206	0.010	mg/Kg wet	0.0200		103	70-130	0.682	20	
Toluene	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130	10.1	20	
1,2,3-Trichlorobenzene	0.0186	0.0020	mg/Kg wet	0.0200		93.0	70-130	0.536	20	
1,2,4-Trichlorobenzene	0.0180	0.0020	mg/Kg wet	0.0200		89.9	70-130	0.996	20	
1,1,1-Trichloroethane	0.0212	0.0020	mg/Kg wet	0.0200		106	70-130	1.50	20	
1,1,2-Trichloroethane	0.0206	0.0020	mg/Kg wet	0.0200		103	70-130	1.66	20	
Trichloroethylene	0.0199	0.0020	mg/Kg wet	0.0200		99.6	70-130	0.800	20	
Trichlorofluoromethane (Freon 11)	0.0219	0.010	mg/Kg wet	0.0200		109	70-130	0.550	20	
1,2,3-Trichloropropane	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130	1.87	20	
1,2,4-Trimethylbenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	1.86	20	
1,3,5-Trimethylbenzene	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130	0.675	20	
Vinyl Chloride	0.0212	0.010	mg/Kg wet	0.0200		106	70-130	0.563	20	
m+p Xylene	0.0420	0.0040	mg/Kg wet	0.0400		105	70-130	0.143	20	
o-Xylene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130	0.195	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0495*		mg/Kg wet	0.0500		99.0	70-130			
Surrogate: Toluene-d8	*0.0503*		mg/Kg wet	0.0500		101	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0489*		mg/Kg wet	0.0500		97.9	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308526 - SW-846 3546										
Blank (B308526-BLK1)				Prepared: 05/16/22 Analyzed: 05/18/22						
Biphenyl	ND	0.67	mg/Kg wet							
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							V-05
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							V-05
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							V-34
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							R-05
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							
1,2-Diphenylhydrazine/Azobenzene	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B308526 - SW-846 3546											
Blank (B308526-BLK1)				Prepared: 05/16/22 Analyzed: 05/18/22							
Phenanthrene	ND	0.17	mg/Kg wet								
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
Pyridine	ND	0.34	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*3.57*		mg/Kg wet	6.67		53.5	30-130				
Surrogate: Phenol-d6	*3.50*		mg/Kg wet	6.67		52.5	30-130				
Surrogate: Nitrobenzene-d5	*1.76*		mg/Kg wet	3.33		52.8	30-130				
Surrogate: 2-Fluorobiphenyl	*2.31*		mg/Kg wet	3.33		69.2	30-130				
Surrogate: 2,4,6-Tribromophenol	*4.96*		mg/Kg wet	6.67		74.4	30-130				
Surrogate: p-Terphenyl-d14	*2.09*		mg/Kg wet	3.33		62.8	30-130				
LCS (B308526-BS1)				Prepared: 05/16/22 Analyzed: 05/18/22							
Biphenyl	1.15	0.67	mg/Kg wet	1.67		69.3	40-140				
Acenaphthene	1.02	0.17	mg/Kg wet	1.67		61.1	40-140				
Acenaphthylene	1.06	0.17	mg/Kg wet	1.67		63.8	40-140				
Acetophenone	0.935	0.34	mg/Kg wet	1.67		56.1	40-140				
Aniline	0.822	0.34	mg/Kg wet	1.67		49.3	40-140			V-05	
Anthracene	1.15	0.17	mg/Kg wet	1.67		69.1	40-140				
Benzo(a)anthracene	1.09	0.17	mg/Kg wet	1.67		65.5	40-140				
Benzo(a)pyrene	1.13	0.17	mg/Kg wet	1.67		68.1	40-140				
Benzo(b)fluoranthene	1.16	0.17	mg/Kg wet	1.67		69.3	40-140				
Benzo(g,h,i)perylene	1.11	0.17	mg/Kg wet	1.67		66.9	40-140				
Benzo(k)fluoranthene	1.26	0.17	mg/Kg wet	1.67		75.6	40-140				
Bis(2-chloroethoxy)methane	0.958	0.34	mg/Kg wet	1.67		57.5	40-140				
Bis(2-chloroethyl)ether	0.727	0.34	mg/Kg wet	1.67		43.6	40-140				
Bis(2-chloroisopropyl)ether	0.713	0.34	mg/Kg wet	1.67		42.8	40-140			V-05	
Bis(2-Ethylhexyl)phthalate	0.998	0.34	mg/Kg wet	1.67		59.9	40-140				
4-Bromophenylphenylether	1.17	0.34	mg/Kg wet	1.67		70.5	40-140				
Butylbenzylphthalate	0.946	0.34	mg/Kg wet	1.67		56.8	40-140				
4-Chloroaniline	0.941	0.66	mg/Kg wet	1.67		56.5	15-140			V-34	†
2-Chloronaphthalene	0.955	0.34	mg/Kg wet	1.67		57.3	40-140				
2-Chlorophenol	0.943	0.34	mg/Kg wet	1.67		56.6	30-130				
Chrysene	1.12	0.17	mg/Kg wet	1.67		67.2	40-140				
Dibenz(a,h)anthracene	1.14	0.17	mg/Kg wet	1.67		68.5	40-140				
Dibenzofuran	1.19	0.34	mg/Kg wet	1.67		71.2	40-140				
Di-n-butylphthalate	1.00	0.34	mg/Kg wet	1.67		60.0	40-140				
1,2-Dichlorobenzene	0.935	0.34	mg/Kg wet	1.67		56.1	40-140				
1,3-Dichlorobenzene	0.901	0.34	mg/Kg wet	1.67		54.1	40-140				
1,4-Dichlorobenzene	0.926	0.34	mg/Kg wet	1.67		55.6	40-140				
3,3-Dichlorobenzidine	0.961	0.17	mg/Kg wet	1.67		57.7	40-140				
2,4-Dichlorophenol	1.07	0.34	mg/Kg wet	1.67		64.4	30-130				
Diethylphthalate	0.965	0.34	mg/Kg wet	1.67		57.9	40-140				
2,4-Dimethylphenol	1.02	0.34	mg/Kg wet	1.67		61.4	30-130				
Dimethylphthalate	1.06	0.34	mg/Kg wet	1.67		63.7	40-140				
2,4-Dinitrophenol	0.572	0.66	mg/Kg wet	1.67		34.3	15-140			R-05, J	†
2,4-Dinitrotoluene	1.16	0.34	mg/Kg wet	1.67		69.4	40-140				
2,6-Dinitrotoluene	1.20	0.34	mg/Kg wet	1.67		71.9	40-140				
Di-n-octylphthalate	0.958	0.34	mg/Kg wet	1.67		57.5	40-140				
1,2-Diphenylhydrazine/Azobenzene	0.964	0.34	mg/Kg wet	1.67		57.8	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B308526 - SW-846 3546											
LCS (B308526-BS1)				Prepared: 05/16/22 Analyzed: 05/18/22							
Fluoranthene	1.11	0.17	mg/Kg wet	1.67		66.4	40-140				
Fluorene	1.15	0.17	mg/Kg wet	1.67		69.1	40-140				
Hexachlorobenzene	1.24	0.34	mg/Kg wet	1.67		74.1	40-140				
Hexachlorobutadiene	1.08	0.34	mg/Kg wet	1.67		64.9	40-140				
Hexachloroethane	0.828	0.34	mg/Kg wet	1.67		49.7	40-140				
Indeno(1,2,3-cd)pyrene	1.15	0.17	mg/Kg wet	1.67		68.8	40-140				
Isophorone	0.962	0.34	mg/Kg wet	1.67		57.7	40-140				
2-Methylnaphthalene	1.17	0.17	mg/Kg wet	1.67		70.1	40-140				
2-Methylphenol	0.972	0.34	mg/Kg wet	1.67		58.3	30-130				
3/4-Methylphenol	0.990	0.34	mg/Kg wet	1.67		59.4	30-130				
Naphthalene	1.02	0.17	mg/Kg wet	1.67		61.3	40-140				
Nitrobenzene	0.872	0.34	mg/Kg wet	1.67		52.3	40-140				
2-Nitrophenol	0.978	0.34	mg/Kg wet	1.67		58.7	30-130				
4-Nitrophenol	0.907	0.66	mg/Kg wet	1.67		54.4	15-140				†
Pentachlorophenol	0.917	0.34	mg/Kg wet	1.67		55.0	30-130				
Phenanthrene	1.15	0.17	mg/Kg wet	1.67		68.9	40-140				
Phenol	0.918	0.34	mg/Kg wet	1.67		55.1	15-140				†
Pyrene	1.07	0.17	mg/Kg wet	1.67		64.1	40-140				
Pyridine	0.514	0.34	mg/Kg wet	1.67		30.9	30-140				†
1,2,4-Trichlorobenzene	1.05	0.34	mg/Kg wet	1.67		63.1	40-140				
2,4,5-Trichlorophenol	1.17	0.34	mg/Kg wet	1.67		70.1	30-130				
2,4,6-Trichlorophenol	1.13	0.34	mg/Kg wet	1.67		67.7	30-130				
Surrogate: 2-Fluorophenol	*4.20*		mg/Kg wet	6.67		62.9	30-130				
Surrogate: Phenol-d6	*4.14*		mg/Kg wet	6.67		62.1	30-130				
Surrogate: Nitrobenzene-d5	*1.86*		mg/Kg wet	3.33		55.7	30-130				
Surrogate: 2-Fluorobiphenyl	*2.49*		mg/Kg wet	3.33		74.8	30-130				
Surrogate: 2,4,6-Tribromophenol	*5.52*		mg/Kg wet	6.67		82.9	30-130				
Surrogate: p-Terphenyl-d14	*2.34*		mg/Kg wet	3.33		70.2	30-130				
LCS Dup (B308526-BSD1)				Prepared: 05/16/22 Analyzed: 05/18/22							
Biphenyl	1.21	0.67	mg/Kg wet	1.67		72.5	40-140	4.54	20		
Acenaphthene	1.05	0.17	mg/Kg wet	1.67		63.3	40-140	3.57	30		
Acenaphthylene	1.09	0.17	mg/Kg wet	1.67		65.2	40-140	2.26	30		
Acetophenone	1.02	0.34	mg/Kg wet	1.67		61.0	40-140	8.33	30		
Aniline	0.745	0.34	mg/Kg wet	1.67		44.7	40-140	9.83	30	V-05	
Anthracene	1.17	0.17	mg/Kg wet	1.67		70.3	40-140	1.78	30		
Benzo(a)anthracene	1.11	0.17	mg/Kg wet	1.67		66.5	40-140	1.52	30		
Benzo(a)pyrene	1.13	0.17	mg/Kg wet	1.67		67.7	40-140	0.560	30		
Benzo(b)fluoranthene	1.16	0.17	mg/Kg wet	1.67		69.7	40-140	0.604	30		
Benzo(g,h,i)perylene	1.15	0.17	mg/Kg wet	1.67		69.2	40-140	3.35	30		
Benzo(k)fluoranthene	1.25	0.17	mg/Kg wet	1.67		74.8	40-140	1.06	30		
Bis(2-chloroethoxy)methane	1.00	0.34	mg/Kg wet	1.67		60.3	40-140	4.72	30		
Bis(2-chloroethyl)ether	0.799	0.34	mg/Kg wet	1.67		47.9	40-140	9.44	30		
Bis(2-chloroisopropyl)ether	0.829	0.34	mg/Kg wet	1.67		49.7	40-140	15.0	30	V-05	
Bis(2-Ethylhexyl)phthalate	1.05	0.34	mg/Kg wet	1.67		63.3	40-140	5.55	30		
4-Bromophenylphenylether	1.19	0.34	mg/Kg wet	1.67		71.5	40-140	1.52	30		
Butylbenzylphthalate	0.937	0.34	mg/Kg wet	1.67		56.2	40-140	1.03	30		
4-Chloroaniline	0.869	0.66	mg/Kg wet	1.67		52.1	15-140	7.96	30	V-34	†
2-Chloronaphthalene	1.01	0.34	mg/Kg wet	1.67		60.8	40-140	5.86	30		
2-Chlorophenol	0.995	0.34	mg/Kg wet	1.67		59.7	30-130	5.37	30		
Chrysene	1.15	0.17	mg/Kg wet	1.67		68.8	40-140	2.32	30		
Dibenz(a,h)anthracene	1.13	0.17	mg/Kg wet	1.67		67.6	40-140	1.38	30		

