

# **PUBLIC IMPROVEMENT REQUEST FOR PROPOSAL**

**RFP# 25-18**

## **WTP Lime Residual Removal Contract No. 2 – Dredging and Hauling**

City of Ann Arbor  
Water Treatment Services Unit



**Due Date: Thursday, May 1, 2025 by 2:00 p.m. (local time)**

Issued By:

City of Ann Arbor  
Procurement Unit  
301 E. Huron Street  
Ann Arbor, MI 48104

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## **SECTION I - GENERAL INFORMATION**

### **A. OBJECTIVE**

The purpose of this Request for Proposal (RFP) is to select a firm to provide construction services for the WTP Lime Residual Removal Contract No. 2 – Dredging and Hauling Project.

### **B. BID SECURITY**

Each bid must be accompanied by a certified check or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

***Proposals that fail to provide a bid security upon proposal opening will be deemed non-responsive and will not be considered for award.***

### **C. QUESTIONS AND CLARIFICATIONS / DESIGNATED CITY CONTACTS**

All questions regarding this Request for Proposal (RFP) shall be submitted via e-mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFP.

**All questions shall be submitted on or before April 18, 2025 at 2:00 p.m. (local time)** and should be addressed as follows:

Scope of Work/Proposal Content questions shall be e-mailed to **Joe Siwek, Project Manager**, [jsiwek@fishbeck.com](mailto:jsiwek@fishbeck.com).

RFP Process and Compliance questions shall be e-mailed to Colin Spencer, Buyer, [CSpencer@a2gov.org](mailto:CSpencer@a2gov.org).

Should any prospective bidder be in doubt as to the true meaning of any portion of this RFP, or should the prospective bidder find any ambiguity, inconsistency, or omission therein, the prospective bidder shall make a written request for an official interpretation or correction by the due date for questions above.

All interpretations, corrections, or additions to this RFP will be made only as an official addendum that will be posted to a2gov.org and MITN.info and it shall be the prospective bidder's responsibility to ensure they have received all addenda before submitting a proposal. Any addendum issued by the City shall become part of the RFP, and must be incorporated in the proposal where applicable.

### **D. PRE-PROPOSAL MEETING**

A **mandatory** pre-proposal conference for this project will be held on **April 10, 2025 at 10:30 a.m.** at the City of Ann Arbor Water Treatment Plant located at **919 Sunset Road, Ann Arbor, MI**. **Failure to attend the meeting and sign the RFP sign-in sheet at the pre-proposal meeting will automatically disqualify a bidder from submitting a valid proposal.** Any proposal submitted by a party not attending and signing the roster at the pre-proposal meeting will not be opened or considered. Administrative and technical

questions regarding this project will be answered at this time. The pre-proposal meeting is for information only. Any answers furnished will not be official until verified in writing by the Financial Service Area, Procurement Unit. Answers that change or substantially clarify the proposal will be affirmed in an addendum.

## **E. PROPOSAL FORMAT**

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the prospective bidder. An official authorized to bind the bidder to its provisions must sign the proposal. Each proposal must remain valid for at least one hundred and twenty (120) days from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the bidder's ability to meet the requirements of the RFP. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

## **F. SELECTION CRITERIA**

Responses to this RFP will be evaluated using a point system as shown in Section III. A selection committee comprised primarily of staff from the City will complete the evaluation.

If interviews are desired by the City, the selected firms will be given the opportunity to discuss their proposal, qualifications, past experience, and their fee proposal in more detail. The City further reserves the right to interview the key personnel assigned by the selected bidder to this project.

All proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the proposal response shall be documented and included as part of the final contract.

## **G. SEALED PROPOSAL SUBMISSION**

**All proposals are due and must be delivered to the City on or before May 1, 2025 by 2:00 p.m. (local time).** Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

**Each respondent should submit in a sealed envelope**

- **one (1) original proposal**
- **one (1) digital copy of the proposal preferably on a USB/flash drive as one file in PDF format**

Proposals submitted should be clearly marked: **"RFP No. 25-18 – WTP Lime Residual Removal Contract No. 2 – Dredging and Hauling"** and list the bidder's name and address.

Proposals must be addressed and delivered to:  
City of Ann Arbor  
c/o Customer Service  
301 East Huron Street  
Ann Arbor, MI 48107

All proposals received on or before the due date will be publicly opened and recorded on the due date. No immediate decisions will be rendered.

Hand delivered proposals may be dropped off in the Purchasing drop box located in the Ann Street (north) vestibule/entrance of City Hall which is open to the public Monday through Friday from 8am to 5pm (except holidays). The City will not be liable to any prospective bidder for any unforeseen circumstances, delivery, or postal delays. Postmarking on the due date will not substitute for receipt of the proposal.

Bidders are responsible for submission of their proposal. Additional time will not be granted to a single prospective bidder. However, additional time may be granted to all prospective bidders at the discretion of the City.

**A proposal may be disqualified if the following required forms are not included with the proposal:**

- **Attachment B – General Declarations**
- **Attachment D – Prevailing Wage Declaration of Compliance**
- **Attachment E – Living Wage Declaration of Compliance**
- **Attachment G – Vendor Conflict of Interest Disclosure Form**
- **Attachment H – Non-Discrimination Declaration of Compliance**

***Proposals that fail to provide these forms listed above upon proposal opening may be deemed non-responsive and may not be considered for award.***

## **H. DISCLOSURES**

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

## **I. TYPE OF CONTRACT**

A sample of the Construction Agreement is included as Attachment A. Those who wish to submit a proposal to the City are required to review this sample agreement carefully. **The City will not entertain changes to its Construction Agreement.**

For all construction work, the respondent must further adhere to the City of Ann Arbor General Conditions. The General Conditions are included herein. Retainage will be held as necessary based on individual tasks and not on the total contract value. The Contractor shall provide the required bonds included in the Contract Documents for the duration of the Contract.

The City reserves the right to award the total proposal, to reject any or all proposals in whole or in part, and to waive any informality or technical defects if, in the City's sole judgment, the best interests of the City will be so served.

This RFP and the selected bidder's response thereto, shall constitute the basis of the scope of services in the contract by reference.

## **J. NONDISCRIMINATION**

All bidders proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in Attachment G shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

## **K. WAGE REQUIREMENTS**

The Attachments provided herein outline the requirements for payment of prevailing wages or of a "living wage" to employees providing service to the City under this contract. The successful bidder must comply with all applicable requirements and provide documentary proof of compliance when requested.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. Use of Michigan Department of Transportation Prevailing Wage Forms (sample attached hereto) or a City-approved equivalent will be required along with wage rate interviews.

For laborers whose wage level are subject to federal, state and/or local prevailing wage law the appropriate Davis-Bacon wage rate classification is identified based upon the work including within this contract. **The wage determination(s) current on the date 10 days before proposals are due shall apply to this contract.** The U.S. Department of Labor (DOL) has provided explanations to assist with classification in the following resource link: [www.sam.gov](http://www.sam.gov).

For the purposes of this RFP the Construction Type of Heavy will apply.

## **L. CONFLICT OF INTEREST DISCLOSURE**

The City of Ann Arbor Purchasing Policy requires that the consultant complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected bidder unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Conflict of Interest Disclosure Form is attached.

## **M. COST LIABILITY**

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the bidder prior to the execution of an Agreement. The liability of the City is limited to the terms and conditions outlined in the Agreement. By submitting a proposal, bidder agrees to bear all costs incurred or related to the preparation, submission, and selection process for the proposal.

## **N. DEBARMENT**

Submission of a proposal in response to this RFP is certification that the Respondent is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

## **O. PROPOSAL PROTEST**

All proposal protests must be in writing and filed with the Purchasing Manager within five (5) business days of any notices of intent, including, but not exclusively, divisions on prequalification of bidders, shortlisting of bidders, or a notice of intent to award. Only bidders who responded to the solicitation may file a bid protest. The bidder must clearly state the reasons for the protest. If any bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the bidder to the Purchasing Manager. The Purchasing Manager will provide the bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee, whose decision shall be final.

Any inquiries or requests regarding this procurement should be only submitted in writing to the Designated City Contacts provided herein. Attempts by the bidder to initiate contact with anyone other than the Designated City Contacts provided herein that the bidder believes can influence the procurement decision, e.g., Elected Officials, City Administrator, Selection Committee Members, Appointed Committee Members, etc., may lead to immediate elimination from further consideration.

## **P. SCHEDULE**

The following is the schedule for this RFP process.

<b>Activity/Event</b>	<b>Anticipated Date</b>
Pre-Proposal Conference	April 10, 2025, 10:30 a.m. (Local Time)
Written Question Deadline	April 18, 2025, 2:00 p.m. (Local Time)
Addenda Published (if needed)	Week of April 21, 2025
Proposal Due Date	May 1, 2025, 2:00 p.m. (Local Time)
Selection/Negotiations	May 2025
Expected City Council Authorizations	June/July 2025

The above schedule is for information purposes only and is subject to change at the City's discretion.



## **Q. IRS FORM W-9**

The selected bidder will be required to provide the City of Ann Arbor an IRS form W-9.

## **R. RESERVATION OF RIGHTS**

1. The City reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part, with or without cause.
2. The City reserves the right to waive, or not waive, informalities or irregularities in terms or conditions of any proposal if determined by the City to be in its best interest.
3. The City reserves the right to request additional information from any or all bidders.
4. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select one or more contractors or service providers to perform services.
7. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this RFP, unless clearly and specifically noted in the proposal submitted.
8. The City reserves the right to disqualify proposals that fail to respond to any requirements outlined in the RFP, or failure to enclose copies of the required documents outlined within the RFP.

## **S. IDLEFREE ORDINANCE**

The City of Ann Arbor adopted an idling reduction Ordinance that went into effect July 1, 2017. The full text of the ordinance (including exemptions) can be found at: [www.a2gov.org/idlefree](http://www.a2gov.org/idlefree).

Under the ordinance, No Operator of a Commercial Vehicle shall cause or permit the Commercial Vehicle to Idle:

- (a) For any period of time while the Commercial Vehicle is unoccupied; or
- (b) For more than 5 minutes in any 60-minute period while the Commercial Vehicle is occupied.

In addition, generators and other internal combustion engines are covered

- (1) Excluding Motor Vehicle engines, no internal combustion engine shall be operated except when it is providing power or electrical energy to equipment or a tool that is actively in use.

## **T. ENVIRONMENTAL COMMITMENT**

The City of Ann Arbor recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a vibrant community and economy. The City further recognizes that the products and services the City buys have inherent environmental and economic impacts and that the City should make procurement decisions that embody, promote and encourage the City's commitment to the environment.

The City strongly encourages potential vendors to bring forward tested, emerging, innovative, and environmentally preferable products and services that are best suited to the City's environmental principles. This includes products and services such as those with lower greenhouse gas emissions, high recycled content, without toxic substances, those with high reusability or recyclability, those that reduce the consumption of virgin materials, and those with low energy intensity.

As part of its environmental commitment, the City reserves the right to award a contract to the most responsive and responsible bidder, which includes bids that bring forward products or services that help advance the City's environmental commitment. In addition, the City reserves the right to request that all vendors report their annual greenhouse gas emissions, energy consumption, miles traveled, or other relevant criteria in order to help the City more fully understand the environmental impact of its procurement decisions.

## **U. MAJOR SUBCONTRACTORS**

The Bidder shall identify each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor. The Bidder shall not change or replace a subcontractor without approval by the City.

## **V. LIQUIDATED DAMAGES**

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the City as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the City shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

## **SECTION II - SCOPE OF WORK**

**Please see the plan set for more details.**

## **SECTION III - MINIMUM INFORMATION REQUIRED**

### **PROPOSAL FORMAT**

The following describes the elements that should be included in each of the proposal sections and the weighted point system that will be used for evaluation of the proposals.

Bidders should organize Proposals into the following Sections:

- A. Qualifications, Experience and Accountability
- B. Workplace Safety
- C. Workforce Development
- D. Social Equity and Sustainability
- E. Schedule of Pricing/Cost
- F. Authorized Negotiator
- G. Attachments

*Bidders are strongly encouraged to provide details for all of the information requested below within initial proposals. Backup documentation may be requested at the sole discretion of the City to validate all of the responses provided herein by bidders. False statements by bidders to any of the criteria provided herein will result in the proposal being considered non-responsive and will not be considered for award.*

Pursuant to Sec 1:325 of the City Code which sets forth requirements for evaluating public improvement bids, Bidders should submit the following:

#### **A. Qualifications, Experience and Accountability – 20 Points**

1. Qualifications and experience of the bidder and of key persons, management, and supervisory personnel to be assigned by the bidder.
2. References from individuals or entities the bidder has worked for within the last five (5) years including information regarding records of performance and job site cooperation.
3. A statement from the bidder as to any major subcontractors it expects to engage including the name, work, and amount.

#### **B. Workplace Safety – 20 Points**

1. Provide a copy of the bidder's safety program (link to information on bidder's publicly available website preferred) and evidence of a safety-training program for employees addressing potential hazards of the proposed job site. Bidders must identify a designated qualified safety representative responsible for bidder's safety program who serves as a contact for safety related matters.
2. Provide the bidder's Experience Modification Rating ("EMR") for the last three consecutive years. Preference within this criterion will be given to an EMR of 1.0 or less based on a three-year average.

3. Evidence that all craft labor that will be employed by the bidder for the project has, or will have prior to project commencement, completed at least an authorized 10-hour OSHA Construction Safety Course.
4. For the last three years provide a copy of any documented violations and the bidder's corrective actions as a result of inspections conducted by the Michigan Occupational Safety & Health Administration (MIOSHA), U.S. Department of Labor – Occupational Safety and Health Administration (OSHA), or any other applicable safety agency.

**C. Workforce Development – 20 Points**

1. Documentation as to bidder's pay rates (1 pt.), health insurance (2pts.), pension or other retirement benefits (2pts.), paid leave, or other fringe benefits (2pts.) to its employees.
- 2.. Documentation that the bidder participates in a Registered Apprenticeship Program that is registered with the United States Department of Labor Office of Apprenticeship or by a State Apprenticeship Agency recognized by the USDOL Office of Apprenticeship. USDOL apprenticeship agreements shall be disclosed to the City in the solicitation response.
3. Bidders shall disclose the number of non-craft employees who will work on the project on a 1099 basis, and the bidders shall be awarded points based on their relative reliance on 1099 work arrangements with more points assigned to companies with fewer 1099 arrangements. Bidders will acknowledge that the City may ask them to produce payroll records at points during the project to verify compliance with this section.

**D. Social Equity and Sustainability – 20 Points**

1. A statement from the bidder as to what percentage of its workforce resides in the City of Ann Arbor and in Washtenaw County, Michigan. The City will consider in evaluating which bids best serve its interests, the extent to which responsible and qualified bidders employ individuals in either the city or the county. Washtenaw County jurisdiction is prioritized for evaluation purposes for this solicitation.
2. Evidence of Equal Employment Opportunity Programs for minorities, women, veterans, returning citizens, and small businesses.
3. Evidence that the bidder is an equal opportunity employer and does not discriminate on the basis of race, sex, pregnancy, age, religion, national origin, marital status, sexual orientation, gender identity or expression, height, weight, or disability.
4. The bidder's environmental record, including findings of violations and penalties imposed by government agencies.

**E. Schedule of Pricing/Cost – 20 Points**

Company: \_\_\_\_\_

Project: WTP Lime Residual Removal Contract No. 2 – Dredging and Hauling

**Unit Price Bid –**

Item No.	Item Description	Qty	Unit	Unit Price	Total Price
1	General Conditions (Max \$100,000)	1	LS	\$	\$
2	Allowance – Miscellaneous	1	Alw	\$50,000.00	\$50,000.00
3	Allowance – Permits	1	Alw	\$5,000.00	\$5,000.00
4	Audiovisual Coverage	1	LS	\$	\$
5	Soil Erosion and Sedimentation Control Plan	1	LS	\$	\$
6	Minor Traffic Control	1	LS	\$	\$
7	Residual Removal, Dewatering, Hauling and Disposal	10,000	Dry Ton	\$	\$
8	Closeout	1	LS	\$	\$
TOTAL BASE BID (ITEMS 1 THROUGH 8)					\$

Total Base Bid: \_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

(Amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.)

**ALTERNATES**

***Bidder shall list alternate bid item prices below.***

**Alternate No. 1 – Residual Removal, Dewatering, Hauling and Disposal, greater than 10,000 Dry Tons**

***Add: \_\_\_\_\_ Dollars (\$ \_\_\_\_\_)***

***(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.)***

***For additional \_\_\_\_\_ Dry Tons removed at a unit rate of***

***\$ \_\_\_\_\_ Dollars / Dry Ton***

## **F. AUTHORIZED NEGOTIATOR / NEGOTIATIBLE ELEMENTS (ALTERNATES)**

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the City.

The proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the bidder wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-2, it is requested to stipulate its proposed time for performance of the work.

Consideration for any proposed alternative items or time may be negotiated at the discretion of the City.

## **G. ATTACHMENTS**

General Declaration, Legal Status of Bidder, Conflict of Interest Form, Living Wage Compliance Form, Prevailing Wage Compliance Form and the Non-Discrimination Form should be completed and returned with the proposal. These elements should be included as attachments to the proposal submission.

## **PROPOSAL EVALUATION**

1. The selection committee will evaluate each proposal by the above-described criteria and point system. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm to be a candidate for an interview if interviews are selected to be held by the City. The committee may contact references to verify material submitted by the bidder.
2. The committee then will schedule interviews with the selected firms if necessary. The selected firms will be given the opportunity to discuss in more detail their qualifications, past experience, proposed work plan (if applicable) and pricing.
3. The interview should include the project team members expected to work on the project, but no more than six members total. The interview shall consist of a presentation of up to thirty minutes (or the length provided by the committee) by the bidder, including the person who will be the project manager on this contract, followed

by approximately thirty minutes of questions and answers. Audiovisual aids may be used during the oral interviews. The committee may record the oral interviews.

4. The firms interviewed will then be re-evaluated by the above criteria and adjustments to scoring will be made as appropriate. After evaluation of the proposals, further negotiation with the selected firm may be pursued leading to the award of a contract by City Council, if suitable proposals are received.

The City reserves the right to waive the interview process and evaluate the bidder based on their proposal and pricing schedules alone.

The City will determine whether the final scope of the project to be negotiated will be entirely as described in this RFP, a portion of the scope, or a revised scope.

Work to be done under this contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents.

Any proposal that does not conform fully to these instructions may be rejected.

## **PREPARATION OF PROPOSALS**

Proposals should have no plastic bindings but will not be rejected as non-responsive for being bound. Staples or binder clips are acceptable. Proposals should be printed double sided on recycled paper.

Each person signing the proposal certifies that they are a person in the bidder's firm/organization responsible for the decisions regarding the fees being offered in the Proposal and has not and will not participate in any action contrary to the terms of this provision.

## **ADDENDA**

If it becomes necessary to revise any part of the RFP, notice of the addendum will be posted to Michigan Inter-governmental Trade Network (MITN) [www.mitn.info](http://www.mitn.info) and/or the City of Ann Arbor web site [www.A2gov.org](http://www.A2gov.org) for all parties to download.

Each bidder should acknowledge in its proposal all addenda it has received on the General Declarations form provided in the Attachments section herein. The failure of a bidder to receive or acknowledge receipt of any addenda shall not relieve the bidder of the responsibility for complying with the terms thereof. The City will not be bound by oral responses to inquiries or written responses other than official written addenda.



## **SECTION IV - ATTACHMENTS**

Attachment A – Sample Standard Contract

Sample Standard Contract

Performance Bond

Labor and Material Bond

General Conditions

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Attachment I – Non-Discrimination Ordinance Poster

Sample Certified Payroll Report Template

# ATTACHMENT A

## SAMPLE STANDARD CONTRACT

***If a contract is awarded, the selected contractor will be required to adhere to a set of general contract provisions which will become a part of any formal agreement. These provisions are general principles which apply to all contractors of service to the City of Ann Arbor such as the following:***

# CONTRACT

THIS CONTRACT is between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 ("City") and \_\_\_\_\_ ("Contractor")

(An individual/partnership/corporation, include state of incorporation) (Address)

Based upon the mutual promises below, the Contractor and the City agree as follows:

## ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled **[Insert Title of Bid and Bid Number]** in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, all of which are incorporated as part of this Contract:

Non-discrimination and Living Wage  
Declaration of Compliance Forms (if  
applicable)  
Vendor Conflict of Interest Form  
Prevailing Wage Declaration of  
Compliance Form (if applicable)  
Bid Forms  
Contract and Exhibits  
Bonds

General Conditions  
Standard Specifications  
Detailed Specifications  
Plans  
Addenda

## ARTICLE II - Definitions

**Administering Service Area/Unit means Water Treatment Services Unit**

**Project means WTP lime Residual Removal Contract No. 2 – Dredging and Hauling  
Project RFP No. 25-18**

**Supervising Professional** means the person acting under the authorization of the manager of the Administering Service Area/Unit. At the time this Contract is executed, the Supervising Professional is: Emily Schlanderer whose job title is WTP Engineer. If

there is any question concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

**Contractor's Representative** means \_\_\_\_\_ [Insert name] whose job title is [Insert job title].

### **ARTICLE III - Time of Completion**

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.
- (B) The entire work for this Contract shall be completed within fifteen (15) consecutive months.
- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount equal to \$500 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

### **ARTICLE IV - The Contract Sum**

- (A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Form for the estimated bid total of:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)

- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the Contract Documents. Increases or decreases shall be determined only by written agreement between the City and Contractor.

### **ARTICLE V - Assignment**

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by the City.

## **ARTICLE VI - Choice of Law**

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this Contract, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

Whenever possible, each provision of the Contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the Contract.

## **ARTICLE VII - Relationship of the Parties**

The parties of the Contract agree that it is not a Contract of employment but is a Contract to accomplish a specific result. Contractor is an independent Contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any Contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this Contract.

## **ARTICLE VIII - Notice**

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

## **ARTICLE IX - Indemnification**

To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor's behalf under this Contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

## **ARTICLE X - Entire Agreement**

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party's failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties

to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

#### **ARTICLE XI - Electronic Transactions**

The City and Contractor agree that signatures on this Contract may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this Contract. This Contract may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

[Signatures on next page]

***[INSERT CONTRACTOR NAME HERE]***

**CITY OF ANN ARBOR**

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

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

Title: \_\_\_\_\_

Date: \_\_\_\_\_

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

Name: Milton Dohoney Jr.

Title: City Administrator

Date: \_\_\_\_\_

**Approved as to substance:**

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

Name: Jordan Roberts

Title: Public Services Area  
Administrator

Date: \_\_\_\_\_

**Approved as to form:**

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

Name: Atleen Kaur

Title: City Attorney

Date: \_\_\_\_\_

*(Signatures continue on following page)*

**CITY OF ANN ARBOR**

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

Name: Christopher Taylor

Title: Mayor

Date: \_\_\_\_\_

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

Name: Jacqueline Beaudry

Title: City Clerk

Date: \_\_\_\_\_

**PERFORMANCE BOND**

- (1) of \_\_\_\_\_ (referred to as "Principal"), and \_\_\_\_\_, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$ \_\_\_\_\_, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled \_\_\_\_\_, for RFP No. \_\_\_\_\_ and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the Contract in accordance with its terms and conditions; or
  - (b) obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the Contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.
- (6) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

**SIGNED AND SEALED** this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.

\_\_\_\_\_  
(Name of Surety Company)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Approved as to form:

\_\_\_\_\_  
Atleen Kaur, City Attorney

\_\_\_\_\_  
(Name of Principal)

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Name and address of agent:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## LABOR AND MATERIAL BOND

- (1) \_\_\_\_\_ of \_\_\_\_\_ (referred to as "Principal"), and \_\_\_\_\_, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of \$ \_\_\_\_\_, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_, for RFP No. \_\_\_\_\_; and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the Contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.
- (5) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

**SIGNED AND SEALED** this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_

\_\_\_\_\_  
(Name of Surety Company)  
By \_\_\_\_\_  
(Signature)  
  
Its \_\_\_\_\_  
(Title of Office)

\_\_\_\_\_  
(Name of Principal)  
By \_\_\_\_\_  
(Signature)  
  
Its \_\_\_\_\_  
(Title of Office)

Approved as to form:

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Atleen Kaur, City Attorney

Name and address of agent:

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## **GENERAL CONDITIONS**

### **Section 1 - Execution, Correlation and Intent of Documents**

The contract documents shall be signed in 2 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Bid.

### **Section 2 - Order of Completion**

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

### **Section 3 - Familiarity with Work**

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

### **Section 4 - Wage Requirements**

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of

subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. A sample Prevailing Wage Form is provided in the Appendix herein for reference as to what will be expected from contractors. Use of the Prevailing Wage Form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Contract a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Contract are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor's employees who perform work on this contract.

