CITY OF MADISON

REQUEST FOR PROPOSALS

RFP #: 8655-0-2018-BP

Title: Architect and Engineering Services for Madison Public Market

City Agency: Economic Development Division

Due Date: Monday, August 20, 2018
2:00 PM CST

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1 NOTICE TO PROPOSERS

1.1 Summary

The City of Madison Economic Development Division ("City") is soliciting Proposals from qualified vendors for Architect and Engineering Services for Madison Public Market. Vendors submitting Proposals ("Proposers") are required to read this Request for Proposals ("RFP") in its entirety and follow the instructions contained herein.

1.2 Important Dates

Deliver Proposals no later than the due time and date indicated below. The City will reject late Proposals:

Issue Date:	Monday, July 23, 2018
Questions Due Date:	Monday, August 6, 2018
Answers Posted Date:	Thursday, August 9, 2018
Due Date:	Monday, August 20, 2018, 2:00 PM CST

1.3 Format

Submit Technical and Cost Proposals (Form D) in separate, distinct parts within the proposal package.

Hardcopy proposals typed and securely bound on 8.5 by 11-inch paper, otherwise identical to the electronic version.

Electronic proposal in a PDF format stored on a common media (CD, DVD, or flash drive), identical in content and sequence to hardcopy proposals submitted.

Cost Proposal (Form D):	One Physical Copy
Technical Proposal:	Five Physical Copies
Electronic Proposal:	One (1) complete copy. Cost and Technical Proposals should be separate files.

The City will not consider illegible Proposals.

Elaborate proposals (i.e., expensive artwork) beyond that sufficient to present a complete and effective proposal, are not necessary or desired.

Complete and return Forms A through E to City of Madison Purchasing Services by Monday, August 20, 2018, 2:00 PM CST.

1.4 Labeling

All proposals must be clearly labeled:	Proposer's Name and Address RFP #: 8655-0-2018-BP Title: Architect and Engineering Services for Madison Public Market Due: Monday, August 20, 2018, 2:00 PM CST

All email correspondence must include RFP #8655-0-2018-BP in the subject line.

1.5 Delivery of Proposals

Delivery of hard copies to: City of Madison Purchasing Services
City County Building, Room 407
210 Martin Luther King Jr. Blvd.
Madison, WI 53703

Delivery of electronic copy to: via email to bids@cityofmadison.com
or on a commonly used media with the hard copies.

Proposals must be delivered as instructed. Deliveries to other City departments and/or locations may result in disqualification.

Note: When mailing your response via a third party delivery service, the outside of the packaging MUST be clearly marked with the RFP name and number. This ensures that the bid can be delivered to the correct purchasing agent without having to open the bid.

1.6 Appendix A: Standard Terms & Conditions

Proposers are responsible for reviewing this attachment prior to submission of their Proposals. City of Madison Standard Terms and Conditions are the minimum requirements for the submission of Proposals.

1.7 Appendix B: Sample Contract for Purchase of Services

Proposers are responsible for reviewing this attachment prior to submission of their Proposals. The Sample Contract for Purchase of Services shall serve as the basis of the contract resulting from this RFP. The terms of this template contract shall become contractual obligations following award of the RFP. By submitting a proposal, Proposers affirm their willingness to enter into a contract containing these terms.

1.8 Affirmative Action Notice

If Contractor employs 15 or more employees and does aggregate annual business with the City of $25,000 or more for the calendar year in which the PO and/or Contract takes effect, Contractor shall file, within thirty (30) days from the PO/Contract effective date and BEFORE RELEASE OF PAYMENT, an Affirmative Action Plan (www.cityofmadison.com/dcr/aaFormsVS.cfm) designed to ensure that the Contractor provides equal employment opportunity to all and takes affirmative action in its utilization of applicants and employees who are women, minorities and/or persons with disabilities. The Model Affirmative Action Plan for Vendors, Request for Exemption form, and instructions are available at: www.cityofmadison.com/dcr/aaForms.cfm or by contacting a Contract Compliance Specialist at the City of Madison Affirmative Action Division at (608) 266-4910.

Contractor shall also allow maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this PO/Contract.

Job postings: If Contractor employs 15 or more employees, regardless of dollar amount, Contractor must notify the City of all external job openings at locations in Dane County, WI and Contractor agrees to interview candidates referred by the City or its designee. Job posting information is available at: www.cityofmadison.com/dcr/aaJobSkillsBank.cfm.

The complete set of Affirmative Action requirements for this purchase can be found in **paragraph 20 of Appendix A – Standard Terms and Conditions** and, if applicable**,** in **paragraph 13 of Appendix B – Sample Contract for Purchase of Services.**

1.9 Multiple Proposals

Multiple Proposals from Proposers are permitted; however, each must fully conform to the requirements for submission. Proposers must sequentially label (e.g., Proposal #1, Proposal #2) and separately package each Proposal. Proposers may submit alternate pricing schemes without having to submit multiple Proposals.

1.10 City of Madison Contact Information

The City of Madison Economic Development Division is the procuring agency:	Dan Kennelly City of Madison Economic Development Division PH: (608) 267-1968 dkennelly@cityofmadison.com
The City of Madison Purchasing Services administers the procurement function:	Brian Pittelli Purchasing Services City-County Bldg, Room 407 210 Martin Luther King, Jr. Blvd. Madison, WI 53703-3346 PH: (608) 267-4969 FAX: (608) 266-5948 bpittelli@cityofmadison.com
For questions regarding Affirmative Action Plans please contact:	Contract Compliance Department of Civil Rights City-County Bldg., Room 523 210 Martin Luther King, Jr. Blvd. Madison, WI 53703 PH: (608) 266-4910 dcr@cityofmadison.com

The City employs spam filtering that occasionally blocks legitimate emails, holding them in 'quarantine" for four calendar days. The contacts listed in this RFP will acknowledge all emails received. Proposers not receiving acknowledgement within twenty-four hours shall follow-up via phone with specific information identifying the originating email address for message recovery.

1.11 Inquiries, Clarifications, and Exceptions

Proposers are to raise any questions they have about the RFP document without delay. Direct all questions, ***in writing,*** to the Purchasing Services administrator listed in Section 1.10.

Proposers finding any significant ambiguity, error, conflict, discrepancy, omission, or other deficiency in this RFP document shall immediately notify the Buyer and request clarification. In the event that it is necessary to provide additional clarification or revision to the RFP, the City will post addenda – see 1.12 below. Proposers are strongly encouraged to check for addenda regularly.

Proposals should be as responsive as possible to the provisions stated herein. A prospective vendor may take "exception" to bid terms, conditions, specifications and dates stated within the bid package. However, the City of Madison reserves the right to disqualify any and all bids submitted which include exceptions, if deemed not in the City's best interests.

1.12 Addenda

In the event that it is necessary to provide additional clarification or revision to the RFP, the City will post addenda to its Proposals distribution websites – see 1.13 below. It is the Proposers responsibility to regularly monitor the websites for any such postings. Proposers must acknowledge the receipt of any

addenda on Form B. Failure to retrieve addenda and include their provisions may result in disqualification.

1.13 Bid Distribution Networks

The City of Madison posts all Request for Proposals, addenda, tabulations, awards and related announcements on two distribution networks – VendorNet and DemandStar. The aforementioned documents are available **exclusively** from these websites. It is the Proposers responsibility to regularly monitor the bid distribution network for any such postings. Proposers failure to retrieve such addenda and incorporate their appropriate provisions in their response may result in disqualification. Both sites offer free registration to City Proposers.

State of Wisconsin VendorNet System:	State of Wisconsin and local agencies bid network. Registration is free. http://vendornet.state.wi.us/vendornet
DemandStar by Onvia:	National bid network – Free subscription is available to access Proposals from the City of Madison and other Wisconsin agencies, participating in the Wisconsin Association of Public Purchasers (WAPP). A fee is required if subscribing to multiple agencies that are not included in WAPP.
Bid Opportunities:	www.cityofmadison.com/finance/purchasing/bidDemandStar.cfm
Home Page:	www.demandstar.com
To Register:	www.onvia.com/WAPP

1.14 Local Vendor Preference

The City of Madison has adopted a local preference purchasing policy granting a scoring preference to local suppliers. Only suppliers registered as of the bid's due date will receive preference. Learn more and register at the City of Madison website: www.cityofmadison.com/business/localPurchasing.

1.15 Oral Presentations/Site Visits/Meetings

Proposers may be asked to attend meetings, make oral presentations, inspect City locations or make their facilities available for a site inspection as part of this RFP process. Such presentations, meetings or site visits will be at the Proposers expense.

1.16 Acceptance/Rejection of Proposals

The City reserves the right to accept or reject any or all proposals submitted, in whole or in part, and to waive any informalities or technicalities, which at the City's discretion is determined to be in the best interests of the City. Further, the City makes no representations that a contract will be awarded to any proposer responding to this request. The City expressly reserves the right to reject any and all proposals responding to this invitation without indicating any reasons for such rejection(s).

The City reserves the right to postpone due dates and openings for its own convenience and to withdraw this solicitation at any time without prior notice.

1.17 Withdrawal or Revision of Proposals

Proposers may, without prejudice, withdraw Proposals submitted prior to the date and time specified for receipt of Proposals by requesting such withdrawal before the due time and date of the submission of Proposals. After the due date of submission of Proposals, no Proposals may be withdrawn for a period of

90 days or as otherwise specified or provided by law. Proposers may modify their Proposals at any time prior to opening of Proposals.

1.18 Non-Material and Material Variances

The City reserves the right to waive or permit cure of nonmaterial variances in the offer if, in the judgment of the City, it is in the City's best interest to do so. The determination of materiality is in the sole discretion of the City.

1.19 Public Records

Proposers are hereby notified that all information submitted in response to this RFP may be made available for public inspection according to the Public Records Law of the State of Wisconsin or other applicable public record laws. Information qualifying as a "trade secret"—defined in State of Wisconsin Statutes—may be held confidential.

Proposers shall seal separately and clearly identify all information they deem to be "trade secrets," as defined in the State of Wisconsin Statutes. Do not duplicate or co-mingle information, deemed confidential and sealed, elsewhere in your response.

> S. 19.36(5)
> (5) TRADE SECRETS. An authority may withhold access to any record or portion of a record containing information qualifying as a trade secret as defined in s. 134.90(1)(c).
>
> s. 134.90(1)(c)
> (c) "Trade secret" means information, including a formula, pattern, compilation, program, device, method, technique or process to which all of the following apply:
> 1. The information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.
> 2. The information is the subject of efforts to maintain its secrecy that are reasonable under the circumstances.

The City cannot ensure that information will not be subject to release if a request is made under applicable public records laws. The City cannot consider the following confidential: a bid in its entirety, price bid information, or the entire contents of any resulting contract. The City will not provide advance notice to Proposers prior to release of any requested record.

To the extent permitted by such laws, it is the intention of the City to withhold the contents of Proposals from public view—until such times as competitive or bargaining reasons no longer require non-disclosure, in the City's opinion. At that time, all Proposals will be available for review in accordance with such laws.

1.20 Usage Reports

Annually, the successful Proposers shall furnish to City Purchasing usage reports summarizing the ordering history for each department served during the previous contract year. The report, at a minimum, must include each and every item or service ordered during the period, its total quantities and dollars by item/service and in total. The City reserves the right to request usage reports at any time and request additional information, if required, when reviewing contract activity.

1.21 Partial Award

Unless otherwise noted, it will be assumed that Proposers will accept an order for all or part of the items/services priced.

1.22 Tax Exempt

The City of Madison as a municipality is exempt from payment of federal excise taxes (Registration Number 39-73-0411-K) and State of Wisconsin taxes per Wisconsin statute 77.54(9a). Federal Tax ID #39-6005507. A completed Wisconsin Department of Revenue Form S-211 (R.2-00) can be found on the City website. Our tax-exempt number is ES 42916.

1.23 Cooperative Purchasing

Bidders may choose to extend prices offered on bids to other municipalities. Under Wisconsin Statutes, a municipality is defined as a county; city; village; town; school district; board of school directors; sewer district; drainage district; vocational, technical and adult education district; or any other public or quasi-public corporation, officer, board or other body having the authority to award public contracts. This is known as “cooperative” or “piggyback” purchasing, a practice common amongst units of government. The City is not responsible for any contract resulting from a cooperative purchase using this RFB as a basis; they are made solely between the bidders and third party unit of government.

1.24 Proposers Responsibility

Proposers shall examine this RFP and shall exercise their judgment as to the nature and scope of the work required. No plea of ignorance concerning conditions or difficulties that exist or may hereafter arise in the execution of the work under the resulting contract, as a consequence of failure to make necessary examinations and investigations, shall be accepted as an excuse for any failure or omission on the part of the Proposers to fulfill the requirements of the resulting contract.

2 DESCRIPTION OF SERVICES/COMMODITIES

Please see Exhibits A –H for a complete scope of services.

3 REQUIRED INFORMATION AND CONTENT OF PROPOSALS

3.1 Section 1 – General Information, Signatures, and Required Guarantees and Certifications

1. Form A – Signature Affidavit
2. Form B – Receipt Forms and Submittal Checklist
3. Form C – Contractor Profile Information
4. Form E – References

3.2 Section 2 – Policy and Procedure Questionnaire

Complete the following questionnaire.

Responses must be in the same sequence as listed and must be identified with the corresponding question number, i.e., Question 1, Question 2, etc.

1) List any and all contracts your firm has done for the City of Madison.

2) Disclosure of Contract Failures, Litigations

Disclose any alleged significant prior or ongoing contract failures, contract breaches, any civil or criminal litigation or investigation pending which involves the consultant or in which the consultant has been judged guilty or liable or which may affect the performance of the services to be rendered herein, in which the Firm, any of its employees, subcontractors, or sub consultants is or has been involved in within the last three (3) years.

3) Do you intend to comply with the Affirmative Action Ordinance of the City of Madison? If no, please explain.

3.3 Section 3 – Project Overview Qualifications

Please limit response to 10 pages. Responses must be in the same sequence as listed and must be identified with the corresponding question number, i.e., Question 1, Question 2, etc.

1. Firm/Team - Describe your team. State firm or firms that will be on the team, location of the office from which this engagement will be serviced, and the range of activities performed by the firm/team.
2. Team Members - Describe individual team members. Include names, titles, roles, and responsibilities for each team member. Identify the project manager and primary contact. Identify what personnel will be involved in the site planning effort and what personnel will be involved in the architecture work. Include resumes for all team members.
3. Project examples – Provide descriptions of related projects. Include examples of site planning work for multi-acre mixed-use projects as well as examples of architecture for individual public buildings.

3.4 Section 4 – Technical Specifications

Please limit response to 10 pages. Responses must be in the same sequence as listed and must be identified with the corresponding question number, i.e., Question 1, Question 2, etc.

1. Overall Approach – Briefly describe your teams design approach and philosophy. Share any initial thoughts on the Madison Public Market and how you would undertake this project.

2. Work Plan - Submit a work plan and schedule that outlines the proposed steps and project timeline for the above Scope of Work. Note that the provided scope of work is a starting point and the city expects to receive more detailed work plans outlining additional details on deliverables and tasks necessary to complete the project.

3. Work Hours by Task - Submit an estimation of total work hours and budget broken down by each phase and each individual task.

3.5 Section 5 – Cost

Please submit cost proposal, Form D, separate from the rest of the proposal.

Form A: Signature Affidavit

RFP #: 8655-0-2018-BP Architect and Engineering Services for Madison Public Market

This form must be returned with your response.

In signing Proposals, we certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise take any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit Proposals, that Proposals have been independently arrived at, without collusion with any other Proposers, competitor or potential competitor; that Proposals have not been knowingly disclosed prior to the opening of Proposals to any other Proposers or competitor; that the above statement is accurate under penalty of perjury.

The undersigned, submitting this Proposals, hereby agrees with all the terms, conditions, and specifications required by the City in this Request for Proposals, declares that the attached Proposals and pricing are in conformity therewith, and attests to the truthfulness of all submissions in response to this solicitation.

Proposers shall provide the information requested below. Include the legal name of the Proposers and signature of the person(s) legally authorized to bind the Proposers to a contract.

_____

COMPANY NAME

_____ _____

SIGNATURE DATE

_____

PRINT NAME OF PERSON SIGNING

Form B: Receipt of Forms and Submittal Checklist

RFP #: 8655-0-2018-BP Architect and Engineering Services for Madison Public Market

This form must be returned with your response.

Proposers hereby acknowledge the receipt and/or submittal of the following forms:

Forms	Initial to Acknowledge SUBMITTAL	Initial to Acknowledge RECEIPT
Description of Services/Commodities	N/A	
Form A: Signature Affidavit		
Form B: Receipt of Forms and Submittal Checklist		
Form C: Vendor Profile		
Form D: Cost Proposal		
Form E: References		
Answers to Questions in Sections 3.2, 3.3, 3.4		
Appendix A: Standard Terms & Conditions	N/A	
Appendix B: Contract for Purchase of Services	N/A	
Exhibit A: RFP Scope	N/A	
Exhibit B: General Design Guidelines	N/A	
Exhibit C: Public Market Site Context and General Site Plan	N/A	
Exhibit D: Public Market Site Seymour Environmental Report	N/A	
Exhibit E: East Washington + North First Street – CGC Geotech	N/A	
Exhibit F: JLA Site Design Concept – Fit Diagrams	N/A	
Exhibit G: Madison Public Market Middleton Concept Estimate	N/A	
Exhibit H: Public Market Area Burse ALTA Survey	N/A	
Addendum #	N/A	
Addendum #	N/A	

VENDOR NAME

COMPANY NAME

Form C: Vendor Profile

RFP #: 8655-0-2018-BP Architect and Engineering Services for Madison Public Market

This form must be returned with your response.

COMPANY INFORMATION

COMPANY NAME (Make sure to use your complete, legal company name.)			
FEIN	(If FEIN is not applicable, SSN collected upon award)		
CONTACT NAME (Able to answer questions about proposal.)	TITLE		
TELEPHONE NUMBER	FAX NUMBER		
EMAIL			
ADDRESS	CITY	STATE	ZIP

AFFIRMATIVE ACTION CONTACT

The successful Contractor, who employs more than 15 employees and whose aggregate annual business with the City for the calendar year, in which the contract takes effect, is more than twenty-five thousand dollars ($25,000), will be required to comply with the City of Madison Affirmative Action Ordinance, Section 39.02(9) within thirty (30) days of award of contract.

CONTACT NAME	TITLE		
TELEPHONE NUMBER	FAX NUMBER		
EMAIL			
ADDRESS	CITY	STATE	ZIP

ORDERS/BILLING CONTACT

Address where City purchase orders/contracts are to be mailed and person the department contacts concerning orders and billing.

CONTACT NAME	TITLE		
TELEPHONE NUMBER	FAX NUMBER		
EMAIL			
ADDRESS	CITY	STATE	ZIP

LOCAL VENDOR STATUS

The City of Madison has adopted a local preference purchasing policy granting a scoring preference to local suppliers. Only suppliers registered as of the bid's due date will receive preference. Learn more and register at the City of Madison website.

CHECK ONLY ONE:

☐ **Yes,** we are a local vendor ***and*** have registered on the City of Madison website under the following category:_____ www.cityofmadison.com/business/localPurchasing

☐ **No,** we are not a local vendor or have not registered.

Form D: Cost Proposal

RFP #: 8655-0-2018-BP Architect and Engineering Services for Madison Public Market

This form must be returned with your response.

Prepare the fee proposal as all inclusive, not-to-exceed, fixed fees:

- All Inclusive – Covers all direct and indirect necessary expenses including but not limited to; travel, telephone, copying and other out-of-pocket expenses.
- Not To Exceed – The actual fees shall not exceed the amount specified in fee proposal.
- Fixed Fee – All prices, rates, fees and conditions outlined in the proposal shall remain fixed and valid for the entire length of the contract and any/all renewals.

Any pricing increases or additions must be agreed upon in writing by both parties.

1. Please list all the different components or phases of work you foresee providing to the City of Madison based on the scope of work provided in Exhibits A – H. Please provide the total cost for each component or phase as showing in the following chart. If you need extra space, feel free to use the blank rows below or attach a separate sheet.

Phase of Work	Cost
Pre-design/programming	$
Schematic Design	$
Design Development	$
Construction Documents	$
Bidding	$
Construction Administration	$
Warranty	$
	$
	$
	$
	$
Total	$

2. Please provide the hourly billing rate for all team members that would be assigned this RFP:

Position	Name (if known)	Hourly Billing Rate

COMPANY NAME

Form E: References

RFP #: 8655-0-2018-BP Architect and Engineering Services for Madison Public Market

This form must be returned with your response.

REFERENCE #1 – CLIENT INFORMATION			
COMPANY NAME	CONTACT NAME		
ADDRESS	CITY	STATE	ZIP
TELEPHONE NUMBER	FAX NUMBER		
EMAIL			
CONTRACT PERIOD	YEAR COMPLETED	TOTAL COST	
DESCRIPTION OF THE PERFORMED WORK			

REFERENCE #2 – CLIENT INFORMATION			
COMPANY NAME	CONTACT NAME		
ADDRESS	CITY	STATE	ZIP
TELEPHONE NUMBER	FAX NUMBER		
EMAIL			
CONTRACT PERIOD	YEAR COMPLETED	TOTAL COST	
DESCRIPTION OF THE PERFORMED WORK			

REFERENCE #3 – CLIENT INFORMATION			
COMPANY NAME	CONTACT NAME		
ADDRESS	CITY	STATE	ZIP
TELEPHONE NUMBER	FAX NUMBER		
EMAIL			
CONTRACT PERIOD	YEAR COMPLETED	TOTAL COST	
DESCRIPTION OF THE PERFORMED WORK			

COMPANY NAME

Appendix A

CITY OF MADISON

(STC-Form: 05/01/2018)

1. General. Throughout this document, "City of Madison," "City" and "Purchasing" shall be synonymous and mean the City of Madison. The words "bid" and "proposal" are synonymous, as are the words "bidder," "proposer" and "contractor." The phrases "request for proposal," "invitation for bids," "request," "invitation," and "solicitation" shall also be synonymous.
   As applied to the winning or selected bidder, the words "bid," "proposal," and "contract" are synonymous.

2. Entire Agreement, Order of Precedence. These standard terms and conditions shall apply to any Purchase Order issued as a result of this Request for Bid/Proposal, except where expressly stated otherwise in the RFP or in a written instrument covering this purchase signed by an authorized representative of the City and the Contractor, in a form approved by the City Attorney (a "Separate Contract"). If such a separate contract is executed it shall constitute the entire agreement and no other terms and conditions, whether oral or written, shall be effective or binding unless expressly agreed to in writing by the City.
   If a Separate Contract is not executed, these Standard Terms and Conditions, the City's request for proposals, the version of the vendor's bid that was accepted by the City, and the City's Purchase Order (if any) shall constitute a contract and will be the entire agreement.
   Order of Precedence: If there is a conflict between this Section A and any terms in the vendor's accepted bid or proposal, this Section A shall control unless the parties expressly agree to another order of precedence, in writing. If there is a conflict between this Section A and a Separate Contract, the terms and conditions of the Separate Contract shall control.

I. TERMS FOR SUBMISSION OF BIDS: The following section applies to the bid/selection process only.

3. This invitation for bids does not commit the City to award a contract, pay any costs incurred in preparation of bids, or to procure or contract for services or equipment. The City may require the bidder to participate in negotiation and to submit such additional price or technical or other revisions to his or her bids as may result from negotiation. The bidder shall be responsible for all costs incurred as part of his or her participation in the pre-award process.
   The City reserves the right to accept or reject any or all bids submitted, in whole or in part, and to waive any informalities or technicalities which at the City's discretion are determined to be in the best interests of the City. Further, the City makes no representations that a contract will be awarded to any offeror responding to this request. The City expressly reserves the right to reject any and all bids responding to this invitation without indicating any reasons for such rejections(s).
   The City reserves the right to postpone due dates and openings for its own convenience and to withdraw this solicitation at any time without prior notice.

4. Addenda. Changes affecting the specifications will be made by addenda. Changes may include, or result in, a postponement in the bid due date. Bidders are required to complete the Bidder Response Sheet, acknowledging receipt of all parts of the bid, including all addenda.

5. Price Proposal. All bidders are required to identify the proposed manufacturer and model, and to indicate the proposed delivery time on the attached Proposal Form. Failure to do so may cause the bid to be considered not responsive. If desired, the bidder may include product literature and specifications. The price quoted will remain firm throughout each contract period. Any price increase proposed shall be submitted sixty (60) calendar days prior to subsequent contract periods and shall be limited to fully documented cost increases to the bidder which are demonstrated to be industry-wide.

6. Price Inclusion. The price quoted in any bid shall include all items of labor, materials, tools, equipment, and other costs necessary to fully complete the furnishing and delivery of equipment or services pursuant to the specifications attached thereof. Any items omitted from the specifications which are clearly necessary for the completion of the project shall be considered a portion of the specifications although not directly specified or called for in these specifications.

7. Pricing and Discount.
   a. Unit prices shown on the bid/proposal or contract shall be the price per unit of sale (e.g., gal., cs., doz., ea., etc.) as stated on the bid/proposal or contract. For any given item, the quantity multiplied by the unit price shall establish the extended price. If an apparent mistake exists in the extended price, the unit price shall govern in the bid/proposal evaluation and contract administration.
   b. In determination of award, discounts for early payment will only be considered when all other conditions are equal. Early payment is defined as payment within fifteen (15) days providing the discount terms are deemed favorable. All payment terms must allow the option of Net 30.

8. F.O.B. Destination Freight Prepaid. Bid prices must include all handling, transportation and insurance charges. Failure to bid FOB Destination Freight Prepaid may disqualify your bid.

9. Award.
   a. The City will have sole discretion as to the methodology used in making the award. Where none is specified, the award will be made to the lowest responsible bidder in compliance with the specifications and requirements of this solicitation.
   b. The right is reserved to make a separate award of each item, group of items or all items, and to make an award in whole or in part, whichever is deemed in the best interest of the City.

10. Responsiveness and Responsibility. Award will be made to the responsible and responsive bidder whose bid is most advantageous to the City with price and other factors considered. For the purposes of this project, responsiveness is defined as the bidder's conformance to the requirements of the solicitation. Being not responsive includes the failure to furnish information requested.
    Responsibility is defined as the bidder's potential ability to perform successfully under the terms of the proposed contract. Briefly, a responsible bidder has adequate financial resources or the ability to obtain said resources; can comply with required delivery taking into

account other business commitments; has a satisfactory performance record; has a satisfactory record of integrity and business ethics; and has the necessary organization, experience and technical skills.

The City reserves the right to refuse to accept any bid from any person, firm or corporation that is in arrears or is in default to the City, or has failed to perform faithfully any previous contract with the City. If requested, the bidder must present within five (5) working days evidence satisfactory to the City of performance ability and possession of necessary facilities, financial resources, adequate insurance, and any other resources required to determine the bidder's ability to comply with the terms of this solicitation document.

11. Cancellation.
    a. The City reserves the right to cancel any contract in whole or in part without penalty due to non-appropriation of funds.
    b. In the event the Bidder shall default in any of the covenants, agreements, commitments, or conditions and any such default shall continue unremedied for a period of ten (10) days after written notice to the Bidder, the City may, at its option and in addition to all other rights and remedies which it may have, terminate the Agreement and all rights of the Bidder under the Agreement.
    c. Failure to maintain the required certificates of insurance, permits, licenses and bonds will be cause for contract termination. If the Bidder fails to maintain and keep in force the insurance, if required, the City shall have the right to cancel and terminate the contract without notice.

II. CONDITIONS OF PURCHASE: The following section applies to purchases/contracts after the award. See Paragraphs 1 & 2 for applicability and order of precedence.

12. Specifications.
    a. All bidders must be in compliance with all specifications and any drawings provided with this solicitation. Exceptions taken to these specifications must be noted on your bid.
    b. When specific manufacturer and model numbers are used, they are to establish a design, type, construction, quality, functional capability and/or performance level desired. When alternates are bid/proposed, they must be identified by manufacturer, stock number, and the bidder/proposer is responsible for providing sufficient information to establish equivalency. The City shall be the sole judge of equivalency. Bidders are cautioned to avoid bidding alternates which do not meet specifications, which may result in rejection of their bid/proposal.

13. Regulatory Compliance.
    a. Seller represents and warrants that the goods or services furnished hereunder, including all labels, packages, and container for said goods, comply with all applicable standards, rules and regulations in effect under the requirements of all Federal, State and local laws, rules and regulations as applicable, including the Occupational Safety and Health Act (OSHA), as amended, with respect to design, manufacture or use for their intended purpose of said goods or services. Seller shall furnish Material Safety Data Sheets (MSDS) whenever applicable.
    b. If it is determined by the City that such standards are not met, the seller agrees to bear all costs required to meet the minimum standards as stated above for the equipment/products furnished under this contract.

14. Warranty. Unless otherwise specifically stated by the bidder, products shall be warranted against defects by the bidder for ninety (90) days from the date of receipt. If bidder or manufacturer offers warranty that exceeds 90 days, such warranty shall prevail.

15. Ownership of Printing Materials. All artwork, camera-ready copy, negative, dies, photos and similar materials used to produce a printing job shall become the property of the City. Any furnished materials shall remain the property of the City. Failure to meet this requirement will disqualify your bid.

16. Item Return Policy. Bidder will be required to accept return of products ordered in error for up to twenty-one (21) calendar days from date of receipt, with the City paying only the return shipping costs. Indicate in detail on the Bidder Response Sheet, your return policy.

17. Payment Terms and Invoicing. The City will pay properly submitted vendor invoices within thirty (30) days of receipt, providing good and/or services have been delivered, installed (if required), and accepted as specified.
    a. Payment shall be considered timely if the payment is mailed, delivered, or transferred within thirty (30) days after receipt of a properly completed invoice, unless the vendor is notified in writing by the agency of a dispute before payment is due.
    b. Invoices presented for payment must be submitted in accordance with instructions contained on the purchase order, including reference to purchase order and submittal to the correct address for processing. Invoice payment processing address is shown on the upper middle section of the purchase order. Send invoices to Accounts Payable address on the purchase order. Do not send invoices to Purchasing or ship to address.
    c. Bidders, proposers shall include discounts for early payment as a percent reduction of invoice. Invoice discounts shall be determined where applicable, from the date of acceptance of goods and/or the receipt of invoice, whichever is later. Discounts for early payment terms stated on the bid/proposal must be shown plainly on the invoice; discounts for early payment not shown on the invoice will be taken.
    d. Invoices submitted not in accordance with these instructions will be removed from the payment process and returned within ten (10) days.

18. F.O.B. Destination Freight Prepaid. Unless otherwise agreed in writing, the vendor shall bear all handling, transportation and insurance charges. Title of goods shall pass upon acceptance of goods at the City's dock.

19. Tax Exemption. The City of Madison is exempt from the payment of Federal Excise Tax and State Sales Tax. **The City Tax Exempt number is ES 42916.** Any other sales tax, use tax, imposts, revenues, excise, or other taxes which are now, or which may hereafter be imposed by Congress, the State of Wisconsin, or any other political subdivision thereof and applicable to the sale of material delivered as a result of the bidder's bid and which, by terms of the tax law, may be passed directly to the City, will be paid by the City.

20. Affirmative Action.

A. The following language applies to all successful bidders employing fifteen (15) or more employees (MGO 39.02(9)(c):

The Contractor agrees that, within thirty (30) days after the effective date of this Contract, Contractor will provide to the City of Madison Department of Civil Rights (the "Department"), certain workforce utilization statistics, using a form provided by the City.

If the Contract is still in effect, or if the City enters into a new Agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the Department no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this Contract, it will notify the Department of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications, and application procedures and deadlines, shall be provided to the City by the opening date of advertisement and with sufficient time for the City to notify candidates and make a timely referral. The Contractor agrees to interview and consider candidates referred by the Department, or an organization designated by the Department, if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date stated in the notice.

The Department will determine if a contractor is exempt from the above requirements (Sec. 20.A.) at the time the Request for Exemption in 20.B.(2) is made.

B. Articles of Agreement, Request for Exemption, and Release of Payment:

The "ARTICLES OF AGREEMENT" beginning on the following page, apply to all contractors, unless determined to be exempt under the following table and procedures:

NUMBER OF EMPLOYEES	LESS THAN $25,000 Aggregate Annual Business with the City*	$25,000 OR MORE Aggregate Annual Business with the City*
14 or less	Exempt**	Exempt**
15 or more	Exempt**	Not Exempt

*As determined by the Finance Director **As determined by the Department of Civil Rights

(1) Exempt Status: In this section, "Exempt" means the Contractor is exempt from the Articles of Agreement in section 20.B.(5) of this Contract and from filing an Affirmative Action plan as required by Section IV of the Articles of Agreement. The Department of Civil Rights ("Department") makes the final determination as to whether a contractor is exempt. If the Contractor is not exempt, sec. 20.B.(5) shall apply and Contractor shall select option A. or B. under Article IV therein and file an Affirmative Action Plan.

(2) Request for Exemption – Fewer Than 15 Employees: (MGO 39.02(9)(a)2.) Contractors who believe they are exempt based on number of employees shall submit a Request for Exemption on a form provided by the Department within thirty (30) days of the effective date of this Contract.

(3) Exemption – Annual Aggregate Business: (MGO 39.02(9)(a)c.): The Department will determine, at the time this Contract is presented for signature, if the Contractor is exempt because it will have less than $25,000 in annual aggregate business with the City in the calendar year. CONTRACTORS WITH 15 OR MORE EMPLOYEES WILL LOSE THIS EXEMPTION AND BECOME SUBJECT TO SEC. 20.B.(5) UPON REACHING $25,000 OR MORE ANNUAL AGGREGATE BUSINESS WITH THE CITY WITHIN THE CALENDAR YEAR.

(4) Release of Payment: (MGO 39.02(9)(e)1.b.) All non-exempt contractors must have an approved Affirmative Action plan meeting the requirements of Article IV below on file with the Department within thirty (30) days of the effective date of this Contract and prior to release of payment by the City. Contractors that are exempt based on number of employees agree to file a Request for Exemption with the Department within thirty (30) days of the effective date and prior to release of payment by the City.

(5) Articles of Agreement:

ARTICLE I

The Contractor shall take affirmative action in accordance with the provisions of this Contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin and that the employer shall provide harassment-free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this Contract.

ARTICLE II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin.

ARTICLE III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining Agreement or other Contract or understanding a notice to be provided by the City advising the labor union or workers representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

ARTICLE IV

(This Article applies to non-public works contracts.)

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison (MGO 39.02) including the Contract compliance requirements. The Contractor warrants and certifies that one of the following paragraphs is true (check one):

- ☐ A. Contractor has prepared and has on file an affirmative action plan that meets the format requirements of Federal Revised Order No, 4, 41 CFR part 60-2, as established by 43 FR 51400 November 3, 1978, including appendices required by City of Madison ordinances or it has prepared and has on file a model affirmative action plan approved by the Madison Common Council.
- ☐ B. Within thirty (30) days after the effective date of this Contract, Contractor will complete an affirmative action plan that meets the format requirements of Federal Revised Order No. 4, 41 CFR Part 60-2, as established by 43 FR 51400, November 3, 1978, including appendices required by City of Madison ordinance or within thirty (30) days after the effective date of this Contract, it will complete a model affirmative action plan approved by the Madison Common Council.
- ☐ C. Contractor believes it is exempt from filing an affirmative action plan because it has fewer than fifteen (15) employees and has filed, or will file within thirty (30) days after the effective date of this Contract, a form required by the City to confirm exempt status based on number of employees. If the City determines that Contractor is not exempt, the Articles of Agreement will apply.
- ☐ D. Contractor believes it is exempt from filing an affirmative action plan because its annual aggregate business with the City for the calendar year in which the contract takes effect is less than twenty-five thousand dollars ($25,000), or for another reason listed in MGO 39.02(9)(a)2. If the City determines that Contractor is not exempt, the Articles of Agreement will apply.

ARTICLE V
(This Article applies only to public works contracts.)

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the Contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works Contractors in a form approved by the Director of Affirmative Action.

ARTICLE VI

The Contractor will maintain records as required by Section 39.02(9)(f) of the Madison General Ordinances and will provide the City's Department of Affirmative Action with access to such records and to persons who have relevant and necessary information, as provided in Section 39.02(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

ARTICLE VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action provisions of this Contract or Sections 39.03 and 39.02 of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

A. Cancel, terminate or suspend this Contract in whole or in part.
B. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.
C. Recover on behalf of the City from the prime Contractor 0.5 percent of the Contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the Contract price, or five thousand dollars ($5,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the noncomplying subcontractor.

ARTICLE VIII
(This Article applies to public works contracts only.)

The Contractor shall include the above provisions of this Contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

ARTICLE IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this Contract. (In federally funded contracts the terms "DBE, MBE, and WBE" shall be substituted for the term "small business" in this Article.)

21. Non-Discrimination. In the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, marital status, age, color, sex, handicap, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs or student status. Contractor further agrees not to discriminate against any subcontractor or person who offers to subcontract on this Contract because of race, religion, color, age, disability, sex, sexual orientation, gender identity or national origin.

22. Prevailing Wage. Where applicable under federal law, the Contractor warrants that prevailing wages will be paid to all trades and occupations.

23. **Indemnification. The Contractor shall be liable to and hereby agrees to indemnify, defend and hold harmless the City of Madison, and its officers, officials, agents, and employees against all loss or expense (including liability costs and attorney's fees) by reason of any claim or suit, or of liability imposed by law upon the City or its officers, officials, agents or employees for damages because of bodily injury, including death at any time resulting therefrom, sustained by any person or persons or on account of damages to property, including loss of use thereof, arising from, in connection with, caused by or resulting from the acts or omissions of Contractor and any of Contractor's subcontractors in the performance of this agreement, whether caused by or contributed to by the negligence of the City or its officers, officials, agents or employees.**

24. Insurance.
The Contractor will insure, and will require each subcontractor to insure, as indicated, against the following risks to the extent stated below. The Contractor shall not commence work under this Contract, nor shall the Contractor allow any Subcontractor to commence work on its Subcontract, until the insurance required below has been obtained and corresponding certificate(s) of insurance have been approved by the City Risk Manager.
    a. Commercial General Liability - The Contractor shall procure and maintain during the life of this contract, Commercial General Liability insurance including, but not limited to, products and completed operations, bodily injury, property damage, personal injury, and products and completed operations (unless determined to be inapplicable by the Risk Manager) in an amount not less than $1,000,000 per occurrence. This policy shall also provide contractual liability in the same amount. Contractor's coverage shall be primary and list the City of Madison, its officers, officials, agents and employees as additional insureds. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain insurance meeting the above criteria, applying on a primary basis and listing the City of Madison, its officers, officials, agents and employees as additional insureds.
    b. Automobile Liability - The Contractor shall procure and maintain during the life of this contract Business Automobile Liability insurance covering owned, non-owned and hired automobiles with limits of not less than $1,000,000 combined single limit per accident. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain insurance covering each subcontractor and meeting the above criteria.
    c. Worker's Compensation - The Contractor shall procure and maintain during the life of this contract statutory Workers' Compensation insurance as required by the State of Wisconsin. The Contractor shall also carry Employers Liability limits of at least $100,000 Each Accident, $100,000 Disease – Each Employee, and $500,000 Disease – Policy Limit. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain such insurance, covering each subcontractor.
    d. Professional Liability - The Contractor shall procure and maintain professional liability insurance with coverage of not less than $1,000,000. If such policy is a "claims made" policy, all renewals thereof during the life of the contract shall include "prior acts coverage" covering at all times all claims made with respect to Contractor's work performed under the contract. This Professional Liability coverage must be kept in force for a period of six (6) years after the services have been accepted by the City.
    e. Acceptability of Insurers - The above-required insurance is to be placed with insurers who have an A.M. Best rating of no less than A- (A minus) and a Financial Category rating of no less than VII.
    f. Proof of Insurance, Approval**.** The Contractor shall provide the City with certificate(s) of insurance showing the type, amount, effective dates, and expiration dates of required policies prior to commencing work under this Contract. Contractor shall provide the certificate(s) to the City's representative upon execution of the Contract, or sooner, for approval by the City Risk Manager. If any of the policies required above expire while this Contract is in effect, Contractor shall provide renewal certificate(s) to the City for approval. Certificate Holder language should be listed as follows:

        City of Madison
        ATTN: Risk Management, Room 406
        210 Martin Luther King, Jr. Blvd.
        Madison, WI 53703

    The Contractor shall provide copies of additional insured endorsements or insurance policies, if requested by the City Risk Manager. The Contractor and/or Insurer shall give the City thirty (30) days advance written notice of cancellation, non-renewal or material changes to any of the above-required policies during the term of this Contract.

25. Work Site Damages. Any damage, including damage to finished surfaces, resulting from the performance of this contract shall be repaired to the Owner's satisfaction at the Contractor's expense.

26. Compliance.
    a. Regulations. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the work.
    b. Licensing and Permits. The Contractor selected under this bid shall be required to demonstrate valid **possession of appropriate required licenses and will** keep them in effect for the term of this contract. The Contractor shall also be required, when appropriate, to obtain the necessary building permits prior to performing work on City facilities.

27. Warranty of Materials and Workmanship.
    a. The Contractor warrants that, unless otherwise specified, all materials and equipment incorporated in the work under the Contract shall be new, first class, and in accordance with the Contract Documents. The Contractor further warrants that all workmanship shall be first class and in accordance with the Contract Documents and shall be performed by persons qualified in their respective trades.
    b. Work not conforming to these warranties shall be considered defective.
    c. This warranty of materials and workmanship is separate and independent from and in addition to any other guarantees in this Contract.

28. Replacement of Defective Work or Materials. Any work or material found to be in any way defective or unsatisfactory shall be corrected or replaced by the Contractor at its own expense at the order of the City notwithstanding that it may have been previously overlooked or passed

by an inspector. Inspection shall not relieve the Contractor of its obligations to furnish materials and workmanship in accordance with this contract and its specifications.

29. Reservation of the Right to Inspect Work. At any time during normal business hours and as often as the City may deem necessary, the Contractor shall permit the authorized representatives of the City to review and inspect all materials and workmanship at any time during the duration of this contract, provided, however, the City is under no duty to make such inspections, and any inspection so made shall not relieve the Contractor from any obligation to furnish materials and workmanship strictly in accordance with the instructions, contract requirements and specifications.

30. Sweatfree Procurement of Items of Apparel. If this bid results in the procurement of $5,000 or more in garments or items of clothing, any part of which is a textile, or any shoes/ footwear, then Madison General Ordinances, Sec. 4.25 "Procurement of Items of Apparel", is hereby incorporated by reference and made part of this contract. See MGO 4.25(2) for applicability specifics. The contractor shall follow labor practices consistent with international standards of human rights, meaning that, at a minimum, contractor shall adhere to the minimum employment standards found in Section 4.25 and shall require all subcontractors and third-party suppliers to do the same. For purposes of sec. 4.25, "Subcontractor" means a person, partnership, corporation or other entity that enters into a contract with the contractor for performance of some or all of the City-contracted work and includes all third-party suppliers or producers from whom the contractor or its contractors obtains or sources goods, parts or supplies for use on the city contract and is intended to include suppliers at all level of the supply chain. The standards in Sec. 4.25 shall apply in all aspects of the contractor's and subcontractor's operations, including but not limited to, manufacture, assembly, finishing, laundering or dry cleaning, (where applicable), warehouse distribution, and delivery. Contractor acknowledges that by entering into this contract, Contractor shall be subject to all of the requirements and sanctions of sec. 4.25 of the Madison General Ordinances.

    The sanctions for violating Sec. 4.25 under an existing contract are as follows:

    a. Withholding of payments under an existing contract.
    b. Liquidated damages. The contractor may be charged liquidated damages on an existing contract of two thousand dollars ($2,000) per violation, or an amount equaling twenty percent (20%) of the value of the apparel, garments or corresponding accessories, equipment, materials, or supplies that the City demonstrates were produced in violation of the contract and/or this ordinance per violation; whichever is greater.
    c. Termination, suspension or cancellation of a contract in whole or in part.
    d. Nonrenewal when a contract calls for optional renewals.
    e. Nonrenewal for lack of progress or impossible compliance. The City reserves the right to refuse to renew the contract that calls for optional renewals, when the contractor cannot comply with the minimum standard under (4)(b) and the noncompliance is taking place in a country where:
        (1) Progress toward implementation of the standards in this Ordinance is no longer being made; and
        (2) Compliance with the employment standards in the Ordinance is deemed impossible by the City and/or any independent monitoring agency acting on behalf of the City. Such determination shall be made in the sole opinion of the City and may be based upon examination of reports from governmental, human rights, labor and business organizations and after consultation with the relevant contractors and sub-contractors and any other evidence the City deems reliable.
    f. Disqualification of the contractor from bidding or submitting proposals on future City contracts, or from eligibility for future city procurements as defined in sub. (2), whether or not formal bidding or requests for proposals are used, for a period of one (1) year after the first violation is found and for a period of three (3) years after a second or subsequent violation is found. The disqualification shall apply to the contractor who committed the violation(s) whether that be under the same corporate name, or as an individual, or under the name of another corporation or business entity of which he or she is a member, partner, officer, or agent.

        The exercise by the City of any or all of the above remedies, or failure to so exercise, shall not be construed to limit other remedies available to the City under this Contract nor to any other remedies available at equity or at law.

31. Local Purchasing. The City of Madison has adopted a local preference purchasing policy granting a 5 percent request for proposal and 1 percent request for bid scoring preference to local vendors.