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes	
Batch B308526 - SW-846 3546												
LCS Dup (B308526-BSD1)				Prepared: 05/16/22 Analyzed: 05/18/22								
Dibenzofuran	1.21	0.34	mg/Kg wet	1.67		72.8	40-140	2.25		30		
Di-n-butylphthalate	1.06	0.34	mg/Kg wet	1.67		63.3	40-140	5.42		30		
1,2-Dichlorobenzene	1.02	0.34	mg/Kg wet	1.67		61.0	40-140	8.40		30		
1,3-Dichlorobenzene	1.01	0.34	mg/Kg wet	1.67		60.4	40-140	11.1		30		
1,4-Dichlorobenzene	1.02	0.34	mg/Kg wet	1.67		60.9	40-140	9.17		30		
3,3-Dichlorobenzidine	0.867	0.17	mg/Kg wet	1.67		52.0	40-140	10.3		30		
2,4-Dichlorophenol	1.09	0.34	mg/Kg wet	1.67		65.4	30-130	1.54		30		
Diethylphthalate	1.01	0.34	mg/Kg wet	1.67		60.5	40-140	4.46		30		
2,4-Dimethylphenol	1.06	0.34	mg/Kg wet	1.67		63.5	30-130	3.36		30		
Dimethylphthalate	1.05	0.34	mg/Kg wet	1.67		63.1	40-140	0.977		30		
2,4-Dinitrophenol	0.367	0.66	mg/Kg wet	1.67		22.0	15-140	**43.6**	*	30	R-05, J	†
2,4-Dinitrotoluene	1.17	0.34	mg/Kg wet	1.67		70.4	40-140	1.37		30		
2,6-Dinitrotoluene	1.20	0.34	mg/Kg wet	1.67		72.0	40-140	0.167		30		
Di-n-octylphthalate	0.985	0.34	mg/Kg wet	1.67		59.1	40-140	2.71		30		
1,2-Diphenylhydrazine/Azobenzene	1.00	0.34	mg/Kg wet	1.67		60.2	40-140	4.03		30		
Fluoranthene	1.16	0.17	mg/Kg wet	1.67		69.6	40-140	4.73		30		
Fluorene	1.18	0.17	mg/Kg wet	1.67		70.7	40-140	2.23		30		
Hexachlorobenzene	1.24	0.34	mg/Kg wet	1.67		74.6	40-140	0.699		30		
Hexachlorobutadiene	1.15	0.34	mg/Kg wet	1.67		68.9	40-140	6.01		30		
Hexachloroethane	0.958	0.34	mg/Kg wet	1.67		57.5	40-140	14.6		30		
Indeno(1,2,3-cd)pyrene	1.11	0.17	mg/Kg wet	1.67		66.5	40-140	3.40		30		
Isophorone	1.08	0.34	mg/Kg wet	1.67		64.5	40-140	11.2		30		
2-Methylnaphthalene	1.24	0.17	mg/Kg wet	1.67		74.1	40-140	5.49		30		
2-Methylphenol	1.03	0.34	mg/Kg wet	1.67		61.9	30-130	5.89		30		
3/4-Methylphenol	1.01	0.34	mg/Kg wet	1.67		60.9	30-130	2.46		30		
Naphthalene	1.09	0.17	mg/Kg wet	1.67		65.5	40-140	6.56		30		
Nitrobenzene	0.969	0.34	mg/Kg wet	1.67		58.1	40-140	10.5		30		
2-Nitrophenol	1.07	0.34	mg/Kg wet	1.67		63.9	30-130	8.61		30		
4-Nitrophenol	0.904	0.66	mg/Kg wet	1.67		54.3	15-140	0.258		30		†
Pentachlorophenol	0.924	0.34	mg/Kg wet	1.67		55.4	30-130	0.760		30		
Phenanthrene	1.17	0.17	mg/Kg wet	1.67		70.2	40-140	1.75		30		
Phenol	0.952	0.34	mg/Kg wet	1.67		57.1	15-140	3.64		30		†
Pyrene	1.11	0.17	mg/Kg wet	1.67		66.7	40-140	4.07		30		
Pyridine	0.667	0.34	mg/Kg wet	1.67		40.0	30-140	25.8		30		†
1,2,4-Trichlorobenzene	1.14	0.34	mg/Kg wet	1.67		68.6	40-140	8.29		30		
2,4,5-Trichlorophenol	1.17	0.34	mg/Kg wet	1.67		70.5	30-130	0.455		30		
2,4,6-Trichlorophenol	1.14	0.34	mg/Kg wet	1.67		68.6	30-130	1.35		30		
Surrogate: 2-Fluorophenol	*4.36*		mg/Kg wet	6.67		65.4	30-130					
Surrogate: Phenol-d6	*4.26*		mg/Kg wet	6.67		63.8	30-130					
Surrogate: Nitrobenzene-d5	*2.08*		mg/Kg wet	3.33		62.5	30-130					
Surrogate: 2-Fluorobiphenyl	*2.55*		mg/Kg wet	3.33		76.6	30-130					
Surrogate: 2,4,6-Tribromophenol	*5.38*		mg/Kg wet	6.67		80.8	30-130					
Surrogate: p-Terphenyl-d14	*2.34*		mg/Kg wet	3.33		70.3	30-130					