## **Section 5 - Non-Discrimination**

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

## **Section 6 - Materials, Appliances, Employees**

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

## **Section 7 - Qualifications for Employment**

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

## **Section 8 - Royalties and Patents**

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

## **Section 9 - Permits and Regulations**

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

## **Section 10 - Protection of the Public and of Work and Property**

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or

employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

## **Section 11 - Inspection of Work**

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

## **Section 12 - Superintendence**

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

## **Section 13 - Changes in the Work**

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be

executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

## **Section 14 - Extension of Time**

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;
- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

## **Section 15 - Claims for Extra Cost**

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section I3. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;
- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;
- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.



## **Section 16 - Progress Payments**

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than 180 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

## **Section 17 - Deductions for Uncorrected Work**

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

## **Section 18 - Correction of Work Before Final Payment**

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within 10 days after written notice, the City may remove them and, if the removed material has value, may store the material

at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

## **Section 19 - Acceptance and Final Payment**

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

- (1) The consent of the surety to payment of the final estimate;
- (2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City except those arising from:

- (1) unsettled liens;
- (2) faulty work appearing within 12 months after final payment;
- (3) hidden defects in meeting the requirements of the plans and specifications;
- (4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

## **Section 20 - Suspension of Work**

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the

written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

## **Section 21 - Delays and the City's Right to Terminate Contract**

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred. The expense incurred by the City, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

## **Section 22 - Contractor's Right to Terminate Contract**

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

## **Section 23 - City's Right To Do Work**

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

## **Section 24 - Removal of Equipment and Supplies**

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

## **Section 25 - Responsibility for Work and Warranties**

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

## **Section 26 - Partial Completion and Acceptance**

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

## **Section 27 - Payments Withheld Prior to Final Acceptance of Work**

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;
- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

## **Section 28 - Contractor's Insurance**

- (1) The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself and the City from all claims for bodily injuries, death or property damage that may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor, or anyone employed by them directly or indirectly. Prior to commencement of any work under this contract, Contractor shall provide to the City documentation satisfactory to the City, through City-approved means (currently myCOI), demonstrating it has obtained the required policies and endorsements. The certificates of insurance endorsements and/or copies of

policy language shall document that the Contractor satisfies the following minimum requirements. Contractor shall add registration@mycoitracking.com to its safe sender's list so that it will receive necessary communication from myCOI. When requested, Contractor shall provide the same documentation for its subcontractor(s) (if any).

Required insurance policies include:

- (a) Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

- Bodily Injury by Accident - \$500,000 each accident
  - Bodily Injury by Disease - \$500,000 each employee
  - Bodily Injury by Disease - \$500,000 each policy limit

- (b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 04 13 or current equivalent. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. The following minimum limits of liability are required:

- \$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.
  - \$2,000,000 Per Project General Aggregate
  - \$1,000,000 Personal and Advertising Injury
  - \$2,000,000 Products and Completed Operations Aggregate, which, notwithstanding anything to the contrary herein, shall be maintained for three years from the date the Project is completed.

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 10 13 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

- (d) Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- (2) Insurance required under subsection (1)(b) and (1)(c) above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute

with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City for any insurance listed herein.

- (3) Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional and un-qualified 30-day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number(s); name of insurance company(s); name and address of the agent(s) or authorized representative(s); name(s), email address(es), and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which may be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) and all required endorsements to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.
- (4) Any Insurance provider of Contractor shall be authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-authorized insurance companies are not acceptable unless approved in writing by the City.
- (5) City reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.
- (6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

## **Section 29 - Surety Bonds**

Bonds will be required from the successful bidder as follows:

- (1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
- (2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company authorized to transact business in Michigan and satisfactory to the City Attorney.

## **Section 30 - Damage Claims**

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

## **Section 31 - Refusal to Obey Instructions**

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

## **Section 32 - Assignment**

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

## **Section 33 - Rights of Various Interests**

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

## **Section 34 - Subcontracts**

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.



## **Section 35 - Supervising Professional's Status**

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

## **Section 36 - Supervising Professional's Decisions**

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

## **Section 37 - Storing Materials and Supplies**

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

## **Section 38 - Lands for Work**

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

## **Section 39 - Cleaning Up**

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

## **Section 40 - Salvage**

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

## **Section 41 - Night, Saturday or Sunday Work**

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

## **Section 42 - Sales Taxes**

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

## Section 43

### **CONTRACTOR'S DECLARATION**

I hereby declare that I have not, during the period \_\_\_\_\_, 20\_\_\_\_, to \_\_\_\_\_, 20\_\_\_\_, performed any work, furnished any materials, sustained any loss, damage or delay, or otherwise done anything in addition to the regular items (or executed change orders) set forth in the Contract titled \_\_\_\_\_, for which I shall ask, demand, sue for, or claim compensation or extension of time from the City, except as I hereby make claim for additional compensation or extension of time as set forth on the attached itemized statement. I further declare that I have paid all payroll obligations related to this Contract that have become due during the above period and that all invoices related to this Contract received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement attached regarding a request for additional compensation or extension of time.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Date

By \_\_\_\_\_  
(Signature)

Its \_\_\_\_\_  
(Title of Office)

Past due invoices, if any, are listed below.

## CONTRACTOR'S AFFIDAVIT

GC-18

## **STANDARD SPECIFICATIONS**

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Bid. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

Standard Specifications are available online:

<http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx>

## **DETAILED SPECIFICATIONS**

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01 12 16	Work Sequence
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01 22 00	Unit Prices – Measurement and Payment
01 26 00	Contract Modification Procedures
01 29 16	Payment Procedures
01 31 13	Project Coordination
01 33 00	Submittal Procedures
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01 77 00	Closeout Procedures
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SECTION 00 31 32 – GEOTECHNICAL DATA

Beginning of Geotechnical Data



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June 20, 2017

**Project No. 14725.01**

Mr. Brian M. Rubel, P.E.  
Tetra Tech  
710 Avis Drive  
Ann Arbor, Michigan 48108

**Geotechnical Services  
Lime Sludge Lagoon Dredging  
Ann Arbor, Michigan**

Dear Mr. Rubel:

TTL Associates, Inc. (TTL) has completed the geotechnical subsurface investigation for the referenced project. This study was performed in general accordance with TTL Proposal No. 14725.01, dated September 26, 2016, and was authorized by a Tetra Tech Subconsultant Services Agreement dated February 3, 2017.

**PROJECT DESCRIPTION**

Based on the provided information, the project consists of improvements to an existing lime sludge lagoon off of Cooley Avenue in Ann Arbor, Michigan. We further understand that the scope of the improvements includes dredging to remove some accumulated solids.

**INVESTIGATIVE PROCEDURES**

Field Procedures

This investigation included three (3) hand auger borings, designated as Boring B-1 through B-3, performed by TTL on June 7, 2017. The borings were located in the field by TTL with guidance from Tetra Tech. The borings were extended to termination at a depth of 10 feet below existing grade. The approximate locations of the test borings are indicated on the attached Test Boring Location Plan (Plate 1.0).

The hand auger borings were advanced in accordance with ASTM D 1452 utilizing a manually operated bucket auger and Housel sampling equipment. Samples were obtained at 2½-foot intervals to the planned completion depth of 10 feet below existing grades.

Penetration tests were performed at the sample intervals using a hand-operated Housel hammer. The penetration test method consisted of driving a 2-inch outside diameter split-barrel sampler into the soil with an approximately 39-pound weight falling freely through a distance of

30 inches. The sampler was driven in three successive 6-inch increments with the number of blows per increment being recorded. The sum of the number of blows required to advance the sampler the second and third six-inch increments was then converted into an equivalent Standard Penetration Test (SPT) resistance, or N-value, for a 140-pound hammer falling through a distance of 30-inches (ASTM D 1586). The equivalent SPT blow counts and N-values are presented on the Logs of Test Borings for the hand auger boring attached to this report. The split-spoon samples were sealed in jars and transported to our laboratory for further classification and testing.

This investigation did not include an environmental assessment of the surface or subsurface materials at the site. However, a portion of each split-spoon sample was retained for the City of Ann Arbor to perform environmental testing.

### Laboratory Procedures

All recovered soils samples were visually classified in our laboratory and were tested for moisture content determinations in accordance with ASTM D 2216. The results of these tests are presented in the following table.

Boring No.	Sample Number	Sample Interval Depth, (feet)	Natural Moisture Content, (%)	Solids Content (%)
B-1	SS-1	1.0 – 2.5	70.8	29.2
	SS-2	3.5 – 5.0	75.1	24.9
	SS-3	6.0 – 7.5	85.5	14.5
	SS-4	8.5 – 10.0	83.9	16.1
B-2	SS-1	1.0 – 2.5	69.1	30.9
	SS-2	3.5 – 5.0	89.9	10.1
	SS-3	6.0 – 7.5	81.1	18.9
	SS-4	8.5 – 10.0	61.4	38.6
B-3	SS-1	1.0 – 2.5	72.4	27.6
	SS-2	3.5 – 5.0	96.4	3.6
	SS-3	6.0 – 7.5	80.4	19.6
	SS-4	8.5 – 10.0	64.2	35.8

### ENCOUNTERED CONDITIONS

Each of the test boring locations encountered lime sludge materials for the full sampling depth. SPT N-values were 0 blows per foot (full 18” advancement by weight of hammer) for the full sampling depth of 10 feet below the surface of the sludge indicating a **very soft** consistency. Moisture contents varied in each of the borings as indicated in the previous table. In general, Boring B-1 encountered a decreasing solids content (increasing moisture content) with depth.

Borings B-2 and B-3 encountered higher solids content at the beginning and end of sampling, with fewer solids from 3½ to 8½ feet below the surface of the sludge.

Native soil materials (i.e., from the bottom of the lagoon) were not encountered prior to boring termination at 10 feet.

## QUALIFICATION OF RECOMMENDATIONS

The encountered conditions presented in this report have been based data obtained during our field investigation. The general subsurface conditions presented were based on three test borings performed at specific locations. Regardless of the thoroughness of a subsurface investigation, there is the possibility that conditions will differ from those at the test boring locations or that conditions are not as anticipated by the designers.

The nature and extent of variations may not become evident until the course of construction. If such variations are encountered, it will be necessary to reevaluate the recommendations of this report after on-site observations of the conditions.

Our professional services have been performed, our findings derived in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. TTL is not responsible for the conclusions, opinions, or recommendations of others based on this data.

Soil samples collected during this investigation will be stored at our laboratory for 90 days from the date of this report. The samples will be discarded after this time unless you request that they be saved or delivered to you.

Should you have any questions regarding this report or require additional information, please contact our office.

Sincerely,

**TTL Associates, Inc.**



Katherine C. Hennicken, P.E.  
Geotechnical Engineer



Curtis E. Roupe, P.E.  
Vice President

Attachments: Plate 1.0 Test Boring Location Plan  
Log of Test Borings B-1, B-2, and B-3  
Legend Key





LEGEND

B-1 APPROXIMATE TEST BORING LOCATION

APPROXIMATE SCALE - FEET  
0 300 400

PLATE 1.0  
TEST BORING LOCATION PLAN  
LIME SLUDGE LAGOON DREDGING  
ANN ARBOR, MICHIGAN

PREPARED FOR  
**TETRA TECH**  
ANN ARBOR, MICHIGAN

DRAWN	TRR/6-19-17	CHECKED	KCH/6-19-17
REVISED		APPROVED	

JOB NO. 14725.01

DRAWING NUMBER

**1472501-01G**



NOTE: BASE DRAWING RETRIEVED FROM GOOGLE EARTH 2017.





TTL Associates, Inc.  
1915 N 12th Street  
Toledo, Ohio 43624  
Telephone: 419-324-2222  
Fax: 419-241-1808

# BORING NUMBER B-1

PAGE 1 OF 1

CLIENT	Tetra Tech	PROJECT NAME	Lime Sludge Lagoon Dredging
PROJECT NUMBER	14725.01	PROJECT LOCATION	Ann Arbor, MI
DRILLING CONTRACTOR	TTL Associates NW CW	RIG NO.	Hand Auger
DRILLING METHOD	Hand Auger w/Housel Sampling (See Text)	GROUND ELEVATION	
DATE STARTED	6/7/17	COMPLETED	6/7/17
LOGGED BY	KKC	CHECKED BY	KCH
NOTES			
		GROUND WATER LEVELS:	
		▽ AT TIME OF DRILLING	0.0 ft
		▽ AT END OF DRILLING	0.0 ft
		0hrs AFTER DRILLING	Backfilled w/Cuttings

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL	▲ SPT N VALUE ▲
	0.0		▼ FILL - Wet Very Soft Gray LIME SLUDGE (Free Water Noted in Jar)						20 40 60 80	20 40 60 80
	2.5			SS 1	100	0-0-0 (0)	NI	▲		71
	5.0		@3.5': (Free Water Noted in Jar)	SS 2	100	0-0-0 (0)	NI	▲		75
	7.5		@6': (Free Water Noted in Jar)	SS 3	100	0-0-0 (0)	NI	▲		86
	10.0		@8.5': (Free Water Noted in Jar)	SS 4	100	0-0-0 (0)	NI	▲		84
			10.0' Bottom of hole at 10.0 feet.							



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# BORING NUMBER B-2

PAGE 1 OF 1

CLIENT	Tetra Tech	PROJECT NAME	Lime Sludge Lagoon Dredging
PROJECT NUMBER	14725.01	PROJECT LOCATION	Ann Arbor, MI
DRILLING CONTRACTOR	TTL Associates NW CW	RIG NO.	Hand Auger
DRILLING METHOD	Hand Auger w/Housel Sampling (See Text)	GROUND ELEVATION	
DATE STARTED	6/7/17	COMPLETED	6/7/17
LOGGED BY	KKC	CHECKED BY	KCH
NOTES			
		GROUND WATER LEVELS:	
		▽ AT TIME OF DRILLING	0.0 ft
		▽ AT END OF DRILLING	0.0 ft
		0hrs AFTER DRILLING	Backfilled w/Cuttings

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL	SPT N VALUE
	0.0		▼ FILL - Wet Very Soft Gray LIME SLUDGE (Free Water Noted in Jar)						20 40 60 80	20 40 60 80
	2.5			SS 1	100	0-0-0 (0)	NI	▲		69
	5.0		@3.5': (Free Water Noted in Jar)	SS 2	100	0-0-0 (0)	NI	▲		90
	7.5		@6': (Free Water Noted in Jar)	SS 3	100	0-0-0 (0)	NI	▲		81
	10.0		@8.5': (Free Water Noted in Jar)	SS 4	100	0-0-0 (0)	NI	▲		61
			Bottom of hole at 10.0 feet.							



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# BORING NUMBER B-3

PAGE 1 OF 1





















CLIENT	Tetra Tech	PROJECT NAME	Lime Sludge Lagoon Dredging
PROJECT NUMBER	14725.01	PROJECT LOCATION	Ann Arbor, MI
DRILLING CONTRACTOR	TTL Associates NW CW	RIG NO.	Hand Auger
DRILLING METHOD	Hand Auger w/Housel Sampling (See Text)	GROUND ELEVATION	
DATE STARTED	6/7/17	COMPLETED	6/7/17
LOGGED BY	KKC	CHECKED BY	KCH
NOTES			
		GROUND WATER LEVELS:	
		▽ AT TIME OF DRILLING	0.0 ft
		▽ AT END OF DRILLING	0.0 ft
		0hrs AFTER DRILLING	Backfilled w/Cuttings

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	UNCONF. COMP. STR. (tsf)	DRY UNIT WT. (pcf)	PL MC LL	SPT N VALUE
	0.0		▼ FILL - Wet Very Soft Gray LIME SLUDGE (Free Water Noted in Jar)						20 40 60 80	20 40 60 80
	2.5			SS 1	100	0-0-0 (0)	NI	▲		72
	5.0		@3.5': (Free Water Noted in Jar)	SS 2	100	0-0-0 (0)	NI	▲		96
	7.5		@6': (Free Water Noted in Jar)	SS 3	100	0-0-0 (0)	NI	▲		80
	10.0		@8.5': (Free Water Noted in Jar)	SS 4	100	0-0-0 (0)	NI	▲		64
			Bottom of hole at 10.0 feet.							









# LEGEND KEY

## Unified Soil Classification System Soil Symbols

	GW - WELL GRADED GRAVEL Includes Gravel-Sand mixtures, little or no fines.		GP - POORLY GRADED GRAVEL Includes Gravel-Sand mixtures, little or no fines.		GM - SILTY GRAVEL Includes Gravel-Sand-Silt mixtures.		GC - CLAYEY GRAVEL Includes Gravel-Sand-Clay mixtures.
	SW - WELL GRADED SAND Includes Gravelly Sands, little or no fines.		SP - POORLY GRADED SAND Includes Gravelly Sands, little or no fines.		SM - SILTY SAND Includes Sand-Silt mixtures.		SC - CLAYEY SAND Includes Sand-Clay mixtures.
	ML - SILT Includes Silt with Sand and Sandy Silt.		CL - LEAN CLAY Includes Sandy Lean Clay and Lean Clay with Sand and Gravel.		MH - ELASTIC SILT Includes Sandy Elastic Silt and Elastic Silt with Sand.		CH - FAT CLAY Includes Sandy Fat Clay and Fat Clay with Sand.
	CL-ML - SILTY CLAY Includes Clayey Silt of low plasticity.		OL - ORGANIC SILT and ORGANIC CLAY of low plasticity.		OH - ORGANIC SILT and ORGANIC CLAY of medium to high plasticity.		Pt - PEAT Includes humus, swamp and other soils with high organic content.
	FILL MATERIAL - Includes controlled and non-controlled soil and non-soil materials.		TOPSOIL		ASPHALT - Bituminous Asphalt		CONCRETE - Includes broken concrete rubble.

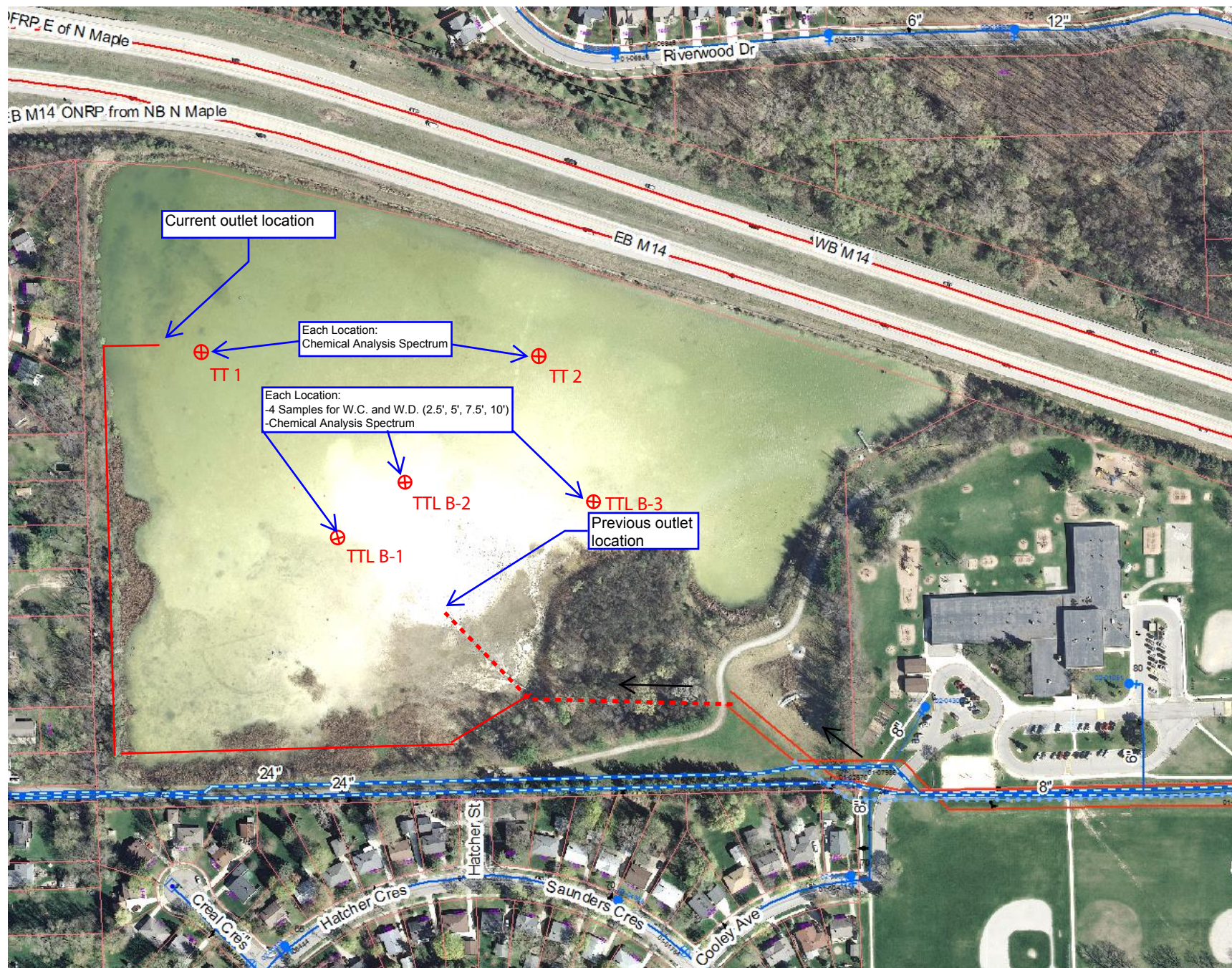
## Sample Symbols

	SS - Split Spoon		ST - Shelby Tube		RC - Rock Core		GS - Geoprobe Sleeve
			AU - Auger Cuttings		GB - Grab		

### Notes:

1. Hand auger borings were performed on June 7, 2017 and were advanced using a bucket auger.
2. These logs are subject to the limitations, conclusions, and recommendations in the report and should not be interpreted separate from the report.
3. The test borings were located in the field by TTL with guidance from Tetra Tech. Ground surface elevations at the boring locations were not available at the time of preparation of this report.
4. Unconfined Compressive Strength (tsf):  
NI = Not Intact







## Analytical Lab Report No. 1



# Analytical Laboratory Report

Report ID: S81691.01(01)  
Generated on 06/15/2017

## Report to

Attention: Wendy Schultz  
City of Ann Arbor  
919 Sunset  
Ann Arbor, MI 48103

Phone: (734)794-6426 FAX: (734)994-0151  
Email: wschultz@a2gov.org

## Report produced by

Merit Laboratories, Inc.  
2680 East Lansing Drive  
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

## Contacts for report questions:

John Lavery (johnlavery@meritlabs.com)  
Barbara Ball (bball@meritlabs.com)

## Report Summary

Lab Sample ID(s): S81691.01-S81691.06  
Project: WTP Lime Sludge  
Collected Date: 06/07/2017  
Submitted Date/Time: 06/08/2017 09:40  
Sampled by: Unknown  
P.O. #:

## Table of Contents

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Report Narrative (Page 2)  
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Glossary of Abbreviations (Page 3)  
Method Summary (Page 4)  
Sample Summary (Page 5)

A handwritten signature in black ink, reading "Maya Murshak".

Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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Analytical results relate only to the samples tested, in the condition received by the laboratory.  
Methods may be modified for improved performance.  
Results reported on a dry weight basis where applicable.  
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).  
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.  
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.  
Full accreditation certificates are available upon request. Starred (\*) analytes are not NELAP accredited.  
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.  
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702

## Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

## Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods



# Analytical Laboratory Report

## Method Summary

Method	Version
SM2540B	Standard Method 2540 B 20th Edition
SW3050B	SW 846 Method 3050B Revision 2 December 1996
SW3550C	SW 846 Method 3550C Revision 3 February 2007
SW5035A/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5035A Revision 1 July 2002
SW6020A	SW 846 Method 6020A Revision 1 February 2007
SW7471B	SW 846 Method 7471B Revision 2 February 2007
SW8270D	SW 846 Method 8270D Revision 4 February 2007



## Analytical Laboratory Report

### Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S81691.01	WTP Lime Sludge B-1 4-5'	Sludge	06/07/17 09:00
S81691.02	WTP Lime Sludge B-1 8-9'	Sludge	06/07/17 09:01
S81691.03	WTP Lime Sludge B-2 4.5'	Sludge	06/07/17 09:02
S81691.04	WTP Lime Sludge B-2 8-9'	Sludge	06/07/17 09:03
S81691.05	WTP Lime Sludge B-3 4.5'	Sludge	06/07/17 09:04
S81691.06	WTP Lime Sludge B-3 8-9'	Sludge	06/07/17 09:05





# Analytical Laboratory Report

Lab Sample ID: S81691.01  
Sample Tag: WTP Lime Sludge B-1 4-5'  
Collected Date/Time: 06/07/2017 09:00  
Matrix: Sludge  
COC Reference:

## Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz Amber Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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### Extraction / Prep.