    To facilitate the identification of local suppliers, the City has provided an on-line website as an opportunity for suppliers to voluntarily identify themselves as local, and to assist City staff with their buying decisions. Proposers seeking to obtain local preference are required to register on the City of Madison online registration website. Only vendors registered as of the bid due date will receive preference. Additional information is available at: www.cityofmadison.com/business/localPurchasing.

32. Weapons Prohibition. Contractor shall prohibit, and shall require its subcontractors to prohibit, its employees from carrying weapons, including concealed weapons, in the course of performance of work under this Contract, other than while at the Contractor's or subcontractor's own business premises. This requirement shall apply to vehicles used at any City work site and vehicles used to perform any work under this Contract, except vehicles that are an employee's "own motor vehicle" pursuant to Wis. Stat. sec. 175.60(15m). This section does not apply to employees who are required to carry a weapon under the express terms of the Contract (such as armed security guard services, etc.).

33. Software & Technology Purchases.
    a. Software Licenses. All software license agreements shall include the City's mandatory legal terms and conditions as determined by the City Attorney. Please be advised that no City employee has the authority to bind the City by clicking on an End User License Agreement (EULA) or any other click-through terms and conditions. All legal documents associated with the purchase or download of software must be reviewed by the City Attorney and may only be signed by an individual authorized to do so.
    b. Network Connection Policy. If this purchase includes software support, software maintenance, network services, and/or system development services and will require a Network Connection the City Network (as defined in the following link), the City's Network Connection Policy found at this link: www.cityofmadison.com/attorney/documents/posNetworkConnection.doc is hereby incorporated and made a part of the Contract and Contractor agrees to comply with all of its requirements.

34. Ban the Box - Arrest and Criminal Background Checks.

This provision applies to service contracts of more than $25,000 executed by the City on January 1, 2016 or later, unless exempt by Sec. 39.08 of the Madison General Ordinances (MGO).

a. Definitions. For purposes of this requirement, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

"Background Check" means the process of checking an applicant's arrest and conviction record, through any means.

b. Requirements. For the duration of any contract awarded under this RFP, the successful contractor shall:
   (1) Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant's arrest and conviction record, as defined herein.
   (2) Refrain from asking an applicant in any manner about their arrest or conviction record until after a conditional offer of employment is made to the applicant in question.
   (3) Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.
   (4) Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure, using language provided by the City.
   (5) Comply with all other provisions of Sec. 39.08, MGO.

c. Exemptions: This section does not apply when:
   (1) Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or
   (2) Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt under sec. C.1. or 2. above, contractor must demonstrate to the City that there is a law or regulation that requires the background check in question. If so, the contractor is exempt from this section for the position(s) in question.

City of Madison
CONTRACT FOR PURCHASE OF SERVICES
(Architect)

1. **PARTIES.**
This is a Contract between the City of Madison, Wisconsin, hereafter referred to as the "City" and _____ hereafter referred to as "Contractor" or "Architect."

The Architect is a: (to be completed by Architect) ☐ Corporation ☐ Limited Liability Company ☐ General Partnership ☐ LLP ☐ Sole Proprietor ☐ Unincorporated Association ☐ Other:_____.

2. **PURPOSE.**
The purpose of this Contract is as set forth in Section 3.

3. **SCOPE OF SERVICES AND SCHEDULE OF PAYMENTS.**
Architect will perform the following services and be paid according to the following schedule(s) or attachment(s):

List all attachments here by name, and attach and label them accordingly.

Order of Precedence: In the event of a conflict between the terms of this Contract for Purchase of Services and the terms of any document attached or incorporated herein, the terms of this Contract for Purchase of Services shall control and supersede any such conflicting term.

4. **TERM AND EFFECTIVE DATE.**
This Contract shall become effective upon execution by the Mayor, (or the Purchasing Agent, if authorized) on behalf of the City of Madison, unless another effective date is specified in the Attachment(s) incorporated in Section 3, however in no case shall work commence before execution by the City of Madison. The term of this Contract shall be insert dates or reference attachments as needed.

5. **ENTIRE AGREEMENT.**
This Contract for Purchase of Services, including any and all attachments, exhibits and other documents referenced in Section 3 (hereafter, "Agreement" or "Contract") is the entire Agreement of the parties and supersedes any and all oral contracts and negotiations between the parties. If any document referenced in Section 3 includes a statement that expressly or implicitly disclaims the applicability of this Contract for Purchase of Services, or a statement that such other document is the "entire agreement," such statement shall be deemed rejected and shall not apply to this Contract.

6. **ASSIGNABILITY/SUBCONTRACTING.**
Architect shall not assign or subcontract any interest or obligation under this Contract without the City's prior written approval. All of the services required hereunder will be performed by Architect and employees of Architect.

7. **DESIGNATED REPRESENTATIVE.**
   A. Architect designates _____ as Contract Agent with primary responsibility for the performance of this Contract. In case this Contract Agent is replaced by another for any reason, the Architect will designate another Contract Agent within seven (7) calendar days of the time the first terminates his or her employment or responsibility using the procedure set forth in Section 15, Notices.
   B. In the event of the death, disability, removal or resignation of the person designated above as the Contract agent, the City may accept another person as the Contract agent or may terminate this Agreement under Section 25, at its option.

8. **PROSECUTION AND PROGRESS.**
   A. Services under this Agreement shall commence upon written order from the City to the Architect. This order will constitute authorization to proceed, unless another date for commencement is specified elsewhere in this Contract including documents incorporated in Section 3.
   B. The Architect shall complete the services under this Agreement within the time for completion specified in the Scope of Services, including any amendments. The Architect's services are completed when the City notifies the Architect in writing that the services are complete and are acceptable. The time for completion shall not be extended because of any delay attributable to the Architect, but it may be extended by the City in the event of a delay attributable to the City, or in the event of unavoidable delay caused by war, insurrection, natural disaster, or other unexpected event beyond the control of the Architect. If at any time the Architect believes that the time for completion of the work should be extended because of unavoidable delay caused by an unexpected event, or because of a delay attributable to the City, the Architect shall notify the City as soon as possible, but not later than seven (7) calendar days after such an event. Such notice shall include any justification for an extension of time and shall identify the amount of time claimed to be necessary to complete the work.
   C. Services by the Architect shall proceed continuously and expeditiously through completion of each phase of the work.
   D. Progress reports documenting the extent of completed services shall be prepared by the Architect and submitted to the City with each invoice under Section 24 of this Agreement, and at such other times as the City may specify.
   E. The Architect shall notify the City in writing when the Architect has determined that the services under this Agreement have been completed. When the City determines that the services are complete and are acceptable, the City will provide written notification to the Architect, acknowledging formal acceptance of the completed services.

9. **AMENDMENT.**
This Contract shall be binding on the parties hereto, their respective heirs, devisees, and successors, and cannot be varied or waived by any oral representations or promise of any agent or other person of the parties hereto. Any other change in any provision

SAMPLE

of this Contract may only be made by a written amendment, signed by the duly authorized agent or agents who executed this Contract.

10. **EXTRA SERVICES.**
The City may require the Architect to perform extra services or decreased services, according to the procedure set forth in Section 24. Extra services or decreased services means services which are not different in kind or nature from the services called for in the Scope of Services, Section 3, but which may increase or decrease the quantity and kind of labor or materials or expense of performing the services. Extra services may not increase the total Contract price, as set forth in Section 23, unless the Contract is amended as provided in Section 9 above.

11. **NO WAIVER.**
No failure to exercise, and no delay in exercising, any right, power or remedy hereunder on the part of the City or Architect shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or remedy preclude any other or further exercise thereof or the exercise of any other right, power or remedy. No express waiver shall affect any event or default other than the event or default specified in such waiver, and any such waiver, to be effective, must be in writing and shall be operative only for the time and to the extent expressly provided by the City or Architect therein. A waiver of any covenant, term or condition contained herein shall not be construed as a waiver of any subsequent breach of the same covenant, term or condition.

12. **NON-DISCRIMINATION.**
In the performance of work under this Contract, the Architect agrees not to discriminate against any employee or applicant for employment because of race, religion, marital status, age, color, sex, handicap, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs or student status. Architect further agrees not to discriminate against any subcontractor or person who offers to subcontract on this Contract because of race, religion, color, age, disability, sex, sexual orientation, gender identity or national origin.

13. **AFFIRMATIVE ACTION.**

A. The following language applies to all contractors employing fifteen (15) or more employees (MGO 39.02(9)(c):

The Contractor agrees that, within thirty (30) days after the effective date of this Contract, Contractor will provide to the City of Madison Department of Civil Rights (the "Department"), certain workforce utilization statistics, using a form provided by the City.

If the Contract is still in effect, or if the City enters into a new Agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the Department no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this Contract, it will notify the Department of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications, and application procedures and deadlines, shall be provided to the City by the opening date of advertisement and with sufficient time for the City to notify candidates and make a timely referral. The Contractor agrees to interview and consider candidates referred by the Department, or an organization designated by the Department, if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date stated in the notice.

The Department will determine if a contractor is exempt from the above requirements (Sec. 13.A.) at the time the Request for Exemption in 13.B.(2) is made.

B. Articles of Agreement, Request for Exemption, and Release of Payment:
The "ARTICLES OF AGREEMENT" beginning on the following page, apply to all contractors, unless determined to be exempt under the following table and procedures:

NUMBER OF EMPLOYEES	LESS THAN $25,000 Aggregate Annual Business with the City*	$25,000 OR MORE Aggregate Annual Business with the City*
14 or less	Exempt**	Exempt**
15 or more	Exempt**	Not Exempt

*As determined by the Finance Director **As determined by the Department of Civil Rights

(1) Exempt Status: In this section, "Exempt" means the Contractor is exempt from the Articles of Agreement in section 13.B.(5) of this Contract and from filing an Affirmative Action plan as required by Section IV of the Articles of Agreement. The Department of Civil Rights ("Department") makes the final determination as to whether a contractor is exempt. If the Contractor is not exempt, sec. 13.B.(5) shall apply and Contractor shall select option A. or B. under Article IV therein and file an Affirmative Action Plan.

(2) Request for Exemption – Fewer Than 15 Employees: (MGO 39.02(9)(a)2.) Contractors who believe they are exempt based on number of employees shall submit a Request for Exemption on a form provided by the Department within thirty (30) days of the effective date of this Contract.

(3) Exemption – Annual Aggregate Business: (MGO 39.02(9)(a)c.): The Department will determine, at the time this Contract is presented for signature, if the Contractor is exempt because it will have less than $25,000 in annual aggregate business with the City in the calendar year. CONTRACTORS WITH 15 OR MORE EMPLOYEES WILL LOSE THIS

SAMPLE

EXEMPTION AND BECOME SUBJECT TO SEC. 13.B.(5) UPON REACHING $25,000 OR MORE ANNUAL AGGREGATE BUSINESS WITH THE CITY WITHIN THE CALENDAR YEAR.

(4) Release of Payment: (MGO 39.02(9)(e)1.b.) All non-exempt contractors must have an approved Affirmative Action plan meeting the requirements of Article IV below on file with the Department within thirty (30) days of the effective date of this Contract and prior to release of payment by the City. Contractors that are exempt based on number of employees agree to file a Request for Exemption with the Department within thirty (30) days of the effective date and prior to release of payment by the City.

(5) Articles of Agreement:

ARTICLE I

The Contractor shall take affirmative action in accordance with the provisions of this Contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin and that the employer shall provide harassment-free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this Contract.

ARTICLE II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin.

ARTICLE III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining Agreement or other Contract or understanding a notice to be provided by the City advising the labor union or workers representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

ARTICLE IV

(This Article applies to non-public works contracts.)

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison (MGO 39.02) including the Contract compliance requirements. The Contractor warrants and certifies that one of the following paragraphs is true **(check one):**

☐ A. Contractor has prepared and has on file an affirmative action plan that meets the format requirements of Federal Revised Order No, 4, 41 CFR part 60-2, as established by 43 FR 51400 November 3, 1978, including appendices required by City of Madison ordinances or it has prepared and has on file a model affirmative action plan approved by the Madison Common Council.

☐ B. Within thirty (30) days after the effective date of this Contract, Contractor will complete an affirmative action plan that meets the format requirements of Federal Revised Order No. 4, 41 CFR Part 60-2, as established by 43 FR 51400, November 3, 1978, including appendices required by City of Madison ordinance or within thirty (30) days after the effective date of this Contract, it will complete a model affirmative action plan approved by the Madison Common Council.

☐ C. Contractor believes it is exempt from filing an affirmative action plan because it has fewer than fifteen (15) employees and has filed, or will file within thirty (30) days after the effective date of this Contract, a form required by the City to confirm exempt status based on number of employees. If the City determines that Contractor is not exempt, the Articles of Agreement will apply.

☐ D. Contractor believes it is exempt from filing an affirmative action plan because its annual aggregate business with the City for the calendar year in which the contract takes effect is less than twenty-five thousand dollars ($25,000), or for another reason listed in MGO 39.02(9)(a)2. If the City determines that Contractor is not exempt, the Articles of Agreement will apply.

ARTICLE V

(This Article applies only to public works contracts.)

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the Contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works Contractors in a form approved by the Director of Affirmative Action.

ARTICLE VI

The Contractor will maintain records as required by Section **39.02**(9)(f) of the Madison General Ordinances and will provide the City's Department of Affirmative Action with access to such records and to persons who have relevant and necessary information, as provided in Section **39.02**(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

ARTICLE VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action provisions of this Contract or Sections 39.03 and **39.02** of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

A. Cancel, terminate or suspend this Contract in whole or in part.
B. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.
C. Recover on behalf of the City from the prime Contractor 0.5 percent of the Contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the Contract price, or five thousand dollars ($5,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the noncomplying subcontractor.

ARTICLE VIII

(This Article applies to public works contracts only.)

The Contractor shall include the above provisions of this Contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

SAMPLE

ARTICLE IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this Contract. (In federally funded contracts the terms "DBE, MBE, and WBE" shall be substituted for the term "small business" in this Article.)

14. **SEVERABILITY.**
It is mutually agreed that in case any provision of this Contract is determined by any court of law to be unconstitutional, illegal or unenforceable, it is the intention of the parties that all other provisions of this Contract remain in full force and effect.

15. **NOTICES.**
All notices to be given under the terms of this Contract shall be in writing and signed by the person serving the notice and shall be sent registered or certified mail, return receipt requested, postage prepaid, or hand delivered to the addresses of the parties listed below:

FOR THE CITY:

(Department or Division Head)

FOR THE ARCHITECT:

16. **STATUS OF ARCHITECT/INDEPENDENT/TAX FILING.**
It is agreed that Architect is an independent Contractor and not an employee of the City, and that any persons who the Architect utilizes and provides for services under this Contract are employees of the Architect and are not employees of the City of Madison.

Architect shall provide its taxpayer identification number (or social security number) to the Finance Director, 210 Martin Luther King Jr. Blvd, Room 406, Madison, WI 53703, prior to payment. The Architect is informed that as an independent Contractor, s/he may have a responsibility to make estimated tax returns, file tax returns, and pay income taxes and make social security payments on the amounts received under this Contract and that no amounts will be withheld from payments made to this Architect for these purposes and that payment of taxes and making social security payments are solely the responsibility and obligation of the Architect. The Architect is further informed that s/he may be subject to civil and/or criminal penalties if s/he fails to properly report income and pay taxes and social security taxes on the amount received under this Contract.

17. **GOODWILL.**
Any and all goodwill arising out of this Contract inures solely to the benefit of the City; Architect waives all claims to benefit of such goodwill.

18. **THIRD PARTY RIGHTS.**
This Contract is intended to be solely between the parties hereto. No part of this Contract shall be construed to add, supplement, amend, abridge or repeal existing rights, benefits or privileges of any third party or parties, including but not limited to employees of either of the parties.

19. **AUDIT AND RETAINING OF DOCUMENTS.**
The Architect agrees to provide all reports requested by the City including, but not limited to, financial statements and reports, reports and accounting of services rendered, and any other reports or documents requested. Financial and service reports shall be provided according to a schedule (when applicable) to be included in this Contract. Any other reports or documents shall be provided within five (5) working days after the Architect receives the City's written requests, unless the parties agree in writing on a longer period. Payroll records and any other documents relating to the performance of services under the terms of this Contract shall be retained by the Architect for a period of three (3) years after completion of all work under this Contract, in order to be available for audit by the City or its designee.

20. **CHOICE OF LAW AND FORUM SELECTION.**
This Contract shall be governed by and construed, interpreted and enforced in accordance with the laws of the State of Wisconsin. The parties agree, for any claim or suit or other dispute relating to this Contract that cannot be mutually resolved, the venue shall be a court of competent jurisdiction within the State of Wisconsin and the parties agree to submit themselves to the jurisdiction of said court, to the exclusion of any other judicial district that may have jurisdiction over such a dispute according to any law.

21. **COMPLIANCE WITH APPLICABLE LAWS.**
The Architect shall become familiar with, and shall at all times comply with and observe all federal, state, and local laws, ordinances, and regulations which in any manner affect the services or conduct of the Architect and its agents and employees.

SAMPLE

22. **CONFLICT OF INTEREST.**

A. The Architect warrants that it and its agents and employees have no public or private interest, and will not acquire directly or indirectly any such interest, which would conflict in any manner with the performance of the services under this Agreement.

B. The Architect shall not employ or Contract with any person currently employed by the City for any services included under the provisions of this Agreement.

23. **COMPENSATION.**

It is expressly understood and agreed that in no event will the total compensation under this Contract exceed $_____.

24. **BASIS FOR PAYMENT.**

A. GENERAL.

(1) The City will pay the Architect for the completed and accepted services rendered under this Contract on the basis and at the Contract price set forth in Section 23 of this Contract. The City will pay the Architect for completed and approved "extra services", if any, if such "extra services" are authorized according to the procedure established in this section. The rate of payment for "extra services" shall be the rate established in this Contract. Such payment shall be full compensation for services rendered and for all labor, material, supplies, equipment and incidentals necessary to complete the services.

(2) The Architect shall submit invoices, on the form or format approved by the City and as may be further specified in Section 3 of this Contract. The City will pay the Contractor in accordance with the schedule, if any, set forth in Section 3. The final invoice, if applicable, shall be submitted to the City within three months of completion of services under this Agreement.

(3) Should this Agreement contain more than one service, a separate invoice and a separate final statement shall be submitted for each individual service.

(4) Payment shall not be construed as City acceptance of unsatisfactory or defective services or improper materials.

(5) Final payment of any balance due the Architect will be made upon acceptance by the City of the services under the Agreement and upon receipt by the City of documents required to be returned or to be furnished by the Architect under this Agreement.

(6) The City has the equitable right to set off against any sum due and payable to the Architect under this Agreement, any amount the City determines the Architect owes the City, whether arising under this Agreement or under any other Agreement or otherwise.

(7) Compensation in excess of the total Contract price will not be allowed unless authorized by an amendment under Section 9, AMENDMENT.

(8) The City will not compensate for unsatisfactory performance by the Architect.

B. SERVICE ORDERS, EXTRA SERVICE, OR DECREASED SERVICE.

(1) Written orders regarding the services, including extra services or decreased services, will be given by the City, using the procedure set forth in Section 15, NOTICES.

(2) The City may, by written order, request extra services or decreased services, as defined in Section 10 of this Contract. Unless the Architect believes the extra services entitle it to extra compensation or additional time, the Architect shall proceed to furnish the necessary labor, materials, and professional services to complete the services within the time limits specified in the Scope of Services, Section 3 of this Agreement, including any amendments under Section 9 of this Agreement.

(3) If in the Architect's opinion the order for extra service would entitle it to extra compensation or extra time, or both, the Architect shall not proceed to carry out the extra service, but shall notify the City, pursuant to Section 15 of this Agreement. The notification shall include the justification for the claim for extra compensation or extra time, or both, and the amount of additional fee or time requested.

(4) The City shall review the Architect's submittal and respond in writing, either authorizing the Architect to perform the extra service, or refusing to authorize it. The Architect shall not receive additional compensation or time unless the extra compensation is authorized by the City in writing.

25. **DEFAULT/TERMINATION.**

A. In the event Architect shall default in any of the covenants, agreements, commitments, or conditions herein contained, and any such default shall continue unremedied for a period of ten (10) days after written notice thereof to Architect, the City may, at its option and in addition to all other rights and remedies which it may have at law or in equity against Architect, including expressly the specific enforcement hereof, forthwith have the cumulative right to immediately terminate this Contract and all rights of Architect under this Contract.

B. Notwithstanding paragraph A., above, the City may in its sole discretion and without any reason terminate this Agreement at any time by furnishing the Architect with ten (10) days' written notice of termination. In the event of termination under this subsection, the City will pay for all work completed by the Architect and accepted by the City.

26. **INDEMNIFICATION.**

Architect shall be liable to and hereby agrees to indemnify, defend and hold harmless the City of Madison, and its officers, officials, agents, and employees against all loss or expense (including liability costs and attorney's fees) by reason of any claim or suit, or of liability imposed by law upon the City or its officers, officials, agents or employees for damages because of bodily injury, including death at any time resulting therefrom, sustained by any person or persons or on account of damages to property, including loss of use thereof, arising from, in connection with, caused by or resulting from the Architect's and/or subcontractor's negligent acts, errors or omissions, in the performance of this Agreement.

27. **STANDARD OF CARE.**

The Architect agrees that all work performed under this Contract shall be performed in accordance with good, sound architectural design and applicable engineering, geological, or other applicable professional or trade practices, shall be in conformity with any

SAMPLE

applicable data, specification, and design criteria attached to or included by reference in this Contract, and that performance under this Contract shall reflect the Architect's best professional knowledge, skill and judgment.

Architect shall, to the best of his/her information and knowledge, prepare all design and construction plans and documents and other materials or deliverables required under this Contract in such a manner to be accurate, coordinated and adequate for construction and the Architect shall review all of the same for conformity and compliance with all applicable laws, codes and regulations.

28. **INSURANCE.**

A. The Contractor will insure, and will require each subcontractor to insure, as indicated, against the following risks to the extent stated below. The Contractor shall not commence work under this Contract, nor shall the Contractor allow any Subcontractor to commence work on its Subcontract, until the insurance coverage required below has been obtained and approved by the City Risk Manager, under the procedures in Section 28. C., below.

Commercial General Liability

The Contractor shall procure and maintain during the life of this Contract, Commercial General Liability insurance including, but not limited to bodily injury, property damage, personal injury, and products and completed operations (unless determined to be inapplicable by the Risk Manager) in an amount not less than $1,000,000 per occurrence. This policy shall also provide contractual liability in the same amount. Contractor's coverage shall be primary and list the City of Madison, its officers, officials, agents and employees as additional insureds. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain insurance meeting the above criteria, applying on a primary basis and listing the City of Madison, its officers, officials, agents and employees as additional insureds.

Automobile Liability

The Contractor shall procure and maintain during the life of this Contract Business Automobile Liability insurance covering owned, non-owned and hired automobiles with limits of not less than $1,000,000 combined single limit per accident. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain insurance covering each subcontractor and meeting the above criteria.

Worker's Compensation

The Contractor shall procure and maintain during the life of this Contract statutory Workers' Compensation insurance as required by the State of Wisconsin. The Contractor shall also carry Employers Liability limits of at least $100,000 Each Accident, $100,000 Disease – Each Employee, and $500,000 Disease – Policy Limit. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain such insurance, covering each subcontractor.

Professional Liability

The Contractor shall procure and maintain professional liability insurance with coverage of not less than $1,000,000. If such policy is a "claims made" policy, all renewals thereof during the life of the Contract shall include "prior acts coverage" covering at all times all claims made with respect to Contractor's work performed under the Contract. This Professional Liability coverage must be kept in force for a period of six (6) years after the services have been accepted by the City.

B. Acceptability of Insurers. The above-required insurance is to be placed with insurers who have an A.M. Best rating of no less than A- (A minus) and a Financial Category rating of no less than VII.

C. Proof of Insurance, Approval. The Contractor shall provide the City with certificate(s) of insurance showing the type, amount, effective dates, and expiration dates of required policies prior to commencing work under this Contract. Contractor shall provide the certificate(s) to the City's representative upon execution of the Contract, or sooner, for approval by the City Risk Manager. If any of the policies required above expire while this Contract is still in effect, Contractor shall provide renewal certificate(s) to the City for approval. Certificate Holder language should be listed as follows:

City of Madison
ATTN: Risk Management, Room 406
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703

The Contractor shall provide copies of additional insured endorsements or insurance policies, if requested by the City Risk Manager. The Contractor and/or Insurer shall give the City thirty (30) days advance written notice of cancellation, non-renewal or material changes to any of the above-required policies during the term of this Contract.

D. Notice of Cancellation. The Contractor and/or Insurer shall give the City thirty (30) days advance written notice of cancellation, non-renewal or material changes to any of the above-required policies during the term of this Contract.

29. **OWNERSHIP OF CONTRACT PRODUCT.**

The original drawings and specifications, renderings, models, scale details, approved copies of shop drawings, record drawings and other such documents prepared by the Architect pursuant to this Contract shall become the property of the City on completion and acceptance of the Architect's work, or upon termination of the Contract, and shall be delivered to the City.

The City will not unilaterally construct additional building(s) based on the architectural work produced under this Contract, without written Agreement by the Architect. Documents prepared under this Contract may be distributed by the City for informational purposes without additional compensation to the Architect.

Specifications and isolated, detail drawings inherent to the architectural design of the project, whether provided by the City or generated by the Architect, shall be available for future use by the parties to this Contract and other parties, each at their own risk.

If design and documentation has been completed using automated or computerized techniques, the Architect shall provide a copy of project documents upon request in a format approved by the City.

SAMPLE

30. **BAN THE BOX - ARREST AND CRIMINAL BACKGROUND CHECKS.** (Sec. 39.08, MGO. Applicable to contracts exceeding $25,000.)

A. DEFINITIONS.

For purposes of this section, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

"Background Check" means the process of checking an applicant's arrest and conviction record, through any means.

B. REQUIREMENTS. For the duration of this Contract, the Contractor shall:

(1) Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant's arrest and conviction record, as defined herein.

(2) Refrain from asking an applicant in any manner about their arrest or conviction record until after conditional offer of employment is made to the applicant in question.

(3) Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.

(4) Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure using language provided by the City.

(5) Comply with all other provisions of Sec. 39.08, MGO.

C. EXEMPTIONS: This section does not apply when:

(1) Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or

(2) Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt under sec. C.(1) or (2) above, Contractor must demonstrate to the City that there is a law or regulation that requires the hiring practice in question. If so, the contractor is exempt from this section for the position(s) in question.

31. **WEAPONS PROHIBITION.**

Contractor shall prohibit, and shall require its subcontractors to prohibit, its employees from carrying weapons, including concealed weapons, in the course of performance of work under this Contract, other than while at the Contractor's or subcontractor's own business premises. This requirement shall apply to vehicles used at any City work site and vehicles used to perform any work under this Contract, except vehicles that are an employee's "own motor vehicle" pursuant to Wis. Stat. sec. 175.60(15m).

32. **AUTHORITY.**

Contractor represents that it has the authority to enter into this Contract. If the Contractor is not an individual, the person signing on behalf of the Contractor represents and warrants that he or she has been duly authorized to bind the Contractor and sign this Contract on the Contractor's behalf.

33. **COUNTERPARTS, ELECTRONIC DELIVERY.**

This Contract may be signed in counterparts, each of which shall be taken together as a whole to comprise a single document. Signatures on this Contract may be exchanged between the parties by facsimile, electronic scanned copy (.pdf) or similar technology and shall be as valid as original. Executed copies or counterparts of this Contract may be delivered by facsimile or email and upon receipt will be deemed original and binding upon the parties hereto, whether or not a hard copy is also delivered. Copies of this Contract, fully executed, shall be as valid as an original.

SAMPLE

IN WITNESS WHEREOF, the parties hereto have set their hands at Madison, Wisconsin.

CONTRACTOR

(Type or Print Name of Contracting Entity)

By: (Signature)

(Print Name and Title of Person Signing)

Date:

CITY OF MADISON, WISCONSIN
a municipal corporation

By: Paul R. Soglin, Mayor

Date:

Approved:

By: Maribeth Witzel-Behl, City Clerk

David P. Schmiedicke, Finance Director

Date: Date:

Approved as to Form:

Eric T. Veum, Risk Manager Michael P. May, City Attorney

Date: Date:

NOTE: Certain service contracts may be executed by the designee of the Finance Director on behalf of the City of Madison:

By: Date

Mary Richards
Procurement Supervisor

MGO 4.26(3) and (5) authorize the Finance Director or designee to sign purchase of service contracts when all of the following apply:

(a) The funds are included in the approved City budget.
(b) An RFP or competitive process was used, or the Contract is exempt from competitive bidding under 4.26(4)(a).
(c) The City Attorney has approved the form of the Contract.
(d) The Contract complies with other laws, resolutions and ordinances.
(e) The Contract is for a period of 1 year or less, OR not more than 3 years AND the average cost is not more than $50,000 per year, AND was subject to competitive bidding. (If over $25,000 and exempt from bidding under 4.26(4)(a), regardless of duration of the Contract, the Common Council must authorize the Contract by resolution and the Mayor and City Clerk must sign, per 4.26(5)(b).)

Emergency Service contracts may also be signed by the designee of the Finance Director if the requirements of MGO 4.26(3)(c) are met.

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Department of Public Works
Engineering Division
Robert F. Phillips, P.E., City Engineer
City-County Building, Room 115
210 Martin Luther King, Jr. Boulevard
Madison, Wisconsin 53703
Phone: (608) 266-4751
Fax: (608) 264-9275
engineering@cityofmadison.com
www.cityofmadison.com/engineering

Exhibit A - SCOPE OF SERVICES
CONTRACT #8048, PROJECT #10069-64-200
MADISON PUBLIC MARKET

In this Exhibit A; the word "City" means City of Madison, Wisconsin. The City of Madison will include the City's Designated Representative and/or Owner's Representative and/or Commissioning Agent and/or Contractor to provide energy modeling; the word "A/E" means the licensed design professional(s) **A/E TBD**; and the word "General Building Contractor" means the entity which will construct the structure.

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PROJECT SUMMARY

In addition to the information below, additional Madison Public Market information may be found online at the City of Madison Economic Development Division's "Madison Public Market" website.

Vision

The Madison Public Market will be a year-round destination featuring a mix of private vendors offering fresh produce from local farmers, culturally diverse prepared food, locally-made food products, handcrafted arts and crafts, and other merchants. More than a retail facility, the Market will also include space for food-based business incubation and workforce training. The core mission of the Madison Public Market is economic development. The Market aims to create a platform for a diverse mix of entrepreneurs to start businesses, with an emphasis on building on the Madison area's strengths in the food sector. More than just a place for food, however, the Madison Public Market will be a community gathering space that showcases local artists and musicians, offers unique community events, provides community classes, and supports a range of activities that bring the City together.

Background

Madison has been exploring the concept of a Public Market for over a decade. In 2011, the City's Local Food Committee (renamed the Public Market Development Committee in 2016) was created to study the City's food economy and make recommendations for the location and vision for Public Market. The Committee spent two years conducting research, talking with stakeholders, and forming the basis of a vision for the project. In summer of 2013, the Committee engaged Project for Public Spaces (PPS) to assist in developing a business plan. PPS worked with the City for over two years to develop a business plan in three phases: 1) vendor cultivation and market research, 2) location selection, 3) final business and operating plan.

The Madison Public Market Business Plan was completed and adopted by the Common Council in October of 2015 and updated in 2017. After the Business Plan was approved, the Public Market Development Committee and staff next developed the Madison Public Market Implementation Strategy. This Strategy lays out five "Work Elements" necessary for the project to move forward: 1) Governance/operations, 2) Funding, 3) Design, 4) Vendor development, and 5) Outreach and momentum building.

The Implementation Strategy was approved by the Common Council in March of 2016. Since the approval of the Implementation Strategy, the City Staff and the Public Market Development Committee (PMDC) have made extensive progress on all five work elements. The City is now working with the recently created Public Market Foundation to structure an operating agreement for how the Public Market will be managed. The City has also launched the "MarketReady Program" which is a training, coaching, and small grant program for potential public market businesses. The fundraising effort is underway and the City's budget is in place. Now, a critical next step is to finalize the design of the Public Market Building.

As part of the Business Planning process, the City completed a detailed analysis of the project using the City's Racial Equity and Social Justice Initiative (RESJI) team's Equity Impact Tool. The report that resulted from that analysis can be found here. Throughout the design process, the A/E will be expected to use the recommendations from this report to help guide the design to ensure that the Public Market is built to be a welcoming and inclusive space.

Over the last six years of planning, over 3,000 individual community members have been engaged in the Public Market project. There are a variety of committed leaders and important stakeholders involved in the planning for the Public Market. These stakeholder groups include:

- The City's Public Market Development Committee (Official City oversight body for the project)
- The Madison Public Market Foundation (non-profit fundraising entity and future operator)
- Small Businesses Planning to be future vendors at the Public Market
- City Staff

- Surrounding Neighborhood Associations
- Madison area tourism and hospitality industry
- Madison area agriculture and food sector
- General public

The A/E team will be expected to regularly attend meetings of these various groups and to work with the city to execute a robust engagement process that includes meetings, workshops, and other techniques to ensure that the interests of these stakeholders are taken into account throughout the design process.

Summary of Progress to Date:

- **Pre-2011:** City looks at opportunities for a Public Market
- **2011-2013:** Local Food Committee formed (now called the Public Market Development Committee) and spends two years doing research and outreach to create a vision for a Public Market that will benefit Madison
- **2013:** Project For Public Spaces (PPS) engaged to develop a business plan
- **2014:** City selects 1st Street and East Washington Avenue as the location for the Public Market
- **2015:** City and PPS finalize business plan (adopted by Common Council 10/6/2015)
- **2016:** The Common Council adopts the Public Market Implantation Strategy (3/15/16) and directs next steps on design, vendor development, and funding.
- **2017/18**: The Public Market Foundation is formed and kicks-off fundraising effort, MarketReady Program is launched, site plan finalized, and negotiations with developers underway.

Location and Preliminary Conceptual Design

The Madison Public Market will be located on a portion of the property located at corner of First Street and East Washington Avenue. The Market will be designed and built as part of a public/private partnership that creates a mixed-use project site, which will replace the aging Washington Plaza strip retail mall (formerly called the Fiore Center). The total site is approximately 3.7 acres. The City will work with the land owner to purchase a portion of the property to construct the Public Market. The land owner will maintain the other portion of the site to construct a privately-developed mixed use project. The selection of this location for the Public Market was made in 2015, after an extensive analysis and public outreach effort. The City's Public Market consultants recommended this location to the Public Market Development Committee, the Committee affirmed this recommendation, and the Common Council subsequently adopted a resolution identifying this as the Public Market location.

The land-owner engaged JLA Architects to complete conceptual site plan and renderings for the Public Market and adjacent mixed-use private development. Those concepts will form the basis of next steps in the design and may be reviewed online at this link.

Summary of Facility

The Madison Public Market will be a City-owned facility, operated by an independent non-profit operating organization (The Public Market Foundation). The Madison Public Market itself will be an approximately 30,000 square foot two-story volume (with mezzanine and elevator) facility with rooftop access. The Market will consist of the following elements.

Building Program:

- **Permanent Vending Stalls -** small permanent vending stalls for merchants selling a mix of fresh produce, food products, and ready-to-eat food prepared on site. Some stalls will have full utilities (electrical, plumbing, ventilations systems) while others may just have lighting and casework.

- **Anchor "Storefront" Stalls** - larger "storefront" spaces for anchor tenants likely to include restaurants, cafes, deli, butcher shop, etc. These spaces will be in the Market Hall but operate somewhat independently.

- **Temporary Vending/Flex Space** - indoor space that may be used for temporary vending, special events, indoor farmers markets, craft fairs, banquets, weddings, and other community uses etc. On a daily basis, the Flex Space will house indoor, temporary stalls that vendors can use for a daily rate.

- **Ag/Food Interpretive Elements, Art, and History –** The Market Hall may include an area with interpretative displays and information about the agriculture, food, and specifically dairy industry in Wisconsin. It may also include gallery space for local artists and for civic story telling. Spaces within the hall will feature curated local art or historical exhibits.

- **Kitchen/Food Processing Space** – The Market may include kitchen and food processing space to be used for food preparing by vendors, food prep for events, culinary workforce training, and food processing for wholesale/institutional food buyers.

- **Event Space** - An area design for community events, pop-up markets, private events, etc.

- **Administrative Office Space** - Small office space for the Madison Public Market management and staff

- **Rooftop/Outdoor Plaza Areas** – The Market may include a usable rooftop space for gardens and/or events. The project will also include outdoor plaza areas.

- **Loading/Storage –** The Market will include loading docks, loading area, and storage areas.

- **Parking** – Parking will be provide in an adjacent surface parking lot

Design Next Steps

For the last year, the City has been working with the Madison Public Market land owners to develop a site plan and prepare conceptual design materials for the Market to confirm fit. This work has been completed in coordination with the private developers and their architecture team from JLA architects. The City is now seeking an Architecture and Engineering Team to move forward with finalizing the design for the Madison Public Market facility.

- **Developers A/E Role** – The Developer will continue to work with their architecture team to finalize the design for the private components of the site. This will include finalize the master plan, designing the parking facilities, outdoor common areas, and designing the private buildings on the site. Please note the City's A/E will be responsible for designing the parking lot (including plans for demolition of existing facilities) on the adjacent City-owned property to the north of the Madison Public Market parcel.

- **City's A/E Role** – Working with the selected contractor, the City and A/E for this contract will be responsible for the design of the Madison Public Market facility. This work will pick up from the conceptual design work completed by JLA Architects. The A/E shall be responsible for reviewing all City provided conceptual documents and build on the conceptual program to design all architecture, civil, mechanical, electrical, plumbing, structural, fire protection, and exterior signage. Specialty work - to be included in the Architect's scope - includes civil engineering, acoustical, technology, audio/visual, cost estimation, elevator design (assume one elevator), commercial kitchen spaces (assume two), interior signage (room/code signage, donor, branding, way-finding); furniture (selection/specifications) and LEED (project currently registered with USGBC as LEED V3/2009). The phases of work shall include pre-design

(primarily programming), schematic design, design development, construction documents, bidding, construction administration, and warranty.

The Project is scheduled for design in late 2018 and 2019 with construction completion scheduled for 2020-2021.

The preliminary budget estimates for this project is as follows.
~$9,000,000 (including 8% construction contingency) Architecture and Engineering components to be bid via Public Works
~$300,000 for furnishings to be bid via purchasing.
~$300,000 for technology and AV equipment (A/V, Security Cameras, WAPs) to be bid via purchasing.
~$100,000 for interior signage to be bid via purchasing.

The City and Developers are currently negotiating the terms of a Letter of Intent for the purchase of the Madison Public Market Site. This LOI will include terms on the Madison Public Market site and common elements.

PROJECT GENERAL REQUIREMENTS

A. Purpose of the Scope of Services Document
   1. This documentation contains minimum policy and technical criteria to be used in the programming, design, construction, measurement & verification, and documentation of the Madison Public Market.
   2. Nothing included in this document shall be a substitute for technical architectural, engineering, and design competence.
   3. This document must be used in conjunction with all current federal, state, local or other applicable codes governing all architectural, engineering, and/or professional design of public buildings.

B. Communication
   1. The A/E should have any ambiguities or conflicts in this document clarified in writing by the City Project Manager prior to beginning design.
   2. All dealings between the City and the A/E with respect to the subject matter of the Agreement shall be with the City's Designated Representative. The City's Designated Representative shall inform the A/E as to groups and staff with which it is to consult, provide prompt evaluation of requests of such groups, examine documents and receive inquiries submitted by the A/E, refer information and requests submitted by the A/E to appropriate officials, departments and bodies and obtain or render decisions promptly with respect thereto so as to avoid delays in the work of the A/E. The designation of the project manager representative thereof shall not limit those with whom the A/E may have contact if, in the A/E and project manager's judgment, consultation with others will be of assistance.
   3. SharePoint: The City will utilize a project SharePoint website from programming through construction and warranty to store project files, communicate design review comments, process work flows, administer construction, etc. The A/E must utilize this project website to communicate with the Owner, third-party consultants, and contractors throughout the life of the project.

C. Minimum A/E Team Qualifications
   1. Architects (including project manager, project architect, and construction administrator, landscape): Licensed and 10 years experience
   2. Interior Designer: Licensed with 10 years experience
   3. Structural Design: PE license with 10 years experience
   4. HVAC Design: PE license with 5 years experience or WI Designer of Engineered Systems with 10 years of experience
   5. Electrical Design: PE license with 5 years experience or WI Designer of Engineered Systems with 10 years of experience
   6. Plumbing Design: PE license with 5 years experience or WI Designer of Engineered Systems with 10 years of experience

7. Fire Protection Design: PE license with 5 years experience or WI Designer of Engineered Systems with 10 years of experience (when a complete FP design is required by the design contract).
8. Lighting Design: PE license and 5 years experience or WI Designer of Engineered Systems and 10 years experience or CLD certification and 10 years of experience or 20 years of experience.
9. Technology Design: PE license with 5 years experience or Registered Communications Distribution Designer (RCDD) with 10 years of experience.
10. Acoustical, Security, A/V and other peripheral consultants shall have appropriate credentials.
11. Cost Estimator: 3rd party estimating sub-consultant shall be a general building contractor or cost estimator with 5 years of experience in construction projects over $5,000,000 in the local Madison, Wisconsin area.

D. Environmental Protection
   1. In addition to building-specific codes, all A/E design must comply with all federal, state, and local environmental laws and regulations.

E. Accessibility
   1. All accessibility related design shall meet current applicable code(s).
   2. Building design elements in the path of travel to all public and all staff work areas shall be accessible and shall be designed to meet or exceed the minimum standards of ADA Accessibility Guidelines.
   3. The project shall include design that accommodates building and site use without special facilities for persons with disabilities. Standard building products set at code prescribed heights and maneuvering clearances to allow easy access to disabled employees and visitors. Building elements designated specifically for use by persons with disabilities should be avoided.
   4. Absolute versus “maximum” or “minimum” dimensions shall be clarified on all drawings where applicable.

F. Occupational Safety and Health Regulations
   1. The construction, operation, and occupation of the facilities must comply with OSHA regulations. The A/E must ensure that facilities may be constructed in a manner compliant with all current OSHA regulations applicable to construction, operation, and occupation of the facilities.

G. Building Codes
   1. The A/E shall use the latest edition of applicable local, state, and federal building codes throughout design and construction of this project.

H. National Standards
   1. Organizations writing voluntary codes including NFPA, the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), the Sheet Metal and Air Conditioning Contractor’s National Association (SMACNA), the Institute of Electrical and Electronics Engineers (IEEE), and the American Society of Mechanical Engineers (ASME), publish standards on health, safety, welfare, and security relevant to this project. This project shall comply with the most current version of these nationally recognized standards to the extent practicable and specified in this document.

I. State and Local Government Review
   1. The A/E must prepare as many documents and presentations as needed for the approval by appropriate committees, commissions, and plan review processes.
      a. Prepare oral and visual presentations as required for presentations to committees and commissions including but not be limited to Urban Design Commission, Plan Commission, Board of Public Works, Public Market Development Committee, Economic Development Committee, Common Council, and other committees as necessary.
      b. Prepare plan review sets as required for Department of Safety and Professional Services (DSPS), Department of Natural Resources, Department of Transportation, and City agency reviews by Zoning, Building Inspection plan review, Fire, City Engineering, Traffic Engineering, and other similar agencies as necessary.

J. Program Space Standard
   1. The space standards to be utilized shall be common industry wide space standards.

K. Energy, Sustainable Design
   1. Environmental sensitivity and high performance characteristics are part of the project objectives. The City is particularly interested in integrated design principles and technology that optimize site potential, optimize energy performance, protect and conserve water, enhance indoor environmental quality, reduce environmental impact of materials, and optimize operations and maintenance practices. The result shall

be a balance of cost, environmental, societal, and human benefits while meeting the mission and function of the facility. These principles must serve as the basis for planning, programming, design, budgeting, construction, and commissioning of the facilities.

L. Energy Use Targets
   1. The A/E must design all facilities to have an energy target at a minimum of 20% better than ASHRAE 90.1, 2007, 30% better for installations having photovoltaic (PV).
   2. From pre-design through each design phase, the project must demonstrate that it meets the energy target.
   3. Use energy modeling (provided by City's energy model consultant) to design enclosure systems in concert with mechanical systems and provide documentation showing that systems were chosen based on life-cycle cost analysis.

M. Health and Safety
   1. The A/E must take a systems approach to risk management, utilizing codes, regulations, guidelines, and best practices to identify and mitigate facility-created health and safety risks early in the design phases of the of the project life cycle.
   2. If a hazard cannot be eliminated, the associated risk must be reduced to an acceptable level through design, the risk must be reduced to an acceptable level using engineering controls, protective safety features, or devices.
   3. If safety devices do not adequately lower the risk of the hazard, cautions and warnings must be provided using detection and warning systems, as appropriate.
   4. Specific Health and Safety Requirements
      a. Confined Spaces: The A/E must avoid the creation of confined spaces except where required as part of a system (e.g. tanks, pits).
      b. Fall Protection: The A/E must consider the inspection operations, and maintenance of the site, facility, and equipment. Access and fall protection, especially to difficult maintenance needs in high locations, including light fixtures, mechanical equipment, and skylights, must be included in the design.