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308354 - SW-846 3546										
Blank (B308354-BLK1)				Prepared: 05/13/22 Analyzed: 05/18/22						
Aldrin	ND	0.0050	mg/Kg wet							
Aldrin [2C]	ND	0.0050	mg/Kg wet							
alpha-BHC	ND	0.0050	mg/Kg wet							
alpha-BHC [2C]	ND	0.0050	mg/Kg wet							
beta-BHC	ND	0.0050	mg/Kg wet							
beta-BHC [2C]	ND	0.0050	mg/Kg wet							
delta-BHC	ND	0.0050	mg/Kg wet							
delta-BHC [2C]	ND	0.0050	mg/Kg wet							
gamma-BHC (Lindane)	ND	0.0020	mg/Kg wet							
gamma-BHC (Lindane) [2C]	ND	0.0020	mg/Kg wet							
Chlordane	ND	0.020	mg/Kg wet							
Chlordane [2C]	ND	0.020	mg/Kg wet							
4,4'-DDD	ND	0.0040	mg/Kg wet							
4,4'-DDD [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDE	ND	0.0040	mg/Kg wet							
4,4'-DDE [2C]	ND	0.0040	mg/Kg wet							
4,4'-DDT	ND	0.0040	mg/Kg wet							
4,4'-DDT [2C]	ND	0.0040	mg/Kg wet							
Dieldrin	ND	0.0040	mg/Kg wet							
Dieldrin [2C]	ND	0.0040	mg/Kg wet							
Endosulfan I	ND	0.0050	mg/Kg wet							
Endosulfan I [2C]	ND	0.0050	mg/Kg wet							
Endosulfan II	ND	0.0080	mg/Kg wet							
Endosulfan II [2C]	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate	ND	0.0080	mg/Kg wet							
Endosulfan Sulfate [2C]	ND	0.0080	mg/Kg wet							
Endrin	ND	0.0080	mg/Kg wet							
Endrin [2C]	ND	0.0080	mg/Kg wet							
Endrin Aldehyde	ND	0.0080	mg/Kg wet							
Endrin Aldehyde [2C]	ND	0.0080	mg/Kg wet							
Endrin Ketone	ND	0.0080	mg/Kg wet							
Endrin Ketone [2C]	ND	0.0080	mg/Kg wet							
Heptachlor	ND	0.0050	mg/Kg wet							
Heptachlor [2C]	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide	ND	0.0050	mg/Kg wet							
Heptachlor Epoxide [2C]	ND	0.0050	mg/Kg wet							
Hexachlorobenzene	ND	0.0060	mg/Kg wet							
Hexachlorobenzene [2C]	ND	0.0060	mg/Kg wet							
Methoxychlor	ND	0.050	mg/Kg wet							
Methoxychlor [2C]	ND	0.050	mg/Kg wet							
Toxaphene	ND	0.10	mg/Kg wet							
Toxaphene [2C]	ND	0.10	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.156*		mg/Kg wet	0.200		77.8	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.144*		mg/Kg wet	0.200		71.9	30-150			
Surrogate: Tetrachloro-m-xylene	*0.133*		mg/Kg wet	0.200		66.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.127*		mg/Kg wet	0.200		63.7	30-150			

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308354 - SW-846 3546										
LCS (B308354-BS1)				Prepared: 05/13/22 Analyzed: 05/18/22						
Aldrin	0.091	0.0050	mg/Kg wet	0.100		90.8	40-140			
Aldrin [2C]	0.081	0.0050	mg/Kg wet	0.100		81.0	40-140			
alpha-BHC	0.091	0.0050	mg/Kg wet	0.100		90.6	40-140			
alpha-BHC [2C]	0.072	0.0050	mg/Kg wet	0.100		72.3	40-140			
beta-BHC	0.087	0.0050	mg/Kg wet	0.100		86.8	40-140			
beta-BHC [2C]	0.080	0.0050	mg/Kg wet	0.100		79.5	40-140			
delta-BHC	0.089	0.0050	mg/Kg wet	0.100		89.4	40-140			
delta-BHC [2C]	0.081	0.0050	mg/Kg wet	0.100		80.8	40-140			
gamma-BHC (Lindane)	0.091	0.0020	mg/Kg wet	0.100		90.7	40-140			
gamma-BHC (Lindane) [2C]	0.076	0.0020	mg/Kg wet	0.100		76.3	40-140			
4,4'-DDD	0.096	0.0040	mg/Kg wet	0.100		96.0	40-140			
4,4'-DDD [2C]	0.092	0.0040	mg/Kg wet	0.100		91.7	40-140			
4,4'-DDE	0.095	0.0040	mg/Kg wet	0.100		95.5	40-140			
4,4'-DDE [2C]	0.090	0.0040	mg/Kg wet	0.100		90.0	40-140			
4,4'-DDT	0.094	0.0040	mg/Kg wet	0.100		93.5	40-140			
4,4'-DDT [2C]	0.087	0.0040	mg/Kg wet	0.100		86.8	40-140			
Dieldrin	0.092	0.0040	mg/Kg wet	0.100		91.6	40-140			
Dieldrin [2C]	0.088	0.0040	mg/Kg wet	0.100		87.5	40-140			
Endosulfan I	0.088	0.0050	mg/Kg wet	0.100		87.9	40-140			
Endosulfan I [2C]	0.078	0.0050	mg/Kg wet	0.100		77.5	40-140			
Endosulfan II	0.085	0.0080	mg/Kg wet	0.100		84.8	40-140			
Endosulfan II [2C]	0.082	0.0080	mg/Kg wet	0.100		82.2	40-140			
Endosulfan Sulfate	0.073	0.0080	mg/Kg wet	0.100		73.1	40-140			
Endosulfan Sulfate [2C]	0.075	0.0080	mg/Kg wet	0.100		75.3	40-140			
Endrin	0.086	0.0080	mg/Kg wet	0.100		86.5	40-140			
Endrin [2C]	0.086	0.0080	mg/Kg wet	0.100		86.0	40-140			
Endrin Ketone	0.088	0.0080	mg/Kg wet	0.100		88.4	40-140			
Endrin Ketone [2C]	0.081	0.0080	mg/Kg wet	0.100		81.2	40-140			
Heptachlor	0.094	0.0050	mg/Kg wet	0.100		94.1	40-140			
Heptachlor [2C]	0.079	0.0050	mg/Kg wet	0.100		78.7	40-140			
Heptachlor Epoxide	0.089	0.0050	mg/Kg wet	0.100		88.8	40-140			
Heptachlor Epoxide [2C]	0.082	0.0050	mg/Kg wet	0.100		81.9	40-140			
Hexachlorobenzene	0.084	0.0060	mg/Kg wet	0.100		84.4	40-140			
Hexachlorobenzene [2C]	0.073	0.0060	mg/Kg wet	0.100		73.3	40-140			
Methoxychlor	0.082	0.050	mg/Kg wet	0.100		82.0	40-140			
Methoxychlor [2C]	0.081	0.050	mg/Kg wet	0.100		81.2	40-140			
Surrogate: Decachlorobiphenyl	*0.150*		mg/Kg wet	0.200		75.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.123*		mg/Kg wet	0.200		61.3	30-150			
Surrogate: Tetrachloro-m-xylene	*0.154*		mg/Kg wet	0.200		77.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.122*		mg/Kg wet	0.200		60.9	30-150			
LCS Dup (B308354-BSD1)				Prepared: 05/13/22 Analyzed: 05/18/22						
Aldrin	0.082	0.0050	mg/Kg wet	0.100		82.2	40-140	9.95	30	
Aldrin [2C]	0.081	0.0050	mg/Kg wet	0.100		81.2	40-140	0.268	30	
alpha-BHC	0.078	0.0050	mg/Kg wet	0.100		78.1	40-140	14.8	30	
alpha-BHC [2C]	0.075	0.0050	mg/Kg wet	0.100		74.6	40-140	3.11	30	
beta-BHC	0.079	0.0050	mg/Kg wet	0.100		78.5	40-140	9.99	30	
beta-BHC [2C]	0.079	0.0050	mg/Kg wet	0.100		78.7	40-140	1.08	30	
delta-BHC	0.081	0.0050	mg/Kg wet	0.100		81.2	40-140	9.66	30	
delta-BHC [2C]	0.079	0.0050	mg/Kg wet	0.100		79.2	40-140	1.94	30	
gamma-BHC (Lindane)	0.079	0.0020	mg/Kg wet	0.100		79.4	40-140	13.3	30	
gamma-BHC (Lindane) [2C]	0.078	0.0020	mg/Kg wet	0.100		77.8	40-140	1.83	30	