BNA Extraction	Completed			SW3550C	06/14/17 12:52	EMR		
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### Inorganics

Total Solids*	59	%	1	SM2540B	06/09/17 17:05	JBL		
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### Organics - Semi-Volatiles

#### Semi-Volatile Organics - MDEQ

Acenaphthene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	111-91-1	
bis(2-Chloroethyl)ether*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	108-60-1	
bis(2-Ethylhexyl)phthalate*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	85-68-7	
4-Chloroaniline	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/kg	280	SW8270D	06/14/17 23:10	PL	59-50-7	
2-Chlorophenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	7005-72-3	
Chrysene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	218-01-9	
p,m-Cresol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	3/4-CRESOL	
o-Cresol*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	53-70-3	
Dibenzofuran*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	84-74-2	
1,2-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	95-50-1	
1,3-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	541-73-1	
1,4-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/kg	2,000	SW8270D	06/14/17 23:10	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	120-83-2	
Diethyl phthalate	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/kg	830	SW8270D	06/14/17 23:10	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/kg	830	SW8270D	06/14/17 23:10	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	121-14-2	



# Analytical Laboratory Report

Lab Sample ID: S81691.01 (continued)

Sample Tag: WTP Lime Sludge B-1 4-5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Semi-Volatiles (continued)</b>								
<b>Semi-Volatile Organics - MDEQ (continued)</b>								
2,6-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	117-84-0	
Fluoranthene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	86-73-7	
Hexachlorobenzene*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	77-47-4	
Hexachloroethane	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	193-39-5	
Isophorone	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	91-20-3	
2-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/14/17 23:10	PL	88-74-4	
3-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/14/17 23:10	PL	99-09-2	
4-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/14/17 23:10	PL	100-01-6	
Nitrobenzene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	98-95-3	
2-Nitrophenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	88-75-5	
4-Nitrophenol	Not detected	ug/kg	830	SW8270D	06/14/17 23:10	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	86-30-6	
N-Nitrosodi-n-propylamine*	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	621-64-7	
Pentachlorophenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	87-86-5	
Phenanthrene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	85-01-8	
Phenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	108-95-2	
Pyrene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/14/17 23:10	PL	88-06-2	
<b>Organics - Volatiles</b>								
<b>Volatile Organics</b>								
Diethyl ether	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	60-29-7	
Acetone	Not detected	ug/kg	800	SW5035A/8260C	06/09/17 08:11	JML	67-64-1	
Methyl iodide	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	74-88-4	
Carbon disulfide	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-15-0	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	1634-04-4	
Acrylonitrile	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	107-13-1	
2-Butanone (MEK)*	Not detected	ug/kg	800	SW5035A/8260C	06/09/17 08:11	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-71-8	
Chloromethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	74-87-3	
Vinyl chloride	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-01-4	
Bromomethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	74-83-9	
Chloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-35-4	
Methylene chloride	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:11	JML	75-09-2	
trans-1,2-Dichloroethene*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-34-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	156-59-2	



# Analytical Laboratory Report

Lab Sample ID: S81691.01 (continued)

Sample Tag: WTP Lime Sludge B-1 4-5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
Tetrahydrofuran*	Not detected	ug/kg	2,000	SW5035A/8260C	06/09/17 08:11	JML	109-99-9	
Chloroform	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	67-66-3	
Bromochloromethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	71-55-6	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	800	SW5035A/8260C	06/09/17 08:11	JML	108-10-1	
2-Hexanone*	Not detected	ug/kg	800	SW5035A/8260C	06/09/17 08:11	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	56-23-5	
Benzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	107-06-2	
Trichloroethene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	78-87-5	
Bromodichloromethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-27-4	
Dibromomethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	10061-01-5	
Toluene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	79-00-5	
Tetrachloroethene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	110-57-6	
Dibromochloromethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	124-48-1	
1,2-Dibromoethane*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	106-93-4	M
Chlorobenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	630-20-6	
Ethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	100-41-4	
p,m-Xylene	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:11	JML		
o-Xylene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	95-47-6	
Styrene*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	100-42-5	
Isopropylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	98-82-8	
Bromoform*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	79-34-5	
1,2,3-Trichloropropane*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	96-18-4	
n-Propylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	103-65-1	
Bromobenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	108-67-8	
tert-Butylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	95-63-6	
sec-Butylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	135-98-8	
p-Isopropyltoluene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	526-73-8	
n-Butylbenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	104-51-8	
Hexachloroethane	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	67-72-1	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/kg	80	SW5035A/8260C	06/09/17 08:11	JML	87-61-6	
Naphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:11	JML	91-20-3	

M-Result reported to MDL not RDL



## Analytical Laboratory Report

Lab Sample ID: S81691.01 (continued)  
Sample Tag: WTP Lime Sludge B-1 4-5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
2-Methylnaphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:11	JML	91-57-6	



## Analytical Laboratory Report

Lab Sample ID: S81691.02  
Sample Tag: WTP Lime Sludge B-1 8-9'  
Collected Date/Time: 06/07/2017 09:01  
Matrix: Sludge  
COC Reference:

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz Amber Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Extraction / Prep.</b>								
Mercury Digestion	Completed			SW7471B	06/14/17 09:00	JRH		
Metal Digestion	Completed			SW3050B	06/12/17 11:00	PER		
<b>Inorganics</b>								
Total Solids*	54	%	1	SM2540B	06/09/17 17:05	JBL		
<b>Metals</b>								
Arsenic	2.52	mg/kg	0.20	SW6020A	06/12/17 13:45	PER	7440-38-2	
Barium	167	mg/kg	1.0	SW6020A	06/12/17 13:45	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	06/12/17 13:45	PER	7440-43-9	
Chromium	0.81	mg/kg	0.50	SW6020A	06/12/17 13:45	PER	7440-47-3	
Copper	2.18	mg/kg	0.50	SW6020A	06/12/17 13:45	PER	7440-50-8	
Lead	0.83	mg/kg	0.20	SW6020A	06/12/17 13:45	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471B	06/14/17 12:30	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	06/12/17 13:45	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	06/12/17 13:45	PER	7440-22-4	
Zinc	10.9	mg/kg	0.50	SW6020A	06/12/17 13:45	PER	7440-66-6	



# Analytical Laboratory Report

Lab Sample ID: S81691.03  
Sample Tag: WTP Lime Sludge B-2 4.5'  
Collected Date/Time: 06/07/2017 09:02  
Matrix: Sludge  
COC Reference:

## Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz Amber Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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### Extraction / Prep.

BNA Extraction	Completed			SW3550C	06/14/17 12:52	EMR		
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### Inorganics

Total Solids*	58	%	1	SM2540B	06/09/17 17:05	JBL		
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### Organics - Semi-Volatiles

#### Semi-Volatile Organics - MDEQ

Acenaphthene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	111-91-1	
bis(2-Chloroethyl)ether*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	108-60-1	
bis(2-Ethylhexyl)phthalate*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	85-68-7	
4-Chloroaniline	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/kg	280	SW8270D	06/15/17 00:36	PL	59-50-7	
2-Chlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	7005-72-3	
Chrysene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	218-01-9	
p,m-Cresol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	3/4-CRESOL	
o-Cresol*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	53-70-3	
Dibenzofuran*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	84-74-2	
1,2-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	95-50-1	
1,3-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	541-73-1	
1,4-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/kg	2,000	SW8270D	06/15/17 00:36	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	120-83-2	
Diethyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/kg	830	SW8270D	06/15/17 00:36	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/kg	830	SW8270D	06/15/17 00:36	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	121-14-2	



# Analytical Laboratory Report

Lab Sample ID: S81691.03 (continued)

Sample Tag: WTP Lime Sludge B-2 4.5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Semi-Volatiles (continued)</b>								
<b>Semi-Volatile Organics - MDEQ (continued)</b>								
2,6-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	117-84-0	
Fluoranthene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	86-73-7	
Hexachlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	77-47-4	
Hexachloroethane	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	193-39-5	
Isophorone	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	91-20-3	
2-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/15/17 00:36	PL	88-74-4	
3-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/15/17 00:36	PL	99-09-2	
4-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/15/17 00:36	PL	100-01-6	
Nitrobenzene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	98-95-3	
2-Nitrophenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	88-75-5	
4-Nitrophenol	Not detected	ug/kg	830	SW8270D	06/15/17 00:36	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	86-30-6	
N-Nitrosodi-n-propylamine*	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	621-64-7	
Pentachlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	87-86-5	
Phenanthrene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	85-01-8	
Phenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	108-95-2	
Pyrene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 00:36	PL	88-06-2	
<b>Organics - Volatiles</b>								
<b>Volatile Organics</b>								
Diethyl ether	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	60-29-7	
Acetone	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:30	JML	67-64-1	
Methyl iodide	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	74-88-4	
Carbon disulfide	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-15-0	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	1634-04-4	
Acrylonitrile	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	107-13-1	
2-Butanone (MEK)*	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:30	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-71-8	
Chloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	74-87-3	
Vinyl chloride	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-01-4	
Bromomethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	74-83-9	
Chloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-35-4	
Methylene chloride	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:30	JML	75-09-2	
trans-1,2-Dichloroethene*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-34-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	156-59-2	



# Analytical Laboratory Report

Lab Sample ID: S81691.03 (continued)

Sample Tag: WTP Lime Sludge B-2 4.5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
Tetrahydrofuran*	Not detected	ug/kg	2,000	SW5035A/8260C	06/09/17 08:30	JML	109-99-9	
Chloroform	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	67-66-3	
Bromochloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	71-55-6	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:30	JML	108-10-1	
2-Hexanone*	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:30	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	56-23-5	
Benzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	107-06-2	
Trichloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	78-87-5	
Bromodichloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-27-4	
Dibromomethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	10061-01-5	
Toluene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	79-00-5	
Tetrachloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	110-57-6	
Dibromochloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	124-48-1	
1,2-Dibromoethane*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	106-93-4	M
Chlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	630-20-6	
Ethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	100-41-4	
p,m-Xylene	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:30	JML		
o-Xylene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	95-47-6	
Styrene*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	100-42-5	
Isopropylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	98-82-8	
Bromoform*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	79-34-5	
1,2,3-Trichloropropane*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	96-18-4	
n-Propylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	103-65-1	
Bromobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	108-67-8	
tert-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	95-63-6	
sec-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	135-98-8	
p-Isopropyltoluene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	526-73-8	
n-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	104-51-8	
Hexachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	67-72-1	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:30	JML	87-61-6	
Naphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:30	JML	91-20-3	

M-Result reported to MDL not RDL





## Analytical Laboratory Report

Lab Sample ID: S81691.03 (continued)  
Sample Tag: WTP Lime Sludge B-2 4.5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
2-Methylnaphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:30	JML	91-57-6	



# Analytical Laboratory Report

Lab Sample ID: S81691.04  
Sample Tag: WTP Lime Sludge B-2 8-9'  
Collected Date/Time: 06/07/2017 09:03  
Matrix: Sludge  
COC Reference:

## Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz Amber Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Extraction / Prep.</b>								
Mercury Digestion	Completed			SW7471B	06/14/17 09:00	JRH		
Metal Digestion	Completed			SW3050B	06/12/17 11:00	PER		
<b>Inorganics</b>								
Total Solids*	53	%	1	SM2540B	06/09/17 17:05	JBL		
<b>Metals</b>								
Arsenic	3.86	mg/kg	0.20	SW6020A	06/12/17 13:47	PER	7440-38-2	
Barium	160	mg/kg	1.0	SW6020A	06/12/17 13:47	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	06/12/17 13:47	PER	7440-43-9	
Chromium	1.21	mg/kg	0.50	SW6020A	06/12/17 13:47	PER	7440-47-3	
Copper	2.52	mg/kg	0.50	SW6020A	06/12/17 13:47	PER	7440-50-8	
Lead	1.58	mg/kg	0.20	SW6020A	06/12/17 13:47	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471B	06/14/17 12:32	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	06/12/17 13:47	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	06/12/17 13:47	PER	7440-22-4	
Zinc	14.4	mg/kg	0.50	SW6020A	06/12/17 13:47	PER	7440-66-6	



# Analytical Laboratory Report

Lab Sample ID: S81691.05  
Sample Tag: WTP Lime Sludge B-3 4.5'  
Collected Date/Time: 06/07/2017 09:04  
Matrix: Sludge  
COC Reference:

## Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz Amber Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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### Extraction / Prep.

BNA Extraction	Completed			SW3550C	06/14/17 12:52	EMR		
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### Inorganics

Total Solids*	58	%	1	SM2540B	06/09/17 17:05	JBL		
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### Organics - Semi-Volatiles

#### Semi-Volatile Organics - MDEQ

Acenaphthene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	111-91-1	
bis(2-Chloroethyl)ether*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	108-60-1	
bis(2-Ethylhexyl)phthalate*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	85-68-7	
4-Chloroaniline	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/kg	280	SW8270D	06/15/17 01:05	PL	59-50-7	
2-Chlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	7005-72-3	
Chrysene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	218-01-9	
p,m-Cresol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	3/4-CRESOL	
o-Cresol*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	53-70-3	
Dibenzofuran*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	84-74-2	
1,2-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	95-50-1	
1,3-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	541-73-1	
1,4-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/kg	2,000	SW8270D	06/15/17 01:05	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	120-83-2	
Diethyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/kg	830	SW8270D	06/15/17 01:05	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/kg	830	SW8270D	06/15/17 01:05	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	121-14-2	



# Analytical Laboratory Report

Lab Sample ID: S81691.05 (continued)

Sample Tag: WTP Lime Sludge B-3 4.5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Semi-Volatiles (continued)</b>								
<b>Semi-Volatile Organics - MDEQ (continued)</b>								
2,6-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	117-84-0	
Fluoranthene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	86-73-7	
Hexachlorobenzene*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	77-47-4	
Hexachloroethane	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	193-39-5	
Isophorone	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	91-20-3	
2-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/15/17 01:05	PL	88-74-4	
3-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/15/17 01:05	PL	99-09-2	
4-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/15/17 01:05	PL	100-01-6	
Nitrobenzene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	98-95-3	
2-Nitrophenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	88-75-5	
4-Nitrophenol	Not detected	ug/kg	830	SW8270D	06/15/17 01:05	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	86-30-6	
N-Nitrosodi-n-propylamine*	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	621-64-7	
Pentachlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	87-86-5	
Phenanthrene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	85-01-8	
Phenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	108-95-2	
Pyrene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/15/17 01:05	PL	88-06-2	
<b>Organics - Volatiles</b>								
<b>Volatile Organics</b>								
Diethyl ether	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	60-29-7	
Acetone	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:49	JML	67-64-1	
Methyl iodide	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	74-88-4	
Carbon disulfide	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-15-0	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	1634-04-4	
Acrylonitrile	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	107-13-1	
2-Butanone (MEK)*	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:49	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-71-8	
Chloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	74-87-3	
Vinyl chloride	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-01-4	
Bromomethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	74-83-9	
Chloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-35-4	
Methylene chloride	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:49	JML	75-09-2	
trans-1,2-Dichloroethene*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-34-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	156-59-2	



# Analytical Laboratory Report

Lab Sample ID: S81691.05 (continued)

Sample Tag: WTP Lime Sludge B-3 4.5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
Tetrahydrofuran*	Not detected	ug/kg	2,000	SW5035A/8260C	06/09/17 08:49	JML	109-99-9	
Chloroform	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	67-66-3	
Bromochloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	71-55-6	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:49	JML	108-10-1	
2-Hexanone*	Not detected	ug/kg	900	SW5035A/8260C	06/09/17 08:49	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	56-23-5	
Benzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	107-06-2	
Trichloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	78-87-5	
Bromodichloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-27-4	
Dibromomethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	10061-01-5	
Toluene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	79-00-5	
Tetrachloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	110-57-6	
Dibromochloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	124-48-1	
1,2-Dibromoethane*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	106-93-4	M
Chlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	630-20-6	
Ethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	100-41-4	
p,m-Xylene	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:49	JML		
o-Xylene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	95-47-6	
Styrene*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	100-42-5	
Isopropylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	98-82-8	
Bromoform*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	79-34-5	
1,2,3-Trichloropropane*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	96-18-4	
n-Propylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	103-65-1	
Bromobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	108-67-8	
tert-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	95-63-6	
sec-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	135-98-8	
p-Isopropyltoluene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	526-73-8	
n-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	104-51-8	
Hexachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	67-72-1	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/09/17 08:49	JML	87-61-6	
Naphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:49	JML	91-20-3	

M-Result reported to MDL not RDL



## Analytical Laboratory Report

Lab Sample ID: S81691.05 (continued)  
Sample Tag: WTP Lime Sludge B-3 4.5'

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
2-Methylnaphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/09/17 08:49	JML	91-57-6	



## Analytical Laboratory Report

Lab Sample ID: S81691.06  
Sample Tag: WTP Lime Sludge B-3 8-9'  
Collected Date/Time: 06/07/2017 09:05  
Matrix: Sludge  
COC Reference:

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	8oz Amber Glass	None	Yes	4.9	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Extraction / Prep.</b>								
Mercury Digestion	Completed			SW7471B	06/14/17 09:00	JRH		
Metal Digestion	Completed			SW3050B	06/12/17 11:00	PER		
<b>Inorganics</b>								
Total Solids*	55	%	1	SM2540B	06/09/17 17:05	JBL		
<b>Metals</b>								
Arsenic	2.71	mg/kg	0.20	SW6020A	06/12/17 13:49	PER	7440-38-2	
Barium	147	mg/kg	1.0	SW6020A	06/12/17 13:49	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	06/12/17 13:49	PER	7440-43-9	
Chromium	0.63	mg/kg	0.50	SW6020A	06/12/17 13:49	PER	7440-47-3	
Copper	1.77	mg/kg	0.50	SW6020A	06/12/17 13:49	PER	7440-50-8	
Lead	0.92	mg/kg	0.20	SW6020A	06/12/17 13:49	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471B	06/14/17 12:33	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	06/12/17 13:49	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	06/12/17 13:49	PER	7440-22-4	
Zinc	11.4	mg/kg	0.50	SW6020A	06/12/17 13:49	PER	7440-66-6	

**INVOICE TO**

CONTACT NAME		<input checked="" type="checkbox"/> SAME	
COMPANY			
ADDRESS			
CITY		STATE	ZIP CODE
PHONE NO.	E-MAIL ADDRESS		

## # Containers & Preservatives

[illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6/8/17		TIME 0940	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/8/17		TIME 0940	
SEAL NO.	SEAL INTACT YES <input type="checkbox"/> NO <input type="checkbox"/>	INITIALS	NOTES:	TEMP. ON ARRIVAL	
SEAL NO.	SEAL INTACT YES <input type="checkbox"/> NO <input type="checkbox"/>	INITIALS		4.9	



## Analytical Lab Report No. 2



# Analytical Laboratory Report

Supplemental Report

Report ID: S81960.01(02)

Generated on 07/11/2017

## Report to

Attention: Wendy Schultz  
City of Ann Arbor  
919 Sunset  
Ann Arbor, MI 48103

Phone: (734)794-6426 FAX: (734)994-0151

Email: wschultz@a2gov.org

## Report produced by

Merit Laboratories, Inc.  
2680 East Lansing Drive  
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Contacts for report questions:

John Lavery (johnlavery@meritlabs.com)

Barbara Ball (bball@meritlabs.com)

## Report Summary

Lab Sample ID(s): S81960.01-S81960.02

Project: MI0022217

Collected Date: 06/20/2017

Submitted Date/Time: 06/21/2017 09:45

Sampled by: Unknown

P.O. #:

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

Supplemental Report

## General Report Notes

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Analytical results relate only to the samples tested, in the condition received by the laboratory.  
Methods may be modified for improved performance.  
Results reported on a dry weight basis where applicable.  
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).  
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.  
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.  
Full accreditation certificates are available upon request. Starred (\*) analytes are not NELAP accredited.  
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.  
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

## Report Narrative

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Molybdenum and Nickel added to samples per client request



# Analytical Laboratory Report

Supplemental Report

## Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702

## Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

## Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods



# Analytical Laboratory Report

Supplemental Report

## Method Summary

Method	Version
SM2540B	Standard Method 2540 B 20th Edition
SW3050B	SW 846 Method 3050B Revision 2 December 1996
SW3550C	SW 846 Method 3550C Revision 3 February 2007
SW5035A/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5035A Revision 1 July 2002
SW6020A	SW 846 Method 6020A Revision 1 February 2007
SW7471B	SW 846 Method 7471B Revision 2 February 2007
SW8270D	SW 846 Method 8270D Revision 4 February 2007



# Analytical Laboratory Report

Supplemental Report

## Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S81960.01	Pt 306	Sludge	06/20/17 09:40
S81960.02	Pt 337	Sludge	06/20/17 10:00



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.01  
Sample Tag: Pt 306  
Collected Date/Time: 06/20/2017 09:40  
Matrix: Sludge  
COC Reference:

**Sample Containers**

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	8oz Amber Glass	None	Yes	4.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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**Extraction / Prep.**

BNA Extraction	Completed			SW3550C	06/22/17 19:42	EMR		
Mercury Digestion	Completed			SW7471B	06/28/17 09:00	JRH		
Metal Digestion	Completed			SW3050B	06/26/17 12:00	PER		

**Inorganics**

Total Solids*	53	%	1	SM2540B	06/22/17 12:00	JBL		
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**Metals**

Arsenic	4.36	mg/kg	0.20	SW6020A	06/26/17 13:56	PER	7440-38-2	
Barium	148	mg/kg	1.0	SW6020A	06/26/17 13:56	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	06/26/17 13:56	PER	7440-43-9	
Chromium	0.63	mg/kg	0.50	SW6020A	06/26/17 13:56	PER	7440-47-3	
Copper	1.84	mg/kg	0.50	SW6020A	06/26/17 13:56	PER	7440-50-8	
Lead	0.46	mg/kg	0.20	SW6020A	06/26/17 13:56	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471B	06/28/17 12:18	JRH	7439-97-6	
Molybdenum	0.56	mg/kg	0.50	SW6020A	06/26/17 13:56	PER	7439-98-7	
Nickel	11.6	mg/kg	0.50	SW6020A	06/26/17 13:56	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020A	06/26/17 13:56	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	06/26/17 13:56	PER	7440-22-4	
Zinc	13.0	mg/kg	0.50	SW6020A	06/26/17 13:56	PER	7440-66-6	

**Organics - Semi-Volatiles****Semi-Volatile Organics - MDEQ**

Acenaphthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	111-91-1	
bis(2-Chloroethyl)ether*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	108-60-1	
bis(2-Ethylhexyl)phthalate*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	85-68-7	
4-Chloroaniline	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/kg	280	SW8270D	06/24/17 01:17	PL	59-50-7	
2-Chlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	7005-72-3	
Chrysene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	218-01-9	



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.01 (continued)

Sample Tag: Pt 306

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Semi-Volatiles (continued)</b>								
<b>Semi-Volatile Organics - MDEQ (continued)</b>								
p,m-Cresol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	3/4-CRESOL	
o-Cresol*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	53-70-3	
Dibenzofuran*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	84-74-2	
1,2-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	95-50-1	
1,3-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	541-73-1	
1,4-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/kg	2,000	SW8270D	06/24/17 01:17	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	120-83-2	
Diethyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/kg	830	SW8270D	06/24/17 01:17	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/kg	830	SW8270D	06/24/17 01:17	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	117-84-0	
Fluoranthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	86-73-7	
Hexachlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	77-47-4	
Hexachloroethane	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	193-39-5	
Isophorone	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	91-20-3	
2-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/24/17 01:17	PL	88-74-4	
3-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/24/17 01:17	PL	99-09-2	
4-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/24/17 01:17	PL	100-01-6	
Nitrobenzene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	98-95-3	
2-Nitrophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	88-75-5	
4-Nitrophenol	Not detected	ug/kg	830	SW8270D	06/24/17 01:17	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	86-30-6	
N-Nitrosodi-n-propylamine*	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	621-64-7	
Pentachlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	87-86-5	
Phenanthrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	85-01-8	
Phenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	108-95-2	
Pyrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:17	PL	88-06-2	
<b>Organics - Volatiles</b>								
<b>Volatile Organics</b>								
Diethyl ether	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	60-29-7	
Acetone	Not detected	ug/kg	900	SW5035A/8260C	06/27/17 17:57	JML	67-64-1	





# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.01 (continued)