PROGRAMMING

A. A/E shall provide professional architectural programming services for the Madison Public Market; the program shall develop a review service profile for clarity, revisions, and consensus; and shall include applicable Madison Public Market stakeholders at all levels. Translate service profile into functional space needs, identify functional agencies that meet the quality of service for the customer, detail in writing the function of each space; and review, revise and verify with City staff. See related sections in this document and RFQ project goals for additional information.

URBAN PLANNING & DESIGN FOR PUBLIC USE

A. There a number of urban planning issues that must be considered and addressed by the A/E as part of this project.
   1. The A/E shall balance community goals, while also meeting City agency needs, wherever possible. The A/E must consider how the building responds to its site, to the surrounding neighborhood design and plans, and its potential for interactions with the general public. The focus should be on how to maintain and/or improve neighborhood design and experience for maximum potential public use of the exterior and interiors.
   2. The A/E must consider access to transit, bike friendly paths and corridors, proximity to neighborhood amenities that meet daily needs of employees and visitors, and maximization of existing infrastructure.
   3. The A/E must understand local plans and conditions, neighborhood context, and local perspectives early in the project's development and design. Collaboration with the City project team, city agencies, regulatory groups, stakeholder groups, and the general public will be required throughout the design construction phases.

B. The A/E must consider and address how the project may encourage use of the facility for public, cultural, and/or educational, activities. The A/E must consider and address how the facility may support flexible passive

or programmed use in gathering space, the shaping and orientation of building program to encourage such use, and, where appropriate, the expansion of the building's program to take advantage of site-specific public use opportunities.

1. Interior examples designed for public use both during and after business hours must have direct and clear way finding from building entrances.
2. Designs must demonstrate how the interiors may allow for several different public uses. One example is a space that could be used for a standing reception, a seated dinner, an awards ceremony, or similar.
3. Exterior examples include:
    a. Provide space within the property boundaries for passive and programmed use. The public spaces shall be furnished to support the intended use.
    b. Landscape elements shall be designed in order to provide access, comfort, shade, seating options, and visual interest, that encourages passive and programmed public use, by building visitors and general public.

ART

A. A/E shall coordinate with the City's Arts Coordinator to identify area(s) for incorporation of artist work in architecture, and locations for rotating and/or permanent art installations.
B. A/E shall be prepared to provide design and coordination to accommodate existing and new art.

CITY GOALS

A. LEED
    1. Meet and exceed City of Madison's policy requiring "green" building certification requirements. See City of Madison legislative file #07453. LEED v3/2009 Silver rating is required as a minimum LEED rating for the Madison Public Market work.
    2. Provide services to organize and manage the LEED documentation and certification process. Meet and confer with representatives of the Architect, and City to prepare LEED documentation. Include coordination of meetings, document preparation, and assistance to the City in final project specific preparation of the Owners Project Requirements (OPR) report. The A/E shall use the final OPR to establish the Basis of Design (BOD) report. The City of Madison shall register the project with USGBC (U.S. Green Building Council). Registration fees shall be paid by the City. Prepare submittals for credit rulings from the USGBC for interpretation of credit language, principles, and implementation strategies. Credit ruling fees required by USGBC shall be paid by the City. Prepare and submit a LEED Rating Application for the project to the USGBC. Include required calculations and documentation for each LEED credit claimed in accordance with the LEED Rating Plan. Prepare responses and submit additional documentation required by comments or questions received from the USGBC after review of the original submission for LEED certification. Prepare and distribute meeting minutes for meetings related to LEED Documentation services.
    3. Applicable LEED Documentation shall be coordinated and updated at each design phase with LEED checklist submittal and other documentation as applicable.
B. Waste Management
    1. There are two (2) Madison General Ordinances (MGO) that the City of Madison has regarding construction and demolition waste.
        a. MGO 10.185, Recycling and Reuse of Construction and Demolition Debris, describes the requirements associated with this ordinance including definitions, documentation requirements, and penalties.
        b. MGO 28.185, Approval of Demolition (Razing, Wrecking) and Removal, describes the requirements associated with applying for and receiving a demolition permit.
    2. All City of Madison, Board of Public Works, contracts being conducted by City Engineering, Facility Management, for construction, remodeling, or demolition shall comply with the above ordinances regardless of project type or size.
C. Building Operations and Maintenance
    1. Systems must be designed for ease of operation and cost-effective maintenance and repair. System accessibility is a critical consideration in building design. The A/E must ensure building systems and

elements are physically accessible for cleaning, maintenance, repair, and replacement (e.g. tall spaces must provide methods to clean skylights, replace lamps, maintain fire alarm devices, etc.

2. The A/E must collaborate with the City operations and maintenance personnel during design to provide for optimal life-cycle performance.
3. At the conclusion of design, the A/E must provide an electronic document describing intent for all building systems. These instructions must be developed during the design phase and incorporated into the comprehensive training for operations and maintenance personnel.

D. Life-Cycle Costs

1. This project must be designed to achieve the lowest life-cycle cost. The A/E design must comprehensively define reasonable scope and performance requirements within the authorized budget for design and construction. Consistent with these constraints, building systems and features must be analyzed and selected to achieve lowest life-cycle cost.
2. Life-cycle costing (LCC) must be used when selecting a system from several alternative systems or components for a project to evaluate the cost effectiveness of systems that use energy and water. LCC must compare initial investment options and operating and salvage costs over the life of the equipment and identifies the least costly alternatives. Examples of building systems to be addressed that affect energy use are the building thermal envelope, passive solar features, fenestration, HVAC, domestic hot water, building automation, and lighting.
3. The project team – including the A/E - must integrate the LCC analysis into pre-design process, and the analysis must be complete by the design development phase.

Architect Provided Services and Deliverables

A. Deliverables EACH Phase - General Requirements

1. These design services submission requirements have been developed to ensure a rational, well-documented design process and to facilitate reviews by the City project team, tenant agencies, local regulatory agencies, review boards, user groups, and the general public as the design develops. These requirements are the minimum standards.
2. During development of all pre-design and design phases the A/E shall meet and review progress documents with the City's Project Manager, City's Project Team, Madison Public Market Stakeholders, and City "executive" review teams as required. Prepare appropriate presentation materials which may include large color presentation boards, power point presentations, handout sheets, project schedules, and similar project design related materials. To meet all the provisions of this scope document the City and the A/E will develop a schedule of meetings by phase that will be mutually agreed upon. A/E teams must be aware that the Madison Public Market is a highly public building with many stakeholder interests. Extensive A/E and stakeholder engagement will be required (particularly during the predesign/programming and schematic design phases).
3. Prior to completion of programming, preliminary concepts, schematic design, and design development meet and review progress documents with the public and community stakeholder groups (e.g. business associations, neighborhood associations, tenant agency customer groups, etc.). Prepare appropriate presentation materials which may include large color presentation boards, power point presentations, handout sheets, project schedules, and similar project design related materials. The City and the A/E will develop a schedule of meetings that will be mutually agreed upon.
4. Prior to completion of each phase meet and confer with regulatory agencies as required to obtain necessary preliminary approvals, final approvals, permits, and the like. This shall include, but not be limited to, Urban Design Commission, Plan Commission, Public Market Development Committee, Board of Public Works, Common Council, Zoning, Conditional Use Approvals, Building Inspection Plan Review, WI Department of Safety and Professional Services, Department of Natural Resources, Department of Transportation, Madison Fire Department, City Engineering, Traffic Engineering, Parking Utility, Madison Metro, and similar agencies or committees.
5. In each phase of work, project documents must be submitted to City in electronic format as determined by the City Project Manager. Confirm with the City project manager prior to submission.

6. Design Quality Reviews will be performed by the City of Madison staff and third party consultants at each design, construction document, bidding document, and construction administration phase. The review teams will evaluate each project for applications of best practices, conformance with criteria, building and systems performance, efficient and effective design, cost drivers, risk factors for successful execution, and customer satisfaction, as well as several other indicators of overall project suitability and readiness to move to the next phase in execution. The A/E should plan for City design quality review time after each phase delivery – in this case 2 weeks for PD, SD and DD phases; and 2 weeks for CD and Pre-Bid phases. All outstanding phase issues will need to be completed prior to proceeding to the next phase.
7. No design phase is considered completed before all of the City's review comments are resolved in a timely manner. Unless approved by the City, a resolution of a problem shall not take more than one week. Furnish interim documents for review as requested by the City Project Manager. The A/E shall not proceed to future phases without written authorization from the City Project Manager.
8. Provide all project-specific information on plan set. Provide City with proposed general and technical specifications. The City may or may not incorporate consultant-provided specifications in its own specifications for bidding purposes.
9. Consultant shall accommodate pausing or delays of the project (i.e. bidding delays, budget delays) at no extra charge.
10. At all times, the City reserves the right to make public all information concerning this project and to choose the form, content, method of presentation, by whom presented, and the time of release, and at any time during or after completion of this project.
11. Unilateral deviations from City preferred (or undesired) manufacturers, equipment, and construction methods are not permitted without City approval. The consultant shall adhere to these preferences and thoroughly discuss deviations of those if deviating is of advantage for the specific project.
12. Whenever possible plans and details shall be prepared to be complete and show sufficient detail so as not to require the use of additional materials. All design data shall be included on plans. This includes, but is not limited to lighting calculation data, energy densities, and structural details. All equipment shall be specified by naming specific models that are basis of design.
13. Design shall provide clear distinction between design-build (i.e. pre-cast, light-gauge metal framing) and design-bid-build features. Consultant shall provide all design and details that are not provided by design-build part of contractor's work. Consultant shall perform design changes that are required due to changes in final design after contract award to contractor.

B. Deliverables EACH Phase - Drawings

1. Drawing Size: All drawings of a single project must be a uniform standard size. Reports, narratives, etc. must be 8.5 x 11 and/or 11 x 17. Drawing sets must be 24 x 36 or 30 x 42 format.
2. Drawing Lettering: Lettering on drawings must be legible when drawings are reduced to half size. This applies to drawings at all phases.
3. Drawing Scale: All drawings are to be created at full scale and plotted at a selected scale. The drawings or views (such as details) should include numeric and graphic scales. The scale selected should be appropriate for high resolution and legibility to include reduced copies (such as half-sized).
4. Seals: The construction documents must bear the seal and signature of the responsible design professional as required by the authority having jurisdiction. On cover sheet provide code certification statement for compliance with specified codes and standards by each discipline with the professional seal and signature. The intent is to formally recognize the responsibility for compliance.
5. Building Information Modeling (Design Development and Construction Document phases only): The City requires the use of interoperable Building Information Models (BIM) on all projects throughout the project lifecycle. The final BIM model is to be provided during or right after bidding. No progress BIM model submissions only as applicable for energy model or related third party Owner furnished items. BIM models must be delivered in both native and IFC file formats.
6. BIM Standards (Design Development and Construction Document phases only): Building Information Modeling (BIM) based on current Autodesk Revit software. Use actual families for each equipment and

insert devices with actual size and clearance spaces. Perform clash detection with all equipment, pipes, ducts etc. The BIM shall be set up such that 2D CAD drawings should be derived from the model.

7. As-is drawings: Prepare demolition and design drawings through use of existing City drawing documents and reports (Original Building Set, Shop Drawings, Remodel Set, tenant improvement documents, hazardous material survey(s), and related documents). A/E is responsible for confirmation of dimensions as necessary to complete demolition and design drawings. Using copies of existing plans alone for demolition or design drawings are not acceptable.

C. Deliverables EACH Phase - Specifications

1. The A/E is responsible for providing and assembling all project specifications necessary to reflect the project design intent, City policy requirements, and law. This shall include but not be limited to:
   a. Incorporating all City supplied specifications (PDF format) into the overall specification document. The A/E will not edit these documents. The A/E will not be required to provide any specifications supplied by the City.
   b. Providing and editing additional specifications as needed and carefully coordinating the specifications with the drawings to ensure that everything shown on the drawings is specified.
      i. This shall include editing specifications to incorporate any City furnished design or equipment guidelines.

c. No submittal for PD. Provide a specification Table of Contents at SD. Provide draft specification sections at DD (some spec notes are OK, but at a minimum Part 2 – products should be listed and coordinated). Provide complete specs at CD.2. Format: Specification sections shall be edited and compiled into a single PDF document.
   a. Specifications should be produced according to the latest edition Construction Specification Institute (CSI) division format.
   b. Specifications shall have a Table of Contents (TOC) organized by CSI divisions and indicating all sections and section titles used. Each section in the TOC shall be hyperlinked directly to the subject section within the specification.
   c. Each page shall be numbered and shall incorporate the specification section in the numbering sequence (01 35 14 – 1, etc).
   d. Each page shall incorporate the City project name, contract number, and project number
   e. The specification shall be created directly to PDF to keep the integrity of word recognition, linked headings, etc. Printing to PDF or saving a scanned image as PDF will not be accepted.

3. Editing of Specifications:
   a. The A/E shall thoroughly edit all specifications supplied by the A/E to ensure any specification language that is not applicable to the project has been removed and all necessary language has been added.
   b. The A/E shall thoroughly review all specifications supplied by the City to ensure any specification language that is not applicable to the project has been removed and all necessary language has been added. The A/E shall work with the City to edit City provided specifications as necessary.

D. Deliverables EACH Phase - Design Narratives and Calculations

1. Format: Typed, bound narratives should be produced for each design discipline and accompany the Pre-Design, Schematic Design, Design Development and Construction Document Submittals.
2. Content: Narratives shall serve to explain the design intent and to document decisions made during the design process. Narratives are to respond to the Owner's Project Requirement (OPR) Document directly. If the design is deviating from the OPR, the design narrative is to explain why (e.g. the project budget doesn't support a strategy, the owner requested a change to the scope of the project, etc). Like drawings and specifications, narratives are an important permanent record of the building design. Drawings and specifications are a record of what systems, materials, and components the building contains; narratives should record why they were chosen. The narrative of each submittal may be based on the previous submittal, but it must be revised and expanded at each stage to reflect the current state of the design.

3. Calculations: Manual and/or computer based calculations are required to accompany narratives to support technical analysis. Each set of calculations should start with a summary sheet, which shows all assumptions, references applicable codes and standards, and lists the conclusions. Calculations should include engineering sketches as an aid to understanding by reviewers. The calculations for each submittal should be cumulative, so that the final submittal contains all calculations for the project. Calculations submitted at early stages of the project must be revised later to reflect the final design. Calculations must refer to code, paragraph of code used, standards, and text books used for specific portion of calculation. Refer to drawing number where the results of the calculations have been used. A few examples: number and sizes of re-bars used in reinforced concrete members, enclosure R-values, HVAC equipment and duct sizing, ventilation, HVAC loads, etc.
4. Performance Criteria: As part of the development of concepts through construction documents there must be a check of building performance criteria established in pre-design and refined in subsequent phases.
5. Energy Simulation (BY CITY): In addition to the City's requirement of USGBC LEED Silver Rating the City has established additional energy, maintenance, and operational standards to maintain manageable life cycle costs. An energy model will be generated by the City and will be submitted to the design team in the pre-design phase of design and updated at significant milestones (e.g. completion of schematic design, and design development) in the project with the intent to continually explore creative ways to reduce energy use while meeting maintenance/operational goals.
    a. The design team must provide all necessary documentation for the energy model and be available to support this activity.
    b. The A/E shall look for opportunities for the reduction, recycling, or production of new energy on site, architectural, and building systems design throughout the design and construction process.

E. Phase I: Pre-Design

1. GENERAL – PRIOR TO COMPLETION OF PRE-DESIGN
    a. See "DELIVERABLES EACH PHASE – GENERAL REQUIREMENTS" above for meeting/presentation/approvals expectations.
    b. Review all pre-design information provided by the City and field-survey existing spaces if applicable.
    c. At the beginning of each project, the City's project team, tenants and design A/E need to define the functional objectives of a project. A functional objectives matrix, or similar method shall be established by the A/E to confirm goals.
    d. During the programming phase high impact issues will require formal design team technical discussions to help optimize design solutions. These technical discussions must take place with the appropriate members of the City's project team and others as applicable. The technical discussion agenda can be organized by discipline (systems) and/or by functional objective heading, but should address:
        i. Functional performance goals
        ii. Integrated solution options
        iii. Anticipate potential hurdles and stop blocks
        iv. Inspections/certification requirements
        v. Coordinating construction and turnover-phase issues/deliverables
    e. During the programming effort the A/E shall conduct meetings to develop clear and quantitative goals. The meetings shall be attended by the various disciplines of the design firm, its consultants, the City's project team and others as applicable. The design goal setting session shall be used to develop consensus of the strategies and technologies to be explored during design. Goals are (not ordered by priority):
        i. Optimize use of fiscal resources to meet design goals
        ii. Optimize constructability of project and implement cost evaluation at the beginning of the project
        iii. Optimize energy efficiency
        iv. Improve sustainability
        v. Optimize maintainability and longevity of installed equipment

vi. Promote occupant productivity and health
vii. Promote resource conservation and environmental responsibility
viii. ADA compliance

2. DOCUMENT DELIVERABLES – PRE-DESIGN
   a. Comprehensive Report including:
      i. Documentation of the methodology used
      ii. An executive summary
      iii. Value and Goal Statements
      iv. Relevant Facts
      v. Data Analysis Conclusions
   b. Program Requirements (including Space Listings by function and size, Relationship Diagrams, Space program documentation, Stacking plans, Preliminary Concept Drawings, and Flow diagrams).
      i. The Space Program shall provide proposed gross facility square feet areas and space requirements listed by agency uses and general building uses listed by room name. It shall include the number of functional personnel and any special equipment or systems. The space program elements shall include all floors and areas
      ii. The Space Needs Summary shall include written text documents and graphics for space relationships, analysis of operational functions including human (public and staff) (back of house and public floors), vehicular, and material flow patterns, flexibility and expandability, special equipment and systems, site requirements, security criteria, and communication relationships and adjacencies. Establish quantitative energy targets, comfort criteria (ASHRAE 55), indoor air quality requirements (ASHRAE 62) and include any requirements of access to daylight
      iii. The Staff Program shall provide definitions for staff adjacencies, connections, control and workflow, which will then help to show staffing levels needed to operate the building. This includes planning of staffing levels needed to deliver the quality of service desired
      iv. The Program shall develop or review service profile for clarity, revisions, and consensus. This should involve staff at all levels, and community stakeholders. Translate service profile into functional space needs, identify functional adjacencies that meet the quality of service for the customer, detail in writing the function of each space.
      v. Guided by the Madison Public Market Business Plan and comparable public market facilities, the Space Need Summary shall include written text documents describing how the building program affects the operating plan for the Public Market as articulated in the Business Plan.
   c. Site location plan [at least one mile around site], showing:
      i. Site relative to location of city center, major landmarks, major parking facilities, major roads, and airport
      ii. Location of transit links
      iii. Location of distinct land use types and districts in the vicinity of the site (e.g., historic districts, retail nodes, civic districts, etc.)
   d. Existing site plan (at least one block around site), describing:
      i. Site boundaries, approximate topography, existing buildings, setbacks, and easements
      ii. Climatic conditions including path of sun Description of flood plain issues related to building location and mechanical and electric equipment
      iii. Location of on-site and off-site utilities
      iv. Natural landscape
      v. Pedestrian and vehicular circulation (include direction of traffic on adjoining streets)
      vi. Neighboring land uses, existing and planned
   e. Site plan showing:
      i. Building location and massing
      ii. Parking and service area
      iii. Plans for surrounding area, relation of each concept to those plans, and summary of relevant recommendations
   f. Floor plans, showing at a minimum:
      i. Entrances, lobbies, corridors, stairways, elevators, vending stalls, storefront spaces, events spaces, offices, bathrooms, special spaces, mechanical rooms for major equipment and air

handlers, and service spaces (with the principal spaces labeled). Dimensions for critical clearances, such as vehicle access will be indicated.

g. Building sections (as necessary), showing:
   i. Floor-to-floor heights and other critical dimensions
   ii. Labeling of most important spaces
   iii. Labeling of floor and roof elevations
h. Photographs:
   i. Photographs showing the site and elevations of existing buildings (or landscape, as applicable) surrounding the site
i. Narrative:
   i. Site statement, describing:
      1. Existing site features
      2. Climatic conditions
      3. Topography and drainage patterns
      4. Any existing erosion conditions
      5. Wetlands and locations of flood plains
      6. Surrounding buildings (style, scale), vii. Circulation patterns around site
   ii. Site access:
      1. Noise/visual considerations
      2. Local zoning restrictions
      3. Federal Aviation Administration requirements
      4. Hazardous waste (report to be supplied by City), v. Pollution
   iii. Description of each architectural design scheme, explaining:
      1. Organizational concept
      2. Expansion potential
      3. Building efficiency
      4. Energy considerations
      5. Advantages and disadvantages
   iv. Sustainable design considerations:
      1. Potential for incorporation of renewable energy systems in the design
      2. Potential use of geothermal systems
   v. Mechanical system and strategy to comply with energy goals
   vi. Description of structural design scheme considerations for each design scheme explaining:
      1. Design loads
      2. Foundation system
      3. Building framing system
      4. Lateral load resisting system
      5. Advantages and disadvantages
   vii. Fire protection design considerations
   viii. Security features
   ix. Code statement. Provide a brief statement from each design team discipline member regarding the code requirements that relate to the site and occupancy use. For example, items such as, but not limited to: classification of construction and occupancy group(s), fire resistance requirements and general egress requirements, etc., would be prepared by the design team fire protection engineer
j, Project Schedule
   i. Develop project time schedules for the project indicating the expected progress of the work; include architectural and engineering design, bidding, contract execution and construction.
k. Pre Design Cost Estimate: This deliverable will be completed after submission of the final pre design submission by the cost estimator (consultant on A/E team). Cost estimate deliverable is to be reviewed concurrently by the City and the A/E.

F. Phase II: Schematic Design

1. General – Prior To Completion of Schematic Design
   a. See "DELIVERABLES EACH PHASE – GENERAL REQUIREMENTS" above for meeting/presentation/approvals expectations.
2. Document Deliverables – Schematic Design
   a. Site Plan describing:
      i. Site boundaries, approximate topography, existing buildings, setbacks, and easements
      ii. Building orientation with respect to path of sun
      iii. Building massing and relationship to massing of surrounding buildings
      iv. Location of on-site and off-site utilities
      v. Grading and drainage
      vi. General landscape design, showing location of major features
      vii. Pedestrian and vehicular circulation (include direction of traffic on adjoining streets)
      viii. Parking and service areas
      ix. Fire protection, water supplies, fire hydrants, and fire apparatus access roads
   b. Site Narrative:
      i. Description of site and landscape design final concept
      ii. Demolition, if required
      iii. Circulation
      iv. Parking
      v. Paving
      vi. Landscape design
      vii. Irrigation, if any
      viii. Utility distribution and collection systems
      ix. Method for storm water detention or retention
      x. Landscape maintenance concept
      xi. Fire protection, water supplies, fire hydrants, and fire apparatus access road
      xii. Accessibility path for the physically disabled
      xiii. Summary of site and architectural design and the design's response to relevant recommendations by City staff
   c. Architectural Drawings:
      i. Demolition plans at all areas both interior and exterior as applicable
      ii. Entrances, lobbies, corridors, stairways, elevators, vending stalls, storefront spaces, events spaces, offices, bathrooms, special spaces, mechanical rooms for major equipment and air handlers, and service spaces (with the principal spaces labeled). Dimensions for critical clearances, such as vehicle access will be indicated.
      iii. Not used.
      iv. Not used.
      v. Indicate how major mechanical and electrical equipment can be removed/replaced
      vi. Elevations of major building facades showing fenestration, exterior materials, and cast shadows
      vii. Elevations of major interior spaces, showing lobby, typical public elevator lobby
      viii. Building sections showing adequate space for structural, mechanical and electrical, telecommunications, and fire protection systems, mechanical penthouses, floor-to-floor and other critical dimensions, labeling of spaces labeling of floor and roof elevations
      ix. Color Renderings providing sufficient detail to convey the architectural intent of the design at exterior, major lobby areas, and major and typical office spaces
      x. Acoustical calculations including noise transmission through envelope, interior walls, floors (including raised floors), ceilings, mechanical and electrical equipment
      xi. Dew point locations in building envelope
      xii. Toilet fixture count analysis
      xiii. Illumination, day lighting, and glare analysis
      xiv. Passenger and freight elevator analysis (if applicable)
      xv. Loading dock analysis

xvi. Energy analysis

d. Architectural Narrative (architectural program requirements):
   i. Show in tabular form how the final concept meets the program requirements for each critical function
   ii. A revised description of any deviation from City standards
   iii. Description of final concept, explaining expansion potential and building floor efficiency
   iv. Location and sizes of mechanical equipment rooms for accessibility, maintenance and replacement of equipment (including cooling towers and emergency generators)
   v. Conveying systems design (passenger and freight elevators)
   vi. Loading docks
   vii. Thermal, air leakage, and operational performance and maintainability of the building envelope
   viii. Design strategy to attain the assigned energy goal
   ix. Not used.
   x. Operations and maintenance goals (exterior and interior window washing, relamping, etc.)
   xi. Sustainable design concepts (LEED strategy)
   xii. Vertical transportation analysis (passenger and freight elevators and escalators)
   xiii. Code analysis (The Code criteria must be reviewed by each design team discipline member to the degree of detail necessary to assure that tasks accomplished in this phase meet all the Code requirements. A Code/Criteria analysis must be prepared by each design team discipline member that documents an investigation of the applicable codes and agency criteria that will govern the design of a specific project. This analysis should alert the City to any conflicts in the project's design criteria so that they can be resolved early. The analysis should also provide a common perspective for the design and review of the project. This analysis is critical in building modernization and repair/alteration projects.)

e. Structural Drawings:
   i. Framing and foundation plans of the proposed structural system showing column locations, bay sizes, and location of expansion and seismic joints
f. Structural Narrative:
   i. Identification of unusual local code requirements
   ii. Code compliance statement
   iii. Name of model building code followed (should be most current)
   iv. Building classification
   v. Identification of region of seismicity, wind speed, etc.
   vi. Identification of special requirements

g. Mechanical Drawings: For the system approved and selected from the relevant concepts, provide the following:
   i. Demolition plans as applicable.
   ii. HVAC Systems including floor plan (Identification of equipment spaces for mechanical equipment and location of mechanical equipment, including size, weight, access to loading docks and freight elevators, and clearance requirements for operation, maintenance, and replacement) and flow diagram(s) (Air flow riser diagrams representing supply, return, outside air, and exhaust systems and water flow riser diagrams of the main mechanical systems in the mechanical room(s) and throughout the building)
h. Mechanical Narrative:
   i. A written HVAC narrative describing the selected mechanical systems, estimates of equipment capacities, weights, sizes, and power requirements
   ii. Building heating and cooling load calculations.
   iii. Schematic calculations of Ventilation and exhaust quantities including ASHRAE 62 and WI SPS 364 methodologies.

i. Plumbing Drawings: Plumbing systems including floor plan (Proposed building zoning and major piping runs and locations of proposed plumbing fixtures and equipment) and systems schematics and flow diagrams
j. Plumbing Narrative, including: Description of proposed plumbing systems, including domestic cold and hot water, sanitary and storm drainage, and irrigation

k. Electrical Drawings, including: Plans showing equipment spaces for all electrical equipment to include: panels, switchboards, transformers and other major items such as emergency lighting inverter, PV inverters, etc.
l. Electrical Narrative, including: Description of the proposed lighting and lighting control system, PV system and proposed special features of electrical system

m. Fire Protection Drawings: Plans showing equipment spaces for fire protection systems (e.g., fire pump, fire command center, etc.) and fire protection water supplies, fire hydrant locations, fire apparatus access roads, and fire lanes.
n. Fire Protection Narrative, including:
    i. Description of the building's proposed fire protection systems including the egress system
    ii. Code compliance analysis (including the design team fire protection engineer must prepare an analysis of the applicable codes and agency criteria that will govern the design of the specific project. For example, items such as, but not limited to classification of construction and occupancy group(s), rating of structural components, fire resistance requirements, interior finish, occupant load calculations, exit calculations, identification of areas to receive automatic sprinkler systems and/or automatic detection systems, smoke control systems, etc. would be prepared by the design team fire protection engineer as necessary to provide a complete fire protection and life safety analysis for the final concept.)

o. Certification Requirements, including: The architect/engineer (lead designer) must certify that the concept design complies with the program requirements and energy goals, and local regulatory agencies and review boards. In bullet form, identify how proposed design features will support performance expectations of the project. Expectations are shall be identified in the project's design program.
p. LEED Report:
    i. Prepare and present to City for review and approval a LEED design report to include the LEED checklist of proposed strategy
    ii. Identify proposed elements and highlight features on schematic design documents in both graphic and written summary that address the LEED requirement
q. Specifications (Div-2 through 31): Table of contents identifying specifications to be used on the project.

r. Life-Cycle Cost Analysis: A/E shall provide applicable design documentation to support City Life-Cycle cost review.
s. Schematic Design Cost Estimate: This deliverable will be completed after submission of the final schematic design submission by the cost estimator (consultant on A/E team). Cost estimate deliverable is to be reviewed concurrently by the City and the A/E.

t. Energy Analysis (BY CITY): Final completion of this deliverable will be completed after submission of the final schematic design submission by the City's third party commissioning agent.

u. Project Schedule
    i. Develop project time schedules for the project indicating the expected progress of the work; include architectural and engineering design, bidding, contract execution and construction.

G. Phase III: Design Development

1. General – Prior To Completion of Design Development
   a. See "DELIVERABLES EACH PHASE – GENERAL REQUIREMENTS" above for meeting/presentation/approvals expectations.
   b. This set of submissions shall reflect a more comprehensive project design developed from the selected final schematic design. In DD the A/E and City shall finalize the selection of all systems with respect to type, size, and other material characteristics. Systems are not only structural, mechanical, fire protection, and electrical, but include all other building components such as the building envelope (wall, window, and roof), interior construction (flooring, ceiling, and partitions), service spaces, elevators, security, signage, furnishings, and so on.
   c. All SHPO, Landmarks Commission, Urban Design Commission, Planning Commission, and Zoning approvals (including exterior signage) must be complete prior to proceeding beyond the design development phase.
   d. A/E shall complete all draft specifications for all sections at the design development phase. Outline specifications are not acceptable. . At a minimum, Part 2 – Products should be coordinated with the project. Mark out all content that does not apply to the project.
2. Document Deliverables – Design Development
   a. Site Planning and Landscape Design Calculations:
      i. Site storm drainage combined with building storm drainage and sanitary sewer calculations
      ii. Storm water detention calculations, if applicable
      iii. Parking calculations, if applicable
      iv. Where applicable dewatering (Calculations including calculations modeling dewatering rates during dry and wet season excavation. Calculations must take into account effect of dewatering on adjacent structures and improvements; Calculations must assume a specific shoring system as part of a comprehensive excavation system.)
   b. Site Planning Narrative:
      i. Site circulation concept (explaining Reasons for site circulation design and number of site entrances, Reasons and/or calculations for number of parking spaces provided, Reasoning for design of service area(s), including description of number and sizes of trucks that can be accommodated, Proposed scheme for waste removal, Proposed scheme for fire apparatus access and fire lanes)
      ii. Site utilities distribution concept (provide description of fire protection water supplies, description of fire hydrant locations, drainage design concept
      iii. Landscape design concept (explaining Reasoning for landscape design, paving, site furnishings, and any water features; reasoning for choice of plant materials; Proposed landscape maintenance plan and water conservation plan; Brief operating description of irrigation system);
      iv. Site construction description of materials proposed for pavements and utilities
      v. Code analysis (The code criteria must be reviewed by each design team discipline member to the degree of detail necessary to ensure that tasks accomplished in this phase meet all the code requirements; Identify local zoning and all building code requirements and provide a complete analysis as they pertain to the project)
   c. Site Planning Drawings:
      i. Demolition drawings
      ii. Site layout plan (showing All buildings, roads, walks, parking, and other paved areas including type of pavement; Accessible route from parking areas and from public street to main facility entrance; Fire apparatus and fire lanes
      iii. Grading and drainage plan (showing Site grading and storm drainage inlets, including storm water detention features)
      iv. Site utilities plan (showing: sizes and locations of domestic and fire protection water supply lines, sanitary sewer lines, and all other utilities as applicable
      v. Landscape design plan (showing General areas of planting, paving, site furniture, water features, etc.) and irrigation plan, if applicable

d. Architectural Calculations:
   i. Acoustical calculations, including noise transmission through envelope interior walls, floors (including raised floors), and ceilings, and mechanical and electrical equipment
   ii. Heat transfer through dew point locations in building envelope
   iii. Toilet fixture count
   iv. Illumination, day lighting, and glare
   v. Passenger and freight elevator analysis if applicable
   vi. Loading dock analysis
e. Architectural Narrative:
   i. Building concept (explaining Reasons for building massing, entrance locations, and service locations; Building circulation and arrangement of major spaces; Interior design; Adherence to the building preservation plan; Energy conservation design elements; Water conservation considerations; Explain how all these design considerations are combined to provide a well integrated cohesive design concept; Analysis of refuse removal, recycled materials storage and removal, and maintenance requirements)
   ii. Building construction description, (explaining Structural bay size; Exterior materials, waterproofing, air barriers/vapor retarders, and insulation elements; Roofing system(s); Exterior glazing system; Interior finishes (including signage and furnishing), with detailed explanation for public spaces)
   iii. Potential locations for artwork, as a result of collaboration between the artist, A/E, and City Arts Program Administrator
   iv. Use of recycled materials
   v. Sustainable design concepts and LEED strategy
   vi. Review of project for code compliance (Code criteria should be reviewed by each discipline to the degree of detail necessary to assure that tasks accomplished in this phase meet the code requirements)
   vii. Building maintenance (explaining how unique and tall architectural spaces will be cleaned, have their light fixtures maintained, have interior and exterior glass surfaces cleaned and typical maintenance performed; If applicable explain how assembly spaces with fixed seating, multilevel spaces, or with sloped floors will have their ceilings, lights, and other ceiling elements maintained and repaired; Proposed scheme for window washing equipment; Consideration and prevention of bird nesting on exterior surfaces; How major mechanical and electrical equipment can be serviced and/or replaced in future years giving the necessary dimension clearances)
   viii. Describe the project-specific security design
   ix. Report verifying the current design's compliance with the approved space program. Any deviations must be clearly reported
   x. Curtain Wall Report, if applicable (in projects with complex curtain wall systems, describe size and locations of major movement joints to accommodate structural drift due to seismic and/or wind loading. Describe proposed curtain wall attachment methods to accommodate these lateral movements; Describe water migration; Describe exterior fire safety systems, if applicable; Describe typical interfaces between exterior wall system and interior finishes; Describe interfaces between major enclosure assemblies such as glass curtain wall or windows to precast or stone panels; Identification of at least three suppliers that can provide proposed exterior window system)
   xi. Not used.
   xi. Building keying: Report must fully define the keying hierarchy for the entire building incorporating various levels of access, security, and fire egress; Signage Report: Signage system and room numbering system must be integrated with keying system
   xii. Provide two finish boards for both public and tenant interior areas and two finish boards of exterior finishes composed of actual material samples and color coded plans, sections, and elevations of major space showing their use
f. Architectural Drawings:
   i. Demolition drawings

ii. Building floor plans (showing Spaces individually delineated and labeled; Enlarged layouts of special spaces; Dimensions Planning module)
iii. Building reflected ceiling plans (showing Enlarged layouts of special spaces; Spaces individually delineated; Materials labeled; Ceiling heights labeled; Lighting fixture types indicated and scheduled
iv. Building roof plan (showing Drainage design, including minimum roof slope; Dimensions; Membrane and insulation configuration of the roofing system; Mechanical equipment rooms and their relationship to freight elevators)
v. Elevations (showing Entrances, window arrangements, doors; Exterior materials with major vertical and horizontal joints; Roof levels; Suspended ceiling space; Dimensions)
vi. Interior elevations (showing: Lobby; Public corridors; Restrooms; Major office spaces; Typical public elevator lobby; Typical tenant corridors; Typical conference rooms)
vii. One longitudinal and one transverse section (showing Floor-to-floor dimensions; Stairs and elevators; Typical ceiling heights; General roof construction)
viii. Exterior wall sections (showing Materials of exterior wall construction, including flashing, connections, method of anchoring, insulation, vapor retarders, and glazing treatments; Vertical arrangement of interior space, including accommodation of mechanical and electrical services in the floor and ceiling zones
ix. Proposed room finish schedule submitted on a drawing set (showing floors, bases, walls, and ceilings; renderings
x. Proposed site furniture (showing Site furniture cut sheets or photos and proposed locations)
xi. Diagrams illustrating the ability to access, service, and replace mechanical/electrical equipment showing the pathway with necessary clearance
xii. Location of accessible pathways and services for the physically disabled
xiii. Design of building signage, including code signs, way-finding and room identification, building directory, exterior building signage, and major interior building identification
xiv. Design of furnishings (including office, common lobby, conference rooms, etc.)

g. Structural Design Report Calculations:
   i. Gravity load and lateral load calculations, with tabulated results showing framing schedules
   ii. Foundation calculations
   iii. Calculations showing that the system is not vulnerable to progressive collapse
   iv. Vibration calculations
h. Structural Design Narrative:
   i. Code criteria should be reviewed by each discipline to the degree of detail necessary to ensure that tasks accomplished in this phase meet the code requirements
   ii. Description of recommended structural concept (including Choice of framing system, including lateral load-resisting elements, and proposed foundation design; Verification of adequacy of all assumed dead and live loads)
   iii. Identify all code requirements and provide a complete analysis as it pertains to this project (including but not limited to required fire-resistance rating of structural elements and Summary of special requirements resulting from applicable local codes)
   iv. Proposed methods of corrosion protection, if applicable
   v. Geotechnical engineering report by City, including boring logs (if part of scope of work)
i. Structural Drawings:
   i. Framing plans and key details

j. Mechanical Drawings (HVAC):
   i. Demolition drawings
   ii. Floor plan(s) (including Single line piping and ductwork schematic layout; terminal air units; Perimeter terminal units
   iii. Quarter-inch scale drawings of mechanical equipment room(s) showing all mechanical equipment, ductwork, and piping, including equipment access and service requirements in plan, elevations, and cross-sections)

iv. Roof plan showing all roof-mounted equipment and access to roof
v. Show adequate access from mechanical equipment room(s) to freight elevators
vi. Single line schematic flow and riser diagram(s) (including Airflow quantities and balancing devices for all heating/cooling equipment; Water flow quantities and balancing devices for all heating/cooling equipment; Flow/energy measuring devices for water and air systems for all cooling, heating, and terminal equipment)
vii. Automatic control diagram(s) (including Control flow diagrams showing all sensors, valves, and analog and digital controllers; and Sequence of operations of all the systems that describes the control sequences during occupied, 24-hour operations, and unoccupied conditions)
viii. Schedules (major equipment that includes chillers, boilers, pumps, air handling units, and terminal units, cooling towers, air terminals etc)
ix. Air terminal devices and diffusers shown connected to major duct runs and coordinated with reflected ceiling plan
x. Air balance relationships between spaces, if any.

k. Mechanical Narrative (HVAC):
   i. Updates from SD.
   ii. Updated psychrometric calculations (i.e. Trace System check-sums) for HVAC systems at full and partial loads (partial loads at 50% and 25%, and unoccupied periods)
   iii. Updated building heating and cooling load calculations
   iii. Updated, space-by-space calculations of ventilation and exhaust quantities following ASHRAE 62 and WI SPS 364.

l. Plumbing Drawings:
   i. Demolition drawings
   ii. Floor plan(s) including proposed building zoning and major piping runs and Locations of proposed plumbing fixtures and equipment
   iii. Systems schematics and flow diagrams

m. Plumbing Narrative:
   i. Updates from SD.

n. Fire Protection Drawings:
   i. Floor plans showing (Equipment spaces for fire protection systems including fire pump and fire command center; Fire protection water supply lines, fire hydrant locations, fire apparatus access roads, and fire lanes; Standpipes and sprinkler risers; Remoteness of exit stairways; Location of firewalls and smoke partitions; Identification of occupancy type of every space and room in building; Calculated occupant loads for every space and room in the building; Location of special fire protection requirements including kitchens, computer rooms, storage)
   ii. Riser diagrams for sprinkler system
   iii. Riser diagram for fire alarm system

o. Fire Protection Narrative:
   i. Updates from SD.
   ii. Occupant load and egress calculations
   iii. Fire protection water supply calculations (Includes water supply flow testing data)
   iv. Fire pump calculations where applicable
   v. Smoke control calculations where applicable (e.g., atrium)
   vi. Stairway pressurization calculations where applicable
   vii. Calculate sound attenuation through doors and walls for placement and location of fire alarm system audible notification appliances

p. Electrical Drawings:
   i. Site plan (Proposed site distribution for power and communications, proposed service entrance and location of transformers, generators, and vaults, etc.)
   ii. Floor plans (including Proposed major electrical distribution scheme and locations of electrical rooms and closets and communication closets; Proposed major routing of major electrical feeder

runs, bus duct, communication backbone systems, and security systems; Plan layouts of electrical rooms, showing locations of major equipment, including size variations by different manufacturers)

iii. Single line diagram of the building power distribution system
iv. Plan of typical lighting layout
v. PV System major components (panels, inverters, etc) shown on drawings and coordinated with structural.
vi. Single line diagram of other signal system including: telephones, security, public address, and others
vii. Security system site plan (including Proposed locations for surveillance cameras, duress alarm sensors, and access controls. If the system is not extensive, these locations may be shown on the electrical site plan; Security system floor plans; Proposed locations for access controls, intrusion detection devices, CCTV, and local panels); Lightning protection and building grounding

q. Electrical Narrative
   i. Lighting calculations for a typical open office plan with system furniture
   ii. Lighting calculations for a typical one-person private office
   iii. Load calculations – note what equipment is not final if items are pending/unknown
   iv. Life-cycle cost analysis of luminaire/lamp system and associated controls
   v. Power density analysis for lighting of each area
   vii. Data port counts (will be provided to City IT for City IT to determine type/quantity of switches)

r. Specifications: All Divisions (2-31) edited for the project and coordinated with City provided Div-1 with yellow highlights as needed to identify portions that still need updating and/or coordination. Part 2 – products is to be coordinated with City standards and drawing schedules.
s. Certification Requirements, including: The architect/engineer (lead designer) must certify that the design development complies with the program requirements and energy goals, and local regulatory agencies and review boards. In bullet form, identify how proposed design features will support performance expectations of the project. Expectations are shall be identified in the project's design program.
t. LEED Report:
   i. Prepare and present to City for review and approval a LEED design report to include the LEED checklist of proposed strategy
   ii. Identify proposed elements and highlight features on design development documents in both graphic and written summary that address the LEED requirement

u. Life-Cycle Cost Analysis: A/E to provide design documentation to support City's life-cycle cost analysis.
v. Energy Analysis (BY CITY): This deliverable will be completed after submission of the final design development submission by the City's third party commissioning agent.

w. Design Development Cost Estimate: This deliverable will be completed after submission of the final schematic design submission by the cost estimator (consultant on A/E team). Cost estimate deliverable is to be reviewed concurrently by the City and the A/E.
x. Project Schedule
   i. Develop project time schedules for the project indicating the expected progress of the work; include architectural and engineering design, bidding, contract execution and construction.

   PLEASE NOTE - At the end of the Design Development Phase – and the beginning of the Construction Document phase – the A/E shall be prepared to submit the City of Madison Parking Lot / Site Plan review.