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QUALITY CONTROL

Organochloride Pesticides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308354 - SW-846 3546										
LCS Dup (B308354-BSD1)				Prepared: 05/13/22 Analyzed: 05/18/22						
4,4'-DDD	0.092	0.0040	mg/Kg wet	0.100		91.9	40-140	4.35	30	
4,4'-DDD [2C]	0.088	0.0040	mg/Kg wet	0.100		87.7	40-140	4.46	30	
4,4'-DDE	0.091	0.0040	mg/Kg wet	0.100		91.1	40-140	4.65	30	
4,4'-DDE [2C]	0.086	0.0040	mg/Kg wet	0.100		86.2	40-140	4.31	30	
4,4'-DDT	0.088	0.0040	mg/Kg wet	0.100		88.3	40-140	5.70	30	
4,4'-DDT [2C]	0.082	0.0040	mg/Kg wet	0.100		81.6	40-140	6.23	30	
Dieldrin	0.086	0.0040	mg/Kg wet	0.100		86.4	40-140	5.80	30	
Dieldrin [2C]	0.083	0.0040	mg/Kg wet	0.100		83.5	40-140	4.71	30	
Endosulfan I	0.082	0.0050	mg/Kg wet	0.100		82.5	40-140	6.40	30	
Endosulfan I [2C]	0.077	0.0050	mg/Kg wet	0.100		77.3	40-140	0.324	30	
Endosulfan II	0.080	0.0080	mg/Kg wet	0.100		80.5	40-140	5.20	30	
Endosulfan II [2C]	0.078	0.0080	mg/Kg wet	0.100		78.1	40-140	5.07	30	
Endosulfan Sulfate	0.067	0.0080	mg/Kg wet	0.100		67.5	40-140	8.03	30	
Endosulfan Sulfate [2C]	0.070	0.0080	mg/Kg wet	0.100		70.0	40-140	7.35	30	
Endrin	0.083	0.0080	mg/Kg wet	0.100		82.5	40-140	4.70	30	
Endrin [2C]	0.082	0.0080	mg/Kg wet	0.100		81.7	40-140	5.12	30	
Endrin Ketone	0.085	0.0080	mg/Kg wet	0.100		84.6	40-140	4.42	30	
Endrin Ketone [2C]	0.077	0.0080	mg/Kg wet	0.100		77.1	40-140	5.25	30	
Heptachlor	0.083	0.0050	mg/Kg wet	0.100		83.4	40-140	12.0	30	
Heptachlor [2C]	0.079	0.0050	mg/Kg wet	0.100		79.3	40-140	0.799	30	
Heptachlor Epoxide	0.082	0.0050	mg/Kg wet	0.100		82.1	40-140	7.86	30	
Heptachlor Epoxide [2C]	0.079	0.0050	mg/Kg wet	0.100		79.3	40-140	3.23	30	
Hexachlorobenzene	0.077	0.0060	mg/Kg wet	0.100		76.8	40-140	9.43	30	
Hexachlorobenzene [2C]	0.076	0.0060	mg/Kg wet	0.100		76.1	40-140	3.73	30	
Methoxychlor	0.077	0.050	mg/Kg wet	0.100		77.2	40-140	5.93	30	
Methoxychlor [2C]	0.077	0.050	mg/Kg wet	0.100		76.7	40-140	5.68	30	
Surrogate: Decachlorobiphenyl	*0.143*		mg/Kg wet	0.200		71.6	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.121*		mg/Kg wet	0.200		60.4	30-150			
Surrogate: Tetrachloro-m-xylene	*0.136*		mg/Kg wet	0.200		68.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.129*		mg/Kg wet	0.200		64.4	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308353 - SW-846 3546										
Blank (B308353-BLK1)				Prepared: 05/13/22 Analyzed: 05/17/22						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.194*		mg/Kg wet	0.200		97.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.193*		mg/Kg wet	0.200		96.3	30-150			
Surrogate: Tetrachloro-m-xylene	*0.159*		mg/Kg wet	0.200		79.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.141*		mg/Kg wet	0.200		70.5	30-150			
LCS (B308353-BS1)				Prepared: 05/13/22 Analyzed: 05/17/22						
Aroclor-1016	0.15	0.020	mg/Kg wet	0.200		73.4	40-140			
Aroclor-1016 [2C]	0.15	0.020	mg/Kg wet	0.200		75.4	40-140			
Aroclor-1260	0.16	0.020	mg/Kg wet	0.200		81.8	40-140			
Aroclor-1260 [2C]	0.16	0.020	mg/Kg wet	0.200		80.2	40-140			
Surrogate: Decachlorobiphenyl	*0.196*		mg/Kg wet	0.200		98.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.195*		mg/Kg wet	0.200		97.5	30-150			
Surrogate: Tetrachloro-m-xylene	*0.166*		mg/Kg wet	0.200		82.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.148*		mg/Kg wet	0.200		74.1	30-150			
LCS Dup (B308353-BSD1)				Prepared: 05/13/22 Analyzed: 05/17/22						
Aroclor-1016	0.15	0.020	mg/Kg wet	0.200		73.9	40-140	0.797	30	
Aroclor-1016 [2C]	0.15	0.020	mg/Kg wet	0.200		76.0	40-140	0.847	30	
Aroclor-1260	0.17	0.020	mg/Kg wet	0.200		83.2	40-140	1.70	30	
Aroclor-1260 [2C]	0.16	0.020	mg/Kg wet	0.200		82.1	40-140	2.41	30	
Surrogate: Decachlorobiphenyl	*0.195*		mg/Kg wet	0.200		97.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.195*		mg/Kg wet	0.200		97.5	30-150			
Surrogate: Tetrachloro-m-xylene	*0.163*		mg/Kg wet	0.200		81.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.147*		mg/Kg wet	0.200		73.5	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B309280 - SW-846 8151										
Blank (B309280-BLK1)				Prepared: 05/25/22 Analyzed: 05/29/22						
2,4-D	ND	24	µg/kg wet							
2,4-D [2C]	ND	24	µg/kg wet							
2,4-DB	ND	24	µg/kg wet							
2,4-DB [2C]	ND	24	µg/kg wet							
2,4,5-TP (Silvex)	ND	2.4	µg/kg wet							
2,4,5-TP (Silvex) [2C]	ND	2.4	µg/kg wet							
2,4,5-T	ND	2.4	µg/kg wet							
2,4,5-T [2C]	ND	2.4	µg/kg wet							
Dalapon	ND	60	µg/kg wet							
Dalapon [2C]	ND	60	µg/kg wet							
Dicamba	ND	2.4	µg/kg wet							
Dicamba [2C]	ND	2.4	µg/kg wet							
Dichloroprop	ND	24	µg/kg wet							
Dichloroprop [2C]	ND	24	µg/kg wet							
MCPA	ND	2400	µg/kg wet							
MCPA [2C]	ND	2400	µg/kg wet							
MCPP	ND	2400	µg/kg wet							V-06
MCPP [2C]	ND	2400	µg/kg wet							
Surrogate: 2,4-Dichlorophenylacetic acid	*64.0*		µg/kg wet	95.2		67.2	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*64.1*		µg/kg wet	95.2		67.3	30-150			
LCS (B309280-BS1)				Prepared: 05/25/22 Analyzed: 05/29/22						
2,4-D	95.0	25	µg/kg wet	125		76.0	40-140			
2,4-D [2C]	102	25	µg/kg wet	125		81.2	40-140			
2,4-DB	73.9	25	µg/kg wet	125		59.1	40-140			
2,4-DB [2C]	73.7	25	µg/kg wet	125		58.9	40-140			
2,4,5-TP (Silvex)	9.50	2.5	µg/kg wet	12.5		76.0	40-140			
2,4,5-TP (Silvex) [2C]	10.3	2.5	µg/kg wet	12.5		82.8	40-140			
2,4,5-T	9.04	2.5	µg/kg wet	12.5		72.3	40-140			
2,4,5-T [2C]	9.49	2.5	µg/kg wet	12.5		75.9	40-140			
Dalapon	149	62	µg/kg wet	312		47.6	40-140			
Dalapon [2C]	148	62	µg/kg wet	312		47.5	40-140			
Dicamba	9.12	2.5	µg/kg wet	12.5		72.9	40-140			
Dicamba [2C]	9.86	2.5	µg/kg wet	12.5		78.9	40-140			
Dichloroprop	100	25	µg/kg wet	125		80.2	40-140			
Dichloroprop [2C]	103	25	µg/kg wet	125		82.4	40-140			
MCPA	10800	2500	µg/kg wet	12500		86.2	40-140			
MCPA [2C]	9010	2500	µg/kg wet	12500		72.1	40-140			
MCPP	13000	2500	µg/kg wet	12500		104	40-140			V-06
MCPP [2C]	9770	2500	µg/kg wet	12500		78.1	40-140			
Surrogate: 2,4-Dichlorophenylacetic acid	*70.7*		µg/kg wet	100		70.7	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*73.4*		µg/kg wet	100		73.4	30-150			