Sample Tag: Pt 306

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
Methyl iodide	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	74-88-4	
Carbon disulfide	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-15-0	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	1634-04-4	
Acrylonitrile	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	107-13-1	
2-Butanone (MEK)*	Not detected	ug/kg	900	SW5035A/8260C	06/27/17 17:57	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-71-8	
Chloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	74-87-3	
Vinyl chloride	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-01-4	
Bromomethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	74-83-9	
Chloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-35-4	
Methylene chloride	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 17:57	JML	75-09-2	
trans-1,2-Dichloroethene*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-34-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	156-59-2	
Tetrahydrofuran*	Not detected	ug/kg	2,000	SW5035A/8260C	06/27/17 17:57	JML	109-99-9	
Chloroform	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	67-66-3	
Bromochloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	71-55-6	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	900	SW5035A/8260C	06/27/17 17:57	JML	108-10-1	
2-Hexanone*	Not detected	ug/kg	900	SW5035A/8260C	06/27/17 17:57	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	56-23-5	
Benzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	107-06-2	
Trichloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	78-87-5	
Bromodichloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-27-4	
Dibromomethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	10061-01-5	
Toluene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	79-00-5	
Tetrachloroethene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	110-57-6	
Dibromochloromethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	124-48-1	
1,2-Dibromoethane*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	106-93-4	
Chlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	630-20-6	
Ethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	100-41-4	
p,m-Xylene	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 17:57	JML		
o-Xylene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	95-47-6	
Styrene*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	100-42-5	
Isopropylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	98-82-8	
Bromoform*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	79-34-5	
1,2,3-Trichloropropane*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	96-18-4	
n-Propylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	103-65-1	
Bromobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	108-86-1	



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.01 (continued)

Sample Tag: Pt 306

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
1,3,5-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	108-67-8	
tert-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	95-63-6	
sec-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	135-98-8	
p-Isopropyltoluene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	526-73-8	
n-Butylbenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	104-51-8	
Hexachloroethane	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	67-72-1	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/kg	90	SW5035A/8260C	06/27/17 17:57	JML	87-61-6	
Naphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 17:57	JML	91-20-3	
2-Methylnaphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 17:57	JML	91-57-6	



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.02  
Sample Tag: Pt 337  
Collected Date/Time: 06/20/2017 10:00  
Matrix: Sludge  
COC Reference:

**Sample Containers**

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	8oz Amber Glass	None	Yes	4.1	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
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**Extraction / Prep.**

BNA Extraction	Completed			SW3550C	06/22/17 19:42	EMR		
Mercury Digestion	Completed			SW7471B	06/28/17 09:00	JRH		
Metal Digestion	Completed			SW3050B	06/26/17 12:00	PER		

**Inorganics**

Total Solids*	43	%	1	SM2540B	06/22/17 12:00	JBL		
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**Metals**

Arsenic	4.22	mg/kg	0.20	SW6020A	06/26/17 13:58	PER	7440-38-2	
Barium	156	mg/kg	1.0	SW6020A	06/26/17 13:58	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	06/26/17 13:58	PER	7440-43-9	
Chromium	1.16	mg/kg	0.50	SW6020A	06/26/17 13:58	PER	7440-47-3	
Copper	2.73	mg/kg	0.50	SW6020A	06/26/17 13:58	PER	7440-50-8	
Lead	0.97	mg/kg	0.20	SW6020A	06/26/17 13:58	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471B	06/28/17 12:20	JRH	7439-97-6	
Molybdenum	Not detected	mg/kg	0.50	SW6020A	06/26/17 13:58	PER	7439-98-7	
Nickel	12.6	mg/kg	0.50	SW6020A	06/26/17 13:58	PER	7440-02-0	
Selenium	Not detected	mg/kg	0.40	SW6020A	06/26/17 13:58	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	06/26/17 13:58	PER	7440-22-4	
Zinc	10.1	mg/kg	0.50	SW6020A	06/26/17 13:58	PER	7440-66-6	

**Organics - Semi-Volatiles****Semi-Volatile Organics - MDEQ**

Acenaphthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	111-91-1	
bis(2-Chloroethyl)ether*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	108-60-1	
bis(2-Ethylhexyl)phthalate*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	85-68-7	
4-Chloroaniline	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/kg	280	SW8270D	06/24/17 01:46	PL	59-50-7	
2-Chlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	7005-72-3	
Chrysene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	218-01-9	



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.02 (continued)

Sample Tag: Pt 337

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Semi-Volatiles (continued)</b>								
<b>Semi-Volatile Organics - MDEQ (continued)</b>								
p,m-Cresol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	3/4-CRESOL	
o-Cresol*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	53-70-3	
Dibenzofuran*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	84-74-2	
1,2-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	95-50-1	
1,3-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	541-73-1	
1,4-Dichlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/kg	2,000	SW8270D	06/24/17 01:46	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	120-83-2	
Diethyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/kg	830	SW8270D	06/24/17 01:46	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/kg	830	SW8270D	06/24/17 01:46	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	117-84-0	
Fluoranthene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	86-73-7	
Hexachlorobenzene*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	77-47-4	
Hexachloroethane	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	193-39-5	
Isophorone	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	91-20-3	
2-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/24/17 01:46	PL	88-74-4	
3-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/24/17 01:46	PL	99-09-2	
4-Nitroaniline	Not detected	ug/kg	830	SW8270D	06/24/17 01:46	PL	100-01-6	
Nitrobenzene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	98-95-3	
2-Nitrophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	88-75-5	
4-Nitrophenol	Not detected	ug/kg	830	SW8270D	06/24/17 01:46	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	86-30-6	
N-Nitrosodi-n-propylamine*	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	621-64-7	
Pentachlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	87-86-5	
Phenanthrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	85-01-8	
Phenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	108-95-2	
Pyrene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/kg	330	SW8270D	06/24/17 01:46	PL	88-06-2	
<b>Organics - Volatiles</b>								
<b>Volatile Organics</b>								
Diethyl ether	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	60-29-7	
Acetone	Not detected	ug/kg	1,000	SW5035A/8260C	06/27/17 18:15	JML	67-64-1	



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.02 (continued)

Sample Tag: Pt 337

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
Methyl iodide	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	74-88-4	
Carbon disulfide	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-15-0	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	1634-04-4	
Acrylonitrile	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	107-13-1	
2-Butanone (MEK)*	Not detected	ug/kg	1,000	SW5035A/8260C	06/27/17 18:15	JML	78-93-3	
Dichlorodifluoromethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-71-8	
Chloromethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	74-87-3	
Vinyl chloride	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-01-4	
Bromomethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	74-83-9	
Chloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-00-3	
Trichlorofluoromethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-69-4	
1,1-Dichloroethene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-35-4	
Methylene chloride	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 18:15	JML	75-09-2	
trans-1,2-Dichloroethene*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	156-60-5	
1,1-Dichloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-34-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	156-59-2	
Tetrahydrofuran*	Not detected	ug/kg	2,000	SW5035A/8260C	06/27/17 18:15	JML	109-99-9	
Chloroform	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	67-66-3	
Bromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	71-55-6	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	1,000	SW5035A/8260C	06/27/17 18:15	JML	108-10-1	
2-Hexanone*	Not detected	ug/kg	1,000	SW5035A/8260C	06/27/17 18:15	JML	591-78-6	
Carbon tetrachloride	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	56-23-5	
Benzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	71-43-2	
1,2-Dichloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	107-06-2	
Trichloroethene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	79-01-6	
1,2-Dichloropropane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	78-87-5	
Bromodichloromethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-27-4	
Dibromomethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	10061-01-5	
Toluene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	79-00-5	
Tetrachloroethene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	110-57-6	
Dibromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	124-48-1	
1,2-Dibromoethane*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	106-93-4	
Chlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	630-20-6	
Ethylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	100-41-4	
p,m-Xylene	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 18:15	JML		
o-Xylene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	95-47-6	
Styrene*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	100-42-5	
Isopropylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	98-82-8	
Bromoform*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	79-34-5	
1,2,3-Trichloropropane*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	96-18-4	
n-Propylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	103-65-1	
Bromobenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	108-86-1	



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S81960.02 (continued)

Sample Tag: Pt 337

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
<b>Organics - Volatiles (continued)</b>								
<b>Volatile Organics (continued)</b>								
1,3,5-Trimethylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	108-67-8	
tert-Butylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	95-63-6	
sec-Butylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	135-98-8	
p-Isopropyltoluene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	526-73-8	
n-Butylbenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	104-51-8	
Hexachloroethane	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	67-72-1	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	06/27/17 18:15	JML	87-61-6	
Naphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 18:15	JML	91-20-3	
2-Methylnaphthalene*	Not detected	ug/kg	200	SW5035A/8260C	06/27/17 18:15	JML	91-57-6	



2680 East Lansing Dr., East Lansing, MI 48823  
Phone (517) 332-0167 Fax (517) 332-4034  
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

## REPORT TO

## CHAIN OF CUSTODY RECORD

## INVOICE TO

CONTACT NAME Wendy Schultz			
COMPANY City of Ann Arbor WTP			
ADDRESS 919 Sunset Rd			
CITY Ann Arbor		STATE MI	ZIP CODE 48103
PHONE NO. 734-794-6426	FAX NO.	P.O. NO.	
E-MAIL ADDRESS wschultz@a2gov.org		QUOTE NO.	

CONTACT NAME		<input checked="" type="checkbox"/> SAME
COMPANY		
ADDRESS		
CITY	STATE	ZIP CODE
PHONE NO.	E-MAIL ADDRESS	

### ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME MI0022217				SAMPLER(S) - PLEASE PRINT/SIGN NAME											
TURNAROUND TIME REQUIRED <input type="checkbox"/> 1 DAY <input type="checkbox"/> 2 DAYS <input type="checkbox"/> 3 DAYS <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> OTHER															
DELIVERABLES REQUIRED <input checked="" type="checkbox"/> STD <input type="checkbox"/> LEVEL II <input type="checkbox"/> LEVEL III <input type="checkbox"/> LEVEL IV <input type="checkbox"/> EDD <input type="checkbox"/> OTHER															
MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIFE A=AIR W=WASTE															
# Containers & Preservatives															
Ammonia-N mg/kg															
Cyanide mg/kg															
Fecal Coliform															
Nitrate-N mg/kg															
Oil & Grease mg/kg															
pH/Corrosivity															
Total Kjeldahl Nitrogen mg/kg															
Total Phosphorus mg/kg															
8260 and 8270															
Metals*															
Certifications															
<input type="checkbox"/> OHIO VAP <input type="checkbox"/> Drinking Water															
<input type="checkbox"/> DoD <input checked="" type="checkbox"/> NPDES															
Project Locations															
<input type="checkbox"/> Detroit <input type="checkbox"/> New York															
<input type="checkbox"/> Other															
Special Instructions															
*Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Selenium, Silver, and Zinc															

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE		TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE		TIME	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE		TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE		TIME	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

END OF SECTION 00 31 32



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## SECTION 01 11 00 – SUMMARY OF WORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work covered by the Contract Documents comprises dredging lime residuals from the municipal lime lagoon and dewatering the material at the WTP for hauling and disposal for the City of Ann Arbor, Owner.
- B. The Work includes the following major items:
  - 1. Dredging lime residuals from the municipal lime residual lagoon and pumping it to the WTP through existing piping.
  - 2. Dewatering with Contractor-furnished temporary equipment as needed at the WTP site.
  - 3. Hauling for disposal in a method in accordance with state regulations.

#### 1.3 TYPE OF CONTRACT

- A. Construct the Work of this Contract under a single unit price Contract.

#### 1.4 GENERAL

- A. Imperative Language: These Specifications (Divisions 01 through 49) are written in the imperative and abbreviated form. This imperative language of the technical specifications is directed at Contractor unless specifically noted otherwise. Incomplete sentences shall be completed by inserting "shall", "shall be" and similar mandatory phrases by inference in the same manner as they are applied to notes on Drawings. The words "shall", "shall be" and similar mandatory phrases shall be supplied by inference where a colon (:) is used within sentences or phrases. Except as worded to the contrary, fulfill (perform) all indicated requirements whether stated in the imperative or otherwise.
- B. Related Sections: Some Sections of these Specifications (Divisions 01 through 49) may include a paragraph titled "Related Sections". This paragraph is an aid to the Project Manual user and is not intended to include all Sections which may be related. It is Contractor's obligation to coordinate all Sections whether indicated under "Related Sections" or not.

#### 1.5 WORK UNDER OTHER CONTRACTS

- A. The work described above will be executed as the WTP Lime Residual Removal – Contract No. 2 as indicated on the Drawings and described herein. Minimal overlap of Contract No. 1 and No. 2 is possible, but not anticipated.
  - 1. Contract No. 1 consists of modifications of the existing Water Treatment Plant parking lot and two existing force main manholes, one located at the WTP and one at the municipal lime residual lagoon site.
  - 2. Contract No. 2 work is as described above.
  - 3. The Contract No. 1 work shall be substantially complete prior to the mobilization of the Contract No. 2 contractor. All work in the WTP parking lot, and work modifying and testing the force main must be complete.
  - 4. Anticipated Notice to Proceed dates, Contract Times, as well as liquidated damages are outlined in Article III of the Contract.

- B. At all contract interfaces, contractors awarded the various contracts shall cooperate with other contractors meeting at that point, and shall schedule work so that in no way shall the operations of one contractor interfere with another. Delays created by situations involving two uncooperative contractors shall be considered the fault of the dispute between the concerned parties and shall not be passed on as a cost to Owner. Periodic meetings between the Contract No. 1 and Contract No. 2 contractors prior to commencement of Contract No. 2 may be required.
- C. The Owner will have a project underway at the WTP during this Contract. The project is titled WTP Filters 18/20 Underdrain Replacement and will include filter modifications at the WTP site.
- D. Coordinate the schedule of work under other contracts with Owner and other contractors.
- E. Cooperate with all contractors performing work on the site.
- F. Copies of Contract Documents for work under separate contracts are available upon request.

#### 1.6 CONTRACTOR USE OF PREMISES

- A. Limit use of premises to allow for Owner occupancy and work by other contractors.
- B. Refer to Traffic Notes on Sheet G101. Detours from other projects may be in place. Owner will coordinate active detours with Contractor.
- C. Coordinate use of premises under direction of the Owner.
- D. Where the Contract Documents identify certain site elements within the construction limits, such as sidewalks, drives, and streets, that must be kept open for public or the Owner's use during construction, the Contractor shall be responsible for protection and maintenance of such elements as well.
- E. Keep driveways and entrances serving the premises clear and available to Owner, Owner's employees, and private property owners at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on Site. Areas for Contractor's trailers, equipment, and material storage, and Contractor's employee parking shall be as indicated on Drawings or agreed by Owner prior to the start of construction.
- F. Except in connection with the safety or protection of persons or the Work or property at the Site or adjacent thereto, all Work at the site shall be restricted to the following hours:
  - 1. Monday Through Friday (Except Legal Holidays): 7:00 a.m. to 7:00 p.m.
  - 2. Contractor to avoid trucking through Newport Road and Sunset Road intersection between 7:45 a.m. and 9:00 a.m. and between 2:45 p.m. and 4:00 p.m. for Ann Arbor Public School pick-up/drop-off Monday through Friday.
    - a. Times may vary for half days or other special dates provided to the Engineer by the school.
  - 3. Saturday, Sundays or legal holidays with written approval of the Owner.
- G. Work Within Highway Rights-of-Way:
  - 1. The Owner has not applied for an MDOT ROW permit, as hauling material from the north side of the lagoon will not be permitted. If Contractor plans to mobilize equipment to the site from the MDOT ROW, they are fully responsible for requesting and applying for approval to do so. The Owner cannot guarantee the Contractor will be permitted to utilize the MDOT ROW.
- H. Private Easements:
  - 1. The Owner will arrange for the necessary easements required for construction across privately owned land. The Contractor shall carry on the construction in such a manner as to cause a minimum of inconvenience to the occupants of the properties.

2. The Owner has obtained restricted easement agreements in some locations. The Contractor shall conduct the Contractor's operations on easements in such a manner as to comply with the conditions set forth in said easement agreements, which are on file with the Owner. All easement conditions noted shall be accomplished by the Contractor and shall be included in the Contract Price. The Contractor shall limit the Contractor's operations to the time of year or time of week required on certain easements, as noted in the Contract Documents.
3. Any agreement made by the Contractor with any property owner that extends the rights as granted under an easement obtained by the Owner or that provides for an additional easement shall be obtained by the Contractor at the Contractor's expense and shall in no way be binding upon the Owner. The Contractor shall defend and hold the Owner and the Engineer harmless against any action that may arise from activities conducted pursuant to such additional agreements or easements. Unless relieved of responsibility for surface restoration in writing by property owner, the Contractor shall restore areas covered by separate agreements substantially the same as similar areas within the Project.

#### 1.7 OCCUPANCY REQUIREMENTS

- A. Owner Occupancy During Construction:
  1. The Owner will occupy or utilize premises during entire period of construction, for conduct of the Owner's normal operations. Cooperate with the Owner to minimize conflict and to facilitate the Owner's operations.
  2. Access to Abutting Properties: Provide at all times.
  3. Access for Emergency Vehicles:
    - a. Provide at all times.
    - b. Provide at least one clear lane during nonwork periods.
  4. Fire Hydrants: Provide access to at all times.
  5. Do not block fire access routes.
  6. Detours and Street Closure:
    - a. When provided for in the Contract Documents or approved by the Owner.
    - b. Routes and barricades as indicated or as approved by road authority.
  7. Limit parking for construction vehicles to an area as indicated on the Drawings.

#### 1.8 CONFINED SPACE

- A. The force main manholes and some locations on the WTP site are considered Non-Permitted Confined Spaces. The Contractor must meet all requirements of MIOSHA for working in confined spaces. The Contractor must submit a confined space entry program to the Owner for record, before any work is started in the area.

#### 1.9 SECURITY AND ACCESS

- A. The WTP and lime residual lagoon are limited access facilities. The Contractor must comply with the Owner's operational provisions for security including, but not limited to:
  1. Provide proper identification of employees.
  2. Provide and use photos IDs for all Contractor personnel.
  3. Maintain daily sign-in log of personnel and visitors.
  4. Provide a list of personnel and vehicles on site.
  5. Maintain a daily log of vehicle license plate numbers on site.
  6. Allow Owner to conduct background checks on Contractor's personnel upon request.
  7. Notify the plant in advance of material deliveries to the site, including delivery contents.
  8. These procedures may be revised by the Owner at any time, as needed.
- B. Use of Owner's security measures does not relieve Contractor of its responsibility to secure its own working spaces and materials.
- C. Access to Site, Roadways, and Parking Areas:
  1. The Contractor shall be responsible for providing access to the construction area and for preparing and maintaining temporary access road, fence, and/or gate, as needed. Contractor's personnel shall park on approved City streets adjacent to WTP and shall not park on the plant site outside of areas designated on the Drawings. Contractor's personnel may park on the lagoon site.

2. It shall be the responsibility of the Contractor to obtain any permits required from the City of Ann Arbor and pay all associated fees.
3. The Contractor shall be responsible for removal of snow in areas of the Contractor's work.

#### 1.10 GUARANTEE

- A. The Contractor shall be present for a site inspection before the warranty expires. At this time, the Owner will develop a punch list of deficiencies to be addressed by the Contractor. The Contractor shall address these items within 14 days of the inspection.

#### 1.11 PERMITS

- A. The Contractor must follow the requirements established by all permits necessary for the construction of this Project. The following is a list of all permits that must be obtained prior to the beginning of construction.
  1. Soil Erosion Control Permit: City of Ann Arbor
    - a. The Soil Erosion Control Permit shall be applied for by the Contractor. The Contractor shall be required to obtain the permit, pay all associated fees and adhere to all requirements of the permit. Soil erosion control items from Contract No. 1 may be left in place if common to the operations in Contract No. 2. Contractor to coordinate with contractor from Contract No. 1 prior to their demobilization from the site.

#### 1.12 MISCELLANEOUS PROVISIONS

- A. Contractor shall notify all owners of public utilities within the right-of-way or easement for the purpose of establishing the approximate locations of the utilities in accordance with the requirements of Act No. 53 Public Acts of 1974 of the State of Michigan. Contractor shall notify MISS DIG-Utility Communication System, 1-800-482-7171 or 811, three working days prior to starting any excavation with power equipment.
- B. Contractor shall be responsible for verifying the location of all underground utilities by magnetic or other type instruments before beginning excavation Work.
- C. Time and Sequence of Work: In general, it is the intention and understanding that Contractor shall have control over the sequence or order of execution of the several parts of the Work to be done under the Contract and over the method of accomplishing the required results, except as some particular sequence or method may be distinctly demanded by the Drawings and Project Manual or by the expressed provisions of the Contract. Engineer may, however, make such reasonable requirements as may, in Engineer's judgment, be necessary for the proper and effective protection of Work partially or wholly completed, and to these requirements Contractor shall conform.

### PART 2 - PRODUCTS

#### 2.1 OTHER MATERIALS

- A. General: All other materials which are not specified herein and are not indicated on the Drawings, but are required for proper and complete performance of the Work.
- B. Procedure:
  1. Select new, first quality material.
  2. Obtain Engineer's review.
  3. Provide and install.

### PART 3 - EXECUTION

#### 3.1 CONTROL OF WATER POLLUTION

- A. General Requirements
  1. The Contractor shall conduct his work in such manner as to prevent the entry of fuels, oils, bituminous materials, chemical, sewage or other harmful materials into the City's water supply or on to the soil.

2. The Contractor shall take all necessary precautions to prevent the entry of these harmful materials including the use of tarps, planks, protective trusses or scaffolding systems, or other Owner and Engineer approved methods.
3. Any vehicles or equipment with oil, fuel, or other fluid leaks shall not be allowed on the site shall be immediately removed upon detection.
4. The Contractor shall monitor provisions to reduce the spread of filtrate and all erosion control best management practices during pipeline flushing activities at the lagoon site. The existing stormwater basin may be utilized as an area to flush, and Contractor will be responsible for a complete cleanup of all lime residuals and any repairs to the basin.

END OF SECTION 01 11 00

## SECTION 01 12 16 – WORK SEQUENCE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Construction sequencing.
  - 2. Temporary facilities for maintaining operation of water treatment facilities.

#### 1.3 SEQUENCING AND SCHEDULING

- A. Contractor shall arrange its Work so that at no time shall it cause unnecessary interruption to the operation of the existing facilities. To meet the overall objective of the Project, certain elements of the Work must be completed in a particular sequence. It may also be necessary to do certain parts of the Work outside normal working hours. Contractor shall do this Work at such times and at no additional cost to Owner.
  - 1. Suggested Sequence of Construction:
    - a. Submit Project Schedule and Proposed Site Operations Plan for review.
    - b. Perform walk-throughs and review proposed water treatment plant and lime residual lagoon operations site plans with Engineer.
    - c. Provide 14-day notice prior to beginning Work in the parking lot to allow plant to notify staff, vendors, and residents of changes at the plant and along the perimeter of the lime residual lagoon.
    - d. Contractor shall be responsible for dewatering force main pipe, and daily maintenance and flushing as needed to maintain operations and final cleaning and flushing once operations are complete.
    - e. Coordinate with Owner on the presence of any federally protected migratory bird activity that may impact the work area.
    - f. Provide protection of downstream waterbodies by ensuring all proposed protections on the overflow structure are properly installed and maintained.
    - g. Protect existing equipment, hatches and other facilities at the water treatment plant during all operations, including temporary water connections, and filtrate discharge.
    - h. Set up and maintain all required traffic control and parking restriction signs in accordance with the Contract Documents.
    - i. Keep Owner informed of any necessary work stoppages due to weather or other purposes.
    - j. Perform sampling on each truck for landfill requirements and moisture content.
    - k. Weigh each truck and provide certified scale tickets and calculations for determining the dry unit weight of each load removed from site and submit documentation to Engineer for review.
    - l. Maintain soil erosion control measures left in place from Contract No. 1 and any supplementary control measures installed during Contract No. 2.
    - m. Perform site cleanup, including general grading and turf restoration, as well as cleaning all pavements. Permanent restoration work including pavement restoration is to be included as part of Contract No. 3.
- B. General:
  - 1. Contractor shall be solely responsible for all construction sequencing and scheduling required by the Contract Documents.
  - 2. Coordinate timing of all work with Owner.
  - 3. This sequence is offered as a suggestion to Contractor and to emphasize critical tasks of the Work. It is not a complete list of all work to be completed.

- C. Sequence Submittal:
  - 1. The sequence indicated in this Section is offered as a suggestion to Contractor.
  - 2. Submit a proposed sequence with appropriate times of starting and completion of tasks to Engineer for review.
  
- D. Alternative Sequences: Contractor may propose alternative sequences to that indicated in Paragraph 1.3 of this Section in an attempt to reduce the disruption of the operation of the existing facility or to streamline the tasks of the Work.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

### 3.1 PROVISIONS

- A. General:
  - 1. Perform the work to provide for:
    - a. The water treatment facilities to be in effective operation at all times.
  
- B. Notification of Owner: Notify Owner at least 48 hours prior to starting work.

END OF SECTION 01 12 16



## SECTION 01 21 13 – CASH ALLOWANCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section provides for cash allowances which are included in the Contract Price.
- B. Related Sections include Sections in Divisions 01 through 49, as identified below, provide additional information on what is covered by the respective allowances.