H. Phase IV: Construction Documents

1. General – Prior To Completion of Construction Documents
   a. See "DELIVERABLES EACH PHASE – GENERAL REQUIREMENTS" above for meeting/presentation/approvals expectations.
2. Document Deliverables – Construction Documents
   a. Site Planning and Landscape Design Calculations:
      i. Final drainage calculations, including stormwater detention
      ii. Final parking calculations, if applicable
      iii. Pipe sizing calculations for water and sewer pipes
      iv. Pavement design calculations
   b. Site Planning and Landscape Design Drawings, General:
      i. Demolition plans
      ii. Site layout plan (Location of all buildings, roads, walks, accessible routes from parking and public street to building entrance, parking and other paved areas, and planted areas; Limits of construction; Locations and sizes of fire protection water supply lines, fire hydrants, fire apparatus access roads, and fire lanes; Location of floodplains and wetlands)
      iii. Grading and drainage plan (showing Existing and new contours 2 ft. interval minimum in area around buildings; Spot elevations at all entrances and elsewhere as necessary; Elevations for walls, ramps, terraces, plazas, and parking lots; All surface drainage structures; Water retention and conservation)
      iv. Site utilities plan (showing All utilities, including inlets, manholes, clean-outs, and invert elevations)
      v. Planting plan, showing (Building outline, circulation, parking, and major utility runs; Size and location of existing vegetation to be preserved including construction protection measures;
      vi. Location of all new plant material; Erosion control); Planting schedule (showing Quantity of plants, botanical names, planted size, and final size)
      vii. Irrigation plan, if applicable (Include schematic of irrigation control system)
      viii. Planting and construction details, profiles, sections, and notes as necessary to fully describe design intent
   c. Architectural Calculations and Compliance Reports:
      i. Final acoustical calculations, including noise transmissions through Envelope, Interior walls, floors, and ceilings, Mechanical and electrical equipment
      ii. Final heat transfer through and dew point locations in building envelope
      iii. Final toilet fixture count
      iv. Final illumination, day lighting, and glare analysis
      v. Information as needed to complete DSPS Review.
   d. Architectural Drawings:
      i. Project title sheet, drawing index
      ii. Demolition plans
      iii. Floor plans
      iv. Show planning grids (Reflected ceiling plans; Show ceiling grid and location of all elements to be placed in the ceiling)
      v. Building sections (Vertical zoning for electrical and mechanical utilities must be indicated on sections)
      vi. Roof plans (Roof plans must show slopes, low points, drains and scuppers, equipment, equipment supports, roof accessories, and specialty items)
      vii. Exterior elevations
      viii. Wall sections
      ix. Interior elevations
      x. Details
      xi. Schedules
      xii. Diagrams illustrating proper clearance for servicing and replacement of equipment

e. Architectural Specifications Complete: Room finish, ceiling types, floor finish, color, and door schedules must be incorporated on drawings.

f. Structural Calculations:
   i. Gravity loads
   ii. Lateral loads (seismic and wind)
   iii. Foundations
   iv. Thermal loads where significant
   v. Vibration propagation
   vi. Progressive collapse
   vii. Supports for nonstructural elements, including mechanical and electrical equipment on the roof and in equipment rooms, louvers, and other penetrations
   viii. Steel connections
   ix. Blast analysis
   x. Provide calculations to meet DSPS review including roof mounted PV System.

g. Structural Drawings:
   i. Demolition plans as required.
   ii. Full set of structural construction drawings (Drawings must be fully dimensioned, noted and detailed for accurate bidding and construction; Load criteria for all floor live loads, roof live load, roof snow load, wind load, earthquake design data, and special loads must be shown on drawings. Live load reduction of the uniformly distributed floor live loads, if used in the design, must be indicated; Basic wind speed (3-second gust), miles per hour (km/hr), wind importance factor, I, and building category, wind exposure, the applicable internal pressure coefficient must be indicated; Seismic design criteria, such as seismic use group, spectral response coefficients SDS and SD1, site class, basic seismic-force-resisting system, design base shear, and analytical procedure must be indicated. Additional information may be required by the local building official; Soil bearing pressure and lateral earth pressure must be indicated; Properties of basic materials must be indicated; Indicate the codes and standards used to develop the project)
   iii. Structural Schedules (Schedules for foundations, columns, walls, beams, slabs, and decks, as applicable)
   iv. Structural details. (All typical details must be shown on the drawings; Include details for steel connections; Include details for all fire-rated assemblies, indicating Underwriters Laboratories Inc. or other nationally recognized testing laboratory fire resistance directory design numbers; Include details indicating if the assembly is restrained or unrestrained; Include details for anchorage of building system equipment and nonstructural building elements (may be shown on mechanical, electrical, or architectural drawings, as applicable). The anchorage details, if shown on other disciplines, must be referenced on the structural drawings.)

h. Mechanical Drawings (HVAC):
   i. Demolition plans
   ii. Floor plan(s) (Double line piping and ductwork layout; Show terminal air units; Perimeter terminal units; Show locations of automatic control sensors for example temperature, relative humidity, CO2, room pressurization)
   iii. Roof plan showing all roof-mounted equipment and access to roof (Show adequate access from mechanical equipment room(s) to freight elevators
   iv. Mechanical details (Quarter-inch scale drawings of mechanical equipment room(s) showing all mechanical equipment, ductwork, and piping including access and service requirements in plan, elevations, and cross-sections; All valves must be shown. Indicate locations where temperature, pressure, flow, contaminant/combustion gases, or vibration gauges are required, and if remote sensing is required; Mechanical room piping and ductwork layout must be double line; All dampers—both fire dampers and volume control dampers—must be shown. Ductwork ahead of the distribution terminals must be indicated in true size (double line))

v. Updated Single line schematic flow and riser diagram(s) (Airflow quantities and balancing devices for all heating/cooling equipment; Water flow quantities and balancing devices for all heating/cooling equipment; Show location of all flow/energy measuring devices for water and air systems for all cooling, heating, and terminal equipment, and their interface with the BAS.)
vi. Updated Automatic control diagrams (Control flow diagrams showing all sensors, valves, and controllers (analog and digital inputs for controllers, front end equipment, and system architecture)). Diagrams to show control signal interfaces, complete with sequence of operation of all heating, ventilating, and cooling systems during occupied, 24-hour, and unoccupied conditions
vii. Updated Schedules (Provide schedules of equipment that includes chillers, boilers, pumps, air handling units, terminal units, cooling towers,; Air terminal devices, etc)
viii. Updated Air balance relationships between spaces, if any
ix. Data room cooling systems – evaporators and condensers

i. Mechanical Narrative and Calculations (HVAC):
   i. Updates from DD.
   ii. A final description of any deviation from the HVAC system as approved during DD.
   iii. Final building heating and cooling load calculations
   iv. Final system pressure static analysis at peak and minimum block loads for occupied and unoccupied conditions
   v. Building pressurization analysis for peak and minimum block loads for occupied and unoccupied conditions
   vi. Acoustical calculations for peak and minimum block loads for occupied conditions
   vii. Flow and head calculations for pumping systems for peak and minimum block loads for occupied conditions
   viii. Final selection of equipment, cut sheets of selected equipment
   ix. Final psychrometric calculations for the selected HVAC systems at full and partial loads
   x. Final ventilation and exhaust calculations following ASHRAE 62 and WI SPS 364.
   xi. IT Space load calculations based on data port counts/City IT input about type/quantity of switches. Load calculations used to size data room cooling equipment
   xii. Information required to complete DSPS Review

j. Plumbing Drawings
   i. Demolition plans
   ii. Floor plans (Plumbing layout and fixtures, equipment and piping; large-scale plans should be used where required for clarity)
   iii. Riser diagrams for waste and vent lines
   iv. Riser diagrams for domestic cold and hot water lines
   v. Plumbing fixture schedule
k. Plumbing Narrative and Calculations:
   i. Updates from DD
   ii. hot water heating calculations
   iii. Water supply calculations, including pressure
   iv. Roof drainage calculations
   v. Sanitary waste sizing calculations
   vi. Final water consumption calculations and analysis including make-up water for HVAC systems, domestic water consumption, and water consumption for irrigation
   vii. Information required to complete DSPS Review

l. Electrical Drawings
   i. Demolition plans
   ii. Floor plans (Show lighting, power distribution, and communications raceway distribution, and locations of fire alarm and annunciator panels)
   iii. Single-line diagram of primary and secondary power distribution

iv. Include normal power, emergency power, and UPS
v. Single-line diagram of fire alarm system
vi. Single-line diagram of telecommunications/IT/AV/radio system
vii. Circuit layout of lighting control system
viii. Details of distribution system
ix. Site plan (Indicate service locations, manholes, ductbanks, and site lighting)
x. Layout of electrical equipment spaces (Show all electrical equipment. Include elevations of substation transformers and disconnect switches)
xi. Schedules for switchgear, switchboards, motor control centers, panelboards, and unit substations
xii. Grounding diagram
xiii. Complete phasing plan (if required) for additions and alterations
xiv. Security systems site plan
xv. Final locations of all security devices and conduit runs
xvi. Security system floor plans
xvii. Layout of all security systems
xviii. Storage areas for electrical equipment/spare parts

m. Electrical Narrative and Calculations:
i. Updates from DD and as needed for DSPS review
ii. Illumination level and lighting power calculations
iii. Short circuit calculations
iv. Voltage drop calculations
v. Overcurrent coordination study

n. Fire Protection Drawings:
i. Demolition plans if applicable
ii. Full set of fire protection construction drawings (Drawings must be carefully dimensioned, noted, and detailed for accurate bidding and construction
iii. Fire protection details (all typical details must be shown on the drawings including Firewalls and smoke partition, Panel and curtain walls, Fire-stopping configurations. Include details of all openings between the exterior walls (including panel, curtain, and spandrel walls) and floor slabs, openings in floors, and shaft enclosures; Mass notification system equipment; Horizontal exits; Each required fire door; Stairway pressurization fans; Security door hardware, including operation procedures; Fire pump configuration; Anchorage of underground fire protection water supply lines; Standpipe riser; waterflow switches and tamper switches; Sprinkler floor control valves, sectional valves, and inspector text assembly; Special fire extinguishing systems (e.g., wet chemical); Fire alarm riser; Typical firefighter telephone station; Typical firefighter telephone jack; Electrical closets for fire alarm system panels; Fire alarm telephone panel including voice paging microphone and firefighter telephone system; Visual indicating device control and power detail, typical for floors stating location; Amplifier rack stating location; Typical location of duct smoke detectors; Outdoor fire alarm speaker; Wall-mounted cone fire alarm speaker; Typical terminal cabinet; Lay-in ceiling-mounted fire alarm speaker; Lay-in ceiling-mounted fire alarm combination speaker/strobe; Wall-mounted strobe device; Typical manual fire alarm box installation; Fire alarm system input/output matrix; Graphic annunciator panel; Fire command center showing the locations of each panel to be installed

o. Fire Protection Narrative and Calculations (For any fire modeling generated results, submit a copy of the input data and all pertinent program material and assumptions required to understand the output and the analysis. A narrative of the input and results must be part of the calculations.):
i. Final occupant load and egress calculations
ii. Final fire protection water supply calculations including water supply flow testing data
iii. Final fire pump calculations where applicable
iv. Final smoke control calculations where applicable
v. Final stairway pressurization calculations
vi. Fire modeling

vii. Final calculations for calculating sound attenuation through doors and walls for placement and location of fire alarm system audible notification appliances
ix. Other information as needed for DSPS and MFD review.

p. Certification Requirements: The A/E (lead designer) must provide certification that the project has been designed and is in compliance with ASHRAE 90.1 and will meet City energy goal requirements. Certification will also indicate that the architectural/engineering design elements have been integrated with the overall project design, and that the building can meet the programmed LEED rating. The A/E certification must be signed and sealed by a principal of the architectural/engineering firm in charge of the project.
q. LEED Report:
   i. Prepare and present to City for review and approval a LEED design report to include the LEED checklist of proposed strategy
   ii. Identify proposed elements and highlight features on construction documents in both graphic and written summary that address the LEED requirement
r. LEED Online submission of design phase credits – The A/E is to submit all design phase credits to LEED Online and coordinate with City staff and other consultants as needed to complete submission (e.g. energy modeling credit). A/E is to respond to GBCI review comments as needed to finalize design credit submission.
s. Specifications (Div-1 through 31): Completely edited version of each specification section to be used on the project.

t. Construction Document Cost Estimate: This deliverable will be completed after submission of the final CD submission by the cost estimator (consultant on A/E team). Cost estimate deliverable is to be reviewed concurrently by the City and the A/E.

u. Energy Analysis: This deliverable will be updated by City third party consultant if there are any significant changes in the construction document phase.
v. Project Schedule
   i. Develop project time schedules for the project indicating the expected progress of the work; include architectural and engineering design, bidding, contract execution and construction.

I. Phase V: Bidding Phase

1. The A/E, following the City's approval of the PHASE IV CONSTRUCTION DOCUMENTS, and the latest construction estimate; and the City's declaration of its intent to put the project out for bidding, shall assist the City in preparation and assembly of the final standard City contract specifications.
2. The City's contract specifications will be prepared by the City's Designated Representative and shall include statements relating to advertising for bid, instructions to bidders, small business enterprise program information, special provisions, proposal, bid bond, agreement, payment bond, performance bond, prevailing wage rates, and Best Value Contracting. Bidding, bid opening, building contractor selection, and contract signing will be provided by the City Engineering Division and the Board of Public Works.
3. A/E shall assist the City in preparing documents as Exhibits in searchable PDF format to be posted on the City's preferred internet bid site (BidExpress).
4. A/E shall attend pre-bid conference meeting.
5. A/E shall answer questions during bidding and contract negotiations and develop addendums promptly in order to give bidders sufficient time to adjust bids. No design-related addendum shall be submitted past one week before bids are received.
6. Upon receipt and acknowledgment of lowest responsible bidder the A/E will update the bidding set to incorporate all changes that occurred during the bid set. The revised set must be completed in an expeditious manner.

7. The A/E shall provide electronic digital drawing files, in applicable 3D or 2D format, for the General Building Contractor and its subcontractors to use as may be necessary during design and construction of the project.
8. As the City has a total construction cost limitation for this project, the A/E shall adhere to this limitation. Should the total bid for all work exceed the estimated probable costs of construction by more than eight (8) percent, the City shall have the discretion to require the A/E to revise the design at no additional cost to the City, whether or not the City ultimately decides to complete the project according to the redrafted plans or the original plans.
9. Building Information Model: Provide final BIM Model during or right after bidding.

J. Phase VI: Construction Administration

1. The construction phase will commence with the award of the construction contract and will terminate when the common council accepts the construction. A pre-construction meeting held by owner shall be attended by A/E. A separate Sharepoint construction administration orientation must be attended by the A/E team responsible for construction administration activities.
2. All communication and filing shall be primarily electronically. The City will receive a set of all design documents in electronic form. Electronic files shall be in universal format (i.e. PDF) and in the design tool specific file format (i.e. Revit file, Trane trace file).
3. The A/E, and when appropriate to the progress of the project any sub-consultants, shall attend field project meetings. The A/E shall conduct the meetings and shall prepare minutes of the meetings. Such meetings shall be held at regular intervals (bi-weekly minimum) and as required by City.
4. The A/E shall make periodic visits to the site at least every two weeks and more often as necessary to maintain familiarity generally with the progress and quality of the work and to determine in general if the work is proceeding in accordance with the contract documents. The visits will vary in frequency based on the stage of construction and nature of activities at the time of the visit, and will average the equivalent of one visit per two weeks in the early phases of construction, to one visit per week during the more intense construction phases from just after mid-construction through substantial completion. The exact schedule for these visits will be determined once a detailed construction schedule is issued by the awarded general contractor. Refer to Exhibit B – A/E General Design Guidelines – related to this agreement - for more information.
5. A/E shall inspect field installation of critical design features and elements were installed as intended per design. This includes pre-installation meetings, inspection of mockups, and inspection of partial builds during construction.
6. A/E shall review (for conformance with the construction documents) and take other appropriate action upon the general building contractor's submittals such as shop drawings, product data, and samples and make recommendations regarding such to the City's Project Manager.
7. A/E shall work with contractor, owner and other designers to resolve questions, conflicts and unforeseen situations. The A/E shall prepare, reproduce, and distribute supplemental drawings, specifications, and interpretations in response to requests for clarification by general building contractor or the City.
8. A/E shall prepare, reproduce, and distribute drawings and specifications with revisions to describe work to be added, deleted, or modified.
9. Review all change order requests, provide determination to City, and present proposed changes to the board of public works for approval. Such documents shall be prepared in a timely manner.
10. The A/E shall communicate with the City on design and construction related issues and shall not issue documents or give instructions to the contractor without knowledge and approval of the City. Documents received by the A/E from the contractor shall be shared with the City. The City maintains the right to object to instructions or approvals.
11. Based on construction observations at the site and on the general building contractor's applications for payment, the consultant shall assist the City to determine the amount owing to the general building contractor by verifying and approving quantities of work put in place on the general building contractor's application for payment. The A/E shall assist in determining the dates of completion, substantiated by creation and distribution of punch lists.

12. The consultant shall report to the board of public works and other entities on all claims of the City or general building contractor relating to the execution and progress of the work and on all other matters or questions related thereto.
13. A/E shall receive and review written guarantees and related documents assembled by the general building contractor, and shall transmit said data to the City's designated representative who will prepare the final certificate for payment.
14. The A/E shall provide punch list comments via the Sharepoint QMO workflow. The A/E's items will be coordinated with the City's project team and third-party consultants. The purpose is to check conformance of the construction work with the requirements of the contract documents. The A/E is to verify the accuracy and completeness of the responses by the general contractor and to assist with checking construction work to be completed or corrected.
15. The A/E shall review and approve for accuracy and completeness, the general building contractors submission of "record" drawings and operations and maintenance manuals and transmit same to the City prior to certification of the general building contractors application for final payment.
16. At the end of the project the A/E will prepare electronic record drawings based on field observations and contractor's markup.
17. The A/E shall work with the general building contractor, City staff and other consultants as needed to complete the construction phase LEED credit submission near the end of the construction phase. The general building contractor is responsible for uploading most construction phase LEED online credits, but will require some supporting documents and calculations from the A/E. The A/E is to review all LEED Online construction phase submittals and assist with responding to GBCI review comments, if needed.
18. Warranty period is considered construction phase for the purpose of the consultant assisting in resolving issues that are design or installation related.

Owner Provided Services and Deliverables

A. ENHANCED COMMISSIONING AND ENERGY MODEL
B. SITE SURVEY
C. HAZARDOUS MATERIALS SURVEY
D. GEOTECHINCAL REPORT
E. EXPLORATORY DEMOLITION
F. OTHERS AS APPLICABLE OR REQUIRED

Personnel (City)

A. A core group of City staff will comprise the main design team for the City of Madison. Each staff member represents specific areas of design or construction knowledge and also includes the prime contact for the owner agency. In addition the owner agency may provide additional staff as needed for design and functionality requirements of specific areas. The A/E may be directed to other City staff regarding specific requirements of the design including but not limited to storm water management, fire protection, safety, facility maintenance, enclosure, and finishes.

B. Additional consultants may be hired by the City to perform independent verification of various aspects of the design or provide support to the design as needed including but not limited to Energy Analysis, Enhanced Commissioning, Geotechnical Surveying, etc.

Personnel (A/E)

A. List TBD after selection of A/E.
B. Employees or sub-consultants of the A/E shall not in any way be construed as employees of the City. Activities to be performed by a Principal, either the A/E, sub-consultant, or both, as described in this Contract including the attachments and exhibits, shall be performed by or under the supervision of the appropriate Principal named above. In the event of the death or disability of the named Principal such as to be unable to participate

in the above described activities, or if the named principal leaves the employment of the (Architect / Design Professional / Engineer), or in any other way becomes incapable of performing the above-described activities, the City may accept another as Principal or terminate this Agreement pursuant to the provisions of this Agreement, at its option.

Payment Schedule

A. The City shall make periodic payment to the A/E in approximate proportion to services performed so that the compensation on the completion of each task described herein shall not exceed the percentage of the contract price at the table below.
B. No itemized expenses are allowed. All expenses including but not limited to travel, communication, reproductions, delivery, and other project-related expenditures are included in the total contract price.

PHASE	% of Scope	Completion Requirements
Pre-Design – Program Development	5%	Billed upon successful acceptance by City Designated Representative
Schematic Design	15%	Billed upon successful acceptance by City Designated Representative
Design Development	20%	Billed upon successful acceptance by City Designated Representative
Construction Documents	30%	Billed upon successful acceptance by City Designated Representative
Bidding	2%	Billed upon successful acceptance by City Designated Representative
Construction Administration	26%	Billed upon successful acceptance by City Designated Representative
Warranty & LEED Documentation Completion	2%	Billed upon successful acceptance by City Designated Representative

Completion Schedule

A. The A/E shall collaborate with The City and develop a programming, design and construction project schedule indicating the completion date of each phase or segment of work. The design and construction project schedule shall include review periods with the City, tenant agencies, committees or commissions, stakeholder groups, regulatory agencies, etc. as may be required for project design approvals and acceptance, or of similar items. A/E shall update and resubmit the project schedule whenever scheduling changes occur. The work shall commence after final contract execution by the City and upon issuance by the City's Designated Representative of official notice to proceed. The table below lists a preliminary schedule. The A/E shall recognize that it is important to be prepared to advance this schedule as opportunities arise throughout the duration of the A/E scope of work.

Approximate Time Frame	Milestone Description
2018	
July - October	RFQ/RFP and contracting process with principal A/E firm
October - December	Complete Pre Design (including owner design review & corrections)
2019	
January - March	Complete Schematic Design (including owner design review & corrections)
March - May	Complete Design Development (including owner design review & corrections)
June - August	Complete Construction Drawings (including owner design review & corrections)
September	Complete Pre-Bid Verification (including owner review & corrections)
September - December	Construction Bidding and Contract Signing
2020	
January 2020	Start Construction and Construction Administration
2021	
March	Construction Complete, Owner Occupancy, begin 1 year warranty phase

Extra Services

A. Any extra services to be per the Contract for Purchase of Services Agreement. Additional requirements for use in establishing an equitable agreement for extra services is as follows:
   1. The rates shall be limited to the usual overhead such as clerical and office support and benefits, insurance, and training.
   2. City may require proof of cost (i.e. payroll records, invoices).
   3. Reimbursable expenses may be billed at the actual cost rate and have to be pre-approved by the City and shall be limited to:
      a. Travel to meetings beyond 50 miles of City of Madison. Mileage will be paid at federal reimbursement rate
      b. Delivery / Shipping
      c. Printing in excess of usual customary project printing
      d. Equipment rental and material in excess of usual tools

END OF DOCUMENT

Department of Public Works
Engineering Division
Robert F. Phillips, P.E., City Engineer
City-County Building, Room 115
210 Martin Luther King, Jr. Boulevard
Madison, Wisconsin 53703
Phone: (608) 266-4751
Fax: (608) 264-9275
engineering@cityofmadison.com
www.cityofmadison.com/engineering

Exhibit B – GENERAL DESIGN GUIDELINES
CONTRACT #8048, PROJECT #10069-64-200
MADISON PUBLIC MARKET

In this Exhibit B; the word "City" means City of Madison, Wisconsin. The City of Madison will include the City's Designated Representative and/or Owner's Representative and/or Commissioning Agent and/or Contractor to provide energy modeling; the word "A/E" means the licensed design professional(s) **A/E TBD**; and the word "General Building Contractor" means the entity which will be responsible for the actual construction of the project.

Exhibit B is organized by the CSI Divisions of Work and consists of general preliminary information intended for the A/E to begin the design process. Information that is not applicable to any particular division or is applicable to all areas of the design have been included in Division 01-General Requirements.

The A/E shall use this Exhibit B as a basis for preparing all plans and specifications, in all phases of the design, as defined in Exhibit A-Scope of Work. Any deviation from the guidelines must be approved by the City Design Team before incorporating them into the plans and specifications.

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DIVISION 00 – Procurement and Contracting Requirements

1. The City will provide the specifications listed below to the A/E for inclusion in the project specifications. Additional specifications may be added or deleted during the design process as needed. The A/E shall not write/provide any additional Division 00 specifications without first verifying the need with the City.
   a. 00 31 46 Permits
2. The City will be responsible for assembling all final bid documents, posting the bid documents to BidExpress, the bidding schedule, bid opening, reviewing bids, awarding the contract, and contract signing.
3. The A/E will be responsible for completing & providing to the City all construction document drawings and project specifications as previously outlined in Attachment 1 – A/E Scope of Work.
4. The A/E (including representatives of all sub-consultants) shall assist and advise the City during the bidding process in all of the following:
   a. Answer questions/provide clarification via email or phone of the plans and specifications as necessary to bidding contractors.
   b. Attending the Pre-Bid Walk Through to answer questions/provide clarification of the plans and specifications as necessary to the bidding contractors.
   c. Review all proposed substitutions of materials and equipment. Advise the City as to acceptable substitutions. Modify plans and specifications as necessary to city confirmed lists of accepted substitutions. NOTE: City has final approval in all substitutions.
   d. Assist the City in preparing contract addenda based on information generated from items 4a thru 4c above and other corrections to plans and specifications that were completed during the bidding period.

DIVISION 01 – General Requirements

1. The City may provide any/all of the specifications listed below to the A/E for inclusion in the project specifications. The A/E and the City shall refine this list as necessary based on the project needs. Editing of the specifications in this list shall be the responsibility of the City.
   a. 01 25 13 Product Substitution Procedures
   b. 01 26 13 Request for Information (RFI)
   c. 01 26 46 Construction Bulletin (CB)
   d. 01 26 57 Change Order Request (COR)
   e. 01 26 63 Change Order (CO)
   f. 01 29 73 Schedule of Values
   g. 01 29 76 Progress Payment Procedures
   h. 01 31 13 Project Coordination
   i. 01 31 19 Project Meetings
   j. 01 31 23 Project Management Web Site
   k. 01 32 16 Construction Progress Schedules
   l. 01 32 19 Submittals Schedule
   m. 01 32 26 Construction Progress Reporting
   n. 01 32 33 Photographic Documentation
   o. 01 33 23 Submittals
   p. 01 41 00 Regulatory Requirements
   q. 01 43 39 Mockups
   r. 01 45 16 Field Quality Control Procedures
   s. 01 45 29 Testing Laboratory Services
   t. 01 50 00 Temporary Facilities and Controls
   u. 01 60 00 Product Requirements
   v. 01 71 23 Field Engineering
   w. 01 73 29 Cutting and Patching
   x. 01 74 13 Progress Cleaning
   y. 01 74 19 Construction Waste Management and Disposal
   z. 01 76 00 Protecting Installed Construction
   aa. 01 77 00 Closeout Procedures
   ab. 01 78 13 Completion and Correction List

ac. 01 78 23 Operation and Maintenance Data
ad. 01 78 36 Warranties and Guarantees
ae. 01 78 39 As-Built Drawings
af. 01 78 43 Spare Parts and Extra Materials
ag. 01 79 00 Demonstration and Training

2. The A/E and all sub-consultants shall become familiar with the City of Madison Standard Specification for Public Works Construction (http://www.cityofmadison.com/business/pw/specs.cfm) and all City provided Division 01 specifications as they relate to City policies for Public Works Projects, procedures within SharePoint, and general contract expectations and intent on the part of the City.
3. The A/E will be responsible for writing additional Division 01 specifications as needed
4. The A/E shall incorporate all City provided specifications, regardless of Division, into their specification documents.
5. Construction Products and Materials
   a. The A/E must design, and review with the City, all specifications for building products throughout the design and construction phases to confirm the products are meeting the City's expectations for construction products and materials.
   b. Each product shall be evaluated based on its applicable characteristics. Products shall be evaluated for construction, durability, acoustic properties, security, operability/flexibility, and other characteristics that reflect the functional requirements of the product under consideration.
6. Interior Finishes and Materials
   a. The A/E must design, and review with the City, all specifications for building products throughout the design and construction phases to confirm the products are meeting the City's expectations for interior construction.
   b. The A/E shall address performance levels of typical floor, wall, and ceiling finishes, focusing on each product's durability, maintenance, service life, and environmental qualities. Metrics and attributes vary by finish based on performance need.
      i. Durability describes composition/content, thickness, hardness, strength, wear resistance, load limit, and water absorption.
      ii. Maintenance addresses wear layer/sealer, barrier/backing, "clean-ability", stain resistance, microbial resistance, and mold/mildew resistance.
      iii. Service life is described in terms of the length of warranty available.
      iv. Environmental addresses recycled content, renewable resources, local materials, and VOC emissions.
   c. Finishes must meet requirements of the most current International Building Code. Other codes (Example: NFPA Fire Safety Codes) and application specific performance attributes (Examples: Severe traffic area; Raised access flooring) need to be taken into account.
7. Structural Design
   a. The structural design must be in full compliance with the latest edition of the IBC. Any variance for any reason must be reviewed with the City.
8. Mockups
   a. If it is determined that mock-ups would be helpful during the design phase the A/E shall coordinate with the City Project Manager all procedural requirements necessary to amend Exhibit A-Scope of Work, amendments to the contract proposal, and other related information prior to proceeding with the mockup.
9. Interior Space Requirements and Goals
   a. As part of the pre-design planning effort, the A/E shall work with the City, the Public Market Foundation, potential future public market vendors, and others to develop space requirements for the interior of the public market. This includes identifying and laying out a mix of individual vendor spaces with varying shapes and sizes that can accommodate a mix of future public market businesses. It also includes working with the City and stakeholders to identify ancillary needs for space at the Madison Public Market including kitchen, food storage, loading areas, community spaces, etc.
   b. Complete an in-depth analysis of the overall space requirements. The process must use analytical tools, methods, and technology to structure input from a broad range of stakeholders, and recommendations concerning the following:
      i. Space adjacencies, types, and sizes necessary to support the Madison Public Market's mission.
      ii. Flexibility to adapt to future change
      iii. Analysis of the Public Market Business Plan to accommodate the desired mix of uses.
   c. When designing and planning the Madison Public Market space, the following factors should be established as the primary criteria for calculating total space needed

i. total number, type and size of vending stalls
ii. Amount of non-leasable public space within the market
ii. Non-vending spaces such as event areas, storage, kitchen space, etc.

d. Additionally, design goals should include:
   i. Maximize natural light in open spaces and avoid placing enclosed rooms along the windows.
   ii. Provide adequate speech privacy and consider sound masking if necessary to ensure appropriate acoustics.
   iii. Circulation patterns should be clearly recognizable and wayfinding must be user friendly. Proceeding through the office should be pleasant and intuitive for the users, encouraging informal communication.
   iv. Provide and minimize centrally located resource centers for files, supplies, and equipment.
   v. Provide adequate, clearly located space for the recycling program.
   vi. Choose workplace components and furnishings as identified in Division 12 below or recommend furnishings that may be unique to the project requirements. Components and furnishings must be easy to move and reconfigure by the occupants, to accommodate change, without skilled labor or technical contract support.
e. The A/E must ensure the City's requirements are translated into the design, confirm the workspace requirement are being maintained throughout design development, and are reflected in the final construction documents.

10. Acoustics

a. The standards in this section establish adequate acoustic qualities. Post-construction commissioning will confirm that the acoustical standards have been met.

   i. General Criteria for Building Spaces
      - Closed Offices versus Open Plan: For work that does not require acoustic and/or visual privacy, an open plan environment with low or no partitions between workstations is permitted. For work that requires a balance between ongoing, active collaboration, easy workgroup reconfiguration, flexible settings, and minimized unwanted acoustic distraction, an open plan setting with a well-engineered acoustical design is required.
      - Key components of such engineered open plan designs are highly absorptive ceilings, suitable height partition panels that both absorb and block sound, suitable levels of background sound (typically provided by electronic sound masking systems), and ready access to acoustically private (closed-office) meeting spaces.
      - Closed offices must be provided for workers who routinely require extended periods of concentration, in-office meetings, and/or confidential conversation. Meeting spaces and closed offices that require speech security must be designed in conjunction with a qualified acoustical consultant.
   ii. Noise Isolation, Room Acoustics, and Speech Privacy
      - Absorptive materials are required in speech-sensitive spaces to control reverberation and echoes.
      - Floor and ceiling assemblies separating office spaces must achieve an NIC of not less than 50 (when furnished) and Field Impact Isolation Class (FIIC) of not less than 50.
      - Where an elevator shaft occurs adjacent to noise-sensitive spaces (NC/RC 35 or lower), the maximum intrusion level of elevator noise must be limited to 5 dB below the maximum NC/RC for the space in all octave bands.
      - See Divisions 22, 23, and 26 for additional noise isolation requirements of MEP related equipment and piping.
      - The intervening structure (partitions, shaft walls, doors, floor and ceiling assemblies, etc.) must be sufficient to control noise intrusion to no greater than the maximum NC or room criteria (RC) values.
   iii. For construction on suitable slab floors, when properly detailed and constructed, and with all connections caulked airtight with acoustical sealant, the following wall assemblies typically will satisfy the minimum specified NIC requirements, with the spaces furnished typically. These wall examples are not the only constructions that will satisfy the performance criteria; they are intended solely to provide guidance on projects. The A/E shall employ a qualified acoustical consultant during the design phase as necessary to guide and confirm all pre-design acoustical goals are being met throughout design and construction documentation.

- NIC 53 (teleconference room): Double stud wall, two layers of gypsum board on each side, batt insulation in the stud cavities. Full height (slab to slab).
- NIC 48 (meeting rooms, training facilities): Staggered stud wall, two layers of gypsum board on each side, batt insulation in the stud cavity. Full height (slab to slab).
- NIC 45 (private offices, confidential speech privacy): Single stud wall, two layers of gypsum board each side, batt insulation in the stud cavity. Full height (slab to slab) or 6 inches above a hung gypsum board ceiling.
- NIC 40 (private offices, normal speech privacy): Single stud wall, two layers of gypsum board one side, one layer of gypsum board the other side, batt insulation in stud cavity. Slab to slab (preferred); minimum 6 inches above acoustical tile ceiling (minimum CAC 44).
- NIC 35 (private offices, normal speech privacy, sound masking): Single stud wall, single layer gypsum board each side, batt insulation in stud cavity. Minimum 6 inches above acoustical tile ceiling (minimum CAC 44).
- NIC 31 (private offices, normal speech privacy, low voice level, miscellaneous other spaces): Single stud wall, single layer of gypsum board each side, batt insulation in the stud cavity. Terminates at underside of acoustical tile ceiling (minimum CAC 35).

DIVISION 02 – Existing Conditions

1. The A/E shall review with the City the CSI Division 02 Table of Contents to determine which specifications will be needed during the Schematic Design phase.
   a. A/E and City shall determine who shall be responsible for writing any specifications.
   b. A/E shall use any existing information (site survey, soil information, etc) generated and provided by the City during the design phase as attachments or references to the specifications.

DIVISION 03 – Concrete

1. The A/E shall be responsible for writing all performance specifications for each type/need of concrete being used during the project as necessary. This shall include the most current references to recognized industry standards, testing requirements, etc.
2. The City is requiring the A/E incorporate the following City standards into their Division 03 specifications.
   a. 03 20 00 Concrete Reinforcing
      i. All rebar shall be plain steel rebar unless otherwise required or specified by code or construction detail.
      ii. Epoxy coated rebar shall only be used in exterior locations where open or cut concrete joints could potentially expose the rebar to corrosion.
3. The City is requiring the A/E incorporate the following City standards into their Division 03 specifications and design standards.
   a. Architectural precast concrete design must follow the recommendations of the Precast Concrete Institute (PCI) contained in PCI publication, Architectural Precast Concrete, Current Edition.

DIVISION 04 – Masonry

1. The City is requiring the A/E incorporate the following City standards into their Division 04 specifications and design standards.
   a. Concrete masonry design must follow the recommendations of the National Concrete Masonry Association contained in the publication, TEK Manual for Concrete Masonry Design and Construction.
   b. Brick masonry design must follow the recommendations of the Brick Institute of America contained in the publication, Technical Notes on Brick Construction.
   c. Exterior limestone design must follow the guidelines of the handbook published by the Indiana Limestone Institute of America.

DIVISION 05 – Metals

1. The City currently does not have any design standards for this Division of Work.

2. The A/E shall review all materials and methods related to this Division of Work with City Staff throughout the design process.
3. The A/E is responsible for writing any specifications related to this Division of Work.

DIVISION 06 – Woods, Plastics, and Composites

1. The City currently does not have any design standards for this Division of Work.
2. The A/E shall review all materials and methods related to this Division of Work with City Staff throughout the design process.
3. The A/E is responsible for writing any specifications related to this Division of Work.

DIVISION 07 – Thermal and Moisture Protection

1. The City is requiring the A/E to incorporate the following City standards into their Division 07 specifications and enclosure design standards.
   a. General; calculation of envelope assemblies: Isothermal-Planes Method per ASHRAE simulation (i.e. THERM).
   b. Thermal Performance Goals

	Maximum overall U-Value	Minimum overall R-value	Maximum overall SHGC	Notes
Roof	0.02	30	0.01	
Wall SE-SW	0.077	13	0.045	
Wall SW-NW	0.077	13	0.035	
Wall NW-NE	0.077	13	NA	
Wall NE-SE	0.077	13	0.035	
Wall Basement	0.05	20	NA	simulated
Floor Basement	0.05	20	NA	simulated

   c. Moisture Control; A/E design of the above-grade building enclosure must be demonstrated early in the design development phase.
      i. ASHRAE 160, Criteria for Moisture Control Design Analysis in Buildings is an acceptable basis of design.
      ii. Demonstration of the transient hydrothermal behavior of the various multi-layer building components for all critical building enclosure systems must be confirmed through modeling.
      iii. Construction documents must clearly depict all drainage and air passages.
      iv. Detail in three dimensions where practical, indicating critical corner terminations, interface of all differing systems, proper sealant methodologies, etc.
   d. Below Grade Systems; A/E shall design below grade enclosures as necessary early in the Design Development phase.
      i. Ground Water Control: If necessary, drainage mats and soil filters should be considered to relieve hydrostatic pressure on substructure walls and allow water drainage to the level of existing or new drains. Slope pipes per the specified Board of Public Works Standard Specification requirements. Subsurface drainage should discharge into the storm drain by gravity whenever possible. Cleanouts must be provided at grade to facilitate maintaining the system
      ii. Waterproofing: Where below grade waterproofing is required the design shall follow the recommendations of the National Roofing Contractors Association (NRCA) Waterproofing Manual. Below-grade waterproofing must be applied to the positive pressure side and must be covered by a protection mat to shield the waterproofing membrane from harmful effects of construction activities, ultraviolet radiation, or aggressive vegetation.
      iii. Water Stops: Water stops must be used at construction joints in below-grade walls, footings and other elements where a waterproof system is required.
      iv. Under slab Insulation: Designs shall include insulation under concrete slabs on grade, where slabs are heated, or where they support refrigerated structures.
   e. Wall Systems; A/E shall begin addressing wall enclosure system details as necessary early in the Design Development phase.
      i. Connections and fasteners exposed to weather: No design shall include products constructed of carbon steel in exterior construction, including but not limited to exterior walls, soffits, and roofs, except where protected by appropriate galvanic zinc coating or other equivalent protection approved by the City.

ii. Do not use vinyl wall coverings as the interior finish of exterior walls. On thermal mass storage walls where water may penetrate the wall, avoid interior finishes made from highly processed organic materials that may promote mold growth.

iii. Air/Moisture Barrier System: An air/moisture barrier is required in all new construction and should be employed wherever possible during remediation of existing exterior envelopes. The air barrier system is:

- A continuous plane of air tightness, herein called the air barrier system, must be installed as part of the building enclosure (both above and below grade) to effectively separate all conditioned air from outdoor and polluted spaces.
- Continuous in three-dimensions from roof-to-wall-to-foundation.
- Consists of materials and components that are either individually or collectively sufficient in stiffness and rigidity to resist air pressure differentials across the exterior wall assembly without permanent deformation or failure.
- Durable and structurally rigid to withstand the construction process.

iv. The interior and exterior air pressures across an air barrier system that need to be examined include, but are not limited to, pressures caused by wind, stack effect, and mechanical systems. Air barriers may be located at different locations within a wall system, and the placement of the air barrier needs to be indicated by the designer on the drawings. The designer must carefully consider placement of the air barrier when the air barrier material(s) will act both as an air barrier and as a vapor retarder to determine if drying of the system will be inhibited by the location of this material within the assembly. Portions of the air barrier may require regular maintenance and an allowance should be made within the design to accommodate this maintenance.

v. The air barrier system must be shown on the drawings as continuous through all section drawings of the enclosure. The air barrier materials and components of each assembly must be clearly identified and labeled as "Air barrier" on construction documents, and detailed at all penetrations, joints, and transitions. The pressure boundary of the air barrier system(s) and the zone(s) to be tested must also be shown on the drawings.

vi. The air barrier material of each assembly must be joined and sealed to the air barrier material of adjacent assemblies with sufficient flexibility to allow for the relative differential movement and with sufficient strength to resist expected peak air pressure differences.

vii. Penetrations of the air barrier system must be sealed to the air barrier system in an airtight manner. These penetrations include, but are not limited to: lighting fixtures, wiring, conduit, gas lines, cable services, windows, doors, ducts, fire protection standpipe connections, and plumbing pipes.

viii. The air barrier system (and all materials and components comprising it) must last the anticipated service life of the enclosure or allow for easy maintenance, repair, and/or replacement.

ix. Where required in the IBC, elevator hoistways shall be provided with a means for venting smoke to the outside air in case of fire. Vents shall be permitted to open automatically upon detection of smoke in the elevator lobbies or hoistway, upon power failure, or upon activation of a manual override control.

x. Parking garages (attached to or under buildings), other structures connected to the building, including those connected via tunnels, walkways, service conduits, etc., and any storage with contents that can negatively affect indoor air quality must be separated from all other conditioned spaces by an air barrier system. Access to such spaces must be provided by doors in air-tight vestibules or airtight hatches at building access points.

xi. Boiler rooms not using sealed combustion equipment must be separated from the rest of the building space by an air barrier system and provided with make-up air for combustion.

xii. Additional equipment and other items required for testing the building's air-tightness are to be included in the design and construction documents for installation by the contractor as specified. This may include: indoor-to-outdoor pressure taps at various locations across the air barrier system, air flow and pressure measuring stations in air conveyance and handling systems, and tight-sealing dampers on all ducts carrying air across the air barrier.

xiii. Air/Moisture Barrier Testing: The specifications shall include provisions for air and moisture testing.

f. Roof Systems; A/E shall begin addressing roof enclosure system details as necessary early in the Design Development phase.

i. Roofing design must follow the recommendations of the National Roofing Contractors Association as contained in NRCA publication, NRCA Roofing and Waterproofing Manual. The design of metal flashing, trim, and roofing must follow the recommendations of the Sheet Metal and Air Conditioning Contractors'

National Association publication-Architectural Sheet Metal Manual. In addition, all roof assemblies and rooftop structures must meet the requirements of the International Building Code (IBC).

- Whenever possible the City prefers to upgrade to roofing materials and details that will achieve the City standard of a 30 year manufacturer warranty regardless of roofing system type (asphalt, EPDM, etc.)
- Whenever possible the City prefers to have a minimum roof insulation value of R-50. Where rigid insulation is used layers shall be staggered to reduce thermal breaks.

ii. Access to the Roof: Provide a permanent interior stair to permit access to roof-mounted equipment. In addition provide permanent access to all roof levels to facilitate reoccurring inspections and maintenance.

iii. Edge Protection: Flat roofs designed for access must include a parapet or perimeter railing at least 42 inches in height. Where parapets and railings are not feasible, personal fall protection anchorage points must be provided. Equipment should be located away from roof edges and oriented with access panels inboard of the roof edge.

iv. Roof Mounted Equipment: Must be kept to a minimum and must be housed in penthouses or screened by walls. Penthouses and screen walls should be integrated into the building design and constructed of materials used elsewhere in the building exterior. Some roof-mounted equipment, such as antennae, lightning rods, flagpoles, etc., do not need to be screened, but these elements must be integrated into the building design. Roof-mounted equipment should be elevated as recommended in the NRCA Roofing and Waterproofing Manual and set back from the roof edge to minimize visibility. Critical roof-mounted equipment should be installed in such a way to permit roof system replacement or maintenance without disruption of equipment performance.

v. When installing roof top photovoltaic systems, consult with City Engineering, local building, and fire code officials for additional access and safety requirements.

vi. Provide walkways on the roof along routes to/from and around equipment for maintenance. No building element may be supported by the roofing system except walkways.

vii. Penetrations through the roof to support equipment are extremely vulnerable to leaks. Flashing details must be studied for appropriate continuation of the waterproof barrier. Do not use pitch pockets as part of the roof design.

viii. Exterior Soffits: Design exterior soffits to resist displacement and rupture by wind uplift. Design soffits for access to void space where operating equipment is located or maintenance must be performed. Soffits can be considered totally exposed to weather and should therefore be designed to be moisture resistant. Provide expansion and contraction control joints at the edges and within the soffit. Spacing and configuration of control joints should be in accordance with the recommendations of the manufacturer of the soffit material. Operating equipment or distribution systems that may be affected by weather should not be located inside soffits. Where it is necessary to insulate the floors over soffits, the insulation should be attached to the underside of the floor construction so that the soffit void may be ventilated to prevent condensation.

ix. Rooftop Gardens and Landscaped Roof: The A/E shall explore the option of an “extensive” – sedum in tray style - green roof. If a green roof is pursued a fully adhered ballasted perimeter buffer shall be included. If the green roof option is pursued the EPDM roof may be black. Vegetated roof, rooftop gardens, and landscaped roofs must also be installed and maintained in accordance with the requirements in the ICC, International Fire Code (IFC).

g. Fire Performance and Smoke Development: Interior wall and ceiling finish materials shall comply with the applicable requirements in the International Building Code (IBC) for fire performance and smoke development (i.e., flame spread index and smoke developed index). This shall apply to all materials applied on or over the building interior finish for decorative, acoustical or other purposes.

DIVISION 08 – Openings

1. The A/E shall provide in the construction drawings all of the following on the same sheet whenever possible:
   a. All door and window openings clearly labeled and identified with a non-duplicated reference number keyed back to the door and window schedule.

   b. A complete hardware schedule indicating the primary preferred hardware type. Allowable alternates shall be listed in the door hardware specifications. Schedule shall list all components (kick plates, hinges, closures, locksets (including electronic), etc)
   c. Door and window schematics indicating types and modifications of each type
   d. Door and window schedules indicating the identification number, rough opening, type, hardware sets by component, finishes, associated details, and any special requirements.
2. Exterior Doors:
   a. Vestibules are desired to control air infiltration. All door assemblies installed in the means of egress must meet the requirements of the relevant building code.
   b. Entrance doors may be aluminum and/or glass of heavy duty construction.
      i. Aluminum frames must have thermal breaks.
      ii. Aluminum frames and glazing shall be used at all public entrances
   c. Hollow Metal doors and frames must meet the requirements of SDI Grade III with a G-90 galvanic zinc coating.
      i. HM entrance doors and frames will be used at service entrances, mechanical rooms and other related back of house locations.
3. Interior Doors
   a. Interior door types may be hollow metal, aluminum, wood or other metal that is complimentary to its intended use and occupancy. Types, finishes, and hardware shall be approved by city staff during the design process.
4. Exterior Windows
   a. Aluminum windows must meet the requirements of ANSI/AAMA Standard 101-85. The City prefers Kawneer 451 UT, AA 250, AA 425 (Glazing U=0.19; SHGC=0.26; VT=0.6) or equal. Only optimal performance classes may be used.
      i. Aluminum frames must have thermal breaks.
   b. Metal windows other than aluminum must meet the requirements and standards of the following:
      i. National Association of Architectural Metal Manufacturers
      ii. Steel Window Institute
   c. Window mullions, where applicable, should be located on the floor-planning grid to permit the abutment of interior partitions.
5. Interior Windows
   a. Interior windows may be used when programming space dictates for space separation such as observation, borrowing light, etc.
   b. Types may be hollow metal, aluminum, wood or other metal that is complimentary to its intended use and occupancy. Types, finishes, and hardware shall be approved by city staff during the design process.
6. Skylights and Sloped Glazing: If skylights are pursued the skylight design must follow the guidelines of AAMA Standard 1600. For the design of sloped glazing, two AAMA publications are available: Glass Design for Sloped Glazing and Structural Design Guidelines for Aluminum Framed Skylights.
   a. Skylights and sloped glazing should use low emissivity glass. Placement should be calculated to prevent glare or overheating in the building interior. Condensation gutters and a path for the condensation away from the framing should be designed.
   b. Consideration must be given to cleaning of all sloped glazing and skylights, including access and equipment required for both exterior and interior faces.
   c. Skylights must be guarded for fall protection or meet OSHA structural requirements.
7. Window Cleaning: The facility must have provisions for cleaning the interior and exterior surfaces of all windows, skylights, and other glazed openings. The A/E shall demonstrate that cleaning and maintenance of interior glazing surfaces can be achieved without extraordinary means and methods. Submit this information with the construction documents.
8. Overhead Doors
   a. 2”, insulated, heavy duty, sectional steel door similar to Overhead Door Thermacore series 592.
   b. R-17.5 minimum (U-value of .057).
   c. Max air infiltration at 25 mph of 0.08 cfm/ft^2.
   d. Sound Transmission Class 26
   d. glazing in doors to be insulated glass or polycarbonate. Glazing properties similar to other glazing for project.
   e. Torsion spring operators, 10,000 cycle springs.
   f. Roll-up doors can be considered in specific applications.