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QUALITY CONTROL

Herbicides by GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B309280 - SW-846 8151										
LCS Dup (B309280-BSD1)				Prepared: 05/25/22 Analyzed: 05/29/22						
2,4-D	95.8	25	µg/kg wet	125		76.6	40-140	0.837	30	
2,4-D [2C]	103	25	µg/kg wet	125		82.2	40-140	1.21	30	
2,4-DB	73.5	25	µg/kg wet	125		58.8	40-140	0.615	30	
2,4-DB [2C]	74.7	25	µg/kg wet	125		59.8	40-140	1.41	30	
2,4,5-TP (Silvex)	9.42	2.5	µg/kg wet	12.5		75.4	40-140	0.864	30	
2,4,5-TP (Silvex) [2C]	10.4	2.5	µg/kg wet	12.5		83.4	40-140	0.806	30	
2,4,5-T	8.96	2.5	µg/kg wet	12.5		71.7	40-140	0.842	30	
2,4,5-T [2C]	9.59	2.5	µg/kg wet	12.5		76.8	40-140	1.14	30	
Dalapon	149	62	µg/kg wet	312		47.8	40-140	0.288	30	
Dalapon [2C]	149	62	µg/kg wet	312		47.7	40-140	0.427	30	
Dicamba	9.75	2.5	µg/kg wet	12.5		78.0	40-140	6.66	30	
Dicamba [2C]	9.97	2.5	µg/kg wet	12.5		79.7	40-140	1.09	30	
Dichloroprop	101	25	µg/kg wet	125		80.9	40-140	0.908	30	
Dichloroprop [2C]	104	25	µg/kg wet	125		83.4	40-140	1.20	30	
MCPA	10800	2500	µg/kg wet	12500		86.4	40-140	0.225	30	
MCPA [2C]	9110	2500	µg/kg wet	12500		72.9	40-140	1.11	30	
MCPP	13300	2500	µg/kg wet	12500		106	40-140	1.59	30	V-06
MCPP [2C]	9870	2500	µg/kg wet	12500		78.9	40-140	0.995	30	
Surrogate: 2,4-Dichlorophenylacetic acid	*71.3*		µg/kg wet	100		71.3	30-150			
Surrogate: 2,4-Dichlorophenylacetic acid [2C]	*74.1*		µg/kg wet	100		74.1	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308525 - SW-846 3546										
Blank (B308525-BLK1)				Prepared: 05/16/22 Analyzed: 05/18/22						
TPH (C9-C36)	ND	8.3	mg/Kg wet							
Surrogate: 2-Fluorobiphenyl	*2.50*		mg/Kg wet	3.33		74.9	40-140			
LCS (B308525-BS1)				Prepared: 05/16/22 Analyzed: 05/18/22						
TPH (C9-C36)	24.2	8.3	mg/Kg wet	33.3		72.7	40-140			
Surrogate: 2-Fluorobiphenyl	*2.22*		mg/Kg wet	3.33		66.6	40-140			
LCS Dup (B308525-BSD1)				Prepared: 05/16/22 Analyzed: 05/18/22						
TPH (C9-C36)	26.6	8.3	mg/Kg wet	33.3		79.8	40-140	9.25	30	
Surrogate: 2-Fluorobiphenyl	*2.41*		mg/Kg wet	3.33		72.2	40-140			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308621 - SW-846 3050B										
Blank (B308621-BLK1)				Prepared: 05/17/22 Analyzed: 05/24/22						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	3.3	mg/Kg wet							
Barium	ND	1.7	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.33	mg/Kg wet							
Chromium	ND	0.66	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.66	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Vanadium	ND	0.66	mg/Kg wet							
Zinc	ND	0.66	mg/Kg wet							
LCS (B308621-BS1)				Prepared: 05/17/22 Analyzed: 05/24/22						
Antimony	85.7	4.9	mg/Kg wet	99.5		86.1	2.5-209			
Arsenic	141	9.8	mg/Kg wet	140		101	82.9-117.9			
Barium	212	4.9	mg/Kg wet	202		105	81.2-118.3			
Beryllium	45.6	0.49	mg/Kg wet	42.6		107	81-119			
Cadmium	95.5	0.98	mg/Kg wet	97.9		97.6	80-119.5			
Chromium	59.0	2.0	mg/Kg wet	60.4		97.6	80.3-119.7			
Lead	57.7	1.5	mg/Kg wet	56.7		102	82.9-116.9			
Nickel	153	2.0	mg/Kg wet	151		101	79.5-121.2			
Selenium	37.4	9.8	mg/Kg wet	35.5		105	77.5-122.3			
Silver	21.4	0.98	mg/Kg wet	20.4		105	79.4-121.1			
Thallium	71.8	4.9	mg/Kg wet	69.3		104	79.4-120.6			
Vanadium	45.3	2.0	mg/Kg wet	44.9		101	78-121.8			
Zinc	182	2.0	mg/Kg wet	186		98.0	79-121			
LCS Dup (B308621-BSD1)				Prepared: 05/17/22 Analyzed: 05/24/22						
Antimony	91.0	5.0	mg/Kg wet	99.5		91.5	2.5-209	6.02	30	
Arsenic	144	10	mg/Kg wet	140		103	82.9-117.9	1.83	30	
Barium	215	5.0	mg/Kg wet	202		107	81.2-118.3	1.69	20	
Beryllium	46.5	0.50	mg/Kg wet	42.6		109	81-119	2.06	30	
Cadmium	99.4	1.0	mg/Kg wet	97.9		101	80-119.5	3.96	20	
Chromium	61.6	2.0	mg/Kg wet	60.4		102	80.3-119.7	4.39	30	
Lead	58.6	1.5	mg/Kg wet	56.7		103	82.9-116.9	1.58	30	
Nickel	155	2.0	mg/Kg wet	151		102	79.5-121.2	1.10	30	
Selenium	38.9	10	mg/Kg wet	35.5		109	77.5-122.3	3.75	30	
Silver	22.1	1.0	mg/Kg wet	20.4		108	79.4-121.1	3.16	30	
Thallium	75.5	5.0	mg/Kg wet	69.3		109	79.4-120.6	5.01	30	
Vanadium	47.2	2.0	mg/Kg wet	44.9		105	78-121.8	4.12	30	
Zinc	183	2.0	mg/Kg wet	186		98.4	79-121	0.384	30	

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B308621 - SW-846 3050B											
Reference (B308621-SRM1) MRL Check				Prepared: 05/17/22 Analyzed: 05/24/22							
Lead	0.640	0.50	mg/Kg wet	0.498		**129**	*	80-120			M-10
Batch B309067 - SW-846 7471											
Blank (B309067-BLK1)				Prepared & Analyzed: 05/23/22							
Mercury	ND	0.025	mg/Kg wet								
LCS (B309067-BS1)				Prepared & Analyzed: 05/23/22							
Mercury	14.4	0.73	mg/Kg wet	16.5		87.5		74.5-124.8			
LCS Dup (B309067-BSD1)				Prepared & Analyzed: 05/23/22							
Mercury	14.8	0.74	mg/Kg wet	16.5		89.9		74.5-124.8	2.70	20	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308341 - SW-846 9045C										
LCS (B308341-BS1)				Prepared & Analyzed: 05/12/22						
pH	5.98		pH Units	6.00		99.6	90-110			
LCS (B308341-BS2)				Prepared & Analyzed: 05/12/22						
pH	5.98		pH Units	6.00		99.7	90-110			
Batch B308429 - SM21-23 2510B Modified										
Blank (B308429-BLK1)				Prepared: 05/14/22 Analyzed: 05/17/22						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B308429-BS1)				Prepared & Analyzed: 05/14/22						
Specific conductance	140		µmhos/cm	137		104	90-122			
Duplicate (B308429-DUP1)	**Source: 22E0834-01**			Prepared & Analyzed: 05/14/22						
Specific conductance	11	2.0	µmhos/cm		9.7			14.3	41.4	
Batch B308563 - SW-846 9030A										
Blank (B308563-BLK1)				Prepared: 05/17/22 Analyzed: 05/18/22						
Reactive Sulfide	ND	2.0	mg/Kg							
LCS (B308563-BS1)				Prepared: 05/17/22 Analyzed: 05/18/22						
Reactive Sulfide	12	2.0	mg/Kg	10.0		116	75.7-125			
Batch B308564 - SW-846 9014										
Blank (B308564-BLK1)				Prepared: 05/17/22 Analyzed: 05/18/22						
Reactive Cyanide	ND	0.40	mg/Kg							
LCS (B308564-BS1)				Prepared: 05/17/22 Analyzed: 05/18/22						
Reactive Cyanide	9.5	0.40	mg/Kg	10.0		95.4	81.2-113			
Batch B308571 - SW-846 1010A-B										
Blank (B308571-BLK1)				Prepared & Analyzed: 05/17/22						
Flashpoint	> 212 °F		°F							
LCS (B308571-BS1)				Prepared & Analyzed: 05/17/22						
Flashpoint	81		°F	81.0		99.9	98.8-101			

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308571 - SW-846 1010A-B										
LCS Dup (B308571-BSD1)				Prepared & Analyzed: 05/17/22						
Flashpoint	81		°F	81.0		99.9	98.8-101	0.00	5	

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BREAKDOWN REPORT

Lab Sample ID:	S071717-PEM1	Analyzed:	05/17/2022

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	10.34
Endrin [1]	9.07

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	9.14
Endrin [2]	8.48

BREAKDOWN REPORT

Lab Sample ID:	S071717-PEM2	Analyzed:	05/17/2022

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	9.87
Endrin [1]	8.21

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	8.94
Endrin [2]	8.13

BREAKDOWN REPORT

Lab Sample ID:	S071717-PEM3	Analyzed:	05/18/2022

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	8.54
Endrin [1]	9.91

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BREAKDOWN REPORT

Lab Sample ID:	S071717-PEM3	Analyzed:	05/18/2022

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	7.76
Endrin [2]	9.87

BREAKDOWN REPORT

Lab Sample ID:	S071717-PEM4	Analyzed:	05/18/2022

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	8.33
Endrin [1]	9.25

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	7.59
Endrin [2]	9.54

BREAKDOWN REPORT

Lab Sample ID:	S071717-PEM5	Analyzed:	05/18/2022

Column Number: 1

Analyte	% Breakdown
4,4'-DDT [1]	7.27
Endrin [1]	9.94

Column Number: 2

Analyte	% Breakdown
4,4'-DDT [2]	6.53
Endrin [2]	9.61

BREAKDOWN REPORT

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BREAKDOWN REPORT

Lab Sample ID: **S071799-PEM1** **Analyzed:** **05/22/2022**

Column Number: **1**

Analyte	% Breakdown
4,4'-DDT [1]	2.02
Endrin [1]	1.49

Column Number: **2**

Analyte	% Breakdown
4,4'-DDT [2]	1.65
Endrin [2]	2.06

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

Comp #1 (2-10ft)