#### 1.3 SCHEDULE OF ALLOWANCES

- A. Include in the Contract Price the following amounts:
  - 1. The amount of \$50,000 for unforeseen issues within the lagoon which may lead to Project complications or Project downtime.
  - 2. The amount of \$5,000 for payment of fees related to permits not already procured by the Owner. Contractor is responsible for all contact and correspondence with the permitting agency to complete the application for and obtain the necessary permits.

#### 1.4 CASH ALLOWANCES

- A. Costs Associated With Allowances:
  - 1. All costs, associated with allowances, which are not specifically defined in the Schedule of Allowances, Paragraph 1.3 of this Section shall be included in the Base Bid.
  - 2. Associated costs not specifically defined in the Schedule of Allowances may include, but are not necessarily limited to:
    - a. Unloading.
    - b. Handling on the Site.
    - c. Labor.
    - d. Installation.
    - e. Overhead.
    - f. Profit.

#### 1.5 ADJUSTMENT OF COSTS

- A. Change Order: To adjust Contract Price if final cost is different from allowance.
- B. Documentation:
  - 1. Submit:
    - a. Within 60 days after completion of the work under the allowance.
    - b. Documentation of actual costs.
  - 2. Failure to submit claims within the designated time will constitute a waiver of claims for additional costs.
  - 3. At Contract closeout, reflect all approved changes in Contract amounts in the final statement of accounting.

### PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 01 21 13

## SECTION 01 22 00 - UNIT PRICES - MEASUREMENT AND PAYMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes descriptions of the method of measurement and the basis of payment for Unit Price Work under this Contract.
- B. Basis of Contract Payments:
  - 1. Final Contract Price shall be determined by actual quantities installed at unit prices stated in Contractor's Bid.
  - 2. Engineer shall determine actual as-built quantities.
  - 3. All work identified on the Drawings, but not included as a Bid item shall be considered incidental to construction and not paid for directly, except Work that would be considered additional Work due to unforeseen conditions.
  - 4. Unit price payments for individual items shall include everything necessary for such item to function as intended in the system.
  - 5. Owner reserves the right to increase, decrease or eliminate any quantities for items listed in Contractor's Bid or which become a part of the Contract Documents.
- C. Items included as incidental to Unit Prices for systems and appurtenances. Unless there is a specific pay item identified, the unit price payment shall include, but not be limited to:
  - 1. Clear, excavate, trench, bedding, trench backfill, compaction, disposal of items for clearing and unsuitable or excess excavated materials.
  - 2. Drainage of excavations including by-pass pumping of sewers if necessary
  - 3. Support, relocation, replacement, connection or reconnection of existing pipelines and utilities.
  - 4. Cleanup and surface restoration.
  - 5. Coordination of mail delivery and refuse removal with residents, post office, and refuse collectors.
  - 6. Support of utility poles and existing underground utilities during excavation and installation of sanitary sewer, water main and storm sewer.
  - 7. Remove, salvage, and replace street signs.
  - 8. Remove and dispense of trees less than 6-inches in diameter.
  - 9. Temporary enclosures and sources of heat and humidity control to allow construction activity to proceed during cold weather and adverse conditions.

#### 1.3 PROJECT ITEMS

- A. Item No. 1 – General Conditions (Max \$100,000):
  - 1. Includes:
    - a. Provide insurance, bonds, and other costs associated with the Project in general and not included in other pay items.
    - b. All required submittals.
    - c. Coordination of, and cooperation with, other contractors, agencies, departments, and utilities.
    - d. Protection and maintenance of utilities.
    - e. Maintaining drainage.
    - f. Maintaining driveways drive openings, sidewalks, bike paths, mail deliveries, and solid waste/recycle pick-ups. This includes coordination of hose piping and temporary ramps.
    - g. Storing all materials and equipment off lawn areas.
    - h. Site clean-up.
    - i. Furnishing and operating vacuum-type utility structure cleaning equipment.
    - j. Noise and dust control.
    - k. Mobilization(s) and demobilization(s).

- I. All miscellaneous and incidental items such as overhead, insurance, and permits.
      - m. Meeting all requirements relating to City of Ann Arbor prevailing wage rates, and providing the necessary documentation.
    - 2. Unit of Measure:
      - a. Lump sum.
      - b. Percentage of total amount prorated monthly for the duration of the Project.
      - c. Final payment will be made at the final pay application.
- B. Item No. 2 – Allowance – Miscellaneous:
  - 1. Includes cash allowance for dealing with miscellaneous unforeseen issues with the lagoon site in accordance with Division 01 Section “Cash Allowances.”
  - 2. Unit of Measure:
    - a. Actual dollars paid to complete work necessary to deal with unforeseen conditions.
    - b. General Contractor allowable markup is 10%.
    - c. Documented by invoices.
- C. Item No. 3 – Allowance – Permits:
  - 1. Includes cash allowance for permit fees in accordance with Division 01 Section “Cash Allowances.”
  - 2. Unit of Measure:
    - a. Actual dollars paid to obtain permit.
    - b. No Contractor markup on permits is allowed.
    - c. Documented by invoices.
- D. Item No. 4 – Audiovisual Coverage:
  - 1. Includes the following in accordance with Division 02 Section “Preconstruction Audio-Visual Documentation:”
    - a. All hard drives.
    - b. Reports.
  - 2. Unit of Measure:
    - a. Lump sum.
    - b. Payment will be made after the Engineer has reviewed the audio-video documentation for completeness.
- E. Item No. 5 – Soil Erosion and Sedimentation Control Plan:
  - 1. Includes the following in accordance with Division 31 Section “Erosion and Sedimentation Controls:”
    - a. Complete and submit for approval a detailed Soil Erosion and Sedimentation Control Plan based on the planned operations of the selected methods for completing the Project utilizing the provided construction site plan as a basis.
    - b. Install, maintain and replace the required soil erosion and sedimentation control measures as indicated on the Drawings and any other measure necessary to adequately control soil erosion and sedimentation on the Project.
    - c. Submit copies of product information for all SESC BMPs.
    - d. Submit Certificate of Certified Storm Water Operator.
    - e. Organize and preside over SESC Preconstruction Meeting.
    - f. Sweep and clean roadways and sidewalks as required.
    - g. Maintain dust control.
    - h. Maintain silt fence, catch basin inlet filters, gravel access drive, turbidity curtain and all other BMPs as required, including items left in place by Contract No. 1.
    - i. Clean existing catch basins and storm sewers near Project if impacted by construction.
    - j. Remove temporary soil erosion and sedimentation control measures after site is stabilized.
  - 2. Unit of Measure:
    - a. Lump sum.
    - b. 50% payment shall be made for installation of soil erosion and sedimentation control measures.
    - c. 50% payment shall be made upon project completion after removal of soil erosion and sedimentation control measures.
    - d. Payment for SESC measures beyond those identified on the Drawings required by Contractor's operations will not be considered for additional payment.
    - e. Payment for additional SESC measures required by Engineer will be administered through the Change Order process.

- F. Item No. 6 – Minor Traffic Control:
1. Includes the following in accordance with Division 01 Sections “Summary of Work” and “Traffic Control:”
  2. Furnish, install, and maintain:
    - a. Flag control.
    - b. Detour signing.
    - c. Work zone signing.
    - d. Traffic control devices including barricades and barrels.
    - e. Removal of conflicting pavement markings.
    - f. Temporary pavement markings.
    - g. Maintain access to residential driveways.
    - h. Maintain access to commercial driveways.
  3. Unit of Measure:
    - a. Lump sum.
    - b. 50% payment shall be made for installation of traffic control devices.
    - c. 50% payment shall be made after removal of traffic control devices.
- G. Item No. 7 – Residual Removal, Dewatering, Hauling and Disposal:
1. Includes all labor, material, equipment, permitting, disposal and additional costs to perform all the work described as described in the Contract Documents, including removal of lime residuals from the lagoon, pumping of material to the WTP, dewatering, loading, safe handling, trucking and transportation from the Owner property to approved disposal sites, and all related work including daily cleaning of site and roads as required.
  2. Unit of Measure:
    - a. Dry ton. Calculated through the collection of truck weigh tickets and moisture content sampling for each truckload hauled from the site.
    - b. 100% of unit price paid upon submittal of disposal documentation.
    - c. All removal above 10,000 dry tons will be paid at the unit price provided in Alternate No. 1 of the Bid Form.
- H. Item No. 8 – Closeout:
1. Includes:
    - a. Removal of equipment from Site.
    - b. Removal of temporary facilities from Site.
    - c. Site cleanup.
    - d. Completion of all restoration.
    - e. All required submittals (truck tickets, contractor red lines, photographs, etc.).
  2. Unit of Measure:
    - a. Lump sum.

#### 1.4 ALTERNATE PROJECT ITEMS

- A. Alternate No. 1 – Residual Removal, Dewatering, Hauling and Disposal greater than 10,000 Dry Tons
1. Includes all labor, material, equipment, permitting, disposal and additional costs to perform all the work described as described in the Contract Documents, including removal of lime residuals from the lagoon, pumping of material to the WTP, dewatering, loading, safe handling, trucking and transportation from the Owner property to approved disposal sites, and all related work including daily cleaning of site and roads as required.
  2. Unit of Measure:
    - a. Dry ton. Calculated through the collection of truck weigh tickets and moisture content sampling for each truckload hauled from the site.
    - b. 100% of unit price paid upon submittal of disposal documentation.

#### PART 2 - PRODUCTS

Not used.

#### PART 3 - EXECUTION

Not used.

END OF SECTION 01 22 00

## SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes procedures for modifying the Contract Documents.

#### 1.3 BULLETIN

- A. Procedures: As indicated on the form following this Section.
- B. If Bulletin is accepted, Owner may issue one or more Change Orders for some or all items listed.

#### 1.4 FIELD ORDER

- A. Changes in Contract Price or Contract Times not permitted by use of Field Orders.
- B. Format:
  - 1. May take form of any written communication mutually acceptable to Engineer and Contractor, including, but not necessarily limited to:
    - a. Letter or memo.
    - b. Email correspondence.
    - c. Hand drawn or computer generated sketch.
- C. Procedures: Refer to the General Conditions.

#### 1.5 WORK CHANGE DIRECTIVE

- A. Procedures: Refer to the General Conditions and form following this Section.

#### 1.6 CHANGE ORDER

- A. Procedures: Refer to the General Conditions and City standard form.

### PART 2 - PRODUCTS

Not Used.

### PART 3 - EXECUTION

#### 3.1 SCHEDULES

- A. Attached are the following forms:
  - 1. Bulletin.
  - 2. Work Change Directive.

BULLETIN  
PAGE 1 OF 2

BULLETIN NO.:  
DATE:  
DUE DATE:

CONTRACT FOR:

OWNER:

CONTRACTOR:

ENGINEER:

DRAWING REVISION NO.:

ISSUED HEREWITH:

SPECIFICATION SECTIONS:

SKETCHES:

SHEETS:

The items below are being considered as possible changes to the Contract Documents for this Project. Contractor is requested to submit changes in cost, if any, for each item and indicate whether it is an addition to or deduction from the Contract Price. Costs are requested as lump sums unless otherwise noted as a unit cost. Include all labor, materials, overhead and profit, trades, subcontractors, and related costs. After reviewing the effects of those changes in the Work, Owner may issue a Change Order specifying which changes are to be incorporated in the Work, if any.

This Bulletin is not a Change Order and is not to be deemed authorization to proceed with the changes listed.

Additional work or materials, where proposed, shall meet the requirements of the Contract Documents, except where noted.

Contractor will be responsible for notifying Engineer, in writing, concerning any revision or clarification which causes a change in the Contract Documents, but not specifically mentioned as a cost item in this Bulletin.

Contractor shall return one (1) completed and signed copy of the Bulletin to Engineer on or before the due date noted above.

Each proposed change has been described briefly with additional information provided concerning detailed changes required for the major trades concerned. Only one total cost figure has been requested for each item on the Bulletin; however, a complete breakdown is required for each item as supporting documentation. This will allow Owner to more easily evaluate the proposed cost changes. Each Bulletin item is an all-inclusive item and may concern work from several trades or Subcontractors. It is Contractor's responsibility to ensure that all work for each item has been included in the total cost figure provided to Owner.



BULLETIN  
PAGE 2 OF 2

ITEM NO. 1: < insert topic here >

Section: XXXXX – Section Name < issued/reissued/not reissued >

A. < >

ADD/DEDUCT: \$ \_\_\_\_\_

ITEM NO. 2: < insert topic here >

Section: XXXXX – Section Name < issued/reissued/not reissued >

A. < >

ADD/DEDUCT: \$ \_\_\_\_\_

ITEM NO. 3: < insert topic here >

Sheet: XXXXX – Sheet Name < issued/reissued/not reissued >

A. < >

ADD/DEDUCT: \$ \_\_\_\_\_

ITEM NO. 4: < insert topic here >

Sheet: XXXXX – Sheet Name < issued/reissued/not reissued >

A. < >

ADD/DEDUCT: \$ \_\_\_\_\_

Contractor:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and Title of Signatory

\_\_\_\_\_  
Date

END OF BULLETIN

WORK CHANGE DIRECTIVE  
PAGE 1 OF 1

WORK CHANGE DIRECTIVE NO.  
DATE OF ISSUANCE:  
EFFECTIVE DATE:

CONTRACT FOR:
OWNER:
CONTRACTOR:
ENGINEER:
ATTACHMENTS:
CONTRACTOR IS DIRECTED TO PROCEED PROMPTLY WITH THE FOLLOWING CHANGE(S) IN THE CONTRACT DOCUMENTS:

Authorization for Work described herein to proceed on the basis of Cost of the Work due to:

- ☐ Nonagreement on pricing of proposed change.
- ☐ Necessity to expedite Work described herein prior to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price \_\_\_\_\_ (increase/decrease)      Contract Time (Days) \_\_\_\_\_ (increase/decrease)

Recommended for  
Approval by Engineer: \_\_\_\_\_ Date: \_\_\_\_\_

Authorized for Owner by: \_\_\_\_\_ Date: \_\_\_\_\_

Received for Contractor by: \_\_\_\_\_ Date: \_\_\_\_\_

Received by  
Funding Agency (if applicable): \_\_\_\_\_ Date: \_\_\_\_\_

END OF WORK CHANGE DIRECTIVE

WORK CHANGE DIRECTIVE INSTRUCTIONS

A. GENERAL INFORMATION:

This document was developed for use in situations involving changes in the Work which, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Times. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order.

For supplemental instructions and minor changes not involving a change in the Contract Price or the Contract Times, a Field Order may be used.

B. COMPLETING THE WORK CHANGE DIRECTIVE FORM:

Engineer initiates the form, including a description of the items involved and attachments.

Once Engineer has completed and signed the form, all copies should be sent to Owner for authorization because Engineer alone does not have authority to authorize changes in Price or Times. Once authorized by Owner, a copy should be sent by Engineer to Contractor.

Once the Work covered by this directive is completed or final cost and times are determined, Contractor should submit documentation for inclusion in a Change Order. Price and Times may only be changed by Change Order signed by Owner and Contractor with Engineer's recommendation.

This is a directive to proceed with a change that may affect the Contract Price or the Contract Times. A Change Order, if any, should be considered promptly.

END OF SECTION 01 26 00

## SECTION 01 29 16 – PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes submittal to the Owner's designee of Applications for Payment and supporting documentation as specified herein.

#### 1.3 OWNER'S INSTRUCTIONS

- A. Payment will only be made for items listed on the Bid Form. The costs for other work required for a complete Project will be included in the prices bid for the other items of work listed on the bid form.
- B. Payment for each item will be in accordance with Section 16 of the General Conditions, and include all applicable labor, material, equipment, and ancillary items to complete the work as specified.
- C. All measurements shall be rounded to the nearest whole unit.

#### 1.4 APPLICATIONS FOR PAYMENT

- A. Initial Application for Payment: Administrative actions and submittals that must precede submittal of the first Application for Payment include the following:
  - 1. List of Subcontractors.
  - 2. List of principal suppliers and fabricators.
  - 3. Schedule of Values.
  - 4. Contractor's Construction Schedule (preliminary if not final).
  - 5. Schedule of principal products.
  - 6. Submittal schedule (preliminary if not final).
- B. Applications For Payment:
  - 1. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
  - 2. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
  - 3. The date for each progress payment will be determined at the Preconstruction Conference. The period of construction Work covered by each Application for Payment is 1 month. Actual start/end dates will be determined at the Preconstruction Conference.
  - 4. Use the AIA (American Institute of Architects) Application and Certification for Payment form for Applications for Payment.
  - 5. Complete every entry on the form, including execution by person authorized to sign legal documents on behalf of Contractor. Incomplete applications will be returned without action.
  - 6. Entries shall match data on Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
  - 7. Include amounts of Change Orders and Work Change Directives issued prior to the last day of the construction period covered by the application.
  - 8. Contractor's Declaration.
  - 9. Provide copies of the original truck weigh tickets and moisture content testing with monthly summary report for review and approval prior to including any quantities on the Application for Payment.
  - 10. Submit 1 executed copy of each Application for Payment to ENGINEER; each copy shall be complete, including waivers of lien and similar attachments, when required.
  - 11. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to Engineer.

- C. Application for Payment at Substantial Completion:
1. Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
  2. Administrative actions and submittals that shall proceed or coincide with this application include:
    - a. Warranties (guarantees) and maintenance agreements.
    - b. Maintenance instructions.
    - c. Final cleaning.
    - d. Application for reduction of retainage and consent of surety.
    - e. Final progress photographs.
    - f. List of incomplete Work, recognized as exceptions to Engineer's Certificate of Substantial Completion.
- D. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
1. Completion of Project closeout requirements.
  2. Completion of items specified for completion after Substantial Completion.
  3. Transmittal of required Project construction records to Owner.
  4. Proof that taxes, fees, and similar obligations have been paid.
  5. Removal of temporary facilities and services.
  6. Removal of surplus materials, rubbish, and similar elements.
  7. Contractor's Affidavit.
  8. Contractor's waivers of mechanics liens for Project.
  9. Consent of surety for final payment.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

Not used.

END OF SECTION 01 29 16

## SECTION 01 31 13 – PROJECT COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
  - 1. Scheduling:
    - a. Coordination of Work under this Contract.
    - b. Administrative and supervisory personnel.
  - 2. Land survey work.
  - 3. Preconstruction Conference.
  - 4. Progress meetings.
  - 5. General installation provisions.

#### 1.3 GENERAL COORDINATION

- A. Coordinate scheduling, submittals and work of the various Sections of the Specifications to:
  - 1. Ensure efficient and orderly sequence of installation of interdependent construction elements.
  - 2. Provide for items to be installed later.
- B. Interrelated Operating Equipment:
  - 1. Verify that characteristics of elements are compatible.
  - 2. Coordinate work of various sections having interdependent responsibilities for:
    - a. Installation.
    - b. Connection.
    - c. Placing in service.

#### 1.4 SCHEDULING

- A. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair. Make adequate provisions to accommodate items scheduled for later installation.
- B. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at Site in accordance with Laws or Regulations. Contractor shall train Contractor's employees on use of these sheets and shall keep a master copy on hand at Site.
- C. Coordination with Other Contractors:
  - 1. Contractor shall so conduct Contractor's operations as not to interfere with or injure the work of other contractors or workers employed on adjoining or related Work, and Contractor shall promptly make good any injury or damage which may be done to such work by Contractor or Contractor's employees or agents.
  - 2. Should a contract for adjoining Work be awarded to another contractor, and should the work on one of these contracts interfere with that of the other, Engineer shall decide which contract shall cease work for the time being and which shall continue, or whether work on both contracts shall continue at the same time and in what manner.

- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of schedules.
  2. Installation and removal of temporary facilities.
  3. Delivery and processing of submittals.
  4. Progress meetings.
  5. Project closeout activities.

#### 1.5 PRECONSTRUCTION CONFERENCE

- A. Engineer will schedule a Preconstruction Conference and organizational meeting at the Site or other convenient location prior to commencement of construction activities to review responsibilities and personnel assignments.
- B. Attendees: Owner, Engineer and Engineer's consultants, Contractor and its superintendent, major Subcontractors, Manufacturers, Suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
1. Tentative construction schedule.
  2. Critical Work sequencing.
  3. Designation of responsible personnel.
  4. Procedures for processing field decisions and change orders.
  5. Procedures for processing Applications for Payment.
  6. Distribution of Contract Documents.
  7. Submittal of shop drawings, product data, and samples.
  8. Use of the premises.
  9. Office, work, and storage areas.
  10. Equipment deliveries and priorities.
  11. Safety procedures.
  12. First aid.
  13. Security.
  14. Housekeeping.
  15. Working hours.

#### 1.6 PROGRESS MEETINGS

- A. Attendees: In addition to representatives of Owner and Engineer, each Subcontractor, Supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- B. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
- C. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
- D. Reporting: Engineer will prepare and distribute copies of minutes of the meeting to each party present and to other parties who should have been present. The minutes will include a brief summary, in narrative form, of progress since the previous meeting and report.

- E. Schedule Updating: Contractor shall revise Construction Schedule after each progress meeting where revisions to schedule have been made or recognized. Issue revised schedule no later than 3 days after the progress meeting date to Engineer for distribution concurrently with the progress meeting minutes.

## 1.7 ACCEPTANCE OF CONDITIONS

- A. Inspection:
  - 1. Prior to performing any work under a section:
    - a. Carefully inspect the installed work.
    - b. Verify that all such work is complete to the point where the work under that Section may properly commence.
    - c. Starting of work indicates acceptance of the condition of components to which the work will be applied.
  - 2. Verify that all materials, equipment and Products to be installed under a Section may be installed in strict accordance with the original design and reviewed Shop Drawings.
- B. Discrepancies:
  - 1. Resolve all discrepancies and conflicts between the trades.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

### 3.1 LAND SURVEY WORK

- A. Engineer will:
  - 1. Identify existing control points and property line corner stakes and will furnish one set of suitable base lines and reference elevations for various parts of the Work to be maintained and preserved by Contractor.
  - 2. Perform Lime Lagoon Survey Work:
    - a. Contractor to notify Engineer prior to the start of any dredging work to schedule for a preconstruction bathymetric survey of the lime lagoon.
    - b. Contractor to notify Engineer upon completion of all dredging work to schedule for a post-construction bathymetric survey of the lime lagoon.
- B. Contractor Performance:
  - 1. Be responsible for costs by Engineer for providing:
    - a. Additional or replacement staking of original control points established by Engineer.
    - b. Replacements of Site benchmarks established by Engineer.
  - 2. Verify layout information indicated on Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.
  - 3. Benchmarks or control points shall not be changed or relocated without prior written approval by Engineer. Promptly report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.
  - 4. Promptly replace lost or destroyed Project control points. Base replacements on the original survey control points.
  - 5. Advise entities engaged in construction activities, of marked lines and levels provided for their use.
  - 6. As construction proceeds, check every major element for line, level and plumb.
  - 7. Site Improvements: Locate and lay out site improvements by instrumentation and similar appropriate means.



8. Existing Utilities and Equipment:
  - a. The existence and location of underground and other utilities and construction as indicated on Drawings as existing are not guaranteed. Before beginning Site Work, Contractor shall investigate and verify the existence and location of underground utilities and other construction.
  - b. Furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines, services, or other appurtenances located in or affected by construction. Coordinate with local authorities having jurisdiction.

END OF SECTION 01 31 13

## SECTION 01 33 00 – SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes procedures for the submittal of Shop Drawings, Product Data, Samples, Operation and Maintenance Manuals, and other information.
- B. Related Sections include pertinent Sections of these Specifications for the individual Submittals required.

#### 1.3 DEFINITIONS

- A. Submittal: Information sent by Contractor to convey information about systems, equipment, materials, products, and administrative matters for the Work.
- B. Resubmittal: Submittal sent for review a second or further time.
- C. Product Data: Illustrations, standard schedules, diagrams, performance charts, instructions, brochures, or manufacturer's literature that describe the physical size, appearance, and other characteristics of materials or equipment for a portion of the Work.
- D. Shop Drawings: Drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
- E. Samples: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
- F. Action Submittals: Submittals that require Engineer's response.
- G. Informational Submittals: Submittals that do not require Engineer's response.
- H. Delegated-Design: In certain individual Specification Sections, design services or certifications by a design professional that are specifically delegated to the Contractor. Performance and design criteria are defined in the individual Specification Sections or on the Drawings. Contractor is solely responsible for design of those items or systems, coordination of the design with the balance of the Project, and achieving specified performance.
- I. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format. All PDF files shall be searchable.

#### 1.4 SUBMITTAL PROCEDURES

- A. Submittal Schedule:
  - 1. Prepare and submit a Submittal schedule that identifies the following for each Submittal:
    - a. Submittal number
    - b. Submittal description
    - c. Projected date Submittal will be submitted.
  - 2. An electronic copy (MS Excel file) of a blank Submittal schedule, in the preferred format, will be furnished by Engineer at the preconstruction meeting.