DIVISION 09 – Finishes

1. The A/E shall provide in the construction drawings all of the following, on the same sheet whenever possible:
   a. A complete listing of all finishes by component (tile, paint, acoustical tile, etc). Finish types within a component shall be uniquely identified (Paint; P1, P2, P3, etc) with preferred manufacturer, color, texture, and other required identifiers as necessary. Complete product specifications and allowable alternates shall be listed in the finishes specifications.
   b. A complete finish schedule by room indicating the finish type for each wall, ceiling, floor, base, trim, etc.
      i. Only finish schedules in the construction drawings will be allowed. The use of keyed finish references on the floor plan and/or graphic symbolization will not be permitted.
      ii. Where a room may have more than 4 walls, 2 ceiling finishes, etc sufficient columns shall be provided to accommodate the additional surface identifiers as necessary.
   c. For more complicated finish schedules interior elevations may be required
3. Whenever possible the City prefers the following standards, materials, or manufacturers be used in determining finishes. The A/E shall review any deviation from these standards prior to specifying other products and shall be responsible for final coordination of all finishes and colors with the City.
   a. Flooring
      i. Rubber Flooring; Nora, 2x2, colors and locations as selected by project
      ii. Carpet; Lees, Faculty IV, 2x2 carpet tile, colors and locations as selected by project
      iii. Tile; colors and locations as selected by project
      iv. Sealed Concrete (with non-slip additives as appropriate) in maintenance, janitorial, mechanical, shop, and storage rooms. Epoxy coatings with a urethane topcoat (with non-slip additives as appropriate) may be used as an alternate where budget or need allows. Painted floors are not permitted.
   b. Ceramic Wall Tile; colors and locations as selected by project
   c. Paint; colors and locations as selected by project
   d. Vinyl Wall Coverings; colors and locations as selected by project
   e. Shower stalls:
      i. Walls shall be Corian or other City approved solid surface material colors as selected by project
      ii. Base shall be one piece, molded terrazzo or other solid surface, material colors as selected by project
   f. Acoustical Ceiling Tiles; Sag, impact and scratch resistant surface. 20 year systems warranty. Recycled content greater than or equal to 50%, and recycled in a closed loop process. Light reflectance no less than 85%. Acoustical qualities as follows: Open Plan NRC≥ 0.95; Open Plan CAC = N/A; Closed Plan NRC≥ 0.70; Closed Plan = ≥35.
4. Noise Isolation, Room Acoustics, and Speech Privacy
   a. Absorptive materials are required in speech-sensitive spaces to control reverberation and echoes.
   b. Floor and ceiling assemblies separating office spaces must achieve an NIC of not less than 50 (when furnished) and Field Impact Isolation Class (FIC) of not less than 50.

DIVISION 10 – Specialties

1. The A/E shall work with City Staff for any specialty equipment that may be needed for the project.
2. Visual Display Units: Provide recommendations for visual display units of suitable quality and functionality based on the intended room use and space available for mounted applications. A/E shall specify manufacturer, model, size, and any finish for contractor provided/installed display units.
3. Signage: The A/E shall be responsible for designing a clear and coordinated system of interior and exterior signage and way-finding that will allow users to locate their destination as quickly and directly as possible. A standardized system of signage, with interchangeable components, must be provided throughout the facility. Signage details and specifications shall be included in the construction documents bid package.
   a. General: A well-designed site shall use as few signs as possible. Signs should make the site way-finding clear to the first-time user by identifying multiple site entrances, parking, and the main building entrance.
      i. Any use of the Official City Logo or City Division Logo shall be sized and located as per City Administrative Procedure (APM) 3-18.
   b. Follow all ADA guideline specifics for parameters of design, including location, size, color, tactile qualities, and graphic symbols.

c. Building Identification Signage: Design building identification signage that complies with City of Madison Ordinances and has been reviewed/approved by the Urban Design Commission (UDC).
   i. Building Identification Signage shall include but not be limited to free standing monument signs, signage fastened to the building, badging/division logos fastened to the building, etched into building features (stone, glazing), and graphics visible through windows.
   ii. Signage font characteristics and wording shall match existing examples where applicable.
   iii. Provide appropriate plans and details in the construction documents and coordinate additional trade requirements as needed.
   iv. Monumental Signage; shall be designed as needed on a project by project basis. Design shall include all required foundations, electrical, lighting controls, and other elements necessary for the sign to fully function as intended.

d. Exterior Signage and Marking - Traffic:
   i. Traffic related signage shall comply with City of Madison Ordinances and DOT regulations regarding font, colors, mounting heights, dimensions and other related requirements.
   ii. Graphics painted on parking lot surfaces shall comply with City of Madison Ordinances and DOT regulations. All striping and symbology shall be high visibility traffic yellow.

e. Exterior Signage – Way-Finding: Graphics and style of site way-finding signage should be consistent with signage used inside the building. Signs integrated with architectural elements can also be very effective. Signage placement can be an important detail element of the building design whether prominently displayed and tooled into the exterior building wall materials or as a freestanding component near the entrance to the facility.

f. Interior Signage – Way-Finding; shall be determined on a project by project basis. Style, materials, font, etc shall be approved by city staff.
   i. Customized Interior Signage shall have full typical details shall be provided with the architectural details
   ii. Manufactured Interior Signage; The City preferred interior signage is by InPro; provide full typical details with the architectural details. Provide room name/number tables as needed.

g. Specialty Signage
   i. MFD stairway signage; Madison fire Department has done some standardization on signage and way finding in emergency exit stairways. Signage includes but is not limited to luminescent signs on all landings indicating floor and door location, luminescent stair nosing strips, and luminescent hand rail strips. Verify requirements with MFD during design.

4. Wall Protection: Coordinate with City Staff on areas of wall and corner protection. Wall and corner protection shall be clearly called out on finish floor plans and shall be identified in the finish materials schedule.
   a. Corner Protection: The City preferred corner guard is; InPro Aluminum Surface Mount Corner Guards. Color and/or material selection shall be verified by City staff.
   b. Wall Protection: The City preferred wall protection is; InPro Rub Rail. Color and/or material selection shall be verified by City staff. Space between pieces shall be 1/8” or less and filled with Vinylseal color matched caulk.
      i. Wall protection shall be used on all soft wall (drywall) areas as needed where high traffic or equipment belts (Police corridors) are common.
      ii. Wall protection plates shall be used around security door scanning devices.
5. Toilet compartments: Coordinate size of compartments with owner supplied accessories see 6 below.
   a. A/E shall be responsible for determining and detailing all lateral bracing of toilet compartment support structures as needed.
   b. Advise on the requirements for comfort changing stations in public restrooms.
   c. Advise on the requirements for lactation rooms.
6. Toilet Room Accessories: The A/E shall verify with City Staff all toilet room accessories including but not limited to paper dispensers, soap dispensers, and waste receptacles. Provide plan and interior elevation details indicating correct placement regardless of who is supplying/installing the accessory.
   a. Standards vary from department to department as to who will provide accessories, install the accessories and what manufacturer/model will be specified. Identify who
   b. Baby Changing Station; Public Restrooms only; Koala Kare, KB110-SSRE, provide backer board, indicate backer board in architectural design plans and interior toilet room elevations, do not interfere with ADA accessibility requirements
   c. Child Protection Seat; Public Restrooms only; Koala Kare, KB102, provide backer board, indicate backer board in architectural design plans and interior toilet room elevations, mount in ADA stall but do not interfere with ADA accessibility requirements, provide stall door with part 795 door label.

7. Other Specialties
    a. AED Devices; Automated External Defibrillators (AED) shall be Zoll-AED Plus; quantities and locations as required by code; wall mounted; with case, mounting brackets and wall signage.
    b. Fire Extinguishers; shall be type, sized, and located as required by code, hanger or enclosure style to be determined during design process.

DIVISION 11 – Equipment

1. The A/E team should plan to include Kitchen/Food Service expertise on their team. The A/E shall indicate Kitchen and Food Service equipment on the floor plans for design coordination with other trades. Coordinate with the City as to which items will be provided by the contract or by the owner. All required rough-ins shall be part of the construction contract.
2. The A/E shall provide all audio-visual equipment on the floor plans for design coordination with other trades. Coordinate with the City as to which items will be provided by the contract or by the owner. All required rough-ins shall be part of the contract.
3. The A/E shall verify all on site custodial equipment needs and provide custodial closets of sufficient size and amenities for storing equipment and supplies. Storage requirements shall include specialty equipment that may be required for cleaning specified finish materials. I.E. a "Taski" floor cleaning machine needs storage space for its footprint with power charging capabilities.
4. The A/E shall be responsible for locating and coordinating other equipment needs on a project by project basis.

DIVISION 12 – Furnishings

1. The A/E shall provide preliminary furniture and equipment plans. Furniture - on this project – may be free-standing market vending spaces in addition to traditional office, dining, and common area furniture.
    a. Preliminary plans shall be used by other consultants to properly locate outlets, data ports, path of egress, exit lighting, and other mechanically related items.
    b. Preliminary plans shall be used by other consultants hired by the City for accurate furniture layouts, takeoffs, and purchase orders.
2. The A/E shall provide furnishing schedules as appropriate in the construction drawings. Furnishings may be combined with other schedules (window treatments in the window schedule) where appropriate.
3. Art: Requirements shall be determined with City Staff during the Pre-design phase and incorporated into the plan set as the design progresses.
4. Window Treatments: Requirements shall be determined with City Staff during the Pre-design phase and incorporated into the plan set as the design progresses.
5. Casework: Requirements shall be determined with City Staff during the Pre-design phase and incorporated into the plan set as the design progresses.
6. Furnishing and Accessories: As described in the A/E Scope of Work the A/E shall be responsible for the providing furniture plans and open office system layouts.
    a. Task Lighting: Built-in task lighting shall be designed by A/E, shall be LED whenever possible and shall be reviewed by City Staff for approval of location, type, control, and light output. Portable task lighting shall be by owner.
    b. Walk-off Mats: Requirements shall be determined with City Staff during the Pre-design phase and incorporated into the plan set as the design progresses.
        i. Recessed Grate Type mats are preferred on new installations. Mats shall be removable for cleaning and maintaining the pan, metals shall be non-corrosive.
        ii. Roll type, portable entrance mats shall be used when recessed matting is not practical. Appropriately locate mats of differing materials for cleaning dirt and wiping moisture.
    c. Office Furniture: The following is a list of City preferred furniture standards. These standards shall be reviewed with the City Staff prior to preparing furniture layouts.
        i. Office and workspace configurations shall comply with standard industry design practices and established configurations within city agencies.
        ii. Desking; Herman Miller 5000 Series, Metal Finish: BU Black Umber (textured paint on smooth steel), Desktop: HP Light Anigre (laminate), Standard pulls. Note: The City has allowed the dark blue finish as well in some circumstances.

iii. Storage; Herman Miller Meridian, Metal Finish: BU Black Umber, Standard pulls, Standard upright and lateral file cabinets, storage cabinets, bookcases, etc. Note: The City has allowed the dark blue finish as well in some circumstances.
iv. Desk Chairs; Herman Miller Mirra, Frame: Graphite, Armpad: Black, Back Finish: Graphite, Seat Material: Graphite AireWeave
v. Conference Room and Office Side Chairs; Herman Miller Caper, Molded plastic or Flexnet Seats (depending on use), Seat Color: Black, Frame: Black, Casters or glides depending on flooring material
vi. Conference Room Tables; Herman Miller Everywhere
vii. Training Room Tables; Herman Miller Everywhere Flip-top
viii. Systems Furniture; Herman Miller Action Office

d. Other Furnishings shall be addressed by the A/E and City Staff on a project by project basis.

DIVISION 13 – Special Construction

1. The City currently does not have any design standards for this Division of Work.
2. The A/E shall review all materials and methods related to this Division of Work with City Staff throughout the design process.
3. The A/E is responsible for writing any specifications related to this Division of Work.

DIVISION 14 – Conveying Equipment

1. The City currently does not have any design standards for this Division of Work.

DIVISION 21 – Fire Suppression

1. This division of design guidelines shall specifically apply when "Exhibit A – A/E Scope of Work" requires the A/E to have a Fire Protection Engineer (FPE) on the Design Team.
   a. In the event Exhibit A does not require an FPE, the A/E shall provide sufficient Fire Protection plans to clearly indicate special requirements of the sprinkler system. Requirements may include but would not be limited to routing along architectural features, through specific penetration points, or around mechanical features such as roof vents.
2. The FPE must be a full participant of the A/E team for each phase of the project from concept through design, construction, and occupancy.
3. Fire Suppression design shall be in full compliance with the latest edition of the IBC and other applicable codes. Any variance for any reason must be reviewed with the City.
4. The A/E and Fire Protection Engineer must perform the following minimum requirements and review with the Madison Fire Department Fire Protection Engineer at each phase of design and any revisions during construction:
   a. Analysis of: Building construction, occupancy classification, means of egress, fire alarm system, water-based fire extinguishing system(s), non-water-based fire extinguishing system(s), smoke control system(s).
   b. Calculations for: egress, water supply, smoke control (fire dynamics) and timed egress, audibility for fire alarm system.
   c. Design of all fire protection and life safety systems, including but not limited to: Fire alarm system, water-based fire extinguishing system(s), smoke control systems and stair pressurization systems.

DIVISION 22 – Plumbing

1. Plumbing design shall be in full compliance with the latest edition of the IBC and other applicable codes. Any variance for any reason must be reviewed with the City.
2. Specify plumbing fixtures that comply with the International Plumbing Code and local building codes. Water conservation technologies must be applied to the extent that the technologies are life-cycle cost-effective.
3. Where this Division of Work has floor mounted equipment a concrete housekeeping pad shall be provided for each piece of equipment.
   a. Concrete pad shall be a minimum of 4" in height and 4" wider than the full size of the equipment footprint including connections, etc.
   b. Concrete pad shall be level, edges shall be rounded to allow drainage off the slab.

4. The City of Madison, **<Engineering Maintenance>** has standardized on the following fixtures, equipment, and trim. Only the manufacturer and model information provided below shall be specified for this project.
   a. Fixture Types: Zurn, Chicago Faucet
      i. Water Closet, flushometer valve type:
         - Water closets must be either dual-flush or low-flow type, manually controlled
         - Single flush, maximum flush volume when determined in accordance with ASME A112.19.2– (1.28 gal).
         - Dual-flush, effective flush volume determined in accordance with ASME A112.19.14 and USEPA WaterSense Tank-Type High Efficiency Toilet Specification – (1.28 gal).
      ii. Water Closet, Tank-Type, High Efficiency Toilets (HET):
         - Tank-type water closets must comply with the performance criteria of the U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification.
      iii. High Efficiency Urinals (HEU):
         - Urinals must be low-flow, flush-type fixtures.
         - Maximum flush volume when determined in accordance with ASME A112.19.2 – 0.5 L (0.125 gal).
      iv. Private Lavatory Faucets:
         - Manual control
         - Meter or on/off sensor control will be considered based on space type and use of fixture
         - Maximum water use — 1.0 L 0 (.25 gal) per metering cycle when tested in accordance with ASME A112.18.1/CSA B125.1.
         - Maximum flow rate: 0.5 gpm
      v. Public Lavatory Faucets:
         - Use metered or on/off sensor type faucets for lavatories.
         - If using sensors, preference is hard wired.
         - If using batteries, consider solar charged batteries for sensors.
         - Depending on the building and the lavatory use, meter or sensor type may be more appropriate.
         - Maximum water use — 1.0 L 0 (.25 gal) per metering cycle when tested in accordance with ASME A112.18.1/CSA B125.1.
         - Maximum flow rate: 0.5 gpm
      vi. Other sinks:
         - Manual, metered or on/off sensor type faucets depending on application.
   b. Water Cooler: Elkay Electric Water Coolers
      i. Verify ADA accessibility and bottle filler capability for each location required.
   c. Warm Air Dryer: Excel Dryer Inc - XLERATOReco Hand Dryer.
      i. Description: Standard-speed, warm-air hand dryer.
      ii. Mounting: Surface mounted.
      iii. Operation: Electronic-sensor activated with timed power cut-off switch. Operation Time: 12 seconds.
      iv. Cover Material and Finish: Stainless steel, brushed.
      v. Electrical Requirements: 110-120 V, 13 A, 425 Watts to 530 Watts.
   d. Water Softener: Capital Water Softener, Windsor Series or Hellenbrand High Efficiency Series
   e. Solar Hot Water Heating: Based on the anticipated building use and hot water loads, perform a life cycle cost analysis for the solar hot water system including first cost, utility cost savings, maintenance, replacement and utility cost escalation. If the analysis shows that the system is cost effective it shall be included in the project. Not less than 30 percent of the hot water demand must be met through the installation and use of solar hot water heaters. Both drainback and pressurized glycol systems should be considered.
   f. Emergency Plumbing Fixtures; Emergency eye wash and shower fixtures shall be as manufactured by Bradley. Combination units are acceptable when hazard dictates. Quantities and location to be determined during the design process with input from City Staff.
   g. Where plumbing fixtures are made of vitreous china only Kohler products shall be specified.
      i. Provide specific models, options, and colors in plumbing schedules
5. Plumbing Noise: Ambient noise from plumbing equipment shall not exceed the noise criteria (NC) values described in Division 1-General Requirement Design Standards above.
   a. All wastewater and drain piping above slab on grade must be specified as cast iron.
   b. All water, wastewater, and drain piping must be vibration-isolated from the structure, finishes, and other piping.

   c. Install R-11 batt insulation in all wall spaces where such piping is located and install the piping at least 1 inch away from the gypsum wall board.
6. Pipe Insulation: All supply, wastewater, and drain piping shall be insulated for additional noise reduction. Domestic water piping (both hot and cold) shall be insulated with closed cell insulation and jacketed where exposed or otherwise visible from occupied spaces.
7. Pipe Identification: All piping shall be identified as to content type (waste, vent domestic hot, soft cold, etc.) and flow direction.
   a. Minimum marking requirements is once per room with no ceiling for each pipe type preferably centered on the room. Where a room has exposed piping, with a ceiling, pipe identification shall be above and below the ceiling.
   b. Large rooms shall be marked as often as possible with distances not to exceed 50 feet apart.
   c. Where pipe alignments bend around large equipment and ducts pipes shall be marked on both sides.
   d. Pipes entering or leaving equipment shall be marked within 5 feet of the equipment being served by the pipe.
8. Valve Identification Tags: All plumbing valves shall be brass tags fastened to the valve by chain or metal clip. Zip-ties are not acceptable means of fastening tags.
   a. All plumbing valve tags shall carry a prefix of "P" or "PLBG" followed by consecutive numbering.
   b. Plumbing valve lists shall be complete and wall mounted in plexi-glass frames in all mechanical rooms. Valve lists shall provide all of the following information for each valve.
      i. Valve Number (I.E. P-101)
      ii. Valve size and type (3/4 Ball)
      iii. Type of piping (CW)
      iv. Room number or name; coordinate room locations with final architectural plan sets.
      v. Remarks; indicate if valve is above ceiling in chase space, etc.
9. Trap seal primers are not acceptable. Trap primers can be considered if very accessible.

DIVISION 23 – Heating, Ventilating, and Air Conditioning (HVAC)

1. HVAC design shall be in full compliance with the latest edition of the IBC and other applicable codes. Any variance for any reason must be reviewed with the City.
2. Specify HVAC Equipment that complies with the International Mechanical and Energy Conservation Codes and local building codes. Energy conservation technologies must be applied to the extent that the technologies are life-cycle cost-effective.
3. The A/E's goal shall be to achieve a high level of building performance in order to achieve indoor environments that are most conducive to comfort, health, and productivity, to increase the longevity of the property, and to deliver these in an optimally energy efficient and cost effective manner. A/E team should anticipate the proper inclusion of ventilation/exhaust related to food preparation/cooking. This project will likely include multiple ventilation/exhaust components throughout the facility.
4. Select HVAC technology types as requested by City and provide alternative suggestions or new technologies when applicable.
   a. Develop a report analyzing Initial Costs vs. Operating Costs to demonstrate energy efficiency and life cycle costing for each technology type.
      i. The City shall evaluate the benefits of incorporating components of varying energy efficiencies in the project to select final technologies to be used.
   b. Energy Performance: Perform energy simulations to determine best system options and improve design and control strategy. Exceed current ASHRAE guidelines by 30%. Employ most efficient equipment for each technology type (if not contradicting maintainability).
   c. Energy Simulation Methods:
      i. Preliminary simulation: Energy Plus, Design Builder, Trane Trace, or eQuest.
      ii. Final simulation: Same software as preliminary simulation unless approved by City Project Manager
5. Thermal Comfort shall be based on ASHRAE 55.
6. Indoor Air quality: Ventilate to meet OSHA, code and ASHRAE requirements (whichever is higher).
7. Coordinate locations of HVAC with other disciplines using Revit.
8. Unacceptable Design Practices: Obsolete or soon to be phased out technologies (i.e. R22), Electric heat.
9. HVAC Mechanical Noise; Ambient noise from HVAC equipment shall not exceed the noise criteria (NC) values described in Division 1-General Requirement Design Standards above.

a. All mechanical equipment must be vibration isolated from the building frame.
b. Diffusers with an NC rating 5 points less than the noise criterion for the space being served must be used where occupied space occurs adjacent to, above, or below mechanical equipment, electrical equipment, machine rooms, or adjacent to HVAC or elevator shafts.
c. Where an equipment room occurs adjacent to noise-sensitive spaces (NC/RC 35 or lower), the maximum intrusion level of noise must be limited to 5 dB below the maximum NC/RC for the space in all octave bands.
d. In the walls, ceilings, and floors enclosing noise-sensitive spaces all hydronic piping, fans, motors, and other related HVAC equipment must be vibration-isolated from the structure, finishes, and other piping. Install R-11 batt insulation in all wall spaces where such piping is located and install the piping at least 1 inch away from the gypsum wall board.

10. Where this Division of Work has floor mounted equipment a concrete housekeeping pad shall be provided for each piece of equipment.
    a. Concrete pad shall be a minimum of 4" in height and 4" wider than the full size of the equipment footprint including connections, etc.
    b. Concrete pad shall be level, edges shall be rounded to allow drainage off the slab.
11. The City of Madison, <Engineering Maintenance>, has standardized on the following Operability and Maintainability requirements for the HVAC system regardless of the technology type selected.
    a. Operation; Design the HVAC system so that equipment failures and normal maintenance have minimal impact on the tenants.
        i. Failure of one piece of equipment should not shut down large portions of the building.
        ii. Install piping and valves so that equipment can be easily isolated for repair and so that different combinations of equipment can be used during replacement and overhaul.
        iii. Equipment components, spare parts, and related materials should be readily available in the local area.
        iv. Equipment components, spare parts, and related materials be repairable by craftsman and technicians available in the local area.
    b. Simple/Understandable to Operate; The sequence of operation for the control systems must be clearly described and comprehensively documented. The HVAC system design should minimize the need for overly complex control systems.
    c. Accessible for Maintenance; Install equipment so that it can be safely and easily maintained and inspected. Comply with requirements for mechanical room sizes and manufacturer's recommended clearances around installed equipment. Maintenance access doors should swing full open and be accessible from the maintenance side of the equipment being served.
    d. Robust and Reliable with Extended Life Expectancy; City facilities have a longer life expectancy than most commercial office buildings. Mechanical systems are expected to have extended service lives. They will be modified many times over the life of the building and operated by many different maintenance teams and occupied by many different tenants. Selection of robust, reliable, energy efficient equipment is important. Systems that can be reliably operated at near design conditions over the long term are needed.
12. The City of Madison, <Engineering Maintenance>, has standardized on the following HVAC Components depending on the technology type selected. Only the manufacturer and model information provided below shall be specified for this project when applicable, any recommended alternates shall be approved by the City prior to incorporating them into the plans and specifications.
    a. Basis of Design; at time of contract, subject to design modifications throughout the design process.
        i. Central Plant;
            - Heat and cool with single central plant where possible.
            - Multiple AHUs where required by schedules or space constraints, but use central heating/cooling plant.
        ii. Cooling
            - Small systems DX system (variable speed compressors for modulation, variable speed condenser fan). Basis of Design is Carrier or Daiken/McQuay. Sizing is to include a peak reduction from energy recovery.
            - Large systems water-cooled or air-cooled chillers. Basis of Design is Carrier or Daiken/McQuay. Sizing is to include a peak reduction from energy recovery.
        iii. Cooling/Ventilation: For each air handling system (AHU), outside air (OA) and exhaust air (EA) is to be provided by a Dedicated Outdoor Air System (DOAS unit) with a total energy recovery wheel or HX. Conditioned OA from DOAS unit is to be provided to the AHU. Both the DOAS unit and AHU are to have

DX or Cooling coils. The AHU shall not have a heating coil. All fans are to be direct drive and nominal speed of 1750 RPM. An airside drybulb economizer is to be included with the AHU.

iv. Heating: AHU shall not have a heating coil. Heating is to be provided by perimeter radiators and/or in-floor radiant heating.

v. Shop / Garage Ventilation;
- ERV with hydronic heat preferable
- Direct-fired MAU where ERV is not practical (i.e. dirty environment)

vi. Alternatives to the BOD
- The BOD system may be combined with a geothermal system when the appropriate site space is available for a quality design. (i.e. geothermal system as central boiler/chiller, no zone heat pumps)
- When space is critical evaluate VRV system.
- When sensible cooling load is high, evaluate radiant cooling.

b. Controls; Honeywell WEBs Building Automation System, All equipment shall be controlled by BAS as to the maximum extent possible. Control sequences to include, at a minimum:
   i. Static pressure reset based on damper position
   ii. HVAC Occupancy sensors, in addition to lighting occupancy sensors
   iii. Operable window sensors
   iv. Discharge air temperature reset based on cooling demand
   v. Boiler and Chiller (if applicable) supply temperature reset
   vi. CO2-sensors for system ventilation reset and VAV control in critical zones (i.e. conference room)
   vii. Scheduling
   viii. Lead/Lag switchover
c. Filtration;
   i. MERV 8 for Air intake
   ii. MERV 13 for re-circulated air of occupied spaces
   iii. MERV 8 for re-circulated air of unoccupied spaces
d. Boilers; Condensing and modulating (down to 46,000 Btu/h), AERCO, Design for 90-140°F and dT of 30°F. Sizing is to include a peak reduction from energy recovery.
e. Actuators and Control Valves; Honeywell; Pressure-independent control valves in lieu of balancing valves.
f. Fans; Greenheck, Carnes
g. Pumps; B&G, Grundfos
h. Makeup Air Units; Modine, Greenheck
i. Unit Heaters; Modine; Sterling Gas-fired units
j. IT Equipment Cooling; cool with transient air from conditioned spaces when possible, recover excess heat when possible.

13. Triple duty valves and balancing valves shall not be allowed in any installation for this project.
14. Pipe Insulation: All HVAC piping shall be insulated. Closed cell insulation shall be used. Insulation shall be jacketed where exposed, exterior or otherwise visible from occupied spaces.
15. Pipe Identification: All piping shall be identified as to content type (chiller supply, chiller return, etc.) and flow direction.
    a. Minimum marking requirements is once per room with no ceiling for each pipe type preferably centered on the room. Where a room has exposed piping, with a ceiling, pipe identification shall be above and below the ceiling.
    b. Large rooms shall be marked as often as possible with distances not to exceed 50 feet apart.
    c. Where pipe alignments bend around large equipment and ducts pipes shall be marked on both sides.
    d. Pipes entering or leaving equipment shall be marked within 5 feet of the equipment being served by the pipe.
16. Valve Identification Tags: All HVAC valves shall be brass tags fastened to the valve by chain or metal clip. Zip-ties are not acceptable means of fastening tags.
    a. All HVAC valve tags shall carry a prefix of “H” or “HVAC” followed by consecutive numbering.
    b. HVAC valve lists shall be complete and wall mounted in plexi-glass frames in all mechanical rooms. Valve lists shall provide all of the following information for each valve.
       i. Valve Number (I.E. H-101)
       ii. Valve size and type (3/4 Ball)
       iii. Type of piping (CW)
       iv. Room number or name; coordinate room locations with final architectural plan sets.

v. Remarks; indicate if valve is above ceiling in chase space, etc.

DIVISION 25 – Integrated Automation

1. It is anticipated that these Division will not be used during this project.

DIVISION 26 – Electrical

1. The Electrical design shall be in full compliance with the latest edition of the IBC and other applicable codes. Any variance for any reason must be reviewed with the City.
2. Specify Electrical Equipment that complies with the International Electrical Code and local building codes.
3. The following general electrical engineering standards are intended to be the minimum design guidelines/requirements for this project:
   a. Minimum Design Services include power distribution, electrical service, circuit design for all load types, lighting design (by Lighting Designer), equipment connection schedules, integration of renewable energy equipment, and utility coordination.
   b. The service entrance location for commercial electrical power must be determined concurrently with the development of conceptual design and space planning documents.
      i. Standards for equipment furnished by utility companies must be incorporated into the concept design.
      ii. Locations of transformers, vaults, meters, and other utility items must be coordinated with the architectural design to avoid conflicts with critical architectural features such as main entrances and must accommodate both equipment ventilation and equipment removal.
      iii. All major electrical equipment must be located 5 feet above the 100-year flood plain.
   c. A detailed load study, including connected loads and anticipated maximum demand loads, as well as the estimated size of the largest motor, must be included in the initial contact with the local utility company to prepare its personnel for discussions relative to the required capacity of the new electrical service.
   d. When required the A/E shall work with City Staff to determine any emergency power generation requirements. This shall include but not be limited to required emergency loads/circuits; generator size, location, type; etc.
   e. When required the A/E shall work with City Staff to determine the use of Photovoltaic (PV) power where site and roof features make it feasible and cost effective.
4. Where this Division of Work has floor mounted equipment a concrete housekeeping pad shall be provided for each piece of equipment.
   a. Concrete pad shall be a minimum of 4” in height and 4” wider than the full size of the equipment footprint including connections, etc.
   b. Concrete pad shall be level, edges shall be rounded to allow drainage off the slab.
5. The City of Madison, <Engineering Maintenance>, has standardized on the following Electrical Power and Supply Components.
   a. Electrical Panels; Shall be as manufactured by Square D or Siemens
      i. Transient voltage surge suppression (TVSS) at main panel.
      ii. All panels with at least 25% spare capacity for future expansion.
      iii. Subpanels on each floor (multiple if required)
      iv. Separate panels for high-usage areas (i.e. shops)
   b. Electrical Devices; Shall be as manufactured by Hubble or LeGrand
      i. Including but not limited to switches, receptacles, and other electric devices
      ii. All devices to be commercial grade
      iii. All outlets to be minimal rating of 20A
   c. Photovoltaic Collectors
      i. Panels; Shall be as manufactured by Solarworld, Heliene, or Sharp (coordinate current list with City PM)
      ii. Inverters; Shall be as manufactured by Solaredge or Sunnyboy (coordinate current list with City PM)
      iii Racking; Shall be as manufactured by Schletter Windsafe or Solardock when mounted on a support structure or ballasted roof or Iron Ridge when mounted on piers. (coordinate current list with City PM)
         - S5 Clips shall be used when mounting directly to standing seam metal roofs.
6. The City of Madison, **<Engineering Maintenance>,** has standardized on the following Lighting Design and Component Requirements.

a. The A/E and Lighting Designer shall design all lighting including, but not limited to the interaction of daylighting and electric lighting, all interior general ambient, task and accent lighting, exterior lighting, illumination of means of egress, luminaires, emergency lighting, site lighting, artwork lighting, etc.
b. The lighting design shall meet code-required lighting and/or IES recommended levels
   i. W/ft² 40% lower than code minimum isrequired
c. Use 277v lighting when building has 480v service.
d. Switching and Sensors
   i. Switching for improved comfort, however no switches in corridors.
   ii. Dimming wherever possible and Bi-level only if dimming is not possible
   iii. No wall-mounted sensors – use ceiling mounted, line-voltage, dual technology. Sensorswtich.
   iv. Occupancy sensor control in bathrooms, corridors, janitor and storage
   v. Vacancy sensor control in offices, conference rooms and break rooms
   vi. No occupancy sensor control where code prohibits including IT, Mech and Elec rooms
   vii. Daylight dimming in areas near large windows – use sensors integrated with fixture
   viii. Outdoor lighting control by photocell (will consider central photocell and fixture integrated), motions sensor unless facility requires timed lighting
e. Lighting Products
   i. Outdoors; LED lighting as manufactured by Cree. Controlled by integrated motion and photosensor. Dark sky compliant.
   ii.. Indoors;
      - General Illumination:
        - Fluorescent 4' lamps as manufactured by Lithonia, Daybrite; T8 with parallel-wired ballast as manufactured by GE UltraStart. OR
        - LED 2x2 Finelite HRP WAV and Finelite HP-4
      - LED spotlights w/Edison-base; 4100 K
      - LED task lights w/ motion sensor as manufactured by Phillips; 4100 K
      - LED down lights w/Edison base as manufactured by Capri for non-proprietary replacement and when not much light is needed; 4100 K
   iii. LED EXIT signs as manufactured by Lithonia; 4100 K
   iv. Emergency lighting; Separate emergency lighting fixture as manufactured by Lithonia
      - Battery backup ballasts and drivers are not acceptable
      - Consider central inverter for new installations as manufactured by Lithonia or Myers

DIVISION 27 – Communications

1. The City may provide any/all of the specifications listed below to the A/E for inclusion in the project specifications. The A/E and the City shall refine this list as necessary based on the project needs. Editing of the specifications in this list shall be the responsibility of the City.
   a. 27 21 33 Wireless Access points (WAP)
   b. 27 32 43 Radio Communication Equipment
   c. 27 35 00 Call Management
   d. 27 41 23 Audio-Visual Accessories
   e. 27 41 43 Audio-Video conferencing (PolyCom)
2. Design and coordinate with City Staff as directed all Telecommunication and Information Technology (IT) elements required for this project. This shall include but not be limited to the following:
   a. Exterior service of cable, fiber and other utility connections
   b. Dedicated IT rooms, racks, and equipment
   c. All interior data conduit, cabling, data ports including floor outlets if needed
   d. Data cabling and connections for any equipment specified in other Divisions of Work.
   e. All audio/visual equipment including projectors, monitors, mounting devices and related installation materials
   f. All items required for wireless connectivity as needed
3. Coordinate with other consultants as needed for complete installation this shall include but not be limited to the following:

a. The Architect/Structural Engineer for all items where support is required (hangers, backer boards, etc.) for a complete installation
b. MEP Engineers for coordinating controls, electrical and mechanical connection points.
c. Specialized Equipment that is described in other Divisions of Work.

DIVISION 28 – Electronic Safety and Security

1. The City may provide any/all of the specifications listed below to the A/E for inclusion in the project specifications. The A/E and the City shall refine this list as necessary based on the project needs. Editing of the specifications in this list shall be the responsibility of the City.
   a. 28 13 00 Access Control System (Keyscan)
   b. 28 20 00 Electronic Surveillance
2. The A/E and their security consultant shall work with the City at each phase of design (starting with pre-design) to develop a site/building specific risk assessment. The assessment shall evaluate credible threats, identify vulnerabilities, and assess consequences. This process will primarily be in collaboration with the City's Project Manager, Madison Police Department, and City IT; but will also require agency input. Past and current solutions include both architectural ("airport style" public bathrooms, open plans without hiding areas, physical barriers, proper staff locations) and technological solutions (access control, security cameras, glass break alerts, panic alarms, etc.).
3. Design and coordinate with City Staff as directed all locations for each of the following:
   a. Access Control Systems; the City has standardized on Keyscan door security systems. Provide installation plans, details and schedules per specification noted in 1 above.
      i. System hardware shall be installed in dedicated IT rooms with other related equipment.
      ii. Doors and card reader/keypad locations shall be identified on all floor plans, electrical plans, technology plans, and door schedules as required.
      iii. Ensure required connectivity cabling does not exceed manufacturer maximums along the path of travel.
   b. Electronic Surveillance Equipment; coordinate with City Staff all requirements for electronic surveillance.
      i. Indicate on all floor plans, electrical plans, technology plans, elevations and other details locations for cameras and other surveillance equipment as needed.
      ii. Provide equipment schedules as needed.
      Iii Ensure required connectivity cabling does not exceed manufacturer maximums along the path of travel.
   c. Electronic Security Equipment; coordinate with City Staff all requirements for additional electronic security equipment that may be needed for this project including but not limited to electronic security gates, body scanners, baggage scanners, etc.
      i. Indicate on all floor plans, electrical plans, technology plans, and other details locations for cameras and other surveillance equipment as needed.
      ii. Provide equipment schedules as needed.
      Iii Ensure required connectivity cabling does not exceed manufacturer maximums along the path of travel.

DIVISION 31 – Earthwork

1. The City of Madison Board of Public Works Standard Specifications (BPWSS) shall be applied for most common work results required for this division of work where it will apply to Civil work such as clearing, erosion control, etc.
   a. The City of Madison Board of Public Works Standard Specifications can be found using the web link below and is updated annually.
      i. http://www.cityofmadison.com/business/pw/specs.cfm
      ii. The A/E shall reference Part, Article, and Section numbers when referencing in plans, details, and specifications.
      iii. The A/E shall use BPWSS Standard Detail Drawings that may apply to this division of work. Details are available upon request in PDF and DGN format.
2. The A/E shall provide any other necessary specifications and details related to this division of work.

DIVISION 32 – Exterior Improvements

1. The City of Madison Board of Public Works Standard Specifications (BPWSS) shall be applied for most common work results required for this division of work where it will apply to Civil work such as clearing, erosion control, etc.
   a. The City of Madison Board of Public Works Standard Specifications can be found using the web link below and is updated annually.
      i. http://www.cityofmadison.com/business/pw/specs.cfm
      ii. The A/E shall reference Part, Article, and Section numbers when referencing in plans, details, and specifications.
      iii. The A/E shall use BPWSS Standard Detail Drawings that may apply to this division of work. Details are available upon request in PDF and DGN format.
   b. The A/E shall provide any other necessary specifications and details related to this division of work.
2. All proposed site design must meet baseline compliance with all applicable federal, state, and local regulation and/or guidance. This includes all elements of work performed under the scopes of the landscape architect, architect, civil engineer, and geotechnical engineer. The applicable regulations must be determined by the A/E and authority having jurisdiction.
3. The A/E shall provide protection zone(s) on the drawings to define the area surrounding individual trees, groups of trees, shrubs, other vegetation or site features to be protected during construction. This shall include protection zone(s) for plantings outside the property boundaries. Trees in the city right of way shall be shown to be protected per the City of Madison standard Board of Public Work specification.
4. Civil; the A/E shall prepare all civil plans and details required for the project with input from the City Design Staff as appropriate for the project.
   a. Pavements; the City shall specify the appropriate pavement type to be used in various portions of the project depending on the end use. This shall include asphalt and concrete paving.
5. Landscape; the A/E shall prepare all landscaping plans and details required for the project with input from the City Design Staff as appropriate for the project.
   a. Prepare plans, details, and specifications for landscape design. Landscape shall consist of materials, systems, equipment, and furnishings for land forms, lawns, and plantings. Landscape design shall be based on program requirements, physical site characteristics, design objectives, and environmental determinants.
   b. Detailed plans must be provided for those plants that will be impacted and/or removed from the site. For all new construction projects this includes identifying proposed new tree/plant locations and quantities. Plans and schedules shall follow all applicable ordinances for screening and other parking lot/site related requirements prior to first review. Project shall always exceed the minimum requirements.
6. Storm Water Management; the A/E shall prepare all required storm water management plans, specifications and details. Coordinate types and designs with designated City Staff to city specifications. Coordinate required/compatible plantings for the storm water feature with the landscaping plans and planting schedule.

DIVISION 33 – Utilities

1. The City of Madison Board of Public Works Standard Specifications (BPWSS) shall be applied for most common work results required for this division of work where it will apply to storm, sanitary, water and other Public Works Utilities (traffic signaling, street lighting, etc).
   a. The City of Madison Board of Public Works Standard Specifications can be found using the web link below and is updated annually.
      i. http://www.cityofmadison.com/business/pw/specs.cfm
      ii. The A/E shall reference Part, Article, and Section numbers when referencing in plans, details, and specifications.
      iii. The A/E shall use BPWSS Standard Detail Drawings that may apply to this division of work. Details are available upon request in PDF and DGN format.
   b. The A/E shall provide any other necessary specifications and details related to this division of work.
2. A/E shall work with designated City Staff for any city owned utility work and all private utility companies having utilities above or below the ground within the work limits of this project.
3. Design and coordinate with City Staff and private utility companies beginning in the Pre-design Phase for existing utilities may be reused or rerouted and any new utilities that will be required for this project.

4. Include utility installation, rate structure options and other related costs in all project cost estimates.

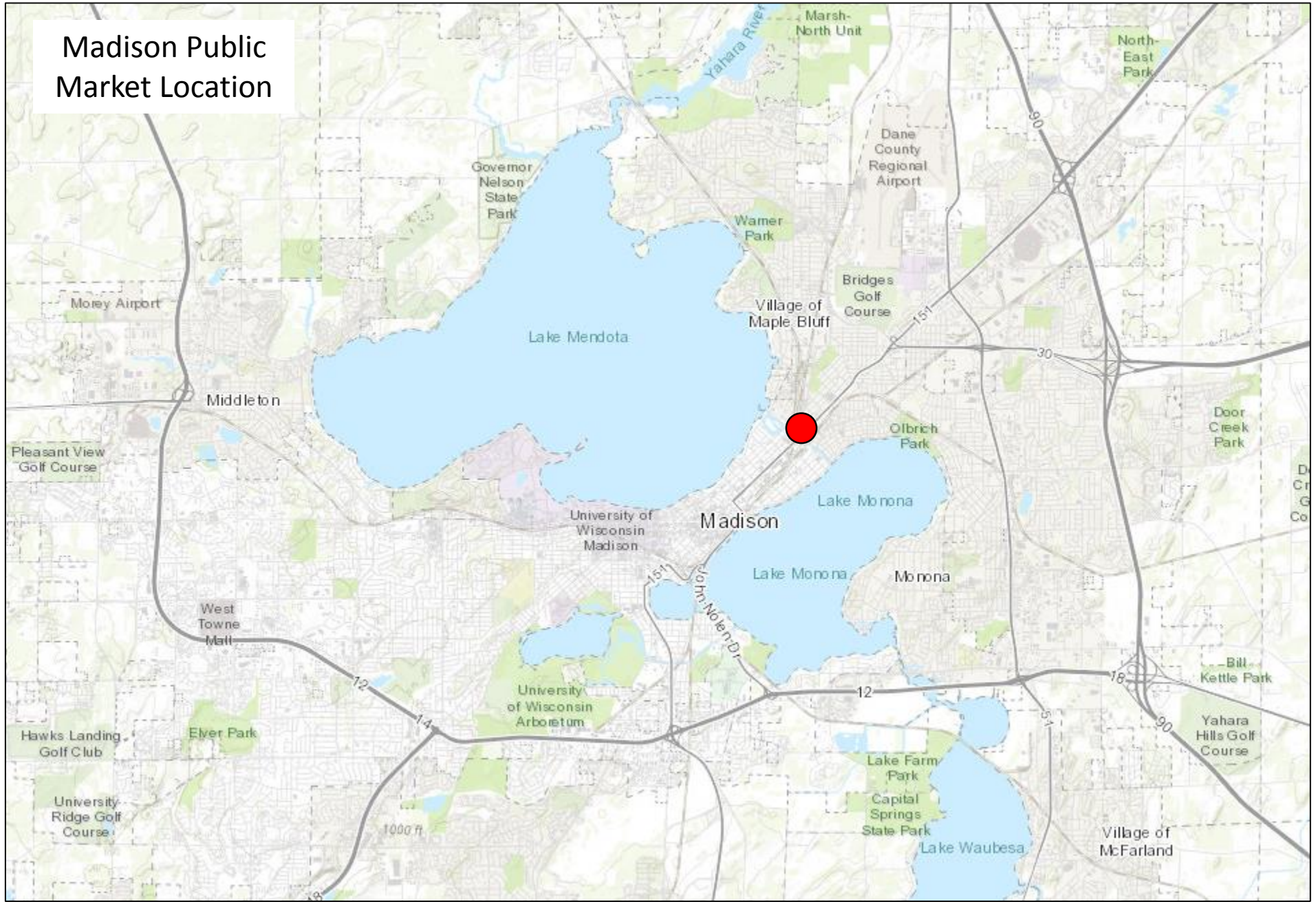
DIVISIONS 34 through 48

1. It is anticipated that these Divisions will not be used during this project.

END OF DOCUMENT

Exhibit C

Madison Public Market Location



Madison Public Market Site Context
East Johnson St.
1st Street
City Fleet Building (planned to be vacated)
Sewerage District Building
Mixed-use redevelopment site
Public Market Site
Tenney Park
Yahara River
Burr Jones Park
East Washington Ave.
Marling Project (under const.)