Lab Sample ID: 22E0834-01 Date(s) Analyzed: 05/22/2022 05/22/2022

Instrument ID (1): ECD6A Instrument ID (2): ECD6B

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.181	0.000	0.000	28	
	2	7.190	0.000	0.000	34	15.9
4,4'-DDE	1	6.742	0.000	0.000	3.2	
	2	6.763	0.000	0.000	2.7	16.9
4,4'-DDT	1	7.392	0.000	0.000	1400	
	2	7.427	0.000	0.000	1400	0.0
Dieldrin	1	6.957	0.000	0.000	7.8	
	2	6.867	0.000	0.000	7.1	9.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B308353-BS1 Date(s) Analyzed: 05/17/2022 05/17/2022

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.15	
	2	0.000	0.000	0.000	0.15	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.16	
	2	0.000	0.000	0.000	0.16	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B308353-BSD1 Date(s) Analyzed: 05/17/2022 05/17/2022

Instrument ID (1): ECD1 Instrument ID (2): ECD1

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.15	
	2	0.000	0.000	0.000	0.15	0.0
Aroclor-1260	1	0.000	0.000	0.000	0.17	
	2	0.000	0.000	0.000	0.16	6.1

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B308354-BS1 Date(s) Analyzed: 05/18/2022 05/18/2022

Instrument ID (1): ECD2 Instrument ID (2): ECD2

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.764	0.000	0.000	0.096	
	2	7.543	0.000	0.000	0.092	4.3
4,4'-DDE	1	7.298	0.000	0.000	0.095	
	2	7.100	0.000	0.000	0.090	6.5
4,4'-DDT	1	7.978	0.000	0.000	0.094	
	2	7.784	0.000	0.000	0.087	7.7
Aldrin	1	6.608	0.000	0.000	0.091	
	2	6.331	0.000	0.000	0.081	11.6
alpha-BHC	1	5.828	0.000	0.000	0.091	
	2	5.597	0.000	0.000	0.072	23.3
beta-BHC	1	6.105	0.000	0.000	0.087	
	2	5.887	0.000	0.000	0.080	8.4
delta-BHC	1	6.235	0.000	0.000	0.089	
	2	6.086	0.000	0.000	0.081	9.4
Dieldrin	1	7.545	0.000	0.000	0.092	
	2	7.220	0.000	0.000	0.088	4.4
Endosulfan I	1	7.362	0.000	0.000	0.088	
	2	7.014	0.000	0.000	0.078	12.0
Endosulfan II	1	7.903	0.000	0.000	0.085	
	2	7.624	0.000	0.000	0.082	3.6
Endosulfan Sulfate	1	8.494	0.000	0.000	0.073	
	2	8.083	0.000	0.000	0.075	2.7
Endrin	1	7.729	0.000	0.000	0.086	
	2	7.452	0.000	0.000	0.086	1.2
Endrin Ketone	1	8.668	0.000	0.000	0.088	
	2	8.445	0.000	0.000	0.081	8.3
gamma-BHC (Lindane)	1	6.048	0.000	0.000	0.091	
	2	5.824	0.000	0.000	0.076	18.0
Heptachlor	1	6.387	0.000	0.000	0.094	
	2	6.110	0.000	0.000	0.079	17.3
Heptachlor Epoxide	1	7.059	0.000	0.000	0.089	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS

Lab Sample ID: B308354-BS1 Date(s) Analyzed: 05/18/2022 05/18/2022

Instrument ID (1): ECD2 Instrument ID (2): ECD2

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	6.731	0.000	0.000	0.082	8.2
Hexachlorobenzene	1	5.710	0.000	0.000	0.084	
	2	5.509	0.000	0.000	0.073	14.0
Methoxychlor	1	8.309	0.000	0.000	0.082	
	2	8.301	0.000	0.000	0.081	1.2

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B308354-BSD1 Date(s) Analyzed: 05/18/2022 05/18/2022

Instrument ID (1): ECD2 Instrument ID (2): ECD2

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
4,4'-DDD	1	7.765	0.000	0.000	0.092	
	2	7.544	0.000	0.000	0.088	4.4
4,4'-DDE	1	7.299	0.000	0.000	0.091	
	2	7.101	0.000	0.000	0.086	5.7
4,4'-DDT	1	7.980	0.000	0.000	0.088	
	2	7.785	0.000	0.000	0.082	7.1
Aldrin	1	6.609	0.000	0.000	0.082	
	2	6.331	0.000	0.000	0.081	1.2
alpha-BHC	1	5.828	0.000	0.000	0.078	
	2	5.597	0.000	0.000	0.075	3.9
beta-BHC	1	6.106	0.000	0.000	0.079	
	2	5.887	0.000	0.000	0.079	0.0
delta-BHC	1	6.235	0.000	0.000	0.081	
	2	6.086	0.000	0.000	0.079	2.5
Dieldrin	1	7.547	0.000	0.000	0.086	
	2	7.221	0.000	0.000	0.083	3.6
Endosulfan I	1	7.363	0.000	0.000	0.082	
	2	7.015	0.000	0.000	0.077	7.5
Endosulfan II	1	7.904	0.000	0.000	0.080	
	2	7.625	0.000	0.000	0.078	3.8
Endosulfan Sulfate	1	8.495	0.000	0.000	0.067	
	2	8.084	0.000	0.000	0.070	2.9
Endrin	1	7.730	0.000	0.000	0.083	
	2	7.453	0.000	0.000	0.082	1.2
Endrin Ketone	1	8.669	0.000	0.000	0.085	
	2	8.446	0.000	0.000	0.077	9.9
gamma-BHC (Lindane)	1	6.048	0.000	0.000	0.079	
	2	5.825	0.000	0.000	0.078	1.3
Heptachlor	1	6.388	0.000	0.000	0.083	
	2	6.110	0.000	0.000	0.079	4.9
Heptachlor Epoxide	1	7.060	0.000	0.000	0.082	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8081B

LCS Dup

Lab Sample ID: B308354-BSD1 Date(s) Analyzed: 05/18/2022 05/18/2022

Instrument ID (1): ECD2 Instrument ID (2): ECD2

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
	2	6.731	0.000	0.000	0.079	3.7
Hexachlorobenzene	1	5.711	0.000	0.000	0.077	
	2	5.509	0.000	0.000	0.076	1.3
Methoxychlor	1	8.310	0.000	0.000	0.077	
	2	8.301	0.000	0.000	0.077	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS

Lab Sample ID: B309280-BS1 Date(s) Analyzed: 05/29/2022 05/29/2022

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	17.286	0.000	0.000	9.04	
	2	17.126	0.000	0.000	9.49	5.3
2,4,5-TP (Silvex)	1	17.057	0.000	0.000	9.50	
	2	16.745	0.000	0.000	10.3	8.1
2,4-D	1	15.583	0.000	0.000	95.0	
	2	15.013	0.000	0.000	102	7.1
2,4-DB	1	17.644	0.000	0.000	73.9	
	2	17.478	0.000	0.000	73.7	0.4
Dalapon	1	5.455	0.000	0.000	149	
	2	4.915	0.000	0.000	148	1.3
Dicamba	1	13.332	0.000	0.000	9.12	
	2	12.688	0.000	0.000	9.86	8.0
Dichloroprop	1	15.049	0.000	0.000	100	
	2	14.303	0.000	0.000	103	3.0
MCPA	1	14.195	0.000	0.000	10800	
	2	13.562	0.000	0.000	9010	19.9
MCPP	1	13.840	0.000	0.000	13000	
	2	13.033	0.000	0.000	9770	28.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8151A

LCS Dup

Lab Sample ID: B309280-BSD1 Date(s) Analyzed: 05/29/2022 05/29/2022

Instrument ID (1): ECD 8 Instrument ID (2): ECD 8

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
2,4,5-T	1	17.286	0.000	0.000	8.96	
	2	17.126	0.000	0.000	9.59	6.4
2,4,5-TP (Silvex)	1	17.057	0.000	0.000	9.42	
	2	16.745	0.000	0.000	10.4	10.1
2,4-D	1	15.583	0.000	0.000	95.8	
	2	15.012	0.000	0.000	103	7.0
2,4-DB	1	17.644	0.000	0.000	73.5	
	2	17.479	0.000	0.000	74.7	0.9
Dalapon	1	5.455	0.000	0.000	149	
	2	4.916	0.000	0.000	149	0.7
Dicamba	1	13.332	0.000	0.000	9.75	
	2	12.688	0.000	0.000	9.97	1.7
Dichloroprop	1	15.048	0.000	0.000	101	
	2	14.303	0.000	0.000	104	3.9
MCPA	1	14.195	0.000	0.000	10800	
	2	13.562	0.000	0.000	9110	18.8
MCPP	1	13.841	0.000	0.000	13300	
	2	13.033	0.000	0.000	9870	27.4