3. Submittal Numbers:
  - a. Use the applicable Specification Section number followed by a hyphen and then a sequential number (e.g., 06 10 00-1). Where a Submittal is required via a Drawing (instead of a Specification Section), use the applicable Drawing Number followed by a hyphen and then a sequential number (e.g., M501-1).
  - b. Resubmittals shall include a letter suffix after another hyphen (e.g., 06 10 00-1-A).
  - c. Submittals that are not numbered correctly may be rejected.
- B. Delivery Method:
  1. Web-Based Collaboration and Document Sharing System:
    - a. A web-based collaboration and document sharing system may be utilized at Contractor's, Owner's, or Engineer's option.
    - b. Use of such a system will be discussed during the preconstruction meeting.
    - c. All parties must agree on use of a web-based collaboration and document sharing system.
    - d. Training and licensing will be provided for all parties by the party suggesting use of a web-based collaboration and document sharing system.
  2. Where a web-based collaboration and document sharing system is not utilized, Submittals may be delivered as electronic files.
  3. Advise Engineer and Owner of delivery method to be used at the preconstruction meeting.
  4. Where Submittals include information that is intended to be printed on sheets larger than 11 inches x 17 inches, or where scale or drawing size are critical for proper review, submit 2 paper copies for review.
  5. Paper Copies:
    - a. Unless indicated otherwise, submit 2 copies of each approved Submittal.
    - b. Include one original copy of all truck scale tickets with summary documents for review prior to submitting monthly pay applications.
  6. Electronic Files:
    - a. Unless indicated otherwise, submit 1 copy of each Submittal in PDF format.
    - b. Scanned Submittals shall be produced in such a way as to not compromise the graphic quality or accuracy of scale, where applicable; and text shall be searchable.
    - c. One copy of each Action Submittal will be returned to Contractor.
    - d. Transmit Submittals via electronic mail (e-mail) or web-based collaboration and document sharing system, where used. Submittals that are transmitted electronically will be returned electronically.
  7. Transmit Submittals to party and address identified by Engineer at preconstruction meeting.
- C. Coordination and Timing: Coordinate preparation and processing of Submittals with performance of construction activities. Contractor is responsible for cost of delays caused by lack of coordination or tardiness of Submittals. Incomplete Submittals will be rejected.
  1. Coordinate each Submittal with fabrication, purchasing, testing, delivery, other Submittals, and related activities that require sequential activity.
  2. Coordinate transmittal of different types of Submittals for related parts of the Work so processing will not be delayed because of need to review Submittals concurrently for coordination.
    - a. Engineer reserves the right to withhold action on a Submittal requiring coordination with other Submittals until related Submittals are received.
- D. Processing Time: Allow 15 full working days for Engineer to review each Submittal, including Resubmittals. Time for review shall commence on Engineer's receipt of Submittal. No extension of the Contract Time will be authorized because of failure to transmit Submittals enough in advance of the Work to permit processing, including Resubmittals. Engineer will advise Contractor when a Submittal being processed must be delayed for coordination.
- E. Identification: Place a permanent label on each Submittal or generate a separate cover sheet.
  1. Indicate name of firm or entity that prepared Submittal.
  2. Provide space to record Contractor's review and approval markings and action taken by Engineer.
  3. Include the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Engineer.
    - d. Name and address of Contractor.
    - e. Name and address of Subcontractor(s).
    - f. Name and address of Supplier(s).

- g. Name of Manufacturer.
    - h. Submittal number, including revision identifier.
    - i. Drawing number and detail references, as applicable.
    - j. Location(s) where product is to be installed, as applicable.
    - k. Other necessary identification.
  - F. Deviations: Encircle or otherwise specifically identify deviations from the Contract Documents on Submittals. Submittals that include deviations that are not identified may be rejected. Engineer may or may not consider deviations. Deviations are not substitutions.
  - G. Transmittal: Package each Submittal individually and appropriately for transmittal and handling. Transmit each Submittal using a transmittal form. Engineer will reject Submittal(s) received from sources other than Contractor.
  - H. Resubmittals: Make Resubmittals in same form and number of copies as initial Submittal.
    - 1. Note date and content of previous Submittal.
    - 2. Clearly identify additions and revisions.
    - 3. Resubmit Submittals until they are marked, "Reviewed, No Exceptions Noted" or "Reviewed With Corrections Noted."
  - I. Distribution: Furnish copies of Submittals with mark indicating, "Reviewed, No Exceptions Noted" or "Reviewed With Corrections Noted," to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.
  - J. Use for Construction: Unless otherwise indicated by Engineer, use only Submittals with mark indicating, "Reviewed, No Exceptions Noted" or "Reviewed With Corrections Noted."
- 1.5 CONTRACTOR'S USE OF ENGINEER'S ELECTRONIC DRAWING FILES
- A. At Contractor's written request, copies of Engineer's electronic Drawing files may be provided to Contractor for Contractor's use in connection with Project, including Submittal preparation. Electronic files may be furnished by Engineer for the convenience of the Contractor. Conclusions or information obtained or derived from such electronic files will be at the Contractor's sole risk. Materials furnished by Engineer that may be relied upon are limited to printed Contract Documents.
  - B. When Contractor uses Engineer's electronic Drawing files to facilitate Submittal preparation, prepare Submittals to be project specific. Submittals that are not project specific, including Engineer's Drawing files submitted on a new title block, will be rejected.

## PART 2 - PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit project specific Action Submittals required by individual Specification Sections. Do not use highlighting that would not be reproducible. Include a table of contents or index with each Submittal. As part of electronic submittals, the table of contents or index shall include electronic bookmarks to the first page of the respective Section(s) identified.
- B. Product Data: Collect information into a single Submittal for each element of construction and type of product or equipment.
  - 1. If information must be specially prepared for Submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2. Mark each copy of each Submittal to indicate which products and options are applicable.
  - 3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Color charts as required by individual Specification Sections.
    - e. Manufacturer's catalog cuts.

- f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Mill reports.
    - j. Standard product operation and maintenance manuals.
    - k. Compliance with specified referenced standards.
    - l. Testing by recognized testing agency.
    - m. Application of testing agency labels and seals.
    - n. Notation of coordination requirements.
  - 4. Submit Product Data before or concurrent with Samples.
  - 5. Maintain copy of returned Submittal for Project records.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale where appropriate. Scale shall be sufficiently large to indicate pertinent features of the item and its method of connection to the Work.
- 1. Preparation: Fully illustrate requirements of the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Colors and materials as applicable.
    - e. Roughing-in and setting diagrams.
    - f. Wiring diagrams showing field-installed wiring, including power, signal, control, and communication wiring. Differentiate between Manufacturer-installed and field-installed wiring.
    - g. Manufacturing instructions.
    - h. Templates and patterns.
    - i. Schedules.
    - j. Calculations.
    - k. Compliance with specified standards.
    - l. Notation of coordination requirements.
    - m. Notation of dimensions established by field measurement.
    - n. Relationship to adjoining construction clearly indicated.
  - 2. Sheet Size: Submit Shop Drawings on sheets at least 8-1/2 inches x 11 inches but no larger than 36 inches x 48 inches.
  - 3. Maintain copy of returned Submittal for Project records.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by individual Specification Sections. Do not use highlighting that would not be reproducible. Include a table of contents or index with each Submittal. As part of electronic submittals, the table of contents or index shall include electronic bookmarks to the first page of the respective Section(s) identified.
- B. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- C. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents. Includes lime residual testing results.
- D. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during construction is installed in its final location, for compliance with requirements in the Contract Documents. This includes daily periodic moisture testing of lime residuals to confirm moisture content of material being hauled for disposal.
- E. Safety Data Sheets (SDSs): Submit information directly to Owner; do not submit to Engineer.
  - 1. Engineer will not review Submittals that include SDSs and will return the entire Submittal for Resubmittal.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S REVIEW

- A. Review each Submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Verify field dimensions and conditions; note corrections as necessary. Mark with approval stamp before submitting to Engineer.
  - 1. Approval Stamp: Stamp each Submittal with an approval stamp. Use the same stamp format for each Submittal. Include Project name and location, Submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that Submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
- B. Submittals that are not approved and stamped by Contractor will be rejected.

### 3.2 ENGINEER'S REVIEW

- A. Action Submittals: Engineer will review Action Submittals, make marks to indicate corrections or modifications required, and return Submittal. Engineer will stamp each Submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. Reviewed, No Exceptions Noted: Submittal appears to conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  - 2. Reviewed With Corrections Noted: Upon incorporation of review comments, it appears that Submittal will conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  - 3. Revise and Resubmit: Submittal has one or more specific segments that are incomplete, do not appear to conform to the information given in the Contract Documents, or are incompatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Contractor shall resubmit information for review to demonstrate understanding of comments and portions of Work to be provided. Except as noted, Contractor shall not proceed with Work related to Submittal.
  - 4. Rejected, Resubmit: Submittal as a whole is incomplete, does not appear to conform to the information given in the Contract Documents, or is incompatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Contractor shall resubmit information for review to demonstrate understanding of comments and portions of Work to be provided. Contractor shall not proceed with Work related to Submittal.
- B. Informational Submittals: Other Submittals required by the Contract Documents are for information only. Engineer will acknowledge receipt of Informational Submittals. Such Submittals include, but are not limited to:
  - 1. Qualifications Data.
  - 2. Certificates.
  - 3. Test Reports.
  - 4. Manufacturer's Instructions.
  - 5. Maintenance Data.
  - 6. Field Reports.
- C. Delegated-Design Submittals: Review of Delegated-Design Submittals by Engineer shall not relieve Contractor of Contractor's sole responsibility for design and achieving specified performance.
- D. Submittals not required by the Contract Documents will be returned without being reviewed.
- E. Partial Submittals are not acceptable, will be considered non-responsive, and will be rejected.

END OF SECTION 01 33 00

## SECTION 01 45 34 – SPECIAL INSPECTIONS AND TESTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes provisions for special inspections as follows and includes the Statement of Special Inspections.
  - 1. Special inspections and testing of lime residuals.
- B. Include the following testing, special inspections and certifications in the Contractor's Base Bid:
  - 1. Inspections and tests required by codes or ordinances or by an authority having jurisdiction and made by a legally constituted authority.
  - 2. Testing services and certifications including, but not limited to, the following:
    - a. Analytical laboratory report of lime sludge for metals (Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver and Zinc).
    - b. Analytical laboratory report of lime sludge for organics (non-volatile and volatile).
    - c. Moisture content (%) of lime sludge (pre- and post-dewatering)
    - d. Truck scale documentation and scale certification information.

#### 1.3 REPORTS AND SUBMISSIONS

- A. Special Inspection Reports:
  - 1. Special Inspector: Keep records of special inspections in accordance with the Building Code.
  - 2. Records: Indicate that work inspected was or was not completed in conformance with the Contract Documents.
  - 3. Report and reinspect non-conformances until they are in conformance with the Contract Documents.
  - 4. Final Report:
    - a. Prepare and submit a final report at the completion of the special inspections.
    - b. Document the completion of specified special inspections and correction of discrepancies.
    - c. Submit as specified for inspection reports.
  - 5. Provide typed electronic copies of reports to:
    - a. Owner.
    - b. Engineer.
    - c. Contractor.
  - 6. Discrepancies: Bring to immediate attention of Contractor, and, if not corrected, to attention of Engineer.
- B. Provide Engineer with a copy of the daily special inspection report prior to leaving the Project Site each day on which Work is performed on the Site.

### PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

### 3.1 STATEMENT OF SPECIAL INSPECTIONS

#### A. Frequency of Lime Residual Testing:

1. The minimum frequency of testing of the lime residuals for metals and organics shall be as required by the landfill or jurisdictional authority accepting the disposed residuals.
2. Moisture testing of dewatered lime residuals shall be a minimum of twice per day, with additional testing performed if there are any complications with the dewatering equipment or change in the appearance of the dewatered residuals. Additional testing may also be required by the receiving landfill.

END OF SECTION 01 45 34



## SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the furnishing and installation of construction facilities as follows:
  - 1. Temporary Utilities: Water and electricity.
  - 2. Contractor's field offices.
  - 3. Sanitary facilities.
  - 4. Project signs.
  - 5. Enclosures such as tarpaulins, barricades and canopies.
  - 6. Storage areas.

#### 1.3 SUBMITTALS

- A. Samples: For construction project identification sign.
  - 1. Required Sample:
    - a. 11 x 17 color proofs of sign representing actual appearance of sign producer's final product.
    - b. Created by sign producer.
  - 2. Submit and obtain review by Engineer prior to printing final version of vinyl.

#### 1.4 QUALITY ASSURANCE

- A. Construction Project Identification Sign Producer Qualifications:
  - 1. Having a minimum of 3 years' experience in production of signs of specified type.
  - 2. Image360, Plymouth, Michigan

#### 1.5 STORAGE AREAS

- A. Locations:
  - 1. The following general areas are available for storage:
    - a. WTP parking lot.
    - b. Areas designated for Contractor use as indicated on the Drawings.
  - 2. Specific storage locations within the general areas:
    - a. Carefully coordinate with Owner.
    - b. Subject to approval of Owner.
- B. Protection and Restoration:
  - 1. Protect trees and shrubs in the storage areas.
  - 2. Replace grass and other vegetation disturbed or damaged in the storage areas.
  - 3. Take reasonable means to prevent spillage of fuel, oil, chemicals and similar materials.
  - 4. Clean up spills and, if necessary, remove soil and replace with uncontaminated soil so as to allow vegetation to be quickly reestablished.
  - 5. Provide secondary containment for storage of hazardous materials, as required by governing authorities or agencies.
- C. Cleaning: Keep storage areas clean in accordance with Division 01 Section "Cleaning and Waste Management."

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General:
  - 1. New or used.
  - 2. Adequate in capacity for the required usage.
  - 3. Provide safe conditions.
  - 4. Comply with requirements of applicable codes and standards.

### 2.2 UTILITIES

- A. Temporary Utilities:
  - 1. Water:
    - a. Owner will pay for water usage charges.
    - b. Furnish, install, remove and pay for all temporary piping, water meters, equipment and connections.
    - c. Obtain water by connection to Owner's existing water system.
  - 2. Electricity:
    - a. Owner has identified a spare 400-amp circuit breaker the Contractor may connect to for temporary electrical power at the WTP during construction. Owner will pay for electrical usage charges.
    - b. Furnish, install, remove and pay for all temporary wiring, equipment switches, panels, connections and transformers.
    - c. Furnish, install, remove, and pay for area distribution boxes so located that power is located at all points where required by the Work.

### 2.3 FIELD OFFICES

- A. Contractor's Field Office:
  - 1. Contractor's field office shall have at least 1 outside door.
  - 2. Pay for all heat, electricity and telephone charges.

### 2.4 SANITARY FACILITIES

- A. Furnish and install required sanitary facilities, including temporary toilet buildings with sanitary toilets and hand washing facilities or hand sanitizing stations, for use of workers; comply with minimum requirements of the Health Department or other public agency having jurisdiction; maintain in a sanitary condition at all times.

### 2.5 PROJECT IDENTIFICATION SIGN

- A. Sign Maintenance:
  - 1. Three signs to be furnished through Contract No. 1, with two installed as part of that project.
  - 2. Contractor responsible for maintaining the existing signs and installing a replacement sign if one of the two installed signs is damaged and must be removed as determined by the Engineer.

### 2.6 OTHER TEMPORARY CONSTRUCTION FACILITIES

- A. Furnish, install and maintain all other temporary construction facilities necessary for proper completion of the Work.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Comply with applicable requirements specified in:
  - 1. Local Building Code.

B. Maintain and operate systems to ensure continuous service.

C. Modify and extend systems as Work progress requires.

### 3.2 TEMPORARY CONTROLS

A. Traffic Control:

1. Provide adequate warning lights, signs, barricades and flagmen; take all necessary precautions for the protection of the Work, and the safety of the general public.
2. Lights, signs and barricades shall conform to the Michigan Manual of Uniform Traffic Control Devices.
3. All lights, signs, barricades and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within highway rights-of-way, as required by the authority having jurisdiction thereover.

B. Detours:

1. Shall be approved by Owner and highway authority having jurisdiction prior to closing any road.
2. Contractor shall secure above approvals and comply with all conditions thereof at Contractor's expense.

### 3.3 REMOVAL

- A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work. Remove all such temporary facilities and controls as rapidly as progress of the Work will permit.

END OF SECTION 01 50 00

## SECTION 01 55 26 – TRAFFIC CONTROL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the major items listed below:
  - 1. Maintaining traffic and parking.
  - 2. Temporary facilities for:
    - a. Maintaining vehicular access.
    - b. Maintaining pedestrian access.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
  - 1. MDOT:
    - a. Standard Specifications for Construction.
    - b. Standard Plans.
    - c. Michigan Manual of Uniform Traffic Control Devices, as amended.

#### 1.4 DEFINITIONS

- A. Abbreviation for Michigan Manual of Uniform Traffic Control Devices: MMUTCD.
- B. Terms:
  - 1. Traffic: Includes all users of the roadway, motorized and non-motorized.
  - 2. Traffic Control Device: Includes, but is not limited to, signs, pavement markings, traffic signals, traffic channelizing devices, flagging devices, and other devices designed to provide orderly and predictable movement of traffic, and assist vehicle operators in vehicle guidance and navigation tasks.

#### 1.5 SUBMITTALS

- A. Drawings:
  - 1. Required Information:
    - a. Dimensions.
    - b. Locations of proposed traffic control devices.
    - c. Description of any special maintenance of traffic required for completion of the Work (flagging, gate operation, etc.).

#### 1.6 MAINTENANCE

- A. Extra Materials:
  - 1. General:
    - a. Supplied by the Contractor at no expense to the Owner.
    - b. Store on Site to replace stolen or damaged materials.
- B. Maintenance Service:
  - 1. Inspect temporary traffic control devices daily during the course of the Work.
  - 2. Deficiencies in the location or condition of traffic control devices shall be corrected immediately.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. All materials for temporary traffic control devices shall conform with the MDOT Standard Specifications for Construction and the MMUTCD, as amended.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Take necessary precautions including, but not limited to, provision of necessary traffic control devices, implementation of closures, construction of temporary facilities, and maintenance of detours as necessary for the safety of the general public, efficient movement of traffic, and the protection of the Work.
- B. Temporary traffic controls shall be installed and maintained in conformity with applicable statutory requirements and as required by the governing roadway authority.

### 3.2 MAINTAINING ACCESS

- A. Maintain local and emergency traffic at all times during the Work:
  - 1. Water Treatment Plant: All driveways.
- B. Pedestrian Access:
  - 1. Conduct Work to minimize obstruction to pedestrian traffic.
  - 2. Barricade and fence disturbed or obstructed pedestrian facilities
  - 3. Restore disturbed pedestrian facilities at the earliest possible date using temporary pavement as necessary.
- C. Driveways:
  - 1. Conduct Work to minimize the duration of driveway closures.

### 3.3 PARKING

- A. Existing Parking Facilities:
  - 1. Maintain or restore existing public parking areas as early as possible.
  - 2. Do not park construction vehicles, park contractor employee vehicles, or store material in areas needed for residential or commercial parking.

### 3.4 PROTECTION

- A. Existing Traffic Control Devices:
  - 1. Protect all existing traffic control devices in the work area:
    - a. Promptly replace damaged traffic control devices.
  - 2. Do not remove, relocate, obstruct, or otherwise interfere with regulatory signs, including, but not limited to, stop signs, yield signs, and speed limit signs.
  - 3. Maintain street name signs within the construction area for the duration of the project.

END OF SECTION 01 55 26

## SECTION 01 74 00 – CLEANING AND WASTE MANAGEMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specifications Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes provisions for maintaining structures and the Site in a standard of cleanliness.
- B. Related Sections: In addition to standards described in this Section, comply with requirements for cleaning as described in various other Sections of these Specifications.

#### 1.3 QUALITY ASSURANCE

- A. Inspection:
  - 1. Daily and more often if necessary.
  - 2. Conduct inspections to verify that requirements of cleanliness are being met.

#### 1.4 DELIVERY, STORAGE AND HANDLING

- A. Hazards Control:
  - 1. Volatile Wastes:
    - a. Store in covered metal containers.
    - b. Remove from premises daily.
    - c. Provide secondary containment for storage of hazardous materials, as required by governing authorities or agencies.
  - 2. Prevent accumulation of wastes which create hazardous conditions.
  - 3. Provide adequate ventilation during use of volatile or noxious substances.

#### 1.5 PROJECT CONDITIONS

- A. Cleaning and Disposal:
  - 1. Conduct operations to comply with local ordinances and anti-pollution laws.
  - 2. Not Allowed:
    - a. Burning or burying of rubbish or waste materials on Site.
    - b. Disposal of volatile wastes in storm or sanitary sewers: Volatile wastes include, but are not limited to, mineral spirits, oil or paint thinner.
    - c. Disposal of wastes into streams or waterways.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS AND EQUIPMENT

- A. Compatibility:
  - 1. Compatible with the surface being cleaned.
  - 2. Recommended by the Manufacturer of the material being cleaned.
  - 3. As reviewed by Engineer.

## PART 3 - EXECUTION

### 3.1 PROGRESS CLEANING

- A. General:
  - 1. Store Materials:
    - a. In an orderly arrangement allowing maximum access.
    - b. To allow unimpeded drainage and traffic.
    - c. Provide for the required protection of materials.
  - 2. Do not allow accumulation of scrap, debris, waste material and other items not required for construction of the Work.
    - a. Remove from Site at least each week and more often if necessary.
    - b. Provide adequate storage for materials awaiting removal.
  - 3. Observe requirements for fire protection and protection of the environment.
- B. Site:
  - 1. Daily, and more often if necessary:
    - a. Inspect the Site.
    - b. Pick up scrap, debris and waste material; remove such items to the place designated for their storage.
    - c. Sweep streets along hauling route from the WTP. Provide a lined dumpster for daily cleanout of the street sweeper. Dispose of lime residuals and street debris in approved landfill periodically as dumpster fills. Coordinate location of dumpster with Owner.
  - 2. Weekly, and more often if necessary:
    - a. Inspect arrangements of materials stored on Site.
    - b. Restack or otherwise service arrangements to meet the requirements of paragraph 3.1.A.1 above.
  - 3. After flushing and pigging the existing force main after construction is completed, cleaning of lime residuals from surfaces adjacent to the lagoon.
  - 4. At all times maintain the Site in a neat and orderly condition which meets the approval of Engineer.
  - 5. Paved Surfaces: Keep clean. Clean all lime residuals from affected pavements.
  - 6. Dust Control:
    - a. Control dust on or near the Work by the application of water or other approved means.
    - b. If Contractor fails to correct unsatisfactory conditions with 24 hours after due notification:
      - 1) Owner may arrange for such work to be performed by other means.
      - 2) Pay costs.

### 3.2 FINAL CLEANING

- A. Definitions for Clean: The level of cleanliness generally provided by commercial building maintenance subcontractors using commercial quality building maintenance equipment and materials.
- B. Prior to Completion of the Work:
  - 1. Remove from the Site all tools, surplus materials, equipment, scrap, debris and waste.
  - 2. Conduct final progress cleaning as described in Article 3.1 above.
- C. Site:
  - 1. Unless otherwise specifically directed by Engineer:
    - a. Hose down paved areas on Site and public sidewalks directly adjacent to the Site.
    - b. Rake clean other surfaces of the grounds.
  - 2. Remove resultant debris.
- D. Timing: Schedule final cleaning as approved by Engineer to enable Owner to accept a completely clean Project.

END OF SECTION 01 74 00

## SECTION 01 77 00 – CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the instructions for and the responsibilities of each party in contract closeout.
- B. Related Section includes Certificate of Substantial Completion.

#### 1.3 SUBSTANTIAL COMPLETION

- A. Contractor: When Contractor considers that the Work or any portion of the Work is ready for its intended use, Contractor shall submit:
  - 1. Written certification to Engineer and Owner that the Work, or designated portion of the Work, is substantially complete.
  - 2. A list of major items to be completed or corrected.
  - 3. Request that Engineer issue a certificate of Substantial Completion.
- B. Engineer's Inspection: Engineer will make an inspection:
  - 1. Within 10 days after receipt of certification.
  - 2. Together with Owner and Contractor.
- C. Engineer's Determination of Substantial Completion:
  - 1. Should Engineer consider the Work or designated portion of the Work substantially complete, the following steps shall be taken:
    - a. Contractor shall prepare and submit to Engineer, a list of items to be completed or corrected as determined by the inspection.
    - b. Engineer will prepare and deliver to Owner:
      - 1) A tentative certificate of Substantial Completion.
      - 2) A tentative list of items to be completed or corrected before final payment.
    - c. Owner shall have 7 days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list.
    - d. Engineer will, within 14 days after delivery of tentative certificate to Owner, decide:
      - 1) Not Substantially Complete: Engineer will issue written notice to Contractor stating reasons.
      - 2) Substantially Complete: Engineer will issue definitive certificate of Substantial Completion and a revised list of items to be corrected or completed.
  - 2. Should Engineer consider that the Work or designated portion of the Work is not substantially complete, the following steps shall be taken:
    - a. Engineer shall notify Contractor in writing stating Engineer's reasons.
    - b. Contractor shall complete the Work and send a second written notice to Engineer certifying that the Project, or designated portion of the Project, is substantially complete.
    - c. Engineer and Owner will reinspect the Work.
- D. Division of Responsibilities:
  - 1. Engineer:
    - a. At the time of delivery of tentative certificate of Substantial Completion.
    - b. Deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment with respect to:
      - 1) Security.
      - 2) Operation.
      - 3) Safety.