Madison Public Market
General Site Plan Concept
Anticipated Surface Parking Lot
Mixed-use redevelopment site (approximate boundaries)
Public Market Site (approximate boundaries)

Exhibit D

Seymour
Environmental Services, Inc.

Tel: 608-838-9120

Memo

Date: 06/08/2018

To: Todd Waller

From: Robyn Seymour

RE: Environmental Concerns
East Washington Avenue and North First Street
Redevelopment Project - Madison, WI

Attachments: Table, Figures, Laboratory Report

Todd:

We recently received information regarding the planned surface grades from Adam Fredendall at JLA Architects and Planners. Based on that data and the known conditions at the site we prepared the following assessment which outlines the environmental issues that will likely be encountered during the redevelopment for the hotel and residential properties and their associated parking structures. The area of the public market is not discussed. Existing conditions at the property are discussed along with the proposed activities to ensure that the site is restored appropriately for the planned future usage.

IDENTIFIED SITE CONTAMINATION

From 1994 through 2006 contamination assessment and remediation related to underground petroleum storage system(s) was conducted at the property. Two separate areas of contamination were identified. Both of the contaminated areas have been closed by the WDNR. In one case the WDNR required that a deed instrument (Car Care Clinic) be filed and a GIS was placed on both sites (Car Care Clinic and Washington Square) as mechanisms of notification to future interested parties. This satisfies two WDNR continuing obligations. First, it identifies the area(s) of residual contamination at the time of closure. Second, it identifies the area(s) where a protective barrier must be maintained to protect against direct contact with the contaminated soils and minimize infiltration through the contaminated soils.

Within these two areas there is a substantial volume of contaminated soil that will need to be addressed during redevelopment. If soils from the contaminated areas are removed from the property during the construction they will need to be disposed of at a sanitary landfill such as WMI Madison-Prairie. With WDNR approval the soils could also be relocated on the property as long as they are kept under a suitable cover. Based on our review of the proposed surface elevations at the site it appears that some of the soil could be placed under the drive aisle on the northwest side of the site and the grade parking lot located on the southwest side of the development adjacent to the Madison Public Market. The proposed surface covers in both of these locations are consistent with the historic WDNR site closure requirements.

Residual contamination is present associated with both the former Car Care Clinic and Washington Plaza leaking underground storage tanks (LUST) sites. Figure 1 shows the known area of residual contamination at the time of WDNR site closure. The Car Care Clinic site did have an active remediation system which may have reduced the volume of contamination.

In April we conducted additional sampling at the site during the drilling of 8 geotechnical borings. Two samples were collected from each of the boring locations. A shallow sample, ~2-4 ft. deep, and a deeper sample near the water table, ~8 ft. deep. The shallow samples were analyzed for VOCs, PAHs, and metals. The deeper samples were analyzed for VOCs. Generally, the sampling results were consistent with our understanding of the site conditions.

Recent analytical results of the soil samples confirm the areas of contamination defined during the historic LUST activities. No significant VOCs were identified in the 16 soil samples with the exception of location B-8 which is located in an area that was already identified as contaminated associated with the Washington Plaza closed LUST project. Low levels of PAHs were identified in several of the shallow soil samples. Only samples from the two borings located on the western part of the site (B-5 and B-6) contained any PAHs above RCLs. Chrysene exceeded the groundwater pathway RCL in the shallow soil samples from these locations. Benzo(a)pyrene was present in the same two samples at levels exceeding the residential direct contact hazard RCL but PAH cumulative cancer risks for those samples were below the acceptable hazard limit of 5×10^{-6}. This soil will require special handling if it is removed from the site.

An estimated 10,000-12,000 tons of contaminated soil may remain at the site that exceeds WDNR standards. An estimated 3,500-5,000 tons of contaminated soil may exceed the groundwater pathway standards. The site is closed with this soil in place. If it is not disturbed it can remain in place. The cost to remove all of the contaminated soil from the property would be in excess of $500,000 just for disposal fees.

ENVIRONMENTAL CONCERNS and APPROACH

Information collected at the site identified a number of concerns that may need to be addressed prior to, and during construction. These include, obtaining WDNR approvals for closure modifications, material excavation and disposal, dewatering, and vapor intrusion. Details of each concern are discussed below.

Closure Modifications

A closure modification request will need to be prepared and submitted to the WDNR. The document will need to outline how the redevelopment will be conducted to ensure that conditions of the historic BRRTS activity closures are followed. Items that will need to be addressed in the closure modification include:

1) Removal of the Deed Notice related to the residual contamination at the property,
2) Proposed Soil Management Plan related to handling and disposal of contaminated materials,
3) Proposed plan for modification of the required barrier at the site (pavement and buildings),
4) Preparation of a new closure packet showing the post-development conditions including any residual soil or groundwater contamination, contaminant barriers, a barrier maintenance and inspection plan, and a GIS registry packet identifying the impacted area(s). Because contamination from the former Washington Plaza fuel systems extends onto the property that will be transferred to the City of Madison for the public market that property will likely be included as an off-site affected property in the GIS packet.

Excavation and Material Management

A material management plan should be prepared and submitted to the WDNR for approval. The material management plan describes the contamination identified at the site and identifies the proper handling and disposal method for each type of contaminant. Additionally, the material management plan outlines the responsibilities of various parties involved in the work. Anticipated material management activities are discussed below.

Three kinds of soil contamination have been identified within the project area. These include: 1) foundry sand/bottom ash located on the north side of the property, 2) petroleum-related contamination near the former fuel tanks as discussed previously, and 3) PAH contamination along the railroad corridor on the western part of the site. Based on the existing data soils that are moved during construction should be segregated into three waste streams. These include:

Type 1 - soils containing foundry sand or bottom ash.
Type 2 - soils containing PVOCs or PAHs.
Type 3 - soils containing PAHs below WDNR RCLs and no VOCs.

The Type 1 soils will need to be disposed of in a sanitary landfill such as Dane County Landfill or WMI Mad-Prairie Landfill. The Type 2 soils will be managed on site to the extent practicable. Type 2 soils that are not structurally suitable for reuse and cannot be managed on site will require landfill disposal. Type 3 soils can be considered "clean" and may be reused on site as needed or removed and taken to an appropriate facility like a construction debris fill site.

It appears that the vast majority of the soils which will require removal from the site will be generated during excavation for the underground parking structure. Based on the existing grades in that area which vary from ~852 ft. to 860 ft. msl and the proposed floor slab grade (848 ft.), excavation volumes were estimated. In the estimation we assumed that soils would need to be removed to ~1.5 ft. below the top of slab grade for installation of drainage features and suitable subgrade materials. This calculation indicates that 20,500 cubic yards of soil (28,500 tons) will need to be excavated for the underground parking.

A portion of the soils that will require removal for the underground parking contain contaminants. We know that petroleum-contaminated soils were present around the former gas station at the southeast corner of the project. In-situ remediation was conducted but post-remedial contaminant levels were not characterized. We believe around 2,000 tons of the remaining contaminated soils will require removal in this area. Contaminated soils also were identified along the north side of the proposed underground parking lot. Soils in this area were addressed through excavation. However, the remedial excavation was restricted to the south because of the existing building. We anticipate encountering contaminated soils across this area from a few feet below grade to the groundwater at ~7.5 ft. Approximately 700 tons of petroleum contaminated soil will need to be removed near the northwest corner of the underground parking area.

The anticipated cost for disposal of the soil that will need to be removed from the site for construction of the underground parking is $158,400. This cost includes off-site disposal of all of the soil in this area that will require excavation. The landfill tipping fees for disposal of the petroleum contaminated soils is $81,000 (2,700 tons @$30/ton). The disposal fees for the clean" soils (Type 3) at a demolition landfill are $77,400 (25,800 tons @$3/ton). We have not included the costs for excavation or trucking in these estimates.

Construction dewatering and sump drains in proposed underground parking

Substantial groundwater accumulation during construction and post-construction is not anticipated. Monitoring wells located around the area indicate that groundwater typically is present at a depth of ~7 to 8 ft. below grade (846 msl). The proposed underground parking slab surface elevation is 848 ft. msl. For this reason we only expect that groundwater will be encountered during installation of foundation elements associated with the underground parking structure.

Water from precipitation may accumulate within excavations during the construction project . Generally, this water should be treated as natural stormwater and may be discharged from the site through the stormwater sewer system in accordance with the construction stormwater and erosion control permit. However, precipitation which accumulates within the contaminated soil excavation may be adversely impacted by contact with these soils. Any water generated from excavations in this area should be considered "potentially contaminated" if they contact the contaminated soils. Water which comes in contact with the contaminated soils will require special handling and cannot be discharged to the storm sewer system without prior approval. Acceptable alternatives for handling water which may become contaminated by contact with the petroleum-impacted soils include discharge to the sanitary sewer system for treatment or discharge to the storm sewer

system under a WPDES permit. The cost for obtaining and maintaining a WPDES permit usually ranges from $3,000-$8,000 unless groundwater treatment becomes necessary.

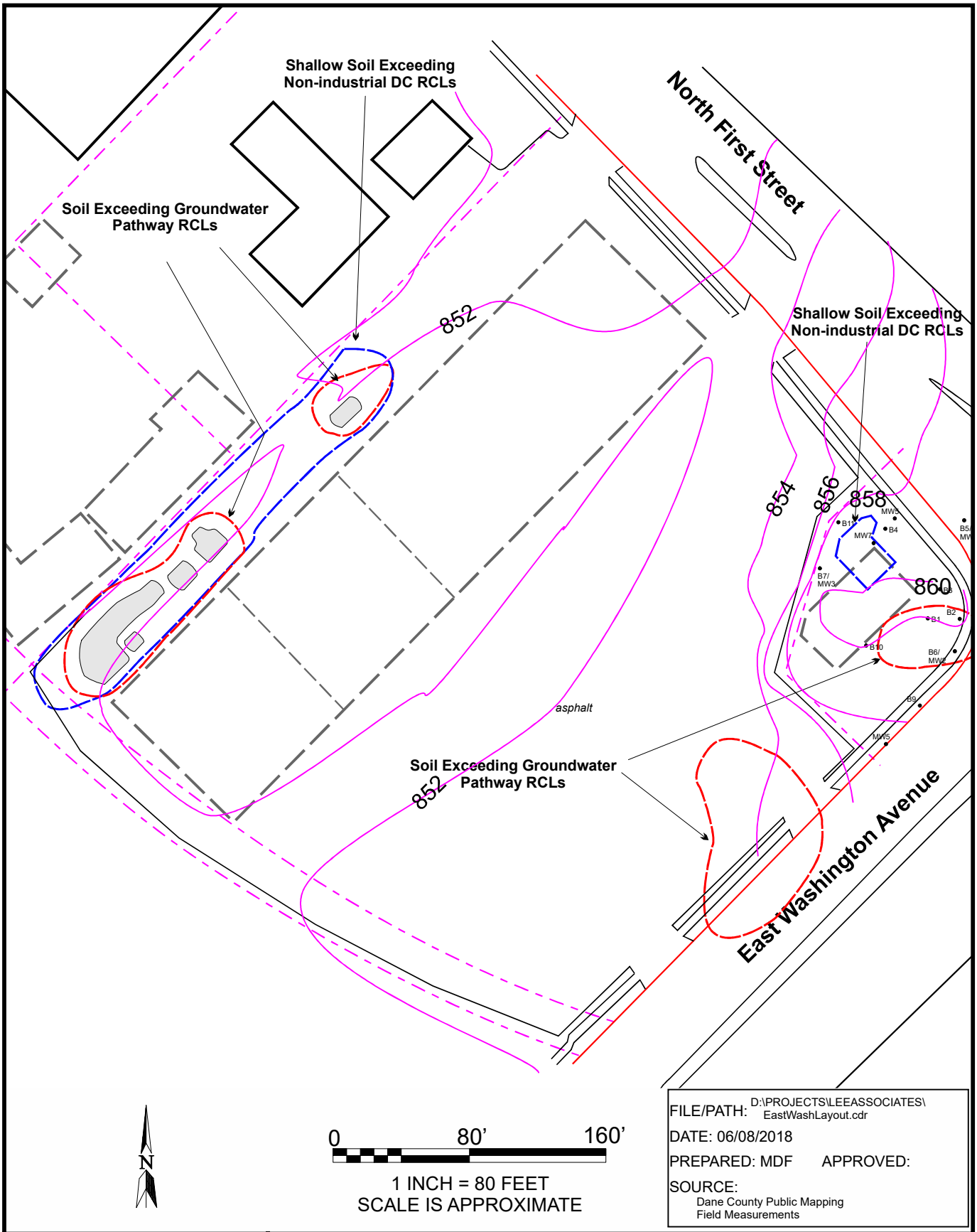
Vapor Intrusion

We will need to address the potential for vapor intrusion in our WDNR submittal. Since most of the heavily contaminated soil will be removed or will be under parking structures vapor barriers will likely suffice to prevent vapor intrusion into the buildings. This does add slightly to the construction costs.

TABLE 1
SUMMARY OF SOIL ANALYTICAL DATA FROM PHASE II ASSESSMENT
Redevelopment Project- East Washington Avenue and North First Street - Madison, Wisconsin

Date	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	04/25/18	Groundwater Pathway	Non-indust. Direct Contact	Background Threshold
Sample I.D.	B1	B1	B2	B2	B3	B3	B4	B4	B5	B5	B6	B6	B7	B7	B8	B8			
Depth (ft)	2	8.5	2	7	2	6	2	5	3	6	4	8.5	2.5	5	2.5	6	RCLs	RCLs	Values
VOCs																			
Benzene	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	<29.8	5.1	1600	ne
1,2 Dichloroethane	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	<29.8	2.8	652	ne
Ethylbenzene	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	<29.8	1570	8020	ne
Methyl-tert-butyl ether	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	<29.8	27	63,800	ne
Toluene	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	<29.8	1107	818,000	ne
1,3,5 Trimethylbenzenes	<25.0	31.2 (J)	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	<29.8	ns	182,000	ne
1,2,4 Trimethylbenzenes	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	<29.8	ns	219,000	ne
Total Trimethylbenzenes	<50.0	31.2 (J)	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<79.4	<50.0	<50.0	<50.6	<50.0	<50.0	<59.6	1379	ns	ne
Total Xylenes	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<119.1	<75.0	<75.0	<75.8	<75.0	<75.0	<89.3	3940	260,000	ne
Naphthalene	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<63.6	<40.0	<40.0	<40.4	<40.0	<40.0	**863** (J)	658.7	5520	ne
n-Butyl benzene	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	583	ns	108,000	ne
n-Propyl benzene	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	199 (J)	ns	264,000	ne
s-Butylbenzene	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<39.7	<25.0	<25.0	<25.3	<25.0	<25.0	267 (J)	ns		ne
PAHs - Non-Carcinogenic																			
Acenaphthrene	<4.2	na	<4.1	na	<4.5	na	<4.8	na	<4.7	na	19.6 (J)	na	<4.1	na	<4.6	na	ns	3,590,000	ne
Acenaphthylene	10.4 (J)	na	<3.5	na	<3.8	na	<4.0	na	73.2	na	20.1 (J)	na	<3.5	na	<3.9	na	ns	ns	ne
Anthracene	13.9 (J)	na	14.8 (J)	na	<6.7	na	<7.0	na	60.4	na	77.5	na	<6.0	na	<6.7	na	196,744	17,900,000	ne
Benzo(g,h,i)perylene	70.0	na	16.7	na	4.5 (J)	na	<2.5	na	176	na	197	na	2.4 (J)	na	15.8	na	ns	ns	ne
Fluoranthene	128	na	95.3	na	14.4 (J)	na	<6.4	na	350	na	685	na	8.3 (J)	na	30.4	na	88,818	2,390,000	ne
Fluorene	<4.5	na	<4.4	na	<4.8	na	<5.1	na	6.9 (J)	na	18.1 (J)	na	<4.4	na	<4.9	na	14,815	2,390,000	ne
2-Methylnaphthalene	<5.4	na	<5.3	na	<5.8	na	<6.1	na	43.1	na	32.5 (J)	na	<5.3	na	<5.9	na	ns	239,000	ne
Phenanthrene	32.9 (J)	na	93.6	na	<13.6	na	<14.3	na	141	na	334	na	<12.3	na	<13.7	na	ns	ns	ne
Pyrene	116	na	70.1	na	12.9 (J)	na	<5.5	na	331	na	544	na	9.3 (J)	na	28.2	na	54,772	1,790,000	ne
PAHs - Carcinogenic (2 ring)																			
1-Methylnaphthalene	<4.3	na	<4.3	na	<4.7	na	<4.9	na	36.1	na	30.5	na	<4.3	na	<4.7	na	ns	17,600	ne
Naphthalene	<9.1	na	<9.0	na	<9.8	na	<10.3	na	65.8	na	36.8 (J)	na	<8.9	na	<9.9	na	658.7	5,520	ne
PAHs - Carcinogenic (4-6 ring)																			
Benzo(a)anthracene	72.7	na	25.2	na	5.8 (J)	na	<3.9	na	188	na	299	na	4.7 (J)	na	17.5	na	ns	1,140	ne
Benzo(a)pyrene	93.6	na	20.1	na	6.3 (J)	na	<3.1	na	276	na	306	na	4.7 (J)	na	20.8	na	470	115	ne
Benzo(b)fluoranthene	94.9	na	23.3	na	5.7 (J)	na	<3.5	na	248	na	280	na	4.4 (J)	na	19.2	na	480	1,150	ne
Benzo(k)fluoranthene	83.4	na	21.2	na	7.0 (J)	na	<3.1	na	217	na	308	na	4.1 (J)	na	17.3	na	ns	11,500	ne
Chrysene	88.3	na	31.2	na	7.5 (J)	na	<4.1	na	**190**	na	**334**	na	6.5 (J)	na	20.3	na	145.1	115,000	ne
Dibenzo(a,h)anthracene	23.4	na	4.8 (J)	na	<2.6	na	<2.7	na	58.9	na	69.7	na	<2.4	na	4.7 (J)	na	ns	115	ne
Indeno(1,2,3-cd)pyrene	63.1	na	13.5	na	4.0 (J)	na	<2.7	na	180	na	181	na	<2.3	na	13.2	na	ns	1,150	ne
Direct Contact (non-indust)																			
Cancer Risk (4-6 ring)	1.2×10^{-6}	--	2.7×10^{-7}	--	9.2×10^{-8}	--	6.0×10^{-8}	--	3.5×10^{-6}	--	4.0×10^{-6}	--	7.2×10^{-8}	--	2.7×10^{-7}	--	ns	5.0×10^{-6}	--
Total Cancer Risk	1.2×10^{-6}	--	2.8×10^{-7}	--	9.4×10^{-8}	--	6.2×10^{-8}	--	3.5×10^{-6}	--	4.0×10^{-6}	--	7.4×10^{-8}	--	2.7×10^{-7}	--	ns	1.0×10^{-5}	--
RCRA METALs																			
Arsenic	1.3 (J)	na	1.7 (J)	na	4.0 (J)	na	3.6 (J)	na	5.5 (J)	na	6.2	na	1.3 (J)	na	1.9 (J)	na	0.584	0.614	8
Barium	23.2	na	19.4	na	45.1	na	45.3	na	79.4	na	171	na	6.2	na	10.1	na	164.8	15,300	364
Cadmium	<0.14	na	0.15 (J)	na	<0.15	na	0.24 (J)	na	0.83	na	0.55	na	0.15 (J)	na	<0.14	na	0.752	70	1
Chromium	9.4	na	6.2	na	13.2	na	13.3	na	11.1	na	14.8	na	3.0	na	3.9	na	360,000	100,000	44
Lead	11.7	na	2.7	na	7.6	na	9.8	na	66.8	na	945	na	4.1	na	9.3	na	27	400	52
Mercury	<0.011	na	<0.012	na	0.025 (J)	na	<0.013	na	0.68	na	0.051	na	<0.011	na	0.042	na	0.208	3.13	ne
Selenium	<1.2	na	<1.1	na	<1.2	na	<1.4	na	<1.3	na	<1.1	na	<1.2	na	<1.2	na	0.52	391	ne
Silver	<0.37	na	<0.33	na	<0.38	na	<0.42	na	0.66 (J)	na	0.63	na	<0.36	na	<0.37	na	0.8497	391	ne

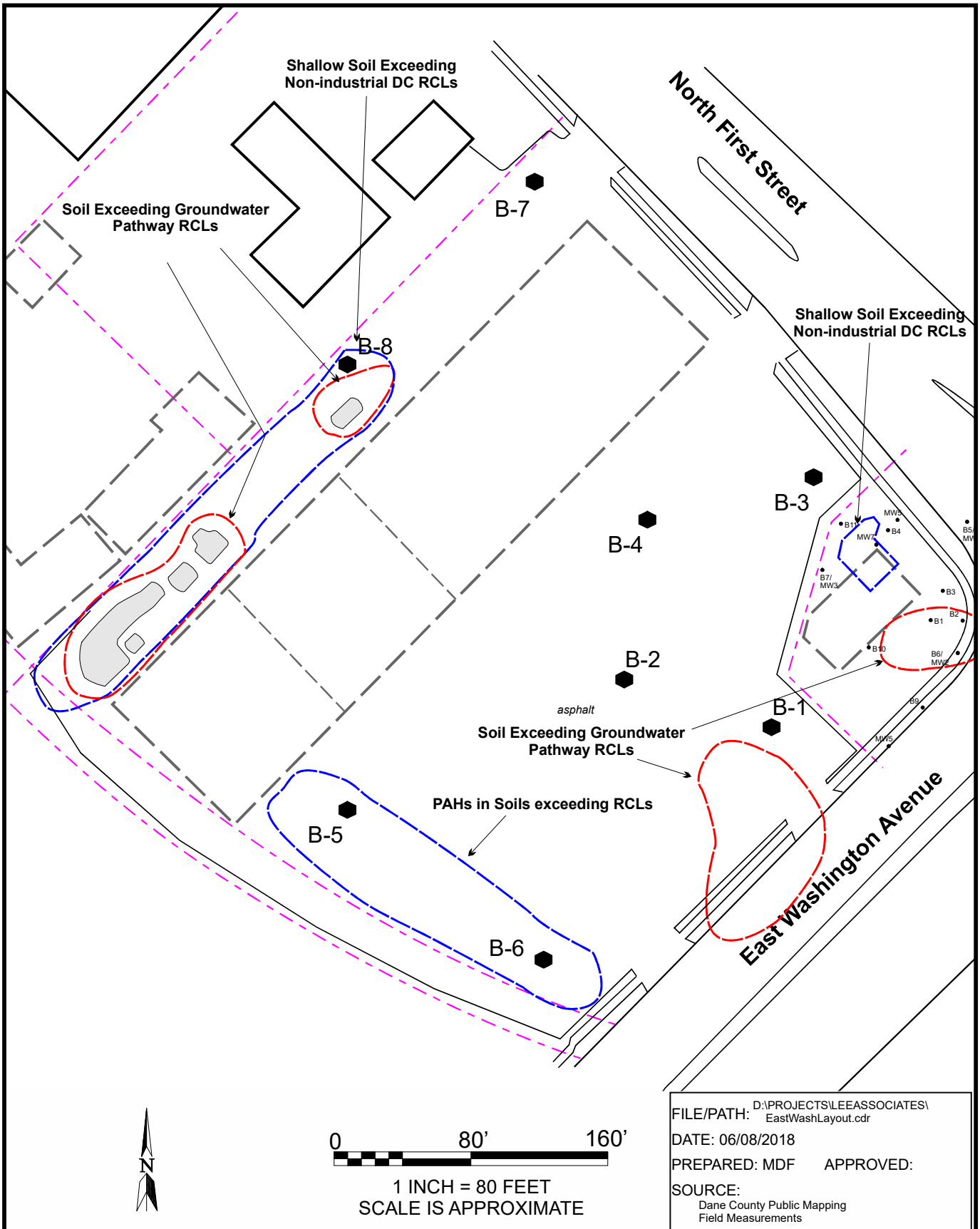
- VOC and PAH results are listed in ug/kg; Metals are in mg/kg
- na = not analyzed
- ns = no standard established
- (J) = present below limit of quantitation
- ne = no background level established
- Regulatory limits are default values from R&R calculator
- Bold values exceed Groundwater Pathway RCLs
- Underlined values exceed Direct Contact Hazard RCLs



SEYMOUR ENVIRONMENTAL SERVICES, INC.

PREVIOUSLY IDENTIFIED CONTAMINATION
Redevelopment Project
East Washington Avenue and North First Street
Madison, Wisconsin

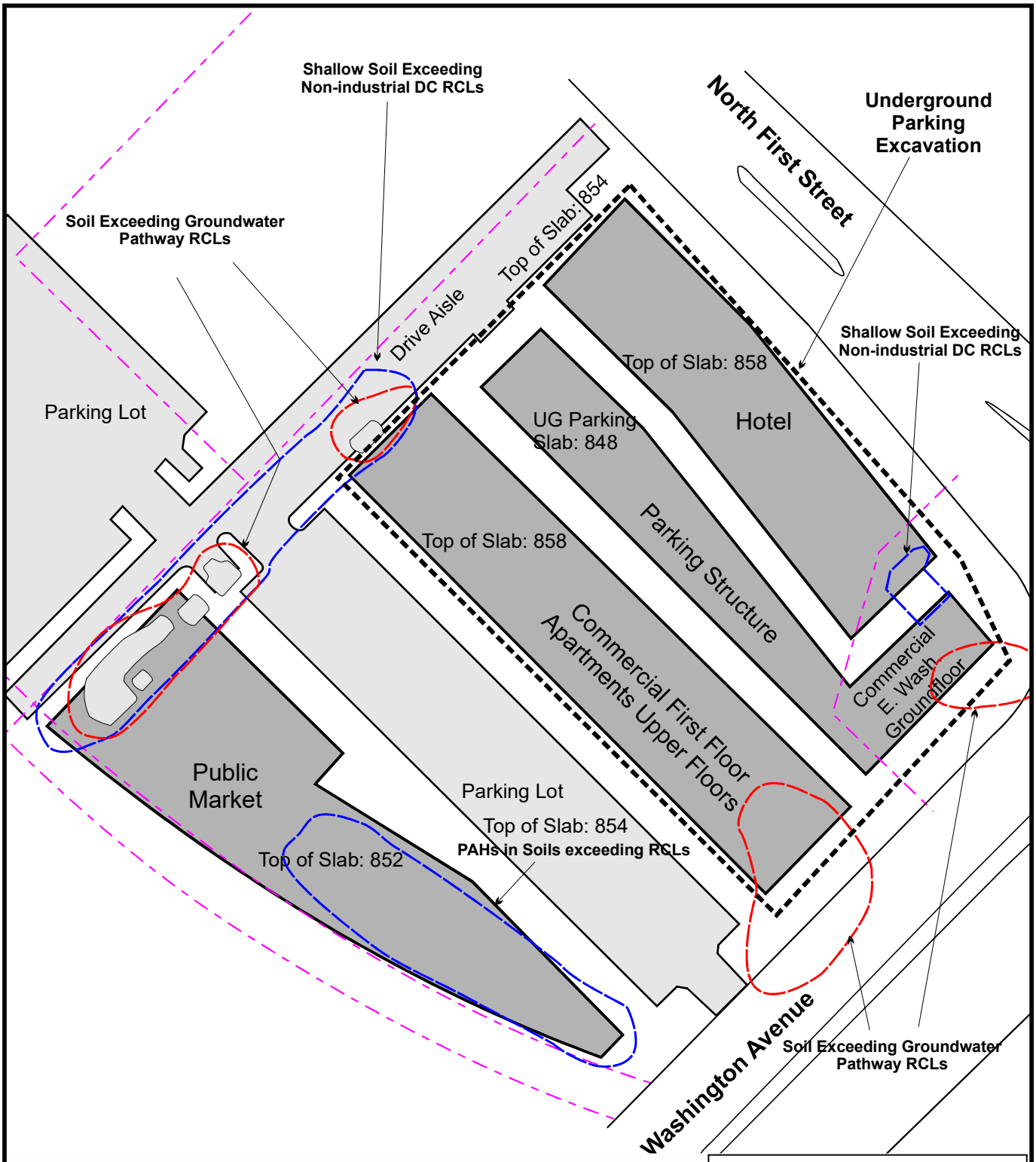
FIGURE 1



SEYMOUR ENVIRONMENTAL SERVICES, INC.

2018 SAMPLING LOCATIONS/CONTAMINATION
Redevelopment Project
East Washington Avenue and North First Street
Madison, Wisconsin

FIGURE 2



SEYMOUR ENVIRONMENTAL SERVICES, INC.

PROPOSED DEVELOPMENT/CONTAMINATION
Redevelopment Project
East Washington Avenue and North First Street
Madison, Wisconsin

FIGURE 3

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

May 22, 2018

Robyn Seymour
Seymour Environmental Services, INC.
2531 Dyreson Road
Mc Farland, WI 53558

RE: Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Dear Robyn Seymour:
Enclosed are the analytical results for sample(s) received by the laboratory on May 05, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dan Milewsky
dan.milewsky@pacelabs.com
(920)469-2436
Project Manager

Enclosures

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40168629001	**B-6, 4'**	Solid	04/25/18 08:40	05/05/18 07:30
40168629002	**B-6, 8-1/2**	Solid	04/25/18 08:52	05/05/18 07:30
40168629003	**B-4, 2'**	Solid	04/26/18 08:00	05/05/18 07:30
40168629004	**B-4, 5'**	Solid	04/26/18 08:15	05/05/18 07:30
40168629005	**B-1, 2'**	Solid	04/25/18 13:00	05/05/18 07:30
40168629006	**B-1, 8-1/2**	Solid	04/25/18 13:40	05/05/18 07:30
40168629007	**B-2, 2'**	Solid	04/26/18 10:30	05/05/18 07:30
40168629008	**B-2, 7'**	Solid	04/26/18 10:50	05/05/18 07:30
40168629009	**B-3, 2'**	Solid	04/26/18 14:00	05/05/18 07:30
40168629010	**B-3, 6'**	Solid	04/26/18 14:20	05/05/18 07:30
40168629011	**B-5, 3'**	Solid	05/02/18 07:30	05/05/18 07:30
40168629012	**B-5, 6'**	Solid	05/02/18 08:00	05/05/18 07:30
40168629013	**B-7, 2-1/2**	Solid	05/02/18 10:00	05/05/18 07:30
40168629014	**B-7, 5'**	Solid	05/02/18 10:30	05/05/18 07:30
40168629015	**B-8, 2-1/2**	Solid	05/02/18 12:00	05/05/18 07:30
40168629016	**B-8, 6'**	Solid	05/02/18 12:30	05/05/18 07:30

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SAMPLE ANALYTE COUNT

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40168629001	**B-6, 4'**	EPA 6010	JLD	7
		EPA 7471	AJT	1
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629002	**B-6, 8-1/2**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629003	**B-4, 2'**	EPA 6010	JLD	7
		EPA 7471	AJT	1
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629004	**B-4, 5'**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629005	**B-1, 2'**	EPA 6010	JLD	7
		EPA 7471	AJT	1
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629006	**B-1, 8-1/2**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629007	**B-2, 2'**	EPA 6010	JLD	7
		EPA 7471	AJT	1
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629008	**B-2, 7'**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629009	**B-3, 2'**	EPA 6010	JLD	7
		EPA 7471	AJT	1
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629010	**B-3, 6'**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629011	**B-5, 3'**	EPA 6010	JLD	7
		EPA 7471	AJT	1

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629012	**B-5, 6'**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629013	**B-7, 2-1/2**	EPA 6010	JLD	7
		EPA 7471	AJT	1
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629014	**B-7, 5'**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629015	**B-8, 2-1/2**	EPA 6010	JLD	7
		EPA 7471	AJT	1
		EPA 8270 by SIM	ARO	20
		EPA 8260	MDS	64
		ASTM D2974-87	ABF	1
40168629016	**B-8, 6'**	EPA 8260	MDS	64
		ASTM D2974-87	ABF	1

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SUMMARY OF DETECTION

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40168629001	**B-6, 4'**					
EPA 6010	Arsenic	6.2	mg/kg	5.0	05/14/18 11:18	
EPA 6010	Barium	171	mg/kg	0.50	05/14/18 11:18	
EPA 6010	Cadmium	0.55	mg/kg	0.50	05/14/18 11:18	
EPA 6010	Chromium	14.8	mg/kg	1.0	05/14/18 11:18	
EPA 6010	Lead	945	mg/kg	1.3	05/14/18 11:18	
EPA 6010	Silver	0.63J	mg/kg	1.0	05/14/18 11:18	
EPA 7471	Mercury	0.051	mg/kg	0.037	05/16/18 10:07	
EPA 8270 by SIM	Acenaphthene	19.6J	ug/kg	28.0	05/09/18 12:33	
EPA 8270 by SIM	Acenaphthylene	20.1J	ug/kg	23.9	05/09/18 12:33	
EPA 8270 by SIM	Anthracene	77.5	ug/kg	41.3	05/09/18 12:33	
EPA 8270 by SIM	Benzo(a)anthracene	299	ug/kg	23.0	05/09/18 12:33	
EPA 8270 by SIM	Benzo(a)pyrene	306	ug/kg	18.2	05/09/18 12:33	
EPA 8270 by SIM	Benzo(b)fluoranthene	280	ug/kg	20.4	05/09/18 12:33	
EPA 8270 by SIM	Benzo(g,h,i)perylene	197	ug/kg	14.7	05/09/18 12:33	
EPA 8270 by SIM	Benzo(k)fluoranthene	308	ug/kg	18.2	05/09/18 12:33	
EPA 8270 by SIM	Chrysene	334	ug/kg	24.3	05/09/18 12:33	
EPA 8270 by SIM	Dibenz(a,h)anthracene	69.7	ug/kg	16.2	05/09/18 12:33	
EPA 8270 by SIM	Fluoranthene	685	ug/kg	37.8	05/09/18 12:33	
EPA 8270 by SIM	Fluorene	18.1J	ug/kg	30.0	05/09/18 12:33	
EPA 8270 by SIM	Indeno(1,2,3-cd)pyrene	181	ug/kg	15.9	05/09/18 12:33	
EPA 8270 by SIM	1-Methylnaphthalene	30.5	ug/kg	29.1	05/09/18 12:33	
EPA 8270 by SIM	2-Methylnaphthalene	32.5J	ug/kg	36.3	05/09/18 12:33	
EPA 8270 by SIM	Naphthalene	36.8J	ug/kg	61.0	05/09/18 12:33	
EPA 8270 by SIM	Phenanthrene	334	ug/kg	84.2	05/09/18 12:33	
EPA 8270 by SIM	Pyrene	544	ug/kg	32.6	05/09/18 12:33	
ASTM D2974-87	Percent Moisture	7.8	%	0.10	05/18/18 14:29	
40168629002	**B-6, 8-1/2**					
ASTM D2974-87	Percent Moisture	16.9	%	0.10	05/18/18 14:29	
40168629003	**B-4, 2'**					
EPA 6010	Arsenic	3.6J	mg/kg	6.1	05/14/18 11:21	
EPA 6010	Barium	45.3	mg/kg	0.61	05/14/18 11:21	
EPA 6010	Cadmium	0.24J	mg/kg	0.61	05/14/18 11:21	
EPA 6010	Chromium	13.3	mg/kg	1.2	05/14/18 11:21	
EPA 6010	Lead	9.8	mg/kg	1.6	05/14/18 11:21	
ASTM D2974-87	Percent Moisture	18.4	%	0.10	05/18/18 14:29	
40168629004	**B-4, 5'**					
ASTM D2974-87	Percent Moisture	46.6	%	0.10	05/18/18 14:54	
40168629005	**B-1, 2'**					
EPA 6010	Arsenic	1.3J	mg/kg	5.4	05/14/18 11:23	
EPA 6010	Barium	23.2	mg/kg	0.54	05/14/18 11:23	
EPA 6010	Chromium	9.4	mg/kg	1.1	05/14/18 11:23	
EPA 6010	Lead	11.7	mg/kg	1.4	05/14/18 11:23	
EPA 8270 by SIM	Acenaphthylene	10.4J	ug/kg	11.8	05/09/18 13:42	
EPA 8270 by SIM	Anthracene	13.9J	ug/kg	20.5	05/09/18 13:42	
EPA 8270 by SIM	Benzo(a)anthracene	72.7	ug/kg	11.4	05/09/18 13:42	

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(920)469-2436

SUMMARY OF DETECTION

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40168629005	**B-1, 2'**					
EPA 8270 by SIM	Benzo(a)pyrene	93.6	ug/kg	9.0	05/09/18 13:42	
EPA 8270 by SIM	Benzo(b)fluoranthene	94.9	ug/kg	10.1	05/09/18 13:42	
EPA 8270 by SIM	Benzo(g,h,i)perylene	70.0	ug/kg	7.3	05/09/18 13:42	
EPA 8270 by SIM	Benzo(k)fluoranthene	83.4	ug/kg	9.0	05/09/18 13:42	
EPA 8270 by SIM	Chrysene	88.3	ug/kg	12.1	05/09/18 13:42	
EPA 8270 by SIM	Dibenz(a,h)anthracene	23.4	ug/kg	8.0	05/09/18 13:42	
EPA 8270 by SIM	Fluoranthene	128	ug/kg	18.7	05/09/18 13:42	
EPA 8270 by SIM	Indeno(1,2,3-cd)pyrene	63.1	ug/kg	7.9	05/09/18 13:42	
EPA 8270 by SIM	Phenanthrene	32.9J	ug/kg	41.8	05/09/18 13:42	
EPA 8270 by SIM	Pyrene	116	ug/kg	16.2	05/09/18 13:42	
ASTM D2974-87	Percent Moisture	7.2	%	0.10	05/18/18 14:54	
40168629006	**B-1, 8-1/2**					
EPA 8260	1,3,5-Trimethylbenzene	31.2J	ug/kg	69.1	05/09/18 02:35	
ASTM D2974-87	Percent Moisture	13.1	%	0.10	05/18/18 14:54	
40168629007	**B-2, 2'**					
EPA 6010	Arsenic	1.7J	mg/kg	4.8	05/14/18 11:26	
EPA 6010	Barium	19.4	mg/kg	0.48	05/14/18 11:26	
EPA 6010	Cadmium	0.15J	mg/kg	0.48	05/14/18 11:26	
EPA 6010	Chromium	6.2	mg/kg	0.96	05/14/18 11:26	
EPA 6010	Lead	2.7	mg/kg	1.3	05/14/18 11:26	
EPA 8270 by SIM	Anthracene	14.8J	ug/kg	20.3	05/09/18 14:00	
EPA 8270 by SIM	Benzo(a)anthracene	25.2	ug/kg	11.3	05/09/18 14:00	
EPA 8270 by SIM	Benzo(a)pyrene	20.1	ug/kg	8.9	05/09/18 14:00	
EPA 8270 by SIM	Benzo(b)fluoranthene	23.3	ug/kg	10.0	05/09/18 14:00	
EPA 8270 by SIM	Benzo(g,h,i)perylene	16.7	ug/kg	7.2	05/09/18 14:00	
EPA 8270 by SIM	Benzo(k)fluoranthene	21.2	ug/kg	8.9	05/09/18 14:00	
EPA 8270 by SIM	Chrysene	31.2	ug/kg	11.9	05/09/18 14:00	
EPA 8270 by SIM	Dibenz(a,h)anthracene	4.8J	ug/kg	7.9	05/09/18 14:00	
EPA 8270 by SIM	Fluoranthene	95.3	ug/kg	18.5	05/09/18 14:00	M1
EPA 8270 by SIM	Indeno(1,2,3-cd)pyrene	13.5	ug/kg	7.8	05/09/18 14:00	
EPA 8270 by SIM	Phenanthrene	93.6	ug/kg	41.4	05/09/18 14:00	
EPA 8270 by SIM	Pyrene	70.1	ug/kg	16.0	05/09/18 14:00	M1
ASTM D2974-87	Percent Moisture	6.0	%	0.10	05/18/18 14:54	
40168629008	**B-2, 7'**					
ASTM D2974-87	Percent Moisture	20.5	%	0.10	05/18/18 14:54	
40168629009	**B-3, 2'**					
EPA 6010	Arsenic	4.0J	mg/kg	5.5	05/14/18 11:28	
EPA 6010	Barium	45.1	mg/kg	0.55	05/14/18 11:28	
EPA 6010	Chromium	13.2	mg/kg	1.1	05/14/18 11:28	
EPA 6010	Lead	7.6	mg/kg	1.4	05/14/18 11:28	
EPA 7471	Mercury	0.025J	mg/kg	0.041	05/16/18 10:16	
EPA 8270 by SIM	Benzo(a)anthracene	5.8J	ug/kg	12.4	05/09/18 13:25	
EPA 8270 by SIM	Benzo(a)pyrene	6.3J	ug/kg	9.8	05/09/18 13:25	
EPA 8270 by SIM	Benzo(b)fluoranthene	5.7J	ug/kg	11.0	05/09/18 13:25	
EPA 8270 by SIM	Benzo(g,h,i)perylene	4.5J	ug/kg	7.9	05/09/18 13:25	

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SUMMARY OF DETECTION

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40168629009	**B-3, 2'**					
EPA 8270 by SIM	Benzo(k)fluoranthene	7.0J	ug/kg	9.7	05/09/18 13:25	
EPA 8270 by SIM	Chrysene	7.5J	ug/kg	13.1	05/09/18 13:25	
EPA 8270 by SIM	Fluoranthene	14.4J	ug/kg	20.3	05/09/18 13:25	
EPA 8270 by SIM	Indeno(1,2,3-cd)pyrene	4.0J	ug/kg	8.5	05/09/18 13:25	
EPA 8270 by SIM	Pyrene	12.9J	ug/kg	17.5	05/09/18 13:25	
ASTM D2974-87	Percent Moisture	14.2	%	0.10	05/18/18 14:54	
40168629010	**B-3, 6'**					
ASTM D2974-87	Percent Moisture	20.1	%	0.10	05/18/18 14:54	
40168629011	**B-5, 3'**					
EPA 6010	Arsenic	5.5J	mg/kg	6.0	05/14/18 11:31	
EPA 6010	Barium	79.4	mg/kg	0.60	05/14/18 11:31	
EPA 6010	Cadmium	0.83	mg/kg	0.60	05/14/18 11:31	
EPA 6010	Chromium	11.1	mg/kg	1.2	05/14/18 11:31	
EPA 6010	Lead	66.8	mg/kg	1.5	05/14/18 11:31	
EPA 6010	Silver	0.66J	mg/kg	1.2	05/14/18 11:31	
EPA 7471	Mercury	0.68	mg/kg	0.042	05/16/18 10:23	
EPA 8270 by SIM	Acenaphthylene	73.2	ug/kg	13.3	05/09/18 18:38	
EPA 8270 by SIM	Anthracene	60.4	ug/kg	22.9	05/09/18 18:38	
EPA 8270 by SIM	Benzo(a)anthracene	188	ug/kg	12.8	05/09/18 18:38	
EPA 8270 by SIM	Benzo(a)pyrene	276	ug/kg	10.1	05/09/18 18:38	
EPA 8270 by SIM	Benzo(b)fluoranthene	248	ug/kg	11.3	05/09/18 18:38	
EPA 8270 by SIM	Benzo(g,h,i)perylene	176	ug/kg	8.2	05/09/18 18:38	
EPA 8270 by SIM	Benzo(k)fluoranthene	217	ug/kg	10.1	05/09/18 18:38	
EPA 8270 by SIM	Chrysene	190	ug/kg	13.5	05/09/18 18:38	
EPA 8270 by SIM	Dibenz(a,h)anthracene	58.9	ug/kg	9.0	05/09/18 18:38	
EPA 8270 by SIM	Fluoranthene	350	ug/kg	21.0	05/09/18 18:38	
EPA 8270 by SIM	Fluorene	6.9J	ug/kg	16.6	05/09/18 18:38	
EPA 8270 by SIM	Indeno(1,2,3-cd)pyrene	180	ug/kg	8.8	05/09/18 18:38	
EPA 8270 by SIM	1-Methylnaphthalene	36.1	ug/kg	16.2	05/09/18 18:38	
EPA 8270 by SIM	2-Methylnaphthalene	43.1	ug/kg	20.1	05/09/18 18:38	
EPA 8270 by SIM	Naphthalene	65.8	ug/kg	33.9	05/09/18 18:38	
EPA 8270 by SIM	Phenanthrene	141	ug/kg	46.8	05/09/18 18:38	
EPA 8270 by SIM	Pyrene	331	ug/kg	18.1	05/09/18 18:38	
ASTM D2974-87	Percent Moisture	17.2	%	0.10	05/18/18 14:54	
40168629012	**B-5, 6'**					
ASTM D2974-87	Percent Moisture	69.4	%	0.10	05/18/18 14:54	
40168629013	**B-7, 2-1/2**					
EPA 6010	Arsenic	1.3J	mg/kg	5.3	05/11/18 18:09	
EPA 6010	Barium	6.2	mg/kg	0.53	05/11/18 18:09	
EPA 6010	Cadmium	0.15J	mg/kg	0.53	05/11/18 18:09	
EPA 6010	Chromium	3.0	mg/kg	1.1	05/11/18 18:09	
EPA 6010	Lead	4.1	mg/kg	1.4	05/11/18 18:09	
EPA 8270 by SIM	Benzo(a)anthracene	4.7J	ug/kg	11.2	05/09/18 18:55	
EPA 8270 by SIM	Benzo(a)pyrene	4.7J	ug/kg	8.9	05/09/18 18:55	
EPA 8270 by SIM	Benzo(b)fluoranthene	4.4J	ug/kg	10	05/09/18 18:55	