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
M-10	The reporting limit verification for the AIHA lead program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the high side.
O-32	A dilution was performed as part of the standard analytical procedure.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
RL-11	Elevated reporting limit due to high concentration of target compounds.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
S-12	Surrogate recovery is outside of control limits on confirmatory column, but within control limits on primary column. Data validation is not affected.
S-17	Surrogate recovery is outside of control limits. Data validation is not affected since all associated results are less than the reporting limit and bias is on the high side.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-36	Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 1010A-B in Soil	
Flashpoint	NY,NC,ME,VA
SW-846 6010D in Soil	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8081B in Soil	
Aldrin	CT,NC,NH,NY,ME,VA
Aldrin [2C]	CT,NC,NH,NY,ME,VA
alpha-BHC	CT,NC,NH,NY,ME,VA
alpha-BHC [2C]	CT,NC,NH,NY,ME,VA
beta-BHC	CT,NC,NH,NY,ME,VA
beta-BHC [2C]	CT,NC,NH,NY,ME,VA
delta-BHC	CT,NC,NH,NY,ME,VA
delta-BHC [2C]	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane)	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane) [2C]	CT,NC,NH,NY,ME,VA
Chlordane	CT,NC,NH,NY,ME,VA
Chlordane [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDD	CT,NC,NH,NY,ME,VA
4,4'-DDD [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDE	CT,NC,NH,NY,ME,VA
4,4'-DDE [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDT	CT,NC,NH,NY,ME,VA
4,4'-DDT [2C]	CT,NC,NH,NY,ME,VA
Dieldrin	CT,NC,NH,NY,ME,VA
Dieldrin [2C]	CT,NC,NH,NY,ME,VA
Endosulfan I	CT,NC,NH,NY,ME,VA
Endosulfan I [2C]	CT,NC,NH,NY,ME,VA
Endosulfan II	CT,NC,NH,NY,ME,VA
Endosulfan II [2C]	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate [2C]	CT,NC,NH,NY,ME,VA
Endrin	CT,NC,NH,NY,ME,VA
Endrin [2C]	CT,NC,NH,NY,ME,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Soil	
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NC,NH,NY,ME,VA
Heptachlor [2C]	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide [2C]	CT,NC,NH,NY,ME,VA
Hexachlorobenzene	NC
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NC,NH,NY,ME,VA
Methoxychlor [2C]	CT,NC,NH,NY,ME,VA
SW-846 8081B in Water	
Aldrin	CT,NC,NH,NY,ME,VA
Aldrin [2C]	CT,NC,NH,NY,ME,VA
alpha-BHC	CT,NC,NH,NY,ME,VA
alpha-BHC [2C]	CT,NC,NH,NY,ME,VA
beta-BHC	CT,NC,NH,NY,ME,VA
beta-BHC [2C]	CT,NC,NH,NY,ME,VA
delta-BHC	CT,NC,NH,NY,ME,VA
delta-BHC [2C]	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane)	CT,NC,NH,NY,ME,VA
gamma-BHC (Lindane) [2C]	CT,NC,NH,NY,ME,VA
Chlordane	CT,NC,NH,NY,ME,VA
Chlordane [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDD	CT,NC,NH,NY,ME,VA
4,4'-DDD [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDE	CT,NC,NH,NY,ME,VA
4,4'-DDE [2C]	CT,NC,NH,NY,ME,VA
4,4'-DDT	CT,NC,NH,NY,ME,VA
4,4'-DDT [2C]	CT,NC,NH,NY,ME,VA
Dieldrin	CT,NC,NH,NY,ME,VA
Dieldrin [2C]	CT,NC,NH,NY,ME,VA
Endosulfan I	CT,NC,NH,NY,ME,VA
Endosulfan I [2C]	CT,NC,NH,NY,ME,VA
Endosulfan II	CT,NC,NH,NY,ME,VA
Endosulfan II [2C]	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate	CT,NC,NH,NY,ME,VA
Endosulfan Sulfate [2C]	CT,NC,NH,NY,ME,VA
Endrin	CT,NC,NH,NY,ME,VA
Endrin [2C]	CT,NC,NH,NY,ME,VA
Endrin Ketone	NC
Endrin Ketone [2C]	NC
Heptachlor	CT,NC,NH,NY,ME,VA
Heptachlor [2C]	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide	CT,NC,NH,NY,ME,VA
Heptachlor Epoxide [2C]	CT,NC,NH,NY,ME,VA
Hexachlorobenzene	NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8081B in Water	
Hexachlorobenzene [2C]	NC
Methoxychlor	CT,NC,NH,NY,ME,VA
Methoxychlor [2C]	CT,NC,NH,NY,ME,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
SW-846 8082A in Water	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
SW-846 8151A in Soil	
2,4-D	NY,ME,NC,NH,VA,CT
2,4-D [2C]	NY,ME,NC,NH,VA,CT
2,4-DB	NY,ME,NC,NH,VA,CT
2,4-DB [2C]	NY,ME,NC,NH,VA,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8151A in Soil	
2,4,5-TP (Silvex)	NY,ME,NC,NH,VA,CT
2,4,5-TP (Silvex) [2C]	NY,ME,NC,NH,VA,CT
2,4,5-T	NY,ME,NC,NH,VA,CT
2,4,5-T [2C]	NY,ME,NC,NH,VA,CT
Dalapon	NY,ME,NC,NH,VA,CT
Dalapon [2C]	NY,ME,NC,NH,VA,CT
Dicamba	NY,ME,NC,NH,VA,CT
Dicamba [2C]	NY,ME,NC,NH,VA,CT
Dichloroprop	NY,ME,NC,NH,VA,CT
Dichloroprop [2C]	NY,ME,NC,NH,VA,CT
MCPA	NY,ME,NC,NH,VA,CT
MCPA [2C]	NY,ME,NC,NH,VA,CT
MCPP	NY,ME,NC,NH,VA,CT
MCPP [2C]	NY,ME,NC,NH,VA,CT
SW-846 8151A in Water	
2,4-D	ME,NC,NH,CT,NY,VA
2,4-D [2C]	ME,NC,NH,CT,NY,VA
2,4-DB	ME,NC,NH,CT,NY,VA
2,4-DB [2C]	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex)	ME,NC,NH,CT,NY,VA
2,4,5-TP (Silvex) [2C]	ME,NC,NH,CT,NY,VA
2,4,5-T	ME,NC,NH,CT,NY,VA
2,4,5-T [2C]	ME,NC,NH,CT,NY,VA
Dalapon	ME,NC,NH,CT,NY,VA
Dalapon [2C]	ME,NC,NH,CT,NY,VA
Dicamba	ME,NC,NH,CT,NY,VA
Dicamba [2C]	ME,NC,NH,CT,NY,VA
Dichloroprop	ME,NC,NH,CT,NY,VA
Dichloroprop [2C]	ME,NC,NH,CT,NY,VA
MCPA	NC,CT
MCPA [2C]	NC,CT
MCPP	NC,CT
MCPP [2C]	NC,CT
SW-846 8260D in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Soil	
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromoethane (EDB)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
1,4-Dioxane	NY
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NH,NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NY
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Soil	
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270E in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270E in Soil	
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

22E0834

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CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page 1 of 1

Company Name:	CDW Consultants
Address:	4 California Dr Framingham
Phone:	508-875-2657
Project Name:	Waltham
Project Location:	240 Brown St, Waltham
Project Number:	1830.1
Project Manager:	D. Sandquist
Pace Quote Name/Number:	
Invoice Recipient:	
Sampled By:	D. Sandquist

Requested Turnaround Time: 7-Day [X] / 10-Day [ ] / PFAS 10-Day (std) [ ] / Due Date:

Rush-Approval Required: 1-Day [ ] / 3-Day [ ] / 2-Day [ ] / 4-Day [ ]

Data Delivery: Format: PDF [X] EXCEL [X] / Other: / CLP Like Data Pkg Required: [ ] / Email To: dsandquist@cdwconsultants.com / Fax To #:

Dissolved Metals Samples: ○ Field Filtered / ○ Lab to Filter

Orthophosphate Samples: ○ Field Filtered / ○ Lab to Filter

PCB ONLY: SOXHLET [ ] / NON SOXHLET [ ]

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	¹Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	VOCs	SVOCs	TPH	MCP 14 Metals	Herb/Pest	Reactive cyan/sulf	pH	Conductivity	Flashpoint	PCBs
1	Comp #1 (2-10)	5/12/22	12⁰⁰	Comp	S	U		4 oz clear					X	X	X	X	X	X	X	X	X
2	SB 3-5 (4-6)	5/12/22	12⁰⁰	Grab	S	U	3					X									

² Preservation Code

Courier Use Only
Total Number Of:
VIALS____
GLASS____
PLASTIC____
BACTERIA____
ENCORE____

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N

*Pace Analytical is not responsible for missing samples from prepacked coolers

¹ **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

² **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

	Date/Time:
Relinquished by: (signature) [signature]	5/12/22 12:20
Received by: (signature) [signature]	5/12/22 1235
Relinquished by: (signature) [signature]	5/12/22 1810
Received by: (signature) [signature] 317	5/12/22 1810
Relinquished by: (signature)	
Received by: (signature)	
Relinquished by: (signature)	
Received by: (signature)	

Client Comments:
/ TCLP if 20x Rule exceeded

Detection Limit Requirements
MA
CT
Other:

Special Requirements
[X] MA MCP Required
MCP Certification Form Required
[ ] CT RCP Required
RCP Certification Form Required
[ ] MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Other
[ ] Chromatogram
[ ] *AIHA-LAP,LLC*

Project Entity
Government [ ] Federal [ ] City [ ]
Municipality [ ] 21 J [ ] Brownfield [ ]
MWRA [ ] School [ ] MBTA [ ]
WRTA [ ]

Lab Comments:

Disclaimer: Pace Analytical is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Pace Analytical values your partnership on each project and will try to assist with missing information, but will not be held accountable.