- 4) Protection of the Work.
  - 5) Maintenance.
  - 6) Insurance.
  - 7) Warranties.
2. Engineer's written recommendation on division of responsibilities shall be binding on Owner and Contractor until final payment unless Owner and Contractor agree otherwise in writing and so notify Engineer prior to Engineer's issuance of a definitive certificate of Substantial Completion.

#### 1.4 FINAL INSPECTION

- A. Contractor Certification: Prior to final inspection, Contractor shall submit written certification that:
  1. The Contract Documents have been reviewed.
  2. The Project has been inspected in compliance with the Contract Documents.
  3. Work has been completed in accordance with the Contract Documents.
  4. The Project is complete and ready for final inspection.
- B. Engineer's Inspection: The Engineer will make final inspection:
  1. Within 10 days after receipt of certification.
  2. Together with Owner and Contractor.
- C. Engineer's Determination of Final Completion:
  1. Should Engineer consider the Work complete and ready for final payment in accordance with the requirements of the Contract Documents, Engineer shall request Contractor to make Project closeout submittals.
  2. Should Engineer consider the Work not complete and ready for final payment:
    - a. Engineer shall notify Contractor in writing stating the reasons.
    - b. Contractor:
      - 1) Take immediate steps to remedy the stated deficiencies.
      - 2) Send a second written notice to Engineer certifying that the Work is complete.
    - c. Engineer and Owner will reinspect the Work.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Contractor:
  1. Provide closeout submittals as required in the Contract Documents.
  2. These submittals shall include, but not necessarily be limited to:
    - a. Project record documents.
    - b. Truck weigh tickets.
    - c. Lime residual analytic and moisture testing results and reports.
    - d. Landfill manifests, test reports and other documentation.
    - e. Contractor redlines, notes and photographs.

#### 1.6 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

- A. Affidavits:
  1. Submit with final Application for Payment an affidavit of payment of debts and release of claims.
  2. Affidavit shall include:
    - a. Contractor's release or waiver of lien.
    - b. Consent of surety of final payment.
- B. Execution: All submittals shall be duly executed before delivery to Engineer.

#### 1.7 FINAL ADJUSTMENT OF ACCOUNTS

- A. Final Statement: Submit a final statement of accounting, which reflects all adjustments, to Engineer. This statement shall contain the following:
  - 1. Original Contract Price.
  - 2. Additions and deductions.
  - 3. Total Contract Price as adjusted.
  - 4. Previous payments.
  - 5. Sum remaining due.
- B. Final Change Order: Engineer will prepare a final Change Order reflecting approved adjustments to the Contract Price not previously made by Change Orders.

#### 1.8 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit a final Application for Payment in accordance with the requirements of the Contract Documents.
- B. Disposition of Final Application for Payment:
  - 1. If the final Application for Payment and the Work are acceptable in accordance with the Contract Documents:
    - a. Engineer will, within 10 days after receipt of the Application for Payment:
      - 1) Submit to Owner a written recommendation for payment.
      - 2) Submit to Owner and Contractor a written notice that the Work is acceptable subject to the provisions of the General Conditions.
    - b. Owner will, within 30 days after receipt of the Application for Payment and Engineer's recommendation in accordance with the Contract Documents, pay to Contractor the amount recommended.
  - 2. If the Application for Payment, the Work or both are unacceptable:
    - a. Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment.
    - b. Contractor shall make the necessary corrections and resubmit the Application for Payment.
  - 3. Final Completion Delayed:
    - a. Upon receipt of Contractor's final Application for Payment and recommendation by Engineer, Owner shall make payment of the balance due for that portion of the Work fully completed and accepted if Engineer confirms that final completion of the Work is significantly delayed through no fault of Contractor.
    - b. Payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.
    - c. Contractor shall submit with the Application for Payment written consent of surety if the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement.

#### PART 2 - PRODUCTS

Not used.

#### PART 3 - EXECUTION

Not used.

END OF SECTION 01 77 00

## SECTION 01 78 39 – PROJECT RECORD DOCUMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes procedures for the maintenance, recording and submittal of Project record documents.

#### 1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Storage:
  - 1. Store documents and Samples in Contractor's field office apart from documents used for construction.
  - 2. Provide files and racks for storage of documents.
  - 3. Provide locked cabinet or secure storage space for storage of Samples.
- B. Filing: File record documents in accordance with CSI Masterformat.
- C. Maintenance:
  - 1. Maintain documents in a clean, dry, legible condition and in good order.
  - 2. Do not use record documents for construction purposes.
- D. Availability: Make documents and Samples available at all times for inspection by Engineer.

#### 1.4 RECORDING

- A. Labeling: Label each document "PROJECT RECORD" in neat large printed letters.
- B. Recording:
  - 1. Record actual revisions to the Work.
  - 2. Record information concurrently with construction progress.
  - 3. Do not conceal any work until required information is recorded.
- C. Drawings:
  - 1. Legibly mark, with notes or graphic representations, to record actual construction.
    - a. Horizontal and vertical locations of Underground Facilities and appurtenances, referenced to permanent surface improvements.
    - b. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
    - c. Field changes of dimension and detail.
    - d. Changes made by Field Order, Work Change Directive or Change Order.
    - e. Details not on original Contract Drawings.
  - 2. After Engineer's review of the record drawings, transfer all marks to a set of hard copy and electronic documents provided by Engineer.

#### 1.5 SUBMITTAL

- A. Delivery:
  - 1. At Contract closeout, deliver record documents to Engineer for Owner.
  - 2. Submit only Contract Documents marked up. Three dimensional models, shop drawings, or other representations of the Project created by the Contractor from the Contract Documents will not be accepted.

- B. Transmittal Letter:
1. Accompany submittal with transmittal letter in duplicate, containing:
    - a. Date.
    - b. Project title and number.
    - c. Contractor's name and address.
    - d. Title and number of each Record Document.
    - e. Signature of Contractor or their authorized representative.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 01 78 39

## SECTION 02 22 26 – PRECONSTRUCTION AUDIO-VISUAL DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the furnishing of all labor, materials and equipment necessary for a complete color audio-video record of the existing surface features for the entire project to accurately document the pre-construction conditions within the proposed construction's zone of influence.

#### 1.3 SUBMITTALS

- A. Qualifications: Submit such information as requested by the Engineer to determine the ability to produce professional video in accordance with industry standards and these specifications.

#### 1.4 QUALITY ASSURANCE

- A. Audio-video documentation shall be by a responsible commercial firm regularly engaged in color audio-video construction documentation.
- B. Owner reserves the right to reject any audio-video documentation not conforming to these Specifications. Such rejected documentation shall be redone at no additional cost to Owner.

#### 1.5 PRODUCT DELIVERY

- A. Deliver to Owner through Engineer premium quality portable hard drives or flash drives with recorded documentation upon completion of the project or upon completion of segments, if requested.

#### 1.6 SEQUENCING AND SCHEDULING

- A. Attend a meeting with Engineer to outline the coverage expected for the project, prior to the start of the video documentation.

### PART 2 - PRODUCTS

#### 2.1 Delivered product shall include all digital audio-video files, storage cases, file index labels, and runsheet logs.

- A. Video to be mastered on high quality formats only:
  - 1. Flash drive.
  - 2. Portable hard drive.
- B. High quality cameras to be used:
  - 1. With 1/4-inch, 1/3-inch or 1/2-inch charged coupled device imaging systems.
  - 2. With optical stabilization; electronic stabilization is not acceptable.
  - 3. With 20x minimum optical magnification.
  - 4. Capable of producing NTSC 525 lines of resolution/60 fields/30 frames per second.
  - 5. Capable of 3-luxillumination minimum.
- C. File Index Labels:
  - 1. All files shall be labeled with appropriate project information and be able to be cross referenced with runsheets.
  - 2. Label information to include:
    - a. File number.
    - b. Project title.
    - c. Location of project.

- d. Month and year of coverage.
  - e. Set information, i.e., Engineer's set, Owner's set, Contractor's set.
  - f. Quick reference list of contents of a particular file.
- D. Runsheet Logs:
  - 1. Provide a runsheet log that accurately catalogs the contents of each video.
  - 2. Runsheet logs to include:
    - a. Street name, easement or address.
    - b. Sheet number or numbers relative to the line entry of a particular area of coverage.
    - c. File numbers.
    - d. Real time code indexing for each segment of the project indicating hours minutes and seconds to cross reference with playback equipment to locate specific points of interest on the project.
    - e. Direction of travel for each specific segment.
    - f. Viewing side for each specific segment.
    - g. Starting point for each specific segment.
    - h. Ending point for each specific segment.
    - i. Project information, i.e. project title, owner, date.
- E. Vehicles used while performing documentation to be plainly marked with company name and telephone number with caution signs, flags and strobes to affect a safe and hazard free operation.

## PART 3 - EXECUTION

### 3.1 RECORDING

- A. General:
  - 1. Coverage:
    - a. Recordings shall include coverage of all surface features located within the zone of influence of the proposed construction.
    - b. The zone of influence is defined as the area within the road right-of-way, area within permanent and temporary easements and adjacent areas which may be affected by routine construction operations.
    - c. The surface features include, but are not limited to, all roadways, pavements, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, trees, shrubbery, and fences.
    - d. Of particular concern shall be the existence or nonexistence of any faults, fractures, or defects.
    - e. All recording shall be performed during times of good visibility.
    - f. No recording shall take place when there is snow cover on the ground unless authorized by Engineer.
    - g. The Engineer may designate areas to be omitted or added for audio-video documentation.
    - h. Areas not accessible by conventional wheeled vehicles shall be accessed by walking or special conveyance.
  - 2. Time of Execution: Prior to placement of equipment and materials on the jobsite.
  - 3. Coverage Continuity:
    - a. Accessible Areas: Coverage shall consist of a single, continuous, recording which begins at one end of a particular construction area and continues to the other end of that construction area.
    - b. Non Accessible Areas (Across Easements, Etc.): Coverage shall consist of an organized, interrelated sequence of recordings at various positions along the proposed construction area.
  - 4. Video portion of the documentation shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of picture imperfection.
  - 5. Audio Portion of the Documentation:
    - a. Shall reproduce the commentary of the camera operator with proper volume, clarity, free from distortion and background noise.
    - b. Assist in maintenance of viewer orientation and in identification, clarification, or objective description of the structures being shown in the video portion of the recording.
  - 6. Video shall display through electronic means information germane to the current video display.
    - a. Display continuously information as follows:
      - 1) Time and date of recording.
      - 2) Location of recording, i.e., street name, easement or address.

- b. When conventional wheeled vehicles are utilized, include engineering stationing to coincide with project plans, direction of travel and viewing side.
  - 1) The engineering stationing must be continuous and accurate and reflect the stationing within the field of view.
  - 2) The engineering stationing must coincide with stationing on project plans and utilize standard engineering symbols, i.e., 5+00.
  - 3) Global Positioning System satellites may be used with or in place of engineering stationing.
    - a) Differential Global Positioning System is to be used where available, with updates 1/second at 5 meter or less spherical accuracy.
    - b) Standard Global Positioning System accuracy is as dictated by the United States Department of Defense mandate.
    - c) Global Positioning System display will be at 1 meter longitude and 1 meter latitude increments, i.e., 414N529 08317W302.
- B. Procedural Requirements for Coverage Rates:
  - 1. The following table sets the maximum rate of travel for the following areas:

AREA	AVE RATE MAX
WTP parking lot, Sunset Road adjacent to WTP parking lot, lagoon site, trucking route from lagoon to Miller Avenue, and trucking route from WTP to Miller Avenue. (Areas subject to Contractor's proposed trucking routes.)	30 ft/min

- 2. Camera Positioning and Techniques:
  - a. Height and Stability: Camera to be mounted securely to produce steady viewing with lens not less than 8 feet above the ground of the area being viewed, or at a level to facilitate best perspective and line of site when using conventional wheeled vehicles.
  - b. Control: All movements shall be at a rate that allows recorded objects to be viewed clearly during video playback.
  - c. Viewer Orientation for Road Areas: Utilize overall establishing views and visual displays of all visible house and building addresses.
    - 1) Easement Areas: Highly visible yellow flags shall be used to clearly define proposed centerline of construction.
- 3. Private Property:
  - a. Contractor shall obtain permission of property owner before entering private property.
  - b. If Contractor is refused entry to private property, Contractor shall notify Engineer and wait until permission is obtained before entering the property.

END OF SECTION 02 22 26

## SECTION 02 24 50 – RESIDUAL DEWATERING AND DISPOSAL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes dewatering of residual lime, moisture analysis, weighing of trucks and material being disposed offsite, and disposal.

#### 1.3 SUBMITTALS

- A. Shop Drawing submittals shall include:
  - 1. Equipment Calibration Certificates: Provide copies of calibration certificates for all equipment used to measure dewatered (pressed) residual moisture content and weight.
  - 2. Manifests: Copies of trucking manifests documenting where pressed lime is disposed.
  - 3. Reports of moisture analysis and truck weights as defined in this Section shall be submitted on a weekly basis.

#### 1.4 DEWATERING EQUIPMENT

- A. Dewatering Equipment: Contractor is responsible for furnishing all equipment, chemical additives, and other materials and resources to perform any on Site manipulation of the moisture content of the lime residual to suit the needs of the selected disposal methods. Contractor to coordinate power supply as discussed elsewhere in the Contract Documents. Selected methods must be able to be executed within the site limits and constraints as indicated on the Drawings and be capable of achieving the goal for residual removal.
- B. Contractor responsible for selecting the type and number of pieces of equipment needed to meet the output required to reach the targeted removal volumes.

#### 1.5 TRUCKS

- A. Trucks are to be capable of hauling loaded lime without violating any local weight restrictions for the given time of year. Tandem trucks will not be allowed.
- B. All trucks are to be equipped with bed liners capable of preventing any leakage of filtrate from the bed during hauling. Contractor is responsible for the immediate cleanup of any surface spills outside of the WTP or lagoons sites, including any necessary notifications, fees or fines related to the spill.

#### 1.6 TRUCK SCALES

- A. Contractor shall utilize certified truck scales including:
  - 1. Michigan DOT weigh stations.
  - 2. Other certified scale approved by the Engineer.

### PART 2 - PRODUCTS

Not used.



### PART 3 - EXECUTION

#### 3.1 DOCUMENTATION OF WORK

- A. Contractor shall conform to the following documentation plan to monitor payment for the Work completed.
- B. Moisture Content Analysis: Contractor shall perform moisture analysis for each truckload of dewatered residual lime hauled off Site.
1. Results shall include:
    - a. Truck ID.
    - b. Date and time sample taken.
    - c. Wet weight.
    - d. Dry weight.
    - e. Moisture content percentage.
  2. Moisture content equipment shall be calibrated at the beginning and end of the Project by comparing results of a split sample as tested by the Owner.
  3. Owner shall be permitted to observe moisture content analysis at any time as requested.
  4. Additional split samples shall be made available for independent testing by Owner upon request.
- C. Weights: Each truck used to haul dewatered lime will be required to be weighed empty at the start of the Project and at one other time during the execution of the contract work at the Owner's request. Should the variance in weight exceed 5% the original weight, the average of the two weights will be used in calculating load weights.
1. Certified truck weight tickets shall be submitted for use in verifying calculations.
  2. Up to 5% of trucks may be sent to an alternate scale within ten miles of Project Site if directed by Owner to achieve a quality control measure.
- D. Reporting:
1. Contractor shall provide summarized reports of daily residual removed for use in tracking payment. Reports shall be in the following format:
- | Date | Time | Truck ID | Empty Weight | Loaded Weight | Moisture % | Dry Tons |
|------|------|----------|--------------|---------------|------------|----------|
|------|------|----------|--------------|---------------|------------|----------|
- E. Disposal:
1. Contractor is responsible for all aspects of disposal of dewatered lime, including laboratory analysis as may be required.
  2. Laboratory analysis and geotechnical report for the lime in the lagoon is included in Section "Geotechnical Data."
  3. Site will be made available for Contractor to extract residual material for additional lab sampling during Bid phase of Project.

END OF SECTION 02 24 50

## SECTION 31 10 13 – SITE PREPARATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the major items listed below:
  - 1. Clearing Site of above-grade trees, grass and plant life subject to approval by Owner.
  - 2. Removal of the following man-made items:
    - a. Improvements as indicated on the Drawings.
  - 3. Removal of roots and stumps.
  - 4. Removal of exposed rocks, boulders and debris.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the Work of this Section shall comply with the following:
  - 1. State DOT Current Standards:
    - a. Specifications for Construction.
    - b. Standard Plans.

#### 1.4 DEFINITIONS

- A. Terms: Surface Improvements: Pavement, walks, drives, curbs, curb and gutter, improved lawns, monuments, property irons, reference points and similar improvements.

#### 1.5 SUBMITTALS

- A. Permit to Store or Dump Removed Materials:
  - 1. On property owned, leased or occupied by someone other than Owner.
  - 2. Submit prior to storing or dumping.
  - 3. Permit shall absolve Owner from responsibility for storing or dumping.

#### 1.6 QUALITY ASSURANCE

- A. Trimming: Trimming of limbs and branches and the painting of tree wounds shall be actively supervised by a member of one of the following:
  - 1. ASCA - American Society of Consulting Arborists.
  - 2. ISA - International Society of Arboriculture.
  - 3. NAA - National Arborist Associations.
- B. Interference:
  - 1. Ensure that Site preparation work does not unduly interfere with pedestrian and vehicular traffic.
  - 2. Obtain Engineer's and governing authority's approvals prior to closing a public street.

#### 1.7 PROJECT CONDITIONS

- A. Burning: Not permitted.
- B. Burial: Not permitted.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Soil Erosion Control: Provide soil erosion control in accordance with Division 31 Section "Erosion and Sedimentation Controls" prior to starting Site preparation work.
- B. Protection of Trees and Shrubs:
  - 1. Protect trees and shrubs which are to remain from permanent damage by construction operations.
  - 2. Prevent vehicles from driving within area under dripline of trees which are to remain.
- C. Maintain designated temporary roadways, walkways, and detours for vehicular and pedestrian traffic.

### 3.2 APPLICATION

- A. Clearing:
  - 1. Remove items requiring removal under this Section from area indicated on Drawings.
  - 2. Remove roots, rocks and boulders to a depth of 2 feet below finish grade in the following areas:
    - a. Proposed buildings or structures.
    - b. Proposed pavements and walks.
    - c. Other areas where compaction of the subgrade is required.
- B. Removal of Sod: Cut to a straight line at the expected excavation limits with sod cutter.
- C. Prevent Construction Operations from Damaging or Disturbing:
  - 1. Trees or roots of trees which are to remain.
  - 2. Surface improvements which are to remain.

### 3.3 DISPOSAL OF EXCESS MATERIAL

- A. General:
  - 1. Remove and properly dispose of all material not needed to complete Project.
  - 2. Dispose of excess material at a location on the Site as directed by Owner.
  - 3. Disposal of materials shall not violate laws, rules, regulations and the like regarding the filling of flood plains, wetlands and other environmentally sensitive areas.
  - 4. Provide adequate controls to maintain disposal sites in a neat and safe conditions by periodic leveling of material, the control of erosion and such other practices as are necessary.

END OF SECTION 31 10 13

## SECTION 31 25 00 – EROSION AND SEDIMENTATION CONTROLS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the furnishing, installation and maintenance of soil erosion and sedimentation control (SESC) measures.
  - 1. Minimum SESC measures/Best Management Practices (BMP) are indicated on the Drawings. These measures are to be installed correctly before any grading or excavating begins on the Site. Contractor should add additional BMP's as required by their operations, such as temporary stock piles, equipment storage etc.
  - 2. Stage Construction and stabilization activities to minimize the amount of disturbed area at any one time.
  - 3. Remove sediment caused by erosion from storm water before it leaves the Site or enters waters of the state.
  - 4. Place soil piles away from drainage courses. Soil piles must be protected from precipitation and wind with non-erosive covers or other BMP's.
  - 5. Provide anti-tracking areas for haul roads and equipment. Sweep streets, parking areas regularly as needed.
  - 6. Dust control must be implemented on all sites exposed to wind erosion.
  - 7. Keep copies of permits and inspections on Site at all times.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
  - 1. Soil erosion and sedimentation control rules and guidelines of:
    - a. State of Michigan R323.2190 National Permit for stormwater discharge from Construction (Michigan's "Permit by Rule").
    - b. Michigan Natural Resources and Environmental Protection Act, Part 31 of Act 451 of 1994 Soil Erosion and Sedimentation Control (Water Resources Protection Act).
    - c. Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act (Soil Erosion and Sedimentation Control (SESC)).
    - d. EGLE Nonpoint Source Best Management Practices Manual.
    - e. City of Ann Arbor City Code Chapter 55.
    - f. Michigan Department of Transportation SESC Design Manual.
  - 2. ASTM Standards:
    - a. A974 – Standard Specification for Welded Wire Fabric Gabions and Gabion Mattresses (Metallic-Coated or Polyvinyl Chloride (PVC) Coated).
    - b. C33/C33M – Standard Specification for Concrete Aggregates.
    - c. D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
    - d. D4751 -Standard Test Method for Determining Apparent Opening Size of a Geotextile.
    - e. D4992 – Standard Practice for Evaluation of Rock to be Used for Erosion Control.
    - f. D5313 – Standard Test Method for the Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions.
    - g. D6092 – Standard Practice for Specifying Standard Sizes of Stone For Erosion Control.
    - h. D6459 – Standard Test Method for Determination of Erosion Control Blanket (ECB) Performance in Protecting Hillslopes from Rainfall-Induced Erosion.
    - i. D6461, D6462 – Standard Practice for Silt Fence Materials and Installation.
    - j. D6599 – Practice for Construction of Live Fascines on Slopes.
    - k. D6711 – Practice for Specifying Rock to Fill gabions, Revet Mattresses, and gabion Mattresses.

#### 1.4 SUBMITTAL

- A. Action Submittals (Manufacturers information):
  - 1. Silt Fence.
  - 2. Seed mixtures.
  - 3. Tacking Agents.
  - 4. Fertilizer.
  - 5. Turbidity curtain.
- B. Informational Submittals:
  - 1. Name and certification number of certified storm water operator that will be responsible for Site inspections.
  - 2. Sequence of Construction in sufficient detail as requested by Engineer.

#### 1.5 QUALITY ASSURANCE

- A. Performance Standard:
  - 1. Compliance with the Soil Erosion Control Permit (Part 91) and the Michigan Permit by Rule. The SESC measures indicated on the Drawings and specified here in are a minimum requirement. If more SESC measures are required to comply with the permit, notify the Engineer responsible for preparation of the SESC plan for plan amendment. Additional SESC measures required due to the Contractor's operations will not be considered for additional payment.
- B. SESC Preconstruction Meeting:
  - 1. Conduct a field evaluation of the Site with the Engineer, Certified Storm Water Operator, the Local Enforcing Agent, and the Contractor's Superintendent after all initial SESC measures are installed and prior to any clearing, grading or excavation work.
  - 2. This meeting shall be scheduled and organized by the Contractor.
  - 3. Review the installed SESC measures by walking the Site and confirm compliance to the Permit and the approved SESC Plan.
  - 4. Review the location for display of the permit.
  - 5. Review location for SESC inspection log.
- C. Stop Work Order:
  - 1. Owner reserves the right to issue a Stop Work Order if soil erosion and sedimentation controls are not properly installed or maintained.
  - 2. Work performed under a Stop Work Order will not be considered for payment.
  - 3. Costs resulting from delay due to issuance of a Stop Work Order shall be the responsibility of Contractor.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable.
- B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, damage by weather or elements, and in accordance with manufacturer's directions.
- C. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

### PART 2 - PRODUCTS

#### 2.1 SOIL EROSION AND SEDIMENTATION CONTROL MATERIALS

- A. Stabilized Construction Entrance:
  - 1. Stabilize a pad of clean crushed stone located at points where traffic will be accessing a construction site. Minimize construction access points to locations as indicated on the Drawings.
  - 2. Stone Size – Use ASTM C33, size No. 2 (2-1/2-inch to 1-1/2-inch) or 3 (2 inch to 1 inch). Use clean crushed angular stone. Crushed concrete of similar size may be substituted, but will require more frequent upgrading and maintenance.