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(920)469-2436

SUMMARY OF DETECTION

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40168629013	**B-7, 2-1/2**					
EPA 8270 by SIM	Benzo(g,h,i)perylene	2.4J	ug/kg	7.2	05/09/18 18:55	
EPA 8270 by SIM	Benzo(k)fluoranthene	4.1J	ug/kg	8.8	05/09/18 18:55	
EPA 8270 by SIM	Chrysene	6.5J	ug/kg	11.8	05/09/18 18:55	
EPA 8270 by SIM	Fluoranthene	8.3J	ug/kg	18.4	05/09/18 18:55	
EPA 8270 by SIM	Pyrene	9.3J	ug/kg	15.9	05/09/18 18:55	
ASTM D2974-87	Percent Moisture	5.5	%	0.10	05/18/18 14:54	
40168629014	**B-7, 5'**					
ASTM D2974-87	Percent Moisture	16.3	%	0.10	05/18/18 14:54	
40168629015	**B-8, 2-1/2**					
EPA 6010	Arsenic	1.9J	mg/kg	5.4	05/14/18 11:33	
EPA 6010	Barium	10.1	mg/kg	0.54	05/14/18 11:33	
EPA 6010	Chromium	3.9	mg/kg	1.1	05/14/18 11:33	
EPA 6010	Lead	9.3	mg/kg	1.4	05/14/18 11:33	
EPA 7471	Mercury	0.042	mg/kg	0.039	05/16/18 10:28	
EPA 8270 by SIM	Benzo(a)anthracene	17.5	ug/kg	12.5	05/10/18 13:47	
EPA 8270 by SIM	Benzo(a)pyrene	20.8	ug/kg	9.8	05/10/18 13:47	
EPA 8270 by SIM	Benzo(b)fluoranthene	19.2	ug/kg	11.1	05/10/18 13:47	
EPA 8270 by SIM	Benzo(g,h,i)perylene	15.8	ug/kg	8.0	05/10/18 13:47	
EPA 8270 by SIM	Benzo(k)fluoranthene	17.3	ug/kg	9.8	05/10/18 13:47	
EPA 8270 by SIM	Chrysene	20.3	ug/kg	13.2	05/10/18 13:47	
EPA 8270 by SIM	Dibenz(a,h)anthracene	4.7J	ug/kg	8.8	05/10/18 13:47	
EPA 8270 by SIM	Fluoranthene	30.4	ug/kg	20.5	05/10/18 13:47	
EPA 8270 by SIM	Indeno(1,2,3-cd)pyrene	13.2	ug/kg	8.6	05/10/18 13:47	
EPA 8270 by SIM	Pyrene	28.2	ug/kg	17.6	05/10/18 13:47	
ASTM D2974-87	Percent Moisture	14.9	%	0.10	05/18/18 14:55	
40168629016	**B-8, 6'**					
EPA 8260	n-Butylbenzene	583	ug/kg	282	05/09/18 17:20	
EPA 8260	sec-Butylbenzene	267J	ug/kg	282	05/09/18 17:20	
EPA 8260	Naphthalene	863J	ug/kg	1170	05/09/18 17:20	
EPA 8260	n-Propylbenzene	199J	ug/kg	282	05/09/18 17:20	
ASTM D2974-87	Percent Moisture	74.6	%	0.10	05/18/18 14:55	

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-6, 4' **Lab ID: 40168629001** Collected: 04/25/18 08:40 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**6.2**	mg/kg	5.0	1.1	1	05/11/18 08:17	05/14/18 11:18	7440-38-2	
Barium	**171**	mg/kg	0.50	0.15	1	05/11/18 08:17	05/14/18 11:18	7440-39-3	
Cadmium	**0.55**	mg/kg	0.50	0.13	1	05/11/18 08:17	05/14/18 11:18	7440-43-9	
Chromium	**14.8**	mg/kg	1.0	0.28	1	05/11/18 08:17	05/14/18 11:18	7440-47-3	
Lead	**945**	mg/kg	1.3	0.43	1	05/11/18 08:17	05/14/18 11:18	7439-92-1	
Selenium	**<1.1**	mg/kg	5.0	1.1	1	05/11/18 08:17	05/14/18 11:18	7782-49-2	
Silver	**0.63J**	mg/kg	1.0	0.34	1	05/11/18 08:17	05/14/18 11:18	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.051**	mg/kg	0.037	0.011	1	05/15/18 11:49	05/16/18 10:07	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**19.6J**	ug/kg	28.0	8.4	2	05/08/18 09:41	05/09/18 12:33	83-32-9	
Acenaphthylene	**20.1J**	ug/kg	23.9	7.2	2	05/08/18 09:41	05/09/18 12:33	208-96-8	
Anthracene	**77.5**	ug/kg	41.3	12.4	2	05/08/18 09:41	05/09/18 12:33	120-12-7	
Benzo(a)anthracene	**299**	ug/kg	23.0	6.9	2	05/08/18 09:41	05/09/18 12:33	56-55-3	
Benzo(a)pyrene	**306**	ug/kg	18.2	5.5	2	05/08/18 09:41	05/09/18 12:33	50-32-8	
Benzo(b)fluoranthene	**280**	ug/kg	20.4	6.1	2	05/08/18 09:41	05/09/18 12:33	205-99-2	
Benzo(g,h,i)perylene	**197**	ug/kg	14.7	4.4	2	05/08/18 09:41	05/09/18 12:33	191-24-2	
Benzo(k)fluoranthene	**308**	ug/kg	18.2	5.4	2	05/08/18 09:41	05/09/18 12:33	207-08-9	
Chrysene	**334**	ug/kg	24.3	7.3	2	05/08/18 09:41	05/09/18 12:33	218-01-9	
Dibenz(a,h)anthracene	**69.7**	ug/kg	16.2	4.9	2	05/08/18 09:41	05/09/18 12:33	53-70-3	
Fluoranthene	**685**	ug/kg	37.8	11.3	2	05/08/18 09:41	05/09/18 12:33	206-44-0	
Fluorene	**18.1J**	ug/kg	30.0	9.0	2	05/08/18 09:41	05/09/18 12:33	86-73-7	
Indeno(1,2,3-cd)pyrene	**181**	ug/kg	15.9	4.8	2	05/08/18 09:41	05/09/18 12:33	193-39-5	
1-Methylnaphthalene	**30.5**	ug/kg	29.1	8.7	2	05/08/18 09:41	05/09/18 12:33	90-12-0	
2-Methylnaphthalene	**32.5J**	ug/kg	36.3	10.9	2	05/08/18 09:41	05/09/18 12:33	91-57-6	
Naphthalene	**36.8J**	ug/kg	61.0	18.3	2	05/08/18 09:41	05/09/18 12:33	91-20-3	
Phenanthrene	**334**	ug/kg	84.2	25.3	2	05/08/18 09:41	05/09/18 12:33	85-01-8	
Pyrene	**544**	ug/kg	32.6	9.8	2	05/08/18 09:41	05/09/18 12:33	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	37	%	10-115		2	05/08/18 09:41	05/09/18 12:33	321-60-8	
Terphenyl-d14 (S)	40	%	10-121		2	05/08/18 09:41	05/09/18 12:33	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 00:42	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	56-23-5	W

REPORT OF LABORATORY ANALYSIS

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-6, 4' **Lab ID: 40168629001** Collected: 04/25/18 08:40 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 00:42	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 00:42	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 00:42	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	106-46-7	W
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 00:42	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 00:42	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-69-4	W

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Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-6, 4' **Lab ID: 40168629001** Collected: 04/25/18 08:40 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 00:42	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 00:42	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	107	%	68-130		1	05/08/18 08:30	05/09/18 00:42	1868-53-7	
Toluene-d8 (S)	114	%	68-149		1	05/08/18 08:30	05/09/18 00:42	2037-26-5	
4-Bromofluorobenzene (S)	100	%	58-141		1	05/08/18 08:30	05/09/18 00:42	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**7.8**	%	0.10	0.10	1		05/18/18 14:29		

Sample: B-6, 8-1/2 **Lab ID: 40168629002** Collected: 04/25/18 08:52 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 01:05	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	56-23-5	W
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 01:05	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 01:05	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 01:05	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	106-46-7	W

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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-6, 8-1/2 **Lab ID: 40168629002** Collected: 04/25/18 08:52 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 01:05	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 01:05	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-69-4	W
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 01:05	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:05	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	97	%	68-130		1	05/08/18 08:30	05/09/18 01:05	1868-53-7	
Toluene-d8 (S)	104	%	68-149		1	05/08/18 08:30	05/09/18 01:05	2037-26-5	
4-Bromofluorobenzene (S)	90	%	58-141		1	05/08/18 08:30	05/09/18 01:05	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**16.9**	%	0.10	0.10	1		05/18/18 14:29		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-4, 2' **Lab ID: 40168629003** Collected: 04/26/18 08:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**3.6J**	mg/kg	6.1	1.3	1	05/11/18 08:17	05/14/18 11:21	7440-38-2	
Barium	**45.3**	mg/kg	0.61	0.18	1	05/11/18 08:17	05/14/18 11:21	7440-39-3	
Cadmium	**0.24J**	mg/kg	0.61	0.16	1	05/11/18 08:17	05/14/18 11:21	7440-43-9	
Chromium	**13.3**	mg/kg	1.2	0.34	1	05/11/18 08:17	05/14/18 11:21	7440-47-3	
Lead	**9.8**	mg/kg	1.6	0.53	1	05/11/18 08:17	05/14/18 11:21	7439-92-1	
Selenium	**<1.4**	mg/kg	6.1	1.4	1	05/11/18 08:17	05/14/18 11:21	7782-49-2	
Silver	**<0.42**	mg/kg	1.2	0.42	1	05/11/18 08:17	05/14/18 11:21	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**<0.013**	mg/kg	0.044	0.013	1	05/15/18 11:49	05/16/18 10:09	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**<4.8**	ug/kg	15.8	4.8	1	05/08/18 09:41	05/09/18 09:59	83-32-9	
Acenaphthylene	**<4.0**	ug/kg	13.5	4.0	1	05/08/18 09:41	05/09/18 09:59	208-96-8	
Anthracene	**<7.0**	ug/kg	23.3	7.0	1	05/08/18 09:41	05/09/18 09:59	120-12-7	
Benzo(a)anthracene	**<3.9**	ug/kg	13.0	3.9	1	05/08/18 09:41	05/09/18 09:59	56-55-3	
Benzo(a)pyrene	**<3.1**	ug/kg	10.3	3.1	1	05/08/18 09:41	05/09/18 09:59	50-32-8	
Benzo(b)fluoranthene	**<3.5**	ug/kg	11.5	3.5	1	05/08/18 09:41	05/09/18 09:59	205-99-2	
Benzo(g,h,i)perylene	**<2.5**	ug/kg	8.3	2.5	1	05/08/18 09:41	05/09/18 09:59	191-24-2	
Benzo(k)fluoranthene	**<3.1**	ug/kg	10.2	3.1	1	05/08/18 09:41	05/09/18 09:59	207-08-9	
Chrysene	**<4.1**	ug/kg	13.7	4.1	1	05/08/18 09:41	05/09/18 09:59	218-01-9	
Dibenz(a,h)anthracene	**<2.7**	ug/kg	9.1	2.7	1	05/08/18 09:41	05/09/18 09:59	53-70-3	
Fluoranthene	**<6.4**	ug/kg	21.3	6.4	1	05/08/18 09:41	05/09/18 09:59	206-44-0	
Fluorene	**<5.1**	ug/kg	16.9	5.1	1	05/08/18 09:41	05/09/18 09:59	86-73-7	
Indeno(1,2,3-cd)pyrene	**<2.7**	ug/kg	9.0	2.7	1	05/08/18 09:41	05/09/18 09:59	193-39-5	
1-Methylnaphthalene	**<4.9**	ug/kg	16.4	4.9	1	05/08/18 09:41	05/09/18 09:59	90-12-0	
2-Methylnaphthalene	**<6.1**	ug/kg	20.5	6.1	1	05/08/18 09:41	05/09/18 09:59	91-57-6	
Naphthalene	**<10.3**	ug/kg	34.4	10.3	1	05/08/18 09:41	05/09/18 09:59	91-20-3	
Phenanthrene	**<14.3**	ug/kg	47.5	14.3	1	05/08/18 09:41	05/09/18 09:59	85-01-8	
Pyrene	**<5.5**	ug/kg	18.4	5.5	1	05/08/18 09:41	05/09/18 09:59	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	60	%	10-115		1	05/08/18 09:41	05/09/18 09:59	321-60-8	
Terphenyl-d14 (S)	75	%	10-121		1	05/08/18 09:41	05/09/18 09:59	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 01:27	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	56-23-5	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-4, 2' **Lab ID: 40168629003** Collected: 04/26/18 08:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 01:27	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 01:27	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 01:27	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	106-46-7	W
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 01:27	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 01:27	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-69-4	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-4, 2' **Lab ID: 40168629003** Collected: 04/26/18 08:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 01:27	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:27	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	122	%	68-130		1	05/08/18 08:30	05/09/18 01:27	1868-53-7	
Toluene-d8 (S)	130	%	68-149		1	05/08/18 08:30	05/09/18 01:27	2037-26-5	
4-Bromofluorobenzene (S)	115	%	58-141		1	05/08/18 08:30	05/09/18 01:27	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**18.4**	%	0.10	0.10	1		05/18/18 14:29		

Sample: B-4, 5' **Lab ID: 40168629004** Collected: 04/26/18 08:15 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 02:12	74-83-9	1q,L1, M0,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	56-23-5	W
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 02:12	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 02:12	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 02:12	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	106-46-7	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-4, 5' **Lab ID: 40168629004** Collected: 04/26/18 08:15 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 02:12	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 02:12	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-69-4	W
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 02:12	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:12	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	107	%	68-130		1	05/08/18 08:30	05/09/18 02:12	1868-53-7	
Toluene-d8 (S)	113	%	68-149		1	05/08/18 08:30	05/09/18 02:12	2037-26-5	
4-Bromofluorobenzene (S)	100	%	58-141		1	05/08/18 08:30	05/09/18 02:12	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**46.6**	%	0.10	0.10	1		05/18/18 14:54		

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Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-1, 2' **Lab ID: 40168629005** Collected: 04/25/18 13:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**1.3J**	mg/kg	5.4	1.1	1	05/11/18 08:17	05/14/18 11:23	7440-38-2	
Barium	**23.2**	mg/kg	0.54	0.16	1	05/11/18 08:17	05/14/18 11:23	7440-39-3	
Cadmium	**<0.14**	mg/kg	0.54	0.14	1	05/11/18 08:17	05/14/18 11:23	7440-43-9	
Chromium	**9.4**	mg/kg	1.1	0.30	1	05/11/18 08:17	05/14/18 11:23	7440-47-3	
Lead	**11.7**	mg/kg	1.4	0.46	1	05/11/18 08:17	05/14/18 11:23	7439-92-1	
Selenium	**<1.2**	mg/kg	5.4	1.2	1	05/11/18 08:17	05/14/18 11:23	7782-49-2	
Silver	**<0.37**	mg/kg	1.1	0.37	1	05/11/18 08:17	05/14/18 11:23	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**<0.011**	mg/kg	0.036	0.011	1	05/15/18 11:49	05/16/18 10:11	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**<4.2**	ug/kg	13.9	4.2	1	05/08/18 09:41	05/09/18 13:42	83-32-9	
Acenaphthylene	**10.4J**	ug/kg	11.8	3.5	1	05/08/18 09:41	05/09/18 13:42	208-96-8	
Anthracene	**13.9J**	ug/kg	20.5	6.1	1	05/08/18 09:41	05/09/18 13:42	120-12-7	
Benzo(a)anthracene	**72.7**	ug/kg	11.4	3.4	1	05/08/18 09:41	05/09/18 13:42	56-55-3	
Benzo(a)pyrene	**93.6**	ug/kg	9.0	2.7	1	05/08/18 09:41	05/09/18 13:42	50-32-8	
Benzo(b)fluoranthene	**94.9**	ug/kg	10.1	3.0	1	05/08/18 09:41	05/09/18 13:42	205-99-2	
Benzo(g,h,i)perylene	**70.0**	ug/kg	7.3	2.2	1	05/08/18 09:41	05/09/18 13:42	191-24-2	
Benzo(k)fluoranthene	**83.4**	ug/kg	9.0	2.7	1	05/08/18 09:41	05/09/18 13:42	207-08-9	
Chrysene	**88.3**	ug/kg	12.1	3.6	1	05/08/18 09:41	05/09/18 13:42	218-01-9	
Dibenz(a,h)anthracene	**23.4**	ug/kg	8.0	2.4	1	05/08/18 09:41	05/09/18 13:42	53-70-3	
Fluoranthene	**128**	ug/kg	18.7	5.6	1	05/08/18 09:41	05/09/18 13:42	206-44-0	
Fluorene	**<4.5**	ug/kg	14.9	4.5	1	05/08/18 09:41	05/09/18 13:42	86-73-7	
Indeno(1,2,3-cd)pyrene	**63.1**	ug/kg	7.9	2.4	1	05/08/18 09:41	05/09/18 13:42	193-39-5	
1-Methylnaphthalene	**<4.3**	ug/kg	14.4	4.3	1	05/08/18 09:41	05/09/18 13:42	90-12-0	
2-Methylnaphthalene	**<5.4**	ug/kg	18.0	5.4	1	05/08/18 09:41	05/09/18 13:42	91-57-6	
Naphthalene	**<9.1**	ug/kg	30.3	9.1	1	05/08/18 09:41	05/09/18 13:42	91-20-3	
Phenanthrene	**32.9J**	ug/kg	41.8	12.5	1	05/08/18 09:41	05/09/18 13:42	85-01-8	
Pyrene	**116**	ug/kg	16.2	4.9	1	05/08/18 09:41	05/09/18 13:42	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	64	%	10-115		1	05/08/18 09:41	05/09/18 13:42	321-60-8	
Terphenyl-d14 (S)	78	%	10-121		1	05/08/18 09:41	05/09/18 13:42	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 01:50	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	56-23-5	W

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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-1, 2' **Lab ID: 40168629005** Collected: 04/25/18 13:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 01:50	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 01:50	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 01:50	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	106-46-7	W
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 01:50	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 01:50	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-69-4	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-1, 2' **Lab ID: 40168629005** Collected: 04/25/18 13:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 01:50	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 01:50	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	116	%	68-130		1	05/08/18 08:30	05/09/18 01:50	1868-53-7	
Toluene-d8 (S)	119	%	68-149		1	05/08/18 08:30	05/09/18 01:50	2037-26-5	
4-Bromofluorobenzene (S)	105	%	58-141		1	05/08/18 08:30	05/09/18 01:50	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**7.2**	%	0.10	0.10	1		05/18/18 14:54		

Sample: B-1, 8-1/2 **Lab ID: 40168629006** Collected: 04/25/18 13:40 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 02:35	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	56-23-5	W
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 02:35	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 02:35	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 02:35	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	106-46-7	W

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(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-1, 8-1/2 **Lab ID: 40168629006** Collected: 04/25/18 13:40 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 02:35	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 02:35	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-69-4	W
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	95-63-6	W
1,3,5-Trimethylbenzene	**31.2J**	ug/kg	69.1	28.8	1	05/08/18 08:30	05/09/18 02:35	108-67-8	
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 02:35	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:35	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	101	%	68-130		1	05/08/18 08:30	05/09/18 02:35	1868-53-7	
Toluene-d8 (S)	107	%	68-149		1	05/08/18 08:30	05/09/18 02:35	2037-26-5	
4-Bromofluorobenzene (S)	94	%	58-141		1	05/08/18 08:30	05/09/18 02:35	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**13.1**	%	0.10	0.10	1		05/18/18 14:54		

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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-2, 2' **Lab ID: 40168629007** Collected: 04/26/18 10:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**1.7J**	mg/kg	4.8	1.0	1	05/11/18 08:17	05/14/18 11:26	7440-38-2	
Barium	**19.4**	mg/kg	0.48	0.14	1	05/11/18 08:17	05/14/18 11:26	7440-39-3	
Cadmium	**0.15J**	mg/kg	0.48	0.13	1	05/11/18 08:17	05/14/18 11:26	7440-43-9	
Chromium	**6.2**	mg/kg	0.96	0.27	1	05/11/18 08:17	05/14/18 11:26	7440-47-3	
Lead	**2.7**	mg/kg	1.3	0.42	1	05/11/18 08:17	05/14/18 11:26	7439-92-1	
Selenium	**<1.1**	mg/kg	4.8	1.1	1	05/11/18 08:17	05/14/18 11:26	7782-49-2	
Silver	**<0.33**	mg/kg	0.96	0.33	1	05/11/18 08:17	05/14/18 11:26	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**<0.012**	mg/kg	0.039	0.012	1	05/15/18 11:49	05/16/18 10:14	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**<4.1**	ug/kg	13.8	4.1	1	05/08/18 09:41	05/09/18 14:00	83-32-9	
Acenaphthylene	**<3.5**	ug/kg	11.7	3.5	1	05/08/18 09:41	05/09/18 14:00	208-96-8	
Anthracene	**14.8J**	ug/kg	20.3	6.1	1	05/08/18 09:41	05/09/18 14:00	120-12-7	
Benzo(a)anthracene	**25.2**	ug/kg	11.3	3.4	1	05/08/18 09:41	05/09/18 14:00	56-55-3	
Benzo(a)pyrene	**20.1**	ug/kg	8.9	2.7	1	05/08/18 09:41	05/09/18 14:00	50-32-8	
Benzo(b)fluoranthene	**23.3**	ug/kg	10.0	3.0	1	05/08/18 09:41	05/09/18 14:00	205-99-2	
Benzo(g,h,i)perylene	**16.7**	ug/kg	7.2	2.2	1	05/08/18 09:41	05/09/18 14:00	191-24-2	
Benzo(k)fluoranthene	**21.2**	ug/kg	8.9	2.7	1	05/08/18 09:41	05/09/18 14:00	207-08-9	
Chrysene	**31.2**	ug/kg	11.9	3.6	1	05/08/18 09:41	05/09/18 14:00	218-01-9	
Dibenz(a,h)anthracene	**4.8J**	ug/kg	7.9	2.4	1	05/08/18 09:41	05/09/18 14:00	53-70-3	
Fluoranthene	**95.3**	ug/kg	18.5	5.6	1	05/08/18 09:41	05/09/18 14:00	206-44-0	M1
Fluorene	**<4.4**	ug/kg	14.7	4.4	1	05/08/18 09:41	05/09/18 14:00	86-73-7	
Indeno(1,2,3-cd)pyrene	**13.5**	ug/kg	7.8	2.3	1	05/08/18 09:41	05/09/18 14:00	193-39-5	
1-Methylnaphthalene	**<4.3**	ug/kg	14.3	4.3	1	05/08/18 09:41	05/09/18 14:00	90-12-0	
2-Methylnaphthalene	**<5.3**	ug/kg	17.8	5.3	1	05/08/18 09:41	05/09/18 14:00	91-57-6	
Naphthalene	**<9.0**	ug/kg	30.0	9.0	1	05/08/18 09:41	05/09/18 14:00	91-20-3	
Phenanthrene	**93.6**	ug/kg	41.4	12.4	1	05/08/18 09:41	05/09/18 14:00	85-01-8	
Pyrene	**70.1**	ug/kg	16.0	4.8	1	05/08/18 09:41	05/09/18 14:00	129-00-0	M1
Surrogates									
2-Fluorobiphenyl (S)	79	%	10-115		1	05/08/18 09:41	05/09/18 14:00	321-60-8	
Terphenyl-d14 (S)	96	%	10-121		1	05/08/18 09:41	05/09/18 14:00	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 02:57	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	56-23-5	W

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-2, 2' **Lab ID: 40168629007** Collected: 04/26/18 10:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 02:57	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 02:57	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 02:57	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	106-46-7	W
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 02:57	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 02:57	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-69-4	W

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(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-2, 2' **Lab ID: 40168629007** Collected: 04/26/18 10:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 02:57	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 02:57	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	110	%	68-130		1	05/08/18 08:30	05/09/18 02:57	1868-53-7	
Toluene-d8 (S)	120	%	68-149		1	05/08/18 08:30	05/09/18 02:57	2037-26-5	
4-Bromofluorobenzene (S)	104	%	58-141		1	05/08/18 08:30	05/09/18 02:57	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**6.0**	%	0.10	0.10	1		05/18/18 14:54		

Sample: B-2, 7' **Lab ID: 40168629008** Collected: 04/26/18 10:50 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 03:20	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	56-23-5	W
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 03:20	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 03:20	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 03:20	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	106-46-7	W

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Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-2, 7' **Lab ID: 40168629008** Collected: 04/26/18 10:50 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 03:20	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 03:20	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-69-4	W
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 03:20	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 03:20	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	116	%	68-130		1	05/08/18 08:30	05/09/18 03:20	1868-53-7	
Toluene-d8 (S)	125	%	68-149		1	05/08/18 08:30	05/09/18 03:20	2037-26-5	
4-Bromofluorobenzene (S)	110	%	58-141		1	05/08/18 08:30	05/09/18 03:20	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**20.5**	%	0.10	0.10	1		05/18/18 14:54		

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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-3, 2' **Lab ID: 40168629009** Collected: 04/26/18 14:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**4.0J**	mg/kg	5.5	1.2	1	05/11/18 08:17	05/14/18 11:28	7440-38-2	
Barium	**45.1**	mg/kg	0.55	0.17	1	05/11/18 08:17	05/14/18 11:28	7440-39-3	
Cadmium	**<0.15**	mg/kg	0.55	0.15	1	05/11/18 08:17	05/14/18 11:28	7440-43-9	
Chromium	**13.2**	mg/kg	1.1	0.31	1	05/11/18 08:17	05/14/18 11:28	7440-47-3	
Lead	**7.6**	mg/kg	1.4	0.48	1	05/11/18 08:17	05/14/18 11:28	7439-92-1	
Selenium	**<1.2**	mg/kg	5.5	1.2	1	05/11/18 08:17	05/14/18 11:28	7782-49-2	
Silver	**<0.38**	mg/kg	1.1	0.38	1	05/11/18 08:17	05/14/18 11:28	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.025J**	mg/kg	0.041	0.012	1	05/15/18 11:49	05/16/18 10:16	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**<4.5**	ug/kg	15.0	4.5	1	05/08/18 09:41	05/09/18 13:25	83-32-9	
Acenaphthylene	**<3.8**	ug/kg	12.8	3.8	1	05/08/18 09:41	05/09/18 13:25	208-96-8	
Anthracene	**<6.7**	ug/kg	22.1	6.7	1	05/08/18 09:41	05/09/18 13:25	120-12-7	
Benzo(a)anthracene	**5.8J**	ug/kg	12.4	3.7	1	05/08/18 09:41	05/09/18 13:25	56-55-3	
Benzo(a)pyrene	**6.3J**	ug/kg	9.8	2.9	1	05/08/18 09:41	05/09/18 13:25	50-32-8	
Benzo(b)fluoranthene	**5.7J**	ug/kg	11.0	3.3	1	05/08/18 09:41	05/09/18 13:25	205-99-2	
Benzo(g,h,i)perylene	**4.5J**	ug/kg	7.9	2.4	1	05/08/18 09:41	05/09/18 13:25	191-24-2	
Benzo(k)fluoranthene	**7.0J**	ug/kg	9.7	2.9	1	05/08/18 09:41	05/09/18 13:25	207-08-9	
Chrysene	**7.5J**	ug/kg	13.1	3.9	1	05/08/18 09:41	05/09/18 13:25	218-01-9	
Dibenz(a,h)anthracene	**<2.6**	ug/kg	8.7	2.6	1	05/08/18 09:41	05/09/18 13:25	53-70-3	
Fluoranthene	**14.4J**	ug/kg	20.3	6.1	1	05/08/18 09:41	05/09/18 13:25	206-44-0	
Fluorene	**<4.8**	ug/kg	16.1	4.8	1	05/08/18 09:41	05/09/18 13:25	86-73-7	
Indeno(1,2,3-cd)pyrene	**4.0J**	ug/kg	8.5	2.6	1	05/08/18 09:41	05/09/18 13:25	193-39-5	
1-Methylnaphthalene	**<4.7**	ug/kg	15.6	4.7	1	05/08/18 09:41	05/09/18 13:25	90-12-0	
2-Methylnaphthalene	**<5.8**	ug/kg	19.5	5.8	1	05/08/18 09:41	05/09/18 13:25	91-57-6	
Naphthalene	**<9.8**	ug/kg	32.7	9.8	1	05/08/18 09:41	05/09/18 13:25	91-20-3	
Phenanthrene	**<13.6**	ug/kg	45.2	13.6	1	05/08/18 09:41	05/09/18 13:25	85-01-8	
Pyrene	**12.9J**	ug/kg	17.5	5.3	1	05/08/18 09:41	05/09/18 13:25	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	66	%	10-115		1	05/08/18 09:41	05/09/18 13:25	321-60-8	
Terphenyl-d14 (S)	82	%	10-121		1	05/08/18 09:41	05/09/18 13:25	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 18:05	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	56-23-5	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-3, 2' **Lab ID: 40168629009** Collected: 04/26/18 14:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 18:05	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 18:05	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 18:05	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	106-46-7	W
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 18:05	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 18:05	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-69-4	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-3, 2' **Lab ID: 40168629009** Collected: 04/26/18 14:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 18:05	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:05	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	110	%	68-130		1	05/08/18 08:30	05/09/18 18:05	1868-53-7	
Toluene-d8 (S)	115	%	68-149		1	05/08/18 08:30	05/09/18 18:05	2037-26-5	
4-Bromofluorobenzene (S)	101	%	58-141		1	05/08/18 08:30	05/09/18 18:05	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**14.2**	%	0.10	0.10	1		05/18/18 14:54		

Sample: B-3, 6' **Lab ID: 40168629010** Collected: 04/26/18 14:20 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 18:28	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	56-23-5	W
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 18:28	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 18:28	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 18:28	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	106-46-7	W

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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-3, 6' **Lab ID: 40168629010** Collected: 04/26/18 14:20 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 18:28	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 18:28	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-69-4	W
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 18:28	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:28	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	107	%	68-130		1	05/08/18 08:30	05/09/18 18:28	1868-53-7	
Toluene-d8 (S)	113	%	68-149		1	05/08/18 08:30	05/09/18 18:28	2037-26-5	
4-Bromofluorobenzene (S)	98	%	58-141		1	05/08/18 08:30	05/09/18 18:28	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**20.1**	%	0.10	0.10	1		05/18/18 14:54		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-5, 3' **Lab ID: 40168629011** Collected: 05/02/18 07:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**5.5J**	mg/kg	6.0	1.3	1	05/11/18 08:17	05/14/18 11:31	7440-38-2	
Barium	**79.4**	mg/kg	0.60	0.18	1	05/11/18 08:17	05/14/18 11:31	7440-39-3	
Cadmium	**0.83**	mg/kg	0.60	0.16	1	05/11/18 08:17	05/14/18 11:31	7440-43-9	
Chromium	**11.1**	mg/kg	1.2	0.33	1	05/11/18 08:17	05/14/18 11:31	7440-47-3	
Lead	**66.8**	mg/kg	1.5	0.52	1	05/11/18 08:17	05/14/18 11:31	7439-92-1	
Selenium	**<1.3**	mg/kg	6.0	1.3	1	05/11/18 08:17	05/14/18 11:31	7782-49-2	
Silver	**0.66J**	mg/kg	1.2	0.41	1	05/11/18 08:17	05/14/18 11:31	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.68**	mg/kg	0.042	0.012	1	05/15/18 11:49	05/16/18 10:23	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**<4.7**	ug/kg	15.6	4.7	1	05/09/18 08:49	05/09/18 18:38	83-32-9	
Acenaphthylene	**73.2**	ug/kg	13.3	4.0	1	05/09/18 08:49	05/09/18 18:38	208-96-8	
Anthracene	**60.4**	ug/kg	22.9	6.9	1	05/09/18 08:49	05/09/18 18:38	120-12-7	
Benzo(a)anthracene	**188**	ug/kg	12.8	3.8	1	05/09/18 08:49	05/09/18 18:38	56-55-3	
Benzo(a)pyrene	**276**	ug/kg	10.1	3.0	1	05/09/18 08:49	05/09/18 18:38	50-32-8	
Benzo(b)fluoranthene	**248**	ug/kg	11.3	3.4	1	05/09/18 08:49	05/09/18 18:38	205-99-2	
Benzo(g,h,i)perylene	**176**	ug/kg	8.2	2.5	1	05/09/18 08:49	05/09/18 18:38	191-24-2	
Benzo(k)fluoranthene	**217**	ug/kg	10.1	3.0	1	05/09/18 08:49	05/09/18 18:38	207-08-9	
Chrysene	**190**	ug/kg	13.5	4.1	1	05/09/18 08:49	05/09/18 18:38	218-01-9	
Dibenz(a,h)anthracene	**58.9**	ug/kg	9.0	2.7	1	05/09/18 08:49	05/09/18 18:38	53-70-3	
Fluoranthene	**350**	ug/kg	21.0	6.3	1	05/09/18 08:49	05/09/18 18:38	206-44-0	
Fluorene	**6.9J**	ug/kg	16.6	5.0	1	05/09/18 08:49	05/09/18 18:38	86-73-7	
Indeno(1,2,3-cd)pyrene	**180**	ug/kg	8.8	2.7	1	05/09/18 08:49	05/09/18 18:38	193-39-5	
1-Methylnaphthalene	**36.1**	ug/kg	16.2	4.9	1	05/09/18 08:49	05/09/18 18:38	90-12-0	
2-Methylnaphthalene	**43.1**	ug/kg	20.1	6.0	1	05/09/18 08:49	05/09/18 18:38	91-57-6	
Naphthalene	**65.8**	ug/kg	33.9	10.2	1	05/09/18 08:49	05/09/18 18:38	91-20-3	
Phenanthrene	**141**	ug/kg	46.8	14.0	1	05/09/18 08:49	05/09/18 18:38	85-01-8	
Pyrene	**331**	ug/kg	18.1	5.4	1	05/09/18 08:49	05/09/18 18:38	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	61	%	10-115		1	05/09/18 08:49	05/09/18 18:38	321-60-8	
Terphenyl-d14 (S)	73	%	10-121		1	05/09/18 08:49	05/09/18 18:38	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 18:50	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	56-23-5	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-5, 3' **Lab ID: 40168629011** Collected: 05/02/18 07:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 18:50	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 18:50	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 18:50	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	106-46-7	W
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 18:50	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 18:50	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-69-4	W

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Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-5, 3' **Lab ID: 40168629011** Collected: 05/02/18 07:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 18:50	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 18:50	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	110	%	68-130		1	05/08/18 08:30	05/09/18 18:50	1868-53-7	
Toluene-d8 (S)	114	%	68-149		1	05/08/18 08:30	05/09/18 18:50	2037-26-5	
4-Bromofluorobenzene (S)	97	%	58-141		1	05/08/18 08:30	05/09/18 18:50	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**17.2**	%	0.10	0.10	1		05/18/18 14:54		

Sample: B-5, 6' **Lab ID: 40168629012** Collected: 05/02/18 08:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	71-43-2	W
Bromobenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	108-86-1	W
Bromochloromethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	74-97-5	W
Bromodichloromethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-27-4	W
Bromoform	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-25-2	W
Bromomethane	**<111**	ug/kg	397	111	1	05/08/18 08:30	05/09/18 19:13	74-83-9	1q,L1,W
n-Butylbenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	104-51-8	W
sec-Butylbenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	135-98-8	W
tert-Butylbenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	98-06-6	W
Carbon tetrachloride	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	56-23-5	W
Chlorobenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	108-90-7	W
Chloroethane	**<106**	ug/kg	397	106	1	05/08/18 08:30	05/09/18 19:13	75-00-3	1q,L1,W
Chloroform	**<73.7**	ug/kg	397	73.7	1	05/08/18 08:30	05/09/18 19:13	67-66-3	W
Chloromethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	74-87-3	W
2-Chlorotoluene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	95-49-8	W
4-Chlorotoluene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	106-43-4	W
1,2-Dibromo-3-chloropropane	**<145**	ug/kg	397	145	1	05/08/18 08:30	05/09/18 19:13	96-12-8	W
Dibromochloromethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	124-48-1	W
1,2-Dibromoethane (EDB)	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	106-93-4	W
Dibromomethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	74-95-3	W
1,2-Dichlorobenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	95-50-1	W
1,3-Dichlorobenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	541-73-1	W
1,4-Dichlorobenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	106-46-7	W

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-5, 6' **Lab ID: 40168629012** Collected: 05/02/18 08:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-71-8	W
1,1-Dichloroethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-34-3	W
1,2-Dichloroethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	107-06-2	W
1,1-Dichloroethene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-35-4	L1,W
cis-1,2-Dichloroethene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	156-59-2	W
trans-1,2-Dichloroethene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	156-60-5	W
1,2-Dichloropropane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	78-87-5	W
1,3-Dichloropropane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	142-28-9	W
2,2-Dichloropropane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	594-20-7	W
1,1-Dichloropropene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	563-58-6	W
cis-1,3-Dichloropropene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	10061-01-5	W
trans-1,3-Dichloropropene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	10061-02-6	W
Diisopropyl ether	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	108-20-3	W
Ethylbenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	100-41-4	W
Hexachloro-1,3-butadiene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	87-68-3	W
Isopropylbenzene (Cumene)	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	98-82-8	W
p-Isopropyltoluene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	99-87-6	W
Methylene Chloride	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-09-2	W
Methyl-tert-butyl ether	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	1634-04-4	W
Naphthalene	**<63.6**	ug/kg	397	63.6	1	05/08/18 08:30	05/09/18 19:13	91-20-3	W
n-Propylbenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	103-65-1	W
Styrene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	100-42-5	W
1,1,1,2-Tetrachloroethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	630-20-6	W
1,1,2,2-Tetrachloroethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	79-34-5	W
Tetrachloroethene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	127-18-4	W
Toluene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	108-88-3	W
1,2,3-Trichlorobenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	87-61-6	W
1,2,4-Trichlorobenzene	**<75.5**	ug/kg	397	75.5	1	05/08/18 08:30	05/09/18 19:13	120-82-1	W
1,1,1-Trichloroethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	71-55-6	W
1,1,2-Trichloroethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	79-00-5	W
Trichloroethene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	79-01-6	W
Trichlorofluoromethane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-69-4	W
1,2,3-Trichloropropane	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	96-18-4	W
1,2,4-Trimethylbenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	95-63-6	W
1,3,5-Trimethylbenzene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	108-67-8	W
Vinyl chloride	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	75-01-4	W
m&p-Xylene	**<79.4**	ug/kg	190	79.4	1	05/08/18 08:30	05/09/18 19:13	179601-23-1	W
o-Xylene	**<39.7**	ug/kg	95.2	39.7	1	05/08/18 08:30	05/09/18 19:13	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	92	%	68-130		1	05/08/18 08:30	05/09/18 19:13	1868-53-7	
Toluene-d8 (S)	93	%	68-149		1	05/08/18 08:30	05/09/18 19:13	2037-26-5	
4-Bromofluorobenzene (S)	77	%	58-141		1	05/08/18 08:30	05/09/18 19:13	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**69.4**	%	0.10	0.10	1		05/18/18 14:54		

REPORT OF LABORATORY ANALYSIS

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-7, 2-1/2 **Lab ID: 40168629013** Collected: 05/02/18 10:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**1.3J**	mg/kg	5.3	1.1	1	05/11/18 08:17	05/11/18 18:09	7440-38-2	
Barium	**6.2**	mg/kg	0.53	0.16	1	05/11/18 08:17	05/11/18 18:09	7440-39-3	
Cadmium	**0.15J**	mg/kg	0.53	0.14	1	05/11/18 08:17	05/11/18 18:09	7440-43-9	
Chromium	**3.0**	mg/kg	1.1	0.29	1	05/11/18 08:17	05/11/18 18:09	7440-47-3	
Lead	**4.1**	mg/kg	1.4	0.46	1	05/11/18 08:17	05/11/18 18:09	7439-92-1	
Selenium	**<1.2**	mg/kg	5.3	1.2	1	05/11/18 08:17	05/11/18 18:09	7782-49-2	
Silver	**<0.36**	mg/kg	1.1	0.36	1	05/11/18 08:17	05/11/18 18:09	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**<0.011**	mg/kg	0.036	0.011	1	05/15/18 11:49	05/16/18 10:25	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**<4.1**	ug/kg	13.6	4.1	1	05/09/18 08:49	05/09/18 18:55	83-32-9	
Acenaphthylene	**<3.5**	ug/kg	11.6	3.5	1	05/09/18 08:49	05/09/18 18:55	208-96-8	
Anthracene	**<6.0**	ug/kg	20.1	6.0	1	05/09/18 08:49	05/09/18 18:55	120-12-7	
Benzo(a)anthracene	**4.7J**	ug/kg	11.2	3.4	1	05/09/18 08:49	05/09/18 18:55	56-55-3	
Benzo(a)pyrene	**4.7J**	ug/kg	8.9	2.7	1	05/09/18 08:49	05/09/18 18:55	50-32-8	
Benzo(b)fluoranthene	**4.4J**	ug/kg	10	3.0	1	05/09/18 08:49	05/09/18 18:55	205-99-2	
Benzo(g,h,i)perylene	**2.4J**	ug/kg	7.2	2.1	1	05/09/18 08:49	05/09/18 18:55	191-24-2	
Benzo(k)fluoranthene	**4.1J**	ug/kg	8.8	2.7	1	05/09/18 08:49	05/09/18 18:55	207-08-9	
Chrysene	**6.5J**	ug/kg	11.8	3.6	1	05/09/18 08:49	05/09/18 18:55	218-01-9	
Dibenz(a,h)anthracene	**<2.4**	ug/kg	7.9	2.4	1	05/09/18 08:49	05/09/18 18:55	53-70-3	
Fluoranthene	**8.3J**	ug/kg	18.4	5.5	1	05/09/18 08:49	05/09/18 18:55	206-44-0	
Fluorene	**<4.4**	ug/kg	14.6	4.4	1	05/09/18 08:49	05/09/18 18:55	86-73-7	
Indeno(1,2,3-cd)pyrene	**<2.3**	ug/kg	7.8	2.3	1	05/09/18 08:49	05/09/18 18:55	193-39-5	
1-Methylnaphthalene	**<4.3**	ug/kg	14.2	4.3	1	05/09/18 08:49	05/09/18 18:55	90-12-0	
2-Methylnaphthalene	**<5.3**	ug/kg	17.7	5.3	1	05/09/18 08:49	05/09/18 18:55	91-57-6	
Naphthalene	**<8.9**	ug/kg	29.7	8.9	1	05/09/18 08:49	05/09/18 18:55	91-20-3	
Phenanthrene	**<12.3**	ug/kg	41.0	12.3	1	05/09/18 08:49	05/09/18 18:55	85-01-8	
Pyrene	**9.3J**	ug/kg	15.9	4.8	1	05/09/18 08:49	05/09/18 18:55	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	51	%	10-115		1	05/09/18 08:49	05/09/18 18:55	321-60-8	
Terphenyl-d14 (S)	63	%	10-121		1	05/09/18 08:49	05/09/18 18:55	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	71-43-2	W
Bromobenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	108-86-1	W
Bromochloromethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	74-97-5	W
Bromodichloromethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-27-4	W
Bromoform	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-25-2	W
Bromomethane	**<70.6**	ug/kg	253	70.6	1	05/08/18 08:30	05/09/18 16:12	74-83-9	1q,L1,W
n-Butylbenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	104-51-8	W
sec-Butylbenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	135-98-8	W
tert-Butylbenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	98-06-6	W
Carbon tetrachloride	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	56-23-5	W