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client CDW

Received By DR Date 5/12/22 Time 1810

How were the samples received? In Cooler 1 No Cooler _____ On Ice 1 No Ice _____

Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C 1 By Gun # 5 Actual Temp - 3.7

By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? 1 Does Chain Agree With Samples? 1

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? 1 Were samples received within holding time? F

Did COC include all pertinent Information? Client 1 Analysis 1 Sampler Name 1

Project 1 ID's 1 Collection Dates/Times 1

Are Sample labels filled out and legible? 1

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? 1 Who was notified? David

Is there enough Volume? 1

Is there Headspace where applicable? 1 MS/MSD? F

Proper Media/Containers Used? 1 Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	4
Meoh-	1	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-	2	Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass	1	Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test, a Pace Analytical Laboratory	Project #: 22E0834
Project Location: 240 Beaver St., Waltham, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

22E0834-01 thru 22E0834-02

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH (GC/PID/FID) CAM IV A ( )	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B (X)	7010 Metals CAM III C ( )	MassDEP VPH (GC/MS) CAM IV C ( )	8081 Pesticides CAM V B (X)	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV B ( )	8151 Herbicides CAM V C (X)	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]

***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:  Position: Laboratory Director

Printed Name: Tod E. Kopyscinski Date: 05/30/22

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

June 9, 2022

Alan Sundquist
CDW Consultants, Inc.
4 California Drive, Suite 301
Framingham, MA 01760

Project Location: 240 Beaver St., Waltham, MA
Client Job Number:
Project Number: 1830.1
Laboratory Work Order Number: 22E1819

Enclosed are results of analyses for samples as received by the laboratory on May 26, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CDW Consultants, Inc.
4 California Drive, Suite 301
Framingham, MA 01760
ATTN: Alan Sundquist

REPORT DATE: 6/9/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 1830.1

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22E1819

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: 240 Beaver St., Waltham, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Comp #1 (2-10ft)	22E1819-01	Soil		SM 2540G SW-846 6010D	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

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Project Location: 240 Beaver St., Waltham, MA Sample Description: Work Order: 22E1819

Date Received: 5/26/2022

Field Sample #: Comp #1 (2-10ft) Sampled: 5/12/2022 12:00

Sample ID: 22E1819-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	73.0		% Wt	1		SM 2540G	5/20/22	5/21/22 15:14	AV

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Project Location: 240 Beaver St., Waltham, MA | Sample Description: | Work Order: 22E1819

Date Received: 5/26/2022

Field Sample #: Comp #1 (2-10ft) | Sampled: 5/12/2022 12:00

Sample ID: 22E1819-01

Sample Matrix: Soil

TCLP - Metals Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Lead	0.90	0.10	mg/L	1		SW-846 6010D	5/30/22	5/31/22 19:33	ATP

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Sample Extraction Data

Prep Method: % Solids **Analytical Method: SM 2540G**

Lab Number [Field ID]	Batch	Date
22E1819-01 [Comp #1 (2-10ft)]	B308891	05/20/22

Prep Method: SW-846 3010A **Analytical Method: SW-846 6010D** **Leachates were extracted on 5/27/2022 per SW-846 1311 in Batch B309426**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22E1819-01 [Comp #1 (2-10ft)]	B309545	50.0	50.0	05/30/22

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QUALITY CONTROL

TCLP - Metals Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B309545 - SW-846 3010A										
Blank (B309545-BLK1)				Prepared: 05/30/22 Analyzed: 05/31/22						
Lead	ND	0.10	mg/L							
LCS (B309545-BS1)				Prepared: 05/30/22 Analyzed: 05/31/22						
Lead	0.492	0.10	mg/L	0.500		98.4	80-120			
LCS Dup (B309545-BSD1)				Prepared: 05/30/22 Analyzed: 05/31/22						
Lead	0.509	0.10	mg/L	0.500		102	80-120	3.29	20	

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6010D in Water	
Lead	NY,CT,ME,NC,NH,VA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

~~22E0834~~ 22E1819

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East Longmeadow, MA 01028

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 5_07/13/2021

Page 1 of 1

Company Name:	CDW Consultants
Address:	4 California Dr. Framingham
Phone:	508-875-2657
Project Name:	Waltham
Project Location:	240 Brown St. Waltham
Project Number:	1830.1
Project Manager:	A. Smalley
Pace Quote Name/Number:	
Invoice Recipient:	
Sampled By:	A. Smalley

Requested Turnaround Time

7-Day	☒	10-Day	☐
PFAS 10-Day (std)	☐	Due Date:	

Rush-Approval Required

1-Day	☐	3-Day	☐
2-Day	☐	4-Day	☐

Dissolved Metals Samples
- ○ Field Filtered
- ○ Lab to Filter

Orthophosphate Samples
- ○ Field Filtered
- ○ Lab to Filter

Data Delivery

Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: asmalley@cdwconsultants...
Fax To #:

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code[1]	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	VOCs	SVOCs	TPH	MCP 14 Metals	Herb/Pest	Reactive Cyan/Sulf	pH	Conductivity	Flash Point	PCBs
1	Comp #1 (2-10)	5/4/22	12:00	Comp	S	U		4 oz Glass					X	X	X	X	X	X	X	X	X
~~2~~	Sp 3-5 (4-6)	5/4/22	12:00	Grab	S	U	3					X									

[2] Preservation Code

Courier Use Only
Total Number Of:
VIALS____
GLASS____
PLASTIC____
BACTERIA____
ENCORE____

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Pace Analytical is not responsible for missing samples from prepacked coolers

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature) [signed]	Date/Time: 5/12/22 12:00
Received by: (signature) [signed]	Date/Time: 5/12/22 1235
Relinquished by: (signature) [signed]	Date/Time: 5/12/22 1810
Received by: (signature) [signed] 317	Date/Time: 5/12/22 1810
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: TCLP if 20x Rule exceeded

Reativate sample -01 for TCLP Pb per 20x rule.

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☒ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity

Government	☐	Municipality	☐	MWRA	☐	WRTA	☐
Federal	☐	21 J	☐	School	☐		
City	☐	Brownfield	☐	MBTA	☐		

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

Lab Comments:

Disclaimer: Pace Analytical is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Pace Analytical values your partnership on each project and will try to assist with missing information, but will not be held accountable.

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

Pace

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client CDW

Received By DR Date 5/12/22 Time 1810

How were the samples received? In Cooler 1 No Cooler ____ On Ice 1 No Ice ____ Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C 1 By Gun # 5 Actual Temp - 3.7 By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? 1 Does Chain Agree With Samples? 1

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? 1 Were samples received within holding time? F

Did COC include all pertinent Information? Client 1 Analysis 1 Sampler Name 1 Project 1 ID's 1 Collection Dates/Times 1

Are Sample labels filled out and legible? 1

Are there Lab to Filters? F Who was notified? ____

Are there Rushes? F Who was notified? ____

Are there Short Holds? 1 Who was notified? David

Is there enough Volume? 1

Is there Headspace where applicable? 1 MS/MSD? F

Proper Media/Containers Used? 1 Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	4
Meoh-	1	250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-	2	Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass	1	Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test, a Pace Analytical Laboratory	Project #: 22E1819
Project Location: 240 Beaver St., Waltham, MA	RTN:

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

22E1819-01

Matrices: Soil

CAM Protocol (check all that below)

8260 VOC CAM II A ( )	7470/7471 Hg CAM IIIB ( )	MassDEP VPH (GC/PID/FID) CAM IV A ( )	8082 PCB CAM V A ( )	9014 Total Cyanide/PAC CAM VI A ( )	6860 Perchlorate CAM VIII B ( )
8270 SVOC CAM II B ( )	7010 Metals CAM III C ( )	MassDEP VPH (GC/MS) CAM IV C ( )	8081 Pesticides CAM V B ( )	7196 Hex Cr CAM VI B ( )	MassDEP APH CAM IX A ( )
6010 Metals CAM III A (X)	6020 Metals CAM III D ( )	MassDEP EPH CAM IV B ( )	8151 Herbicides CAM V C ( )	8330 Explosives CAM VIII A ( )	TO-15 VOC CAM IX B ( )

Affirmative response to Questions A throughF is required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No[1]
B	Were the analytical method(s) and all associated QC requirements specificed in the selected CAM protocol(s) followed?	☑ Yes	☐ No[1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No[1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidlines for the Acquisition and Reporting of Analytical Data?	☑ Yes	☐ No[1]
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No[1]
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No[1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Qestions A through E)?	☑ Yes	☐ No[1]

A response to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

H	Were all QC perfomance standards specified in the CAM protocol(s) achieved?	☑ Yes	☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes	☑ No[1]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Lisa Worthington Position: Technical Representative

Printed Name: Lisa A. Worthington Date: 06/09/22