3. Place on woven geotextile fabric if underlying soils are soft. TerraTex GS, or equal.
4. Thickness: Not less than 6 inches.
5. Width: Not less than full width of points of ingress or egress or a minimum of 20 feet.
6. Length: 50 feet minimum where the soils are coarse grained (sands or gravels) or 100 feet minimum where soils are fine grained (clays or silts), except where the traveled length is less than 50-feet or 100 feet respectively. These lengths may be increased where field conditions dictate. Stormwater from up-slope areas shall be diverted away from the stabilized pad where the slope of the access road exceeds 5%, a stabilized base of Hot Mix Asphalt Base Course.

B. Temporary Vegetation:

Seed Type	Lower Peninsula (south of US10)*	Lower Peninsula (north of US10)*	Upper Peninsula*	Seeding Rate
Oats, Barley	4/1 to 9/15	4/15 to 8/1	5/1 to 8/1	2 lbs/1,000 sft
Annual Rye	8/1 to 10/15	8/1 to 10/10	8/1 to 11/1	3 lbs/1,000 sft
Wheat	9/20 to 10/15	9/10 to 10/10	9/10 to 10/1	3 lbs/1,000 sft
Buckwheat	6/1 to 7/15	6/1 to 7/15	6/15 to 7/15	2 lbs/1,000 sft
Perennial Ryegrass	8/1 to 10/15	8/1 to 10/1	8/1 to 10/1	1 lbs/1,000 sft
*Seasonal Limitation Dates				

C. Permanent Vegetative Cover:

1. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring.
2. Immediately prior to seeding and topsoil application, the subsoil shall be evaluated for compaction.
3. Topsoil should be handled only when it is dry enough to work without damaging the soil structure. A uniform application to a depth of 4 inches (unsettled) is required on all sites. Topsoil shall be amended with organic matter, as needed, in accordance with the Standard for Topsoiling.
4. See Division 32 Section "Turf and Grasses" for Seasonal requirements.

D. Geotextile Silt Fence:

1. Synthetic Industries, Terra Tex SF-90, or equal.
2. Woven, high strength polypropylene.
3. Grab Tensile Strength: 100/100 lbs (min) in accordance with ASTM D4632 (min).
4. Apparent Opening Size (AOS): 20-50 US sieve (max) in accordance with ASTM D4751 (max).
5. Water Flow Rate: 8 gpm/sft (min) in accordance with ASTM D4491 (min).
6. Wood Stakes, Hardwood: 1.5-inch x 1.5-inch x 48-inch (min), 6 foot spacing (max) with 3/8-inch-thick lath fastening bar.

E. Silt Guard:

1. Above Ground Filters:
  - a. Frame and Filter Assembly: Silt Saver, Inc.; or equal.
  - b. Nonwoven polypropylene filter with needle punched holes.
  - c. High density polyethylene frame.
  - d. 60-inch frame, high flow filter.
  - e. Filter Material: 120 gpm/sft (min).
  - f. Apparent Opening Size (AOS): 40 US Std. Sieve.
  - g. Tensile Strength (ASTM D4632): 410/300 (min).
2. Inlet Protection (Catch Basins):
  - a. Siltsak by ACF Environmental; Inlet Pro Sediment Bag High Flow by Hanes Geo Components; DANDY BAG by Dandy Products Inc.; or equal.
  - b. Geotextile fabric silt sump.
  - c. Grab tensile strength: 281x170 pounds in accordance with ASTM D4632 (min).
  - d. 38 gallons per minute per square foot (GPM/SF), water flow rate in accordance with ASTM D4491 (min).
  - e. Apparent Opening Size (AOS): 40 US Sieve.
  - f. Manufactured to meet size of inlet.

F. Turbidity Curtain:

1. Polyethylene Plastic Sheet: 10 mil. 18oz/yd<sup>2</sup> minimum, yellow color, or suitable alternate. Place 5-pound weights at 10-foot intervals along the entire length. Place floats at 5-foot intervals; 2 floats at each location, one on either side of the material.

2. Top rope to be 1/4-inch nylon or manila.
3. Set barrier on a 50-foot radius from the point of discharge when discharging through a conduit.
4. Barrier to extend parallel to the channel bank(s) for the full length of the work area for shoreline disturbances.
5. Dielectrically welded or double-sewn seams upper hem of sufficient strength to contain flotation material.
6. Flotation material to be expanded polystyrene of sufficient diameter to support curtain at or above the water level.
7. Dielectrically welded or double-sewn seams lower hem of sufficient strength to enclose lower ballast.
8. Lower ballast to be galvanized steel chain of sufficient strength and weight to hold curtain in vertical position.
9. Curtain to be tied to concrete anchors at both ends, top and bottom, to prevent moving.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Standards:
  1. Achieve Effective Erosion Control to prevent erosion of Site slopes and ditches.
  2. Achieve effective control of sedimentation to prevent any offsite discharge or tracking of Site soils.
  3. Maintain soil erosion and sedimentation controls until the Site is stable. Definition of stable site is final concrete and/or asphalt paving is complete, and all turf areas have 80% growth.
  4. Do not remove temporary soil erosion and sedimentation control measures until Site is determined to be stable by the Engineer.
  5. Sweep streets weekly, or more frequently if required, or directed by Engineer.

#### 3.2 DUST CONTROL

- A. Prevent blowing and movement of dust from exposed soil surfaces, prevent on Site and off Site damage and health hazards and improve traffic safety:
  1. The following methods should be considered for controlling dust.
    - a. Mulches.
    - b. Temporary Vegetative Cover.
    - c. Spray-on Adhesives: Keep traffic off these areas.

#### 3.3 CONSTRUCTION ENTRANCE DRIVE

- A. Employ water truck and street sweeper as necessary to keep sediment off of on Site and off Site roadways. The entrance must be maintained in a condition which will prevent tracking or flowing of sediment onto roadways. This may require periodic top dressing with additional stone or additional length as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto roadways (public or private) or other impervious surfaces must be removed immediately.
- B. Where accumulation of sediment is inadequately cleaned or removed by conventional methods, a power broom or street sweeper will be required to clean paved or impervious surfaces. All other access points which are not stabilized must be blocked off.

#### 3.4 INLET PROTECTION

- A. Install on existing inlets prior to any grading or excavation. Install on new inlets as soon after installation as practical.
- B. Inspect frequently, especially after any rain event. Maintain repair, and replace promptly, as needed.
- C. Remove barrier only when the area draining toward the inlet has been stabilized.

### 3.5 SOIL ROUGHENING

- A. On all slopes 1:3 or steeper, grade the slope with a dozer taking a vertical path so that the track marks on the slope create a horizontal roughened grooved condition to help prevent erosion of the slope.

### 3.6 TEMPORARY VEGETATIVE COVER

- A. General:
  - 1. Provide temporary seed if permanent measures will not be placed within 15 days of initial disturbance and area will not undergo further earth change within 15 days of initial disturbance.
  - 2. Seed: Apply uniformly at a minimum rate of 3 to 5 pounds per 1,000 square feet.
  - 3. Mulch:
    - a. Mulching is required on all seeding. Mulch will protect against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion must be deemed compliance with this mulching requirement.
    - b. Straw: Unrotted small grain straw, free of seeds
    - c. Application: Spread mulch uniformly by hand or mechanically so that at least 85% of the soil surface is covered. For uniform distribution of hand-spread mulch 75 to 100 pounds per 1,000 square feet. Anchoring must be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes.
      - 1) Peg and Twine. Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a crisscross and a square pattern. Secure twine around each peg with two or more round turns.
      - 2) Mulch Nettings: Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.
      - 3) Crimper (mulch anchoring coulter tool): A tractor-drawn implement, somewhat like a disc harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.
      - 4) Liquid Mulch-Binders (May be used to anchor straw mulch):
        - a) Applications should be heavier at edges where wind may catch the mulch, in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.
        - b) Organic and Vegetable Based Binders: Naturally occurring, powder-based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel must be physiologically harmless and not result in a phytotoxic effect or impede growth of turf grass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials.

### 3.7 PERMANENT VEGETATIVE COVER

- A. General:
  - 1. Seed all disturbed areas within 5 days of final grading.
  - 2. Apply uniformly at a minimum rate of 3 to 5 pounds per 1,000 square feet.
  - 3. Mulch as indicated on the Drawings or as needed to effectively control soil erosion.

### 3.8 GEOTEXTILE SILT FENCE

- A. Space posts 6 feet center-to-center or closer. Extend at least 12-inches into the ground. Posts shall be constructed of hardwood with a minimum diameter thickness of 1-1/2 inches.
- B. Wire Backed silt fence: A metal fence with 6 inch or smaller wire mesh openings and at least 2 feet high may be utilized, fastened to the fence posts, to provide reinforcement and support to the geotextile fabric. Place posts 6 feet on center.



- C. Bury geotextile fabric at least 6 inches deep in the ground. Extend The fabric at least 2 feet above the ground. The fabric must be securely fastened to the posts using a system consisting of metal fasteners (nails or staples) and a high strength reinforcement material (nylon webbing, grommets, washers, etc.) placed between the fastener and the geotextile fabric. The fastening system must resist tearing away from the post. Install silt fence in accordance with manufacturer's instructions, and Project Drawing detail sheets.
- D. Location: Where indicated on the Drawings or as needed to prevent offsite movement of soil.

### 3.9 TURBIDITY CURTAIN

- A. Install turbidity curtain in accordance with manufacturer's instructions.
- B. Location: As required by the Contractor's operations to prevent sediment from migrating more than 30 feet from the point of excavation.

### 3.10 BUILDING PROJECT CONSTRUCTION

- A. During construction conform to the following general rules:
  - 1. Minimize the amount of earth disturbed at any one time.
  - 2. Establish a construction sequence which includes adequate erosion control.
  - 3. As much as practical, direct stormwater away from the construction area. Direct diverted stormwater to a stable on-Site area.
  - 4. Collect runoff from the Site in sediment basins, traps or through filters.
  - 5. Establish an inspection and maintenance schedule, paying special attention to the beginning of the various stages of construction.

### 3.11 AIRBORNE SEDIMENT

- A. Dust Control:
  - 1. Use legal means necessary to control dust on and near the Work and on and near off Site borrow areas if such dust is caused by Contractor's operations during performance of the Work or if resulting from the condition of the Site when earthwork operations are suspended.
  - 2. Treat haul roads, delivery roads, temporary Site access roads and other surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other work on the Site, and as directed by Engineer.
  - 3. Periodically scrape and broom adjacent streets and paved areas to remove tracked dirt.
- B. Wind Erosion:
  - 1. Erect and maintain barriers to prevent migration of windblown sediment offsite.
  - 2. Conduct operations in such a manner as to minimize the amount of Site area exposed to wind erosion.
  - 3. Be responsible for removal of windblown sediments deposited off Site, including costs for cleaning or repairs required due to sediment deposition and removal.

END OF SECTION 31 25 00

## SECTION 32 92 00 – TURF AND GRASSES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the furnishing and installation of the major items listed below:
  - 1. Seed.
  - 2. Fertilizer.
  - 3. Mulch.

#### 1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:
  - 1. State DOT Current Standards:
    - a. Specifications for Construction.
    - b. Standard Plans.

#### 1.4 DEFINITIONS

- A. Follow-up Maintenance: Maintenance required when seeding, sodding, or other vegetative practices do not achieve the desired degree of stabilization.
- B. Periodic Maintenance: Maintenance performed after the vegetation has been established.

#### 1.5 LOCATION

- A. Seeded Areas: All disturbed areas within the project limits not covered by other surface improvements or features.
- B. Mulch Blankets: As indicated on the Drawings.

#### 1.6 SUBMITTALS

- A. Action Submittals: Product Data for mulch blanket.
- B. Informational Submittals:
  - 1. Samples: For netting and mulch blanket.
  - 2. Supplier's certified analysis for each seed and fertilizer mixture required.

#### 1.7 QUALITY ASSURANCE

- A. Fabrication and Installation Personnel Qualifications:
  - 1. Trained and experienced in the fabrication and installation of the materials and equipment.
  - 2. Knowledgeable of the design and the reviewed Submittals.

## 1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original, unbroken, brand marked containers or wrapping as applicable.
- B. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.
- C. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Fertilizer:
  - 1. Comply with MDOT 917.10, Class A except as herein specified.
  - 2. Liquid Fertilizer for Hydroseed: 16-32-4 containing no chlorine.
- B. Seed:
  - 1. Mixture composed of certified seed of the following purity, germination, and proportions by Weight:
    - a. WTP and Lagoon Area: THM.
  - 2. Furnish seed in durable bags, each marked by the supplier of the blended mix with a tag giving name, lot number, net weight of contents, purity, and germination.
- C. Mulch:
  - 1. Small Grain:
    - a. Straw.
    - b. Hay.
  - 2. Anchoring Material for Small Grain Mulch:
    - a. Netting:
      - 1) Biodegradable.
      - 2) Openings not to exceed 1-1/2 inches x 2 inches.
      - 3) Minimum Roll Width: 35 inches.
      - 4) Anchoring Staples or Pins: Wood pegs.
  - 3. Mulch Blankets:
    - a. Biodegradable:
      - 1) Straw: North American Green S-75; or equal.
      - 2) Coconut: North American Green C-125; or equal.
      - 3) Straw and Coconut: North American Green SC-150; or equal.
    - b. Non Degradable Polyester: North American Green P-300; or equal.
    - c. Anchoring Staples or Pins:
      - 1) Hardwood stakes at least 6 inches long.
      - 2) North American Green Bio-Stake blanket pins at least 6 inches long.

## PART 3 - EXECUTION

### 3.1 SEEDBED PREPARATION

- A. General:
  - 1. After the areas to be seeded have been brought to the required grade and properly trimmed, bring soil to a friable condition by disking, harrowing, or otherwise loosening and mixing to a depth of 3 inches to 4 inches. Thoroughly break all lumps and clods.
  - 2. If the prepared seedbed is not fertilized, satisfactorily seeded, and mulched before the friable condition is lost through compaction or crusting, repeat the seedbed preparation prior to seeding or reseeding.
- B. Raking: Rake prepared seedbed before seeding.

### 3.2 FERTILIZING

- A. Dry Fertilizer:
  - 1. Broadcast on surface as first step in seeding process.
  - 2. Apply with seeding if drilled.
  - 3. Work fertilizer into the soil to a depth of 1-inch to 2 inches.
  - 4. Apply uniformly.
  - 5. Application Rate: Equivalent to 240 pounds per acre of 12-12-12.

### 3.3 SEEDING

- A. Scheduling:
  - 1. Within 30 days from the time the area was first disturbed.
  - 2. Channel Banks: Within 24 hours from the time the area was first disturbed.
  - 3. Seasonal Limitations:
    - a. April 15 through October 10.
    - b. Dormant seeding after October 10.
- B. Sowing:
  - 1. Sow the seed following or in conjunction with the fertilizer and while the seed bed is in a friable condition.
  - 2. Do not sow seeds through mulch.
  - 3. Application Rate:
    - a. WTP and Lagoon Area: Sow seed at a minimum rate of 5 pounds per 1,000 square feet.
- C. Finishing: Float and lightly compact areas sown by hydro-seeder or the broadcast method to incorporate the seed into the uppermost 1/2-inch of the soil.
- D. Method:
  - 1. Broadcast: Do not seed when wind velocity exceeds 5 miles per hour.
  - 2. Mechanical drills.
- E. Inspection: Areas which are sown by hydro-seeder or the broadcast method shall be visually inspected for uniformity of application; areas in which visual inspection fails to reveal an average of 2 seeds per square inch shall be resown at no additional cost to Owner.
- F. Seed on Slopes: Protect seeded slopes against erosion with netting, asphalt emulsion adhesive or other methods acceptable to Engineer.

### 3.4 MULCHING

- A. Small Grain Mulch:
  - 1. Application:
    - a. Immediately after seeding.
    - b. Uniform distribution.
    - c. Allow sunlight to penetrate mulch.
  - 2. Application Rate: Two tons per acre (2-1/2 bales per 1000 square feet).
  - 3. Anchoring:
    - a. Mulch anchoring tool.
    - b. Netting.
- B. Mulch Blankets:
  - 1. Netting on top.
  - 2. Fibers in direct contact with soil.
  - 3. Staple in accordance with Manufacturer's guidelines for slope conditions.
  - 4. Direction of Installation:
    - a. Direction of flow of water in intermittent and ephemeral drains.
    - b. Perpendicular to sideslopes above normal water level in perennial drains.

### 3.5 MAINTENANCE

- A. General:
  - 1. Contractor: Responsible for follow-up maintenance.
  - 2. Owner, Contractor is responsible for periodic maintenance for 60 days after completion of areas of seeding or sodding.
- B. Follow-up Maintenance:
  - 1. Inspect materials planted in the spring during the summer or early fall, and take corrective action during the fall planting season.
  - 2. Inspect materials planted in the fall during the spring and take corrective action during this spring planting season.
  - 3. Reseed, sod, plant, fertilize, mulch, topsoil, grade and roll as necessary to achieve a uniform lawn free from eroded or bare areas.
  - 4. Water sodded and seeded areas as required to maintain the viability of the Product.
- C. Periodic Maintenance:
  - 1. Mow grass at 3-inch to 3-1/2-inch height and subsequent mowings as required to maintain 1-1/2-inch to 2-inch height.
  - 2. Spot seed areas damaged by traffic or other means.

END OF SECTION 32 92 00

## **APPENDIX**

**ATTACHMENT B**  
**GENERAL DECLARATIONS**

City of Ann Arbor  
Guy C. Larcom Municipal Building  
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, Notice of Pre-Bid Conference, General Information, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this Bid is one part.

In accordance with these bid documents, and Addenda numbered \_\_\_\_\_, the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:320 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Bid shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 202\_\_.

\_\_\_\_\_  
Bidder's Name

\_\_\_\_\_  
Authorized Signature of Bidder

\_\_\_\_\_  
Official Address

\_\_\_\_\_  
(Print Name of Signer Above)

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Email Address for Award Notice



**ATTACHMENT C**  
**LEGAL STATUS OF BIDDER**

(The bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

\* A corporation organized and doing business under the laws of the State of \_\_\_\_\_, for whom \_\_\_\_\_, bearing the office title of \_\_\_\_\_, whose signature is affixed to this Bid, is authorized to execute contracts.

**NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority**

• A limited liability company doing business under the laws of the State of \_\_\_\_\_, whom \_\_\_\_\_ bearing the title of \_\_\_\_\_ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

\* A partnership, organized under the laws of the state of \_\_\_\_\_ and filed in the county of \_\_\_\_\_, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):

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\* An individual, whose signature with address, is affixed to this Bid: \_\_\_\_\_  
(initial here)

**Authorized Official**

\_\_\_\_\_ **Date** \_\_\_\_\_, 202\_\_

(Print) Name \_\_\_\_\_ Title \_\_\_\_\_

Company:

\_\_\_\_\_

Address:

\_\_\_\_\_

Contact Phone (    ) \_\_\_\_\_ Fax (    ) \_\_\_\_\_

Email \_\_\_\_\_

**ATTACHMENT D**  
**PREVAILING WAGE DECLARATION OF COMPLIANCE**

The "wage and employment requirements" of Section 1:320 of Chapter 14 of Title I of the Ann Arbor City Code mandates that the city not enter any contract, understanding or other arrangement for a public improvement for or on behalf of the city unless the contract provides that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. Where the contract and the Ann Arbor City Code are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used. Further, to the extent that any employees of the contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with section 1:320 of Chapter 14 of Title I of the Code of the City of Ann Arbor, employees shall be paid a prescribed minimum level of compensation (i.e. Living Wage) for the time those employees perform work on the contract in conformance with section 1:815 of Chapter 23 of Title I of the Code of the City of Ann Arbor.

At the request of the city, any contractor or subcontractor shall provide satisfactory proof of compliance with this provision.

The Contractor agrees:

- (a) To pay each of its employees whose wage level is required to comply with federal, state or local prevailing wage law, for work covered or funded by this contract with the City,
- (b) To require each subcontractor performing work covered or funded by this contract with the City to pay each of its employees the applicable prescribed wage level under the conditions stated in subsection (a) or (b) above.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the wage and employment provisions of the Chapter 14 of the Ann Arbor City Code. The undersigned certifies that he/she has read and is familiar with the terms of Section 1:320 of Chapter 14 of the Ann Arbor City Code and by executing this Declaration of Compliance obligates his/her employer and any subcontractor employed by it to perform work on the contract to the wage and employment requirements stated herein. The undersigned further acknowledges and agrees that if it is found to be in violation of the wage and employment requirements of Section 1:320 of the Chapter 14 of the Ann Arbor City Code it shall have been deemed a material breach of the terms of the contract and grounds for termination of same by the City.

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Signature of Authorized Representative                      Date

\_\_\_\_\_  
Print Name and Title

\_\_\_\_\_  
Address, City, State, Zip

\_\_\_\_\_  
Phone/Email address

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500

## **ATTACHMENT E**

### **LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE**

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

<i>Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here <input type="checkbox"/> No. of employees _____</i>
--

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$17.08/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$19.04/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

***Check the applicable box below which applies to your workforce***

- |                          |   |
|--------------------------|---|
| <input type="checkbox"/> | Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits |
| <input type="checkbox"/> | Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits    |

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
City, State, Zip

\_\_\_\_\_  
Print Name and Title

\_\_\_\_\_  
Phone/Email address

## Attachment F

# CITY OF ANN ARBOR LIVING WAGE ORDINANCE

**RATE EFFECTIVE APRIL 30, 2025 - ENDING APRIL 29, 2026**

**\$17.08 per hour**

If the employer provides health care benefits\*

**\$19.04 per hour**

If the employer does **NOT** provide health care benefits\*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

## ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

\* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

**The Law Requires Employers to Display This Poster Where Employees Can Readily See It.**

**For Additional Information or to File a Complaint contact  
Colin Spencer at 734/794-6500 or [cspencer@a2gov.org](mailto:cspencer@a2gov.org)**



## ATTACHMENT G

### Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	( ) Relationship to employee
	( ) Interest in vendor's company
	( ) Other (please describe in box below)

\*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
Vendor Name		Vendor Phone Number
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, [procurement@a2gov.org](mailto:procurement@a2gov.org)

## **ATTACHMENT H**

### **DECLARATION OF COMPLIANCE**

#### **Non-Discrimination Ordinance**

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

---

Company Name

---

Signature of Authorized Representative

---

Date

---

Print Name and Title

---

Address, City, State, Zip

---

Phone/Email Address

**Questions about the Notice or the City Administrative Policy, Please contact:**  
Procurement Office of the City of Ann Arbor  
(734) 794-6500

## **ATTACHMENT I**

### **CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE**

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.

You can review the entire ordinance at [www.a2gov.org/humanrights](http://www.a2gov.org/humanrights).

**Intent:** It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

**Discriminatory Employment Practices:** No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

**Discriminatory Effects:** No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

**Nondiscrimination by City Contractors:** All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

**Complaint Procedure:** If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at [www.a2gov.org/humanrights](http://www.a2gov.org/humanrights). Then submit it to the Human Rights Commission by e-mail ([hrc@a2gov.org](mailto:hrc@a2gov.org)), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at [hrc@a2gov.org](mailto:hrc@a2gov.org).

**Private Actions For Damages or Injunctive Relief:** To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND  
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

MICHIGAN DEPARTMENT OF TRANSPORTATION  
CERTIFIED PAYROLL

**COMPLETION OF CERTIFIED PAYROLL FORM FULFILLS THE MINIMUM MDOT PREVAILING WAGE REQUIREMENTS**

[illegible]



Date \_\_\_\_\_

I, \_\_\_\_\_  
 (Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

\_\_\_\_\_ on the  
 (Contractor or Subcontractor)  
 \_\_\_\_\_; that during the payroll period commencing on the  
 (Building or Work)  
 \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, and ending the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_,  
 all persons employed on said project have been paid the full weekly wages earned, that no rebates have  
 been or will be made either directly or indirectly to or on behalf of said

\_\_\_\_\_ from the full  
 (Contractor or Subcontractor)  
 weekly wages earned by any person and that no deductions have been made either directly or indirectly  
 from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part  
 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948,  
 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(2) That any payrolls otherwise under this contract required to be submitted for the above period are  
 correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the  
 applicable wage rates contained in any wage determination incorporated into the contract; that the  
 classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide  
 apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of  
 Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a  
 State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- ☐ — in addition to the basic hourly wage rates paid to each laborer or mechanic listed in  
 the above referenced payroll, payments of fringe benefits as listed in the contract  
 have been or will be made to appropriate programs for the benefit of such  
 employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- ☐ — Each laborer or mechanic listed in the above referenced payroll has been paid,  
 as indicated on the payroll, an amount not less than the sum of the applicable  
 basic hourly wage rate plus the amount of the required fringe benefits as listed  
 in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.	