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Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-7, 2-1/2 **Lab ID: 40168629013** Collected: 05/02/18 10:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	108-90-7	W
Chloroethane	**<67.7**	ug/kg	253	67.7	1	05/08/18 08:30	05/09/18 16:12	75-00-3	1q,L1,W
Chloroform	**<46.9**	ug/kg	253	46.9	1	05/08/18 08:30	05/09/18 16:12	67-66-3	W
Chloromethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	74-87-3	W
2-Chlorotoluene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	95-49-8	W
4-Chlorotoluene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	106-43-4	W
1,2-Dibromo-3-chloropropane	**<92.2**	ug/kg	253	92.2	1	05/08/18 08:30	05/09/18 16:12	96-12-8	W
Dibromochloromethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	106-93-4	W
Dibromomethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	74-95-3	W
1,2-Dichlorobenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	95-50-1	W
1,3-Dichlorobenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	541-73-1	W
1,4-Dichlorobenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	106-46-7	W
Dichlorodifluoromethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-71-8	W
1,1-Dichloroethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-34-3	W
1,2-Dichloroethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	107-06-2	W
1,1-Dichloroethene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	156-59-2	W
trans-1,2-Dichloroethene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	156-60-5	W
1,2-Dichloropropane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	78-87-5	W
1,3-Dichloropropane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	142-28-9	W
2,2-Dichloropropane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	594-20-7	W
1,1-Dichloropropene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	563-58-6	W
cis-1,3-Dichloropropene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	10061-01-5	W
trans-1,3-Dichloropropene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	10061-02-6	W
Diisopropyl ether	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	108-20-3	W
Ethylbenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	100-41-4	W
Hexachloro-1,3-butadiene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 21:51	87-68-3	W
Isopropylbenzene (Cumene)	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	98-82-8	W
p-Isopropyltoluene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	99-87-6	W
Methylene Chloride	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-09-2	W
Methyl-tert-butyl ether	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	1634-04-4	W
Naphthalene	**<40.4**	ug/kg	253	40.4	1	05/08/18 08:30	05/09/18 16:12	91-20-3	W
n-Propylbenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	103-65-1	W
Styrene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	79-34-5	W
Tetrachloroethene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	127-18-4	W
Toluene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	108-88-3	W
1,2,3-Trichlorobenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	87-61-6	W
1,2,4-Trichlorobenzene	**<48.0**	ug/kg	253	48.0	1	05/08/18 08:30	05/09/18 16:12	120-82-1	W
1,1,1-Trichloroethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	71-55-6	W
1,1,2-Trichloroethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	79-00-5	W
Trichloroethene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	79-01-6	W
Trichlorofluoromethane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-69-4	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-7, 2-1/2 **Lab ID: 40168629013** Collected: 05/02/18 10:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	96-18-4	W
1,2,4-Trimethylbenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	95-63-6	W
1,3,5-Trimethylbenzene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	108-67-8	W
Vinyl chloride	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	75-01-4	W
m&p-Xylene	**<50.5**	ug/kg	121	50.5	1	05/08/18 08:30	05/09/18 16:12	179601-23-1	W
o-Xylene	**<25.3**	ug/kg	60.6	25.3	1	05/08/18 08:30	05/09/18 16:12	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	136	%	68-130		1	05/08/18 08:30	05/09/18 16:12	1868-53-7	S1
Toluene-d8 (S)	141	%	68-149		1	05/08/18 08:30	05/09/18 16:12	2037-26-5	
4-Bromofluorobenzene (S)	122	%	58-141		1	05/08/18 08:30	05/09/18 16:12	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**5.5**	%	0.10	0.10	1		05/18/18 14:54		

Sample: B-7, 5' **Lab ID: 40168629014** Collected: 05/02/18 10:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 16:35	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	56-23-5	W
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 16:35	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 16:35	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 16:35	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	106-46-7	W

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-7, 5' **Lab ID: 40168629014** Collected: 05/02/18 10:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 16:35	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 16:35	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-69-4	W
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 16:35	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:35	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	124	%	68-130		1	05/08/18 08:30	05/09/18 16:35	1868-53-7	
Toluene-d8 (S)	127	%	68-149		1	05/08/18 08:30	05/09/18 16:35	2037-26-5	
4-Bromofluorobenzene (S)	110	%	58-141		1	05/08/18 08:30	05/09/18 16:35	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**16.3**	%	0.10	0.10	1		05/18/18 14:54		

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Green Bay, WI 54302
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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-8, 2-1/2 **Lab ID: 40168629015** Collected: 05/02/18 12:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**1.9J**	mg/kg	5.4	1.1	1	05/11/18 08:17	05/14/18 11:33	7440-38-2	
Barium	**10.1**	mg/kg	0.54	0.16	1	05/11/18 08:17	05/14/18 11:33	7440-39-3	
Cadmium	**<0.14**	mg/kg	0.54	0.14	1	05/11/18 08:17	05/14/18 11:33	7440-43-9	
Chromium	**3.9**	mg/kg	1.1	0.30	1	05/11/18 08:17	05/14/18 11:33	7440-47-3	
Lead	**9.3**	mg/kg	1.4	0.47	1	05/11/18 08:17	05/14/18 11:33	7439-92-1	
Selenium	**<1.2**	mg/kg	5.4	1.2	1	05/11/18 08:17	05/14/18 11:33	7782-49-2	
Silver	**<0.37**	mg/kg	1.1	0.37	1	05/11/18 08:17	05/14/18 11:33	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.042**	mg/kg	0.039	0.012	1	05/15/18 11:49	05/16/18 10:28	7439-97-6	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546								
Acenaphthene	**<4.6**	ug/kg	15.2	4.6	1	05/09/18 08:49	05/10/18 13:47	83-32-9	
Acenaphthylene	**<3.9**	ug/kg	12.9	3.9	1	05/09/18 08:49	05/10/18 13:47	208-96-8	
Anthracene	**<6.7**	ug/kg	22.3	6.7	1	05/09/18 08:49	05/10/18 13:47	120-12-7	
Benzo(a)anthracene	**17.5**	ug/kg	12.5	3.7	1	05/09/18 08:49	05/10/18 13:47	56-55-3	
Benzo(a)pyrene	**20.8**	ug/kg	9.8	3.0	1	05/09/18 08:49	05/10/18 13:47	50-32-8	
Benzo(b)fluoranthene	**19.2**	ug/kg	11.1	3.3	1	05/09/18 08:49	05/10/18 13:47	205-99-2	
Benzo(g,h,i)perylene	**15.8**	ug/kg	8.0	2.4	1	05/09/18 08:49	05/10/18 13:47	191-24-2	
Benzo(k)fluoranthene	**17.3**	ug/kg	9.8	3.0	1	05/09/18 08:49	05/10/18 13:47	207-08-9	
Chrysene	**20.3**	ug/kg	13.2	4.0	1	05/09/18 08:49	05/10/18 13:47	218-01-9	
Dibenz(a,h)anthracene	**4.7J**	ug/kg	8.8	2.6	1	05/09/18 08:49	05/10/18 13:47	53-70-3	
Fluoranthene	**30.4**	ug/kg	20.5	6.1	1	05/09/18 08:49	05/10/18 13:47	206-44-0	
Fluorene	**<4.9**	ug/kg	16.2	4.9	1	05/09/18 08:49	05/10/18 13:47	86-73-7	
Indeno(1,2,3-cd)pyrene	**13.2**	ug/kg	8.6	2.6	1	05/09/18 08:49	05/10/18 13:47	193-39-5	
1-Methylnaphthalene	**<4.7**	ug/kg	15.8	4.7	1	05/09/18 08:49	05/10/18 13:47	90-12-0	
2-Methylnaphthalene	**<5.9**	ug/kg	19.6	5.9	1	05/09/18 08:49	05/10/18 13:47	91-57-6	
Naphthalene	**<9.9**	ug/kg	33.0	9.9	1	05/09/18 08:49	05/10/18 13:47	91-20-3	
Phenanthrene	**<13.7**	ug/kg	45.6	13.7	1	05/09/18 08:49	05/10/18 13:47	85-01-8	
Pyrene	**28.2**	ug/kg	17.6	5.3	1	05/09/18 08:49	05/10/18 13:47	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	49	%	10-115		1	05/09/18 08:49	05/10/18 13:47	321-60-8	
Terphenyl-d14 (S)	62	%	10-121		1	05/09/18 08:49	05/10/18 13:47	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	71-43-2	W
Bromobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	108-86-1	W
Bromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	74-97-5	W
Bromodichloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-27-4	W
Bromoform	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-25-2	W
Bromomethane	**<69.9**	ug/kg	250	69.9	1	05/08/18 08:30	05/09/18 16:57	74-83-9	1q,L1,W
n-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	104-51-8	W
sec-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	135-98-8	W
tert-Butylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	98-06-6	W
Carbon tetrachloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	56-23-5	W

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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-8, 2-1/2 **Lab ID: 40168629015** Collected: 05/02/18 12:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Chlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	108-90-7	W
Chloroethane	**<67.0**	ug/kg	250	67.0	1	05/08/18 08:30	05/09/18 16:57	75-00-3	1q,L1,W
Chloroform	**<46.4**	ug/kg	250	46.4	1	05/08/18 08:30	05/09/18 16:57	67-66-3	W
Chloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	74-87-3	W
2-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	95-49-8	W
4-Chlorotoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	106-43-4	W
1,2-Dibromo-3-chloropropane	**<91.2**	ug/kg	250	91.2	1	05/08/18 08:30	05/09/18 16:57	96-12-8	W
Dibromochloromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	124-48-1	W
1,2-Dibromoethane (EDB)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	106-93-4	W
Dibromomethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	74-95-3	W
1,2-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	95-50-1	W
1,3-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	541-73-1	W
1,4-Dichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	106-46-7	W
Dichlorodifluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-71-8	W
1,1-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-34-3	W
1,2-Dichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	107-06-2	W
1,1-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-35-4	L1,W
cis-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	156-59-2	W
trans-1,2-Dichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	156-60-5	W
1,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	78-87-5	W
1,3-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	142-28-9	W
2,2-Dichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	594-20-7	W
1,1-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	563-58-6	W
cis-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	10061-01-5	W
trans-1,3-Dichloropropene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	10061-02-6	W
Diisopropyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	108-20-3	W
Ethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	100-41-4	W
Hexachloro-1,3-butadiene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	87-68-3	W
Isopropylbenzene (Cumene)	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	98-82-8	W
p-Isopropyltoluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	99-87-6	W
Methylene Chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-09-2	W
Methyl-tert-butyl ether	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	1634-04-4	W
Naphthalene	**<40.0**	ug/kg	250	40.0	1	05/08/18 08:30	05/09/18 16:57	91-20-3	W
n-Propylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	103-65-1	W
Styrene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	100-42-5	W
1,1,1,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	630-20-6	W
1,1,2,2-Tetrachloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	79-34-5	W
Tetrachloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	127-18-4	W
Toluene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	108-88-3	W
1,2,3-Trichlorobenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	87-61-6	W
1,2,4-Trichlorobenzene	**<47.6**	ug/kg	250	47.6	1	05/08/18 08:30	05/09/18 16:57	120-82-1	W
1,1,1-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	71-55-6	W
1,1,2-Trichloroethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	79-00-5	W
Trichloroethene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	79-01-6	W
Trichlorofluoromethane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-69-4	W

REPORT OF LABORATORY ANALYSIS

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-8, 2-1/2 **Lab ID: 40168629015** Collected: 05/02/18 12:00 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
1,2,3-Trichloropropane	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	96-18-4	W
1,2,4-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	95-63-6	W
1,3,5-Trimethylbenzene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	108-67-8	W
Vinyl chloride	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	75-01-4	W
m&p-Xylene	**<50.0**	ug/kg	120	50.0	1	05/08/18 08:30	05/09/18 16:57	179601-23-1	W
o-Xylene	**<25.0**	ug/kg	60.0	25.0	1	05/08/18 08:30	05/09/18 16:57	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	115	%	68-130		1	05/08/18 08:30	05/09/18 16:57	1868-53-7	
Toluene-d8 (S)	125	%	68-149		1	05/08/18 08:30	05/09/18 16:57	2037-26-5	
4-Bromofluorobenzene (S)	107	%	58-141		1	05/08/18 08:30	05/09/18 16:57	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**14.9**	%	0.10	0.10	1		05/18/18 14:55		

Sample: B-8, 6' **Lab ID: 40168629016** Collected: 05/02/18 12:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Benzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	71-43-2	W
Bromobenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	108-86-1	W
Bromochloromethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	74-97-5	W
Bromodichloromethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-27-4	W
Bromoform	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-25-2	W
Bromomethane	**<83.2**	ug/kg	298	83.2	1	05/08/18 08:30	05/09/18 17:20	74-83-9	1q,L1,W
n-Butylbenzene	**583**	ug/kg	282	117	1	05/08/18 08:30	05/09/18 17:20	104-51-8	
sec-Butylbenzene	**267J**	ug/kg	282	117	1	05/08/18 08:30	05/09/18 17:20	135-98-8	
tert-Butylbenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	98-06-6	W
Carbon tetrachloride	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	56-23-5	W
Chlorobenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	108-90-7	W
Chloroethane	**<79.8**	ug/kg	298	79.8	1	05/08/18 08:30	05/09/18 17:20	75-00-3	1q,L1,W
Chloroform	**<55.3**	ug/kg	298	55.3	1	05/08/18 08:30	05/09/18 17:20	67-66-3	W
Chloromethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	74-87-3	W
2-Chlorotoluene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	95-49-8	W
4-Chlorotoluene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	106-43-4	W
1,2-Dibromo-3-chloropropane	**<109**	ug/kg	298	109	1	05/08/18 08:30	05/09/18 17:20	96-12-8	W
Dibromochloromethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	124-48-1	W
1,2-Dibromoethane (EDB)	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	106-93-4	W
Dibromomethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	74-95-3	W
1,2-Dichlorobenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	95-50-1	W
1,3-Dichlorobenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	541-73-1	W
1,4-Dichlorobenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	106-46-7	W

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Green Bay, WI 54302
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ANALYTICAL RESULTS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Sample: B-8, 6' **Lab ID: 40168629016** Collected: 05/02/18 12:30 Received: 05/05/18 07:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Dichlorodifluoromethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-71-8	W
1,1-Dichloroethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-34-3	W
1,2-Dichloroethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	107-06-2	W
1,1-Dichloroethene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-35-4	L1,W
cis-1,2-Dichloroethene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	156-59-2	W
trans-1,2-Dichloroethene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	156-60-5	W
1,2-Dichloropropane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	78-87-5	W
1,3-Dichloropropane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	142-28-9	W
2,2-Dichloropropane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	594-20-7	W
1,1-Dichloropropene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	563-58-6	W
cis-1,3-Dichloropropene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	10061-01-5	W
trans-1,3-Dichloropropene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	10061-02-6	W
Diisopropyl ether	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	108-20-3	W
Ethylbenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	100-41-4	W
Hexachloro-1,3-butadiene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	87-68-3	W
Isopropylbenzene (Cumene)	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	98-82-8	W
p-Isopropyltoluene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	99-87-6	W
Methylene Chloride	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-09-2	W
Methyl-tert-butyl ether	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	1634-04-4	W
Naphthalene	**863J**	ug/kg	1170	188	1	05/08/18 08:30	05/09/18 17:20	91-20-3	
n-Propylbenzene	**199J**	ug/kg	282	117	1	05/08/18 08:30	05/09/18 17:20	103-65-1	
Styrene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	100-42-5	W
1,1,1,2-Tetrachloroethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	630-20-6	W
1,1,2,2-Tetrachloroethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	79-34-5	W
Tetrachloroethene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	127-18-4	W
Toluene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	108-88-3	W
1,2,3-Trichlorobenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	87-61-6	W
1,2,4-Trichlorobenzene	**<56.6**	ug/kg	298	56.6	1	05/08/18 08:30	05/09/18 17:20	120-82-1	W
1,1,1-Trichloroethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	71-55-6	W
1,1,2-Trichloroethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	79-00-5	W
Trichloroethene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	79-01-6	W
Trichlorofluoromethane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-69-4	W
1,2,3-Trichloropropane	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	96-18-4	W
1,2,4-Trimethylbenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	95-63-6	W
1,3,5-Trimethylbenzene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	108-67-8	W
Vinyl chloride	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	75-01-4	W
m&p-Xylene	**<59.5**	ug/kg	143	59.5	1	05/08/18 08:30	05/09/18 17:20	179601-23-1	W
o-Xylene	**<29.8**	ug/kg	71.4	29.8	1	05/08/18 08:30	05/09/18 17:20	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	81	%	68-130		1	05/08/18 08:30	05/09/18 17:20	1868-53-7	
Toluene-d8 (S)	85	%	68-149		1	05/08/18 08:30	05/09/18 17:20	2037-26-5	
4-Bromofluorobenzene (S)	71	%	58-141		1	05/08/18 08:30	05/09/18 17:20	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**74.6**	%	0.10	0.10	1		05/18/18 14:55		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

QC Batch: 288898 Analysis Method: EPA 7471
QC Batch Method: EPA 7471 Analysis Description: 7471 Mercury
Associated Lab Samples: 40168629001, 40168629003, 40168629005, 40168629007, 40168629009, 40168629011, 40168629013, 40168629015

METHOD BLANK: 1690498 Matrix: Solid
Associated Lab Samples: 40168629001, 40168629003, 40168629005, 40168629007, 40168629009, 40168629011, 40168629013, 40168629015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	<0.011	0.037	05/16/18 09:28	

LABORATORY CONTROL SAMPLE: 1690499

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.83	0.87	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1690500 1690501

Parameter	Units	40168662011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	<0.012	.9	.9	0.94	0.98	104	108	85-115	4	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

QC Batch: 288555 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 40168629001, 40168629003, 40168629005, 40168629007, 40168629009, 40168629011, 40168629013, 40168629015

METHOD BLANK: 1688697 Matrix: Solid
Associated Lab Samples: 40168629001, 40168629003, 40168629005, 40168629007, 40168629009, 40168629011, 40168629013, 40168629015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	<1.0	5.0	05/11/18 18:04	
Barium	mg/kg	<0.15	0.50	05/11/18 18:04	
Cadmium	mg/kg	<0.13	0.50	05/11/18 18:04	
Chromium	mg/kg	<0.28	1.0	05/11/18 18:04	
Lead	mg/kg	<0.43	1.3	05/11/18 18:04	
Selenium	mg/kg	<1.1	5.0	05/11/18 18:04	
Silver	mg/kg	<0.34	1.0	05/11/18 18:04	

LABORATORY CONTROL SAMPLE: 1688698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	50.0	100	80-120	
Barium	mg/kg	50	49.3	99	80-120	
Cadmium	mg/kg	50	50.7	101	80-120	
Chromium	mg/kg	50	49.8	100	80-120	
Lead	mg/kg	50	51.0	102	80-120	
Selenium	mg/kg	50	52.8	106	80-120	
Silver	mg/kg	25	26.3	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1688699 1688700

Parameter	Units	40168629013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	1.3J	52.6	52.6	51.9	52.2	96	97	75-125	1	20	
Barium	mg/kg	6.2	52.6	52.6	55.0	55.3	93	93	75-125	0	20	
Cadmium	mg/kg	0.15J	52.6	52.6	51.6	52.5	98	100	75-125	2	20	
Chromium	mg/kg	3.0	52.6	52.6	52.1	50.8	93	91	75-125	3	20	
Lead	mg/kg	4.1	52.6	52.6	53.2	52.7	93	92	75-125	1	20	
Selenium	mg/kg	<1.2	52.6	52.6	53.0	53.0	101	101	75-125	0	20	
Silver	mg/kg	<0.36	26.4	26.4	27.0	27.1	103	103	75-125	0	20	

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

QC Batch: 288166 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV Med Level Normal List
Associated Lab Samples: 40168629001, 40168629002, 40168629003, 40168629004, 40168629005, 40168629006, 40168629007, 40168629008, 40168629009, 40168629010, 40168629011, 40168629012, 40168629013, 40168629014, 40168629015, 40168629016

METHOD BLANK: 1686068 Matrix: Solid
Associated Lab Samples: 40168629001, 40168629002, 40168629003, 40168629004, 40168629005, 40168629006, 40168629007, 40168629008, 40168629009, 40168629010, 40168629011, 40168629012, 40168629013, 40168629014, 40168629015, 40168629016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<13.7	50.0	05/08/18 18:18	
1,1,1-Trichloroethane	ug/kg	<14.4	50.0	05/08/18 18:18	
1,1,2,2-Tetrachloroethane	ug/kg	<17.5	50.0	05/08/18 18:18	
1,1,2-Trichloroethane	ug/kg	<20.2	50.0	05/08/18 18:18	
1,1-Dichloroethane	ug/kg	<17.6	50.0	05/08/18 18:18	
1,1-Dichloroethene	ug/kg	<17.6	50.0	05/08/18 18:18	
1,1-Dichloropropene	ug/kg	<14.0	50.0	05/08/18 18:18	
1,2,3-Trichlorobenzene	ug/kg	<17.0	50.0	05/08/18 18:18	
1,2,3-Trichloropropane	ug/kg	<22.3	50.0	05/08/18 18:18	
1,2,4-Trichlorobenzene	ug/kg	<47.6	250	05/08/18 18:18	
1,2,4-Trimethylbenzene	ug/kg	<12.2	50.0	05/08/18 18:18	
1,2-Dibromo-3-chloropropane	ug/kg	<91.2	250	05/08/18 18:18	
1,2-Dibromoethane (EDB)	ug/kg	<14.7	50.0	05/08/18 18:18	
1,2-Dichlorobenzene	ug/kg	<16.2	50.0	05/08/18 18:18	
1,2-Dichloroethane	ug/kg	<15.0	50.0	05/08/18 18:18	
1,2-Dichloropropane	ug/kg	<16.8	50.0	05/08/18 18:18	
1,3,5-Trimethylbenzene	ug/kg	<14.5	50.0	05/08/18 18:18	
1,3-Dichlorobenzene	ug/kg	<13.2	50.0	05/08/18 18:18	
1,3-Dichloropropane	ug/kg	<12.0	50.0	05/08/18 18:18	
1,4-Dichlorobenzene	ug/kg	<15.9	50.0	05/08/18 18:18	
2,2-Dichloropropane	ug/kg	<12.6	50.0	05/08/18 18:18	
2-Chlorotoluene	ug/kg	<15.8	50.0	05/08/18 18:18	
4-Chlorotoluene	ug/kg	<13.0	50.0	05/08/18 18:18	
Benzene	ug/kg	<9.2	20.0	05/08/18 18:18	
Bromobenzene	ug/kg	<20.6	50.0	05/08/18 18:18	
Bromochloromethane	ug/kg	<21.4	50.0	05/08/18 18:18	
Bromodichloromethane	ug/kg	<9.8	50.0	05/08/18 18:18	
Bromoform	ug/kg	<19.8	50.0	05/08/18 18:18	
Bromomethane	ug/kg	<69.9	250	05/08/18 18:18	
Carbon tetrachloride	ug/kg	<12.1	50.0	05/08/18 18:18	
Chlorobenzene	ug/kg	<14.8	50.0	05/08/18 18:18	
Chloroethane	ug/kg	<67.0	250	05/08/18 18:18	
Chloroform	ug/kg	<46.4	250	05/08/18 18:18	
Chloromethane	ug/kg	<20.4	50.0	05/08/18 18:18	
cis-1,2-Dichloroethene	ug/kg	<16.6	50.0	05/08/18 18:18	
cis-1,3-Dichloropropene	ug/kg	<16.6	50.0	05/08/18 18:18	
Dibromochloromethane	ug/kg	<17.9	50.0	05/08/18 18:18	
Dibromomethane	ug/kg	<19.3	50.0	05/08/18 18:18	

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

METHOD BLANK: 1686068 Matrix: Solid

Associated Lab Samples: 40168629001, 40168629002, 40168629003, 40168629004, 40168629005, 40168629006, 40168629007, 40168629008, 40168629009, 40168629010, 40168629011, 40168629012, 40168629013, 40168629014, 40168629015, 40168629016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/kg	<12.3	50.0	05/08/18 18:18	
Diisopropyl ether	ug/kg	<17.7	50.0	05/08/18 18:18	
Ethylbenzene	ug/kg	<12.4	50.0	05/08/18 18:18	
Hexachloro-1,3-butadiene	ug/kg	<24.5	50.0	05/08/18 18:18	
Isopropylbenzene (Cumene)	ug/kg	<12.6	50.0	05/08/18 18:18	
m&p-Xylene	ug/kg	<34.4	100	05/08/18 18:18	
Methyl-tert-butyl ether	ug/kg	<12.7	50.0	05/08/18 18:18	
Methylene Chloride	ug/kg	<16.2	50.0	05/08/18 18:18	
n-Butylbenzene	ug/kg	<10.5	50.0	05/08/18 18:18	
n-Propylbenzene	ug/kg	<11.6	50.0	05/08/18 18:18	
Naphthalene	ug/kg	<40.0	250	05/08/18 18:18	
o-Xylene	ug/kg	<14.0	50.0	05/08/18 18:18	
p-Isopropyltoluene	ug/kg	<12.0	50.0	05/08/18 18:18	
sec-Butylbenzene	ug/kg	<11.9	50.0	05/08/18 18:18	
Styrene	ug/kg	<9.0	50.0	05/08/18 18:18	
tert-Butylbenzene	ug/kg	<9.5	50.0	05/08/18 18:18	
Tetrachloroethene	ug/kg	<12.9	50.0	05/08/18 18:18	
Toluene	ug/kg	<11.2	50.0	05/08/18 18:18	
trans-1,2-Dichloroethene	ug/kg	<16.5	50.0	05/08/18 18:18	
trans-1,3-Dichloropropene	ug/kg	<14.4	50.0	05/08/18 18:18	
Trichloroethene	ug/kg	<23.6	50.0	05/08/18 18:18	
Trichlorofluoromethane	ug/kg	<24.7	50.0	05/08/18 18:18	
Vinyl chloride	ug/kg	<21.1	50.0	05/08/18 18:18	
4-Bromofluorobenzene (S)	%	89	58-141	05/08/18 18:18	
Dibromofluoromethane (S)	%	95	68-130	05/08/18 18:18	
Toluene-d8 (S)	%	104	68-149	05/08/18 18:18	

LABORATORY CONTROL SAMPLE: 1686069

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	2500	2430	97	61-122	
1,1,2,2-Tetrachloroethane	ug/kg	2500	2270	91	73-130	
1,1,2-Trichloroethane	ug/kg	2500	2580	103	70-130	
1,1-Dichloroethane	ug/kg	2500	2630	105	63-124	
1,1-Dichloroethene	ug/kg	2500	3040	122	53-117	L1
1,2,4-Trichlorobenzene	ug/kg	2500	2500	100	78-130	
1,2-Dibromo-3-chloropropane	ug/kg	2500	1820	73	49-140	
1,2-Dibromoethane (EDB)	ug/kg	2500	2560	102	70-130	
1,2-Dichlorobenzene	ug/kg	2500	2660	106	70-130	
1,2-Dichloroethane	ug/kg	2500	2550	102	56-135	
1,2-Dichloropropane	ug/kg	2500	2650	106	77-122	
1,3-Dichlorobenzene	ug/kg	2500	2620	105	70-130	

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

LABORATORY CONTROL SAMPLE: 1686069

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/kg	2500	2600	104	70-130	
Benzene	ug/kg	2500	2600	104	66-130	
Bromodichloromethane	ug/kg	2500	2420	97	62-135	
Bromoform	ug/kg	2500	2120	85	68-130	
Bromomethane	ug/kg	2500	3540	142	29-137	L1
Carbon tetrachloride	ug/kg	2500	2500	100	57-130	
Chlorobenzene	ug/kg	2500	2700	108	70-130	
Chloroethane	ug/kg	2500	3620	145	36-144	L1
Chloroform	ug/kg	2500	2600	104	69-115	
Chloromethane	ug/kg	2500	2110	85	32-126	
cis-1,2-Dichloroethene	ug/kg	2500	2610	104	65-130	
cis-1,3-Dichloropropene	ug/kg	2500	2350	94	70-130	
Dibromochloromethane	ug/kg	2500	2450	98	70-130	
Dichlorodifluoromethane	ug/kg	2500	1830	73	10-99	
Ethylbenzene	ug/kg	2500	2700	108	82-122	
Isopropylbenzene (Cumene)	ug/kg	2500	2710	108	70-130	
m&p-Xylene	ug/kg	5000	5440	109	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2290	91	63-134	
Methylene Chloride	ug/kg	2500	2850	114	56-123	
o-Xylene	ug/kg	2500	2720	109	70-130	
Styrene	ug/kg	2500	2730	109	70-130	
Tetrachloroethene	ug/kg	2500	2750	110	70-131	
Toluene	ug/kg	2500	2690	108	80-120	
trans-1,2-Dichloroethene	ug/kg	2500	2810	112	66-130	
trans-1,3-Dichloropropene	ug/kg	2500	2240	90	68-130	
Trichloroethene	ug/kg	2500	2700	108	70-130	
Trichlorofluoromethane	ug/kg	2500	3170	127	37-149	
Vinyl chloride	ug/kg	2500	2520	101	43-128	
4-Bromofluorobenzene (S)	%			93	58-141	
Dibromofluoromethane (S)	%			101	68-130	
Toluene-d8 (S)	%			103	68-149	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1686070 1686072

Parameter	Units	40168629004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/kg	<25.0	2340	2340	2020	2010	86	86	57-123	0	20	
1,1,2,2-Tetrachloroethane	ug/kg	<25.0	2340	2340	2110	2370	90	102	73-135	12	20	
1,1,2-Trichloroethane	ug/kg	<25.0	2340	2340	2290	2500	98	107	70-130	9	20	
1,1-Dichloroethane	ug/kg	<25.0	2340	2340	2280	2390	98	102	63-124	4	20	
1,1-Dichloroethene	ug/kg	<25.0	2340	2340	2460	2360	105	101	48-117	4	23	
1,2,4-Trichlorobenzene	ug/kg	<47.6	2340	2340	2730	2830	117	121	78-145	4	20	
1,2-Dibromo-3-chloropropane	ug/kg	<91.2	2340	2340	1850	1870	79	80	38-168	1	22	
1,2-Dibromoethane (EDB)	ug/kg	<25.0	2340	2340	2360	2480	101	106	70-130	5	20	

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1686070 1686072

Parameter	Units	40168629004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dichlorobenzene	ug/kg	<25.0	2340	2340	2670	2780	114	119	70-130	4	20	
1,2-Dichloroethane	ug/kg	<25.0	2340	2340	2320	2440	99	104	56-145	5	20	
1,2-Dichloropropane	ug/kg	<25.0	2340	2340	2350	2410	101	103	77-123	2	20	
1,3-Dichlorobenzene	ug/kg	<25.0	2340	2340	2570	2680	110	115	70-130	4	20	
1,4-Dichlorobenzene	ug/kg	<25.0	2340	2340	2550	2660	109	114	70-130	4	20	
Benzene	ug/kg	<25.0	2340	2340	2260	2310	96	99	65-130	3	20	
Bromodichloromethane	ug/kg	<25.0	2340	2340	2120	2280	91	98	59-141	7	20	
Bromoform	ug/kg	<25.0	2340	2340	1760	1980	75	85	59-141	12	20	
Bromomethane	ug/kg	<69.9	2340	2340	3360	3380	144	145	28-139	1	20	M0
Carbon tetrachloride	ug/kg	<25.0	2340	2340	2050	1960	87	84	50-130	4	20	
Chlorobenzene	ug/kg	<25.0	2340	2340	2430	2540	104	109	70-130	5	20	
Chloroethane	ug/kg	<67.0	2340	2340	3150	3040	135	130	36-144	3	20	
Chloroform	ug/kg	<46.4	2340	2340	2360	2390	101	102	68-122	1	20	
Chloromethane	ug/kg	<25.0	2340	2340	1730	1740	74	75	30-126	1	20	
cis-1,2-Dichloroethene	ug/kg	<25.0	2340	2340	2260	2400	97	103	63-130	6	20	
cis-1,3-Dichloropropene	ug/kg	<25.0	2340	2340	1980	2130	85	91	70-130	7	20	
Dibromochloromethane	ug/kg	<25.0	2340	2340	2060	2250	88	96	66-136	9	20	
Dichlorodifluoromethane	ug/kg	<25.0	2340	2340	1640	1530	70	65	10-99	7	33	
Ethylbenzene	ug/kg	<25.0	2340	2340	2330	2380	100	102	80-122	2	20	
Isopropylbenzene (Cumene)	ug/kg	<25.0	2340	2340	2320	2330	99	99	70-130	0	20	
m&p-Xylene	ug/kg	<50.0	4680	4680	4800	4800	103	103	70-130	0	20	
Methyl-tert-butyl ether	ug/kg	<25.0	2340	2340	2100	2190	90	93	63-134	4	20	
Methylene Chloride	ug/kg	<25.0	2340	2340	2590	2680	109	113	56-127	3	20	
o-Xylene	ug/kg	<25.0	2340	2340	2410	2450	103	105	70-130	2	20	
Styrene	ug/kg	<25.0	2340	2340	2410	2490	103	106	70-130	3	20	
Tetrachloroethene	ug/kg	<25.0	2340	2340	2310	2320	99	99	70-131	0	20	
Toluene	ug/kg	<25.0	2340	2340	2370	2410	101	103	80-120	2	20	
trans-1,2-Dichloroethene	ug/kg	<25.0	2340	2340	2530	2510	108	108	60-130	0	20	
trans-1,3-Dichloropropene	ug/kg	<25.0	2340	2340	1900	1940	81	83	68-130	2	20	
Trichloroethene	ug/kg	<25.0	2340	2340	2310	2290	99	98	70-130	1	20	
Trichlorofluoromethane	ug/kg	<25.0	2340	2340	2260	2160	97	93	37-149	4	24	
Vinyl chloride	ug/kg	<25.0	2340	2340	2040	1940	87	83	39-128	5	20	
4-Bromofluorobenzene (S)	%						97	100	58-141			
Dibromofluoromethane (S)	%						104	104	68-130			
Toluene-d8 (S)	%						107	108	68-149			

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

QC Batch: 288149 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM
Associated Lab Samples: 40168629001, 40168629003, 40168629005, 40168629007, 40168629009

METHOD BLANK: 1685963 Matrix: Solid
Associated Lab Samples: 40168629001, 40168629003, 40168629005, 40168629007, 40168629009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	<4.0	13.4	05/08/18 14:41	
2-Methylnaphthalene	ug/kg	<5.0	16.7	05/08/18 14:41	
Acenaphthene	ug/kg	<3.9	12.9	05/08/18 14:41	
Acenaphthylene	ug/kg	<3.3	11.0	05/08/18 14:41	
Anthracene	ug/kg	<5.7	19.0	05/08/18 14:41	
Benzo(a)anthracene	ug/kg	<3.2	10.6	05/08/18 14:41	
Benzo(a)pyrene	ug/kg	<2.5	8.4	05/08/18 14:41	
Benzo(b)fluoranthene	ug/kg	<2.8	9.4	05/08/18 14:41	
Benzo(g,h,i)perylene	ug/kg	<2.0	6.8	05/08/18 14:41	
Benzo(k)fluoranthene	ug/kg	<2.5	8.4	05/08/18 14:41	
Chrysene	ug/kg	<3.4	11.2	05/08/18 14:41	
Dibenz(a,h)anthracene	ug/kg	<2.2	7.4	05/08/18 14:41	
Fluoranthene	ug/kg	<5.2	17.4	05/08/18 14:41	
Fluorene	ug/kg	<4.1	13.8	05/08/18 14:41	
Indeno(1,2,3-cd)pyrene	ug/kg	<2.2	7.3	05/08/18 14:41	
Naphthalene	ug/kg	<8.4	28.1	05/08/18 14:41	
Phenanthrene	ug/kg	<11.6	38.8	05/08/18 14:41	
Pyrene	ug/kg	<4.5	15.0	05/08/18 14:41	
2-Fluorobiphenyl (S)	%	86	10-115	05/08/18 14:41	
Terphenyl-d14 (S)	%	107	10-121	05/08/18 14:41	

LABORATORY CONTROL SAMPLE: 1685964

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	333	252	76	48-99	
2-Methylnaphthalene	ug/kg	333	247	74	47-91	
Acenaphthene	ug/kg	333	255	76	53-98	
Acenaphthylene	ug/kg	333	251	75	52-96	
Anthracene	ug/kg	333	290	87	55-105	
Benzo(a)anthracene	ug/kg	333	308	92	55-98	
Benzo(a)pyrene	ug/kg	333	302	91	57-100	
Benzo(b)fluoranthene	ug/kg	333	342	103	57-103	
Benzo(g,h,i)perylene	ug/kg	333	287	86	39-103	
Benzo(k)fluoranthene	ug/kg	333	292	88	53-111	
Chrysene	ug/kg	333	316	95	55-102	
Dibenz(a,h)anthracene	ug/kg	333	296	89	47-97	
Fluoranthene	ug/kg	333	310	93	51-118	
Fluorene	ug/kg	333	265	79	55-99	
Indeno(1,2,3-cd)pyrene	ug/kg	333	308	92	47-108	
Naphthalene	ug/kg	333	240	72	48-95	

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

LABORATORY CONTROL SAMPLE: 1685964

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/kg	333	302	90	55-105	
Pyrene	ug/kg	333	300	90	58-106	
2-Fluorobiphenyl (S)	%			76	10-115	
Terphenyl-d14 (S)	%			106	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1685965 1685966

Parameter	Units	40168629007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/kg	<4.3	355	354	299	270	84	76	41-99	10	30	
2-Methylnaphthalene	ug/kg	<5.3	355	354	293	267	83	75	41-91	10	27	
Acenaphthene	ug/kg	<4.1	355	354	302	272	84	76	46-98	10	25	
Acenaphthylene	ug/kg	<3.5	355	354	278	257	78	72	43-96	8	26	
Anthracene	ug/kg	14.8J	355	354	301	300	81	80	44-105	0	29	
Benzo(a)anthracene	ug/kg	25.2	355	354	316	355	82	93	39-98	12	29	
Benzo(a)pyrene	ug/kg	20.1	355	354	306	353	80	94	38-100	14	35	
Benzo(b)fluoranthene	ug/kg	23.3	355	354	310	351	81	92	32-105	12	34	
Benzo(g,h,i)perylene	ug/kg	16.7	355	354	278	301	74	80	12-103	8	35	
Benzo(k)fluoranthene	ug/kg	21.2	355	354	337	390	89	104	30-115	15	37	
Chrysene	ug/kg	31.2	355	354	337	394	86	102	46-102	15	27	
Dibenz(a,h)anthracene	ug/kg	4.8J	355	354	285	286	79	79	32-97	0	35	
Fluoranthene	ug/kg	95.3	355	354	399	550	86	128	32-118	32	37	M1
Fluorene	ug/kg	<4.4	355	354	283	266	79	74	44-99	6	28	
Indeno(1,2,3-cd)pyrene	ug/kg	13.5	355	354	303	328	81	89	20-111	8	33	
Naphthalene	ug/kg	<9.0	355	354	290	262	82	74	39-97	10	30	
Phenanthrene	ug/kg	93.6	355	354	379	438	80	97	34-110	15	39	
Pyrene	ug/kg	70.1	355	354	381	496	88	120	37-109	26	33	M1
2-Fluorobiphenyl (S)	%						82	71	10-115			
Terphenyl-d14 (S)	%						100	89	10-121			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

QC Batch: 288270 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM
Associated Lab Samples: 40168629011, 40168629013, 40168629015

METHOD BLANK: 1686646 Matrix: Solid
Associated Lab Samples: 40168629011, 40168629013, 40168629015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	<4.0	13.4	05/09/18 11:41	
2-Methylnaphthalene	ug/kg	<5.0	16.7	05/09/18 11:41	
Acenaphthene	ug/kg	<3.9	12.9	05/09/18 11:41	
Acenaphthylene	ug/kg	<3.3	11.0	05/09/18 11:41	
Anthracene	ug/kg	<5.7	19.0	05/09/18 11:41	
Benzo(a)anthracene	ug/kg	<3.2	10.6	05/09/18 11:41	
Benzo(a)pyrene	ug/kg	<2.5	8.4	05/09/18 11:41	
Benzo(b)fluoranthene	ug/kg	<2.8	9.4	05/09/18 11:41	
Benzo(g,h,i)perylene	ug/kg	<2.0	6.8	05/09/18 11:41	
Benzo(k)fluoranthene	ug/kg	<2.5	8.4	05/09/18 11:41	
Chrysene	ug/kg	<3.4	11.2	05/09/18 11:41	
Dibenz(a,h)anthracene	ug/kg	<2.2	7.5	05/09/18 11:41	
Fluoranthene	ug/kg	<5.2	17.4	05/09/18 11:41	
Fluorene	ug/kg	<4.1	13.8	05/09/18 11:41	
Indeno(1,2,3-cd)pyrene	ug/kg	<2.2	7.3	05/09/18 11:41	
Naphthalene	ug/kg	<8.4	28.1	05/09/18 11:41	
Phenanthrene	ug/kg	<11.7	38.8	05/09/18 11:41	
Pyrene	ug/kg	<4.5	15.0	05/09/18 11:41	
2-Fluorobiphenyl (S)	%	71	10-115	05/09/18 11:41	
Terphenyl-d14 (S)	%	85	10-121	05/09/18 11:41	

LABORATORY CONTROL SAMPLE: 1686647

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	333	262	79	48-99	
2-Methylnaphthalene	ug/kg	333	255	76	47-91	
Acenaphthene	ug/kg	333	253	76	53-98	
Acenaphthylene	ug/kg	333	250	75	52-96	
Anthracene	ug/kg	333	272	81	55-105	
Benzo(a)anthracene	ug/kg	333	275	83	55-98	
Benzo(a)pyrene	ug/kg	333	271	81	57-100	
Benzo(b)fluoranthene	ug/kg	333	283	85	57-103	
Benzo(g,h,i)perylene	ug/kg	333	251	75	39-103	
Benzo(k)fluoranthene	ug/kg	333	274	82	53-111	
Chrysene	ug/kg	333	284	85	55-102	
Dibenz(a,h)anthracene	ug/kg	333	263	79	47-97	
Fluoranthene	ug/kg	333	278	84	51-118	
Fluorene	ug/kg	333	254	76	55-99	
Indeno(1,2,3-cd)pyrene	ug/kg	333	270	81	47-108	
Naphthalene	ug/kg	333	258	78	48-95	

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REPORT OF LABORATORY ANALYSIS

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Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

LABORATORY CONTROL SAMPLE: 1686647

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/kg	333	276	83	55-105	
Pyrene	ug/kg	333	269	81	58-106	
2-Fluorobiphenyl (S)	%			75	10-115	
Terphenyl-d14 (S)	%			93	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1686648 1686649

Parameter	Units	40168629013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/kg	<4.3	352	354	260	256	73	72	41-99	2	30	
2-Methylnaphthalene	ug/kg	<5.3	352	354	254	240	71	67	41-91	6	27	
Acenaphthene	ug/kg	<4.1	352	354	236	216	67	61	46-98	9	25	
Acenaphthylene	ug/kg	<3.5	352	354	233	208	66	59	43-96	11	26	
Anthracene	ug/kg	<6.0	352	354	250	227	71	64	44-105	10	29	
Benzo(a)anthracene	ug/kg	4.7J	352	354	263	243	73	67	39-98	8	29	
Benzo(a)pyrene	ug/kg	4.7J	352	354	264	245	74	68	38-100	8	35	
Benzo(b)fluoranthene	ug/kg	4.4J	352	354	281	245	79	68	32-105	14	34	
Benzo(g,h,i)perylene	ug/kg	2.4J	352	354	157	145	44	40	12-103	8	35	
Benzo(k)fluoranthene	ug/kg	4.1J	352	354	264	265	74	74	30-115	0	37	
Chrysene	ug/kg	6.5J	352	354	278	256	77	71	46-102	8	27	
Dibenz(a,h)anthracene	ug/kg	<2.4	352	354	205	182	58	51	32-97	11	35	
Fluoranthene	ug/kg	8.3J	352	354	283	263	78	72	32-118	7	37	
Fluorene	ug/kg	<4.4	352	354	236	210	67	59	44-99	12	28	
Indeno(1,2,3-cd)pyrene	ug/kg	<2.3	352	354	203	182	57	51	20-111	11	33	
Naphthalene	ug/kg	<8.9	352	354	243	223	69	63	39-97	8	30	
Phenanthrene	ug/kg	<12.3	352	354	271	251	76	70	34-110	8	39	
Pyrene	ug/kg	9.3J	352	354	292	261	80	71	37-109	11	33	
2-Fluorobiphenyl (S)	%						67	61	10-115			
Terphenyl-d14 (S)	%						84	73	10-121			

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(920)469-2436

QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

QC Batch: 289356 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40168629001, 40168629002, 40168629003

SAMPLE DUPLICATE: 1693184

Parameter	Units	40168627005 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	20.4	20.4	0	10	

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QUALITY CONTROL DATA

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

QC Batch: 289369 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40168629004, 40168629005, 40168629006, 40168629007, 40168629008, 40168629009, 40168629010, 40168629011, 40168629012, 40168629013, 40168629014, 40168629015, 40168629016

SAMPLE DUPLICATE: 1693264

Parameter	Units	40168634001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	16.8	17.5	4	10	

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(920)469-2436

QUALIFIERS

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q	Analyte recovery in the continuing calibration verification (CCV) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S1	Surrogate recovery outside laboratory control limits (confirmed by re-analysis).
W	Non-detect results are reported on a wet weight basis.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40168629001	**B-6, 4'**	EPA 3050	288555	EPA 6010	288641
40168629003	**B-4, 2'**	EPA 3050	288555	EPA 6010	288641
40168629005	**B-1, 2'**	EPA 3050	288555	EPA 6010	288641
40168629007	**B-2, 2'**	EPA 3050	288555	EPA 6010	288641
40168629009	**B-3, 2'**	EPA 3050	288555	EPA 6010	288641
40168629011	**B-5, 3'**	EPA 3050	288555	EPA 6010	288641
40168629013	**B-7, 2-1/2**	EPA 3050	288555	EPA 6010	288641
40168629015	**B-8, 2-1/2**	EPA 3050	288555	EPA 6010	288641
40168629001	**B-6, 4'**	EPA 7471	288898	EPA 7471	288970
40168629003	**B-4, 2'**	EPA 7471	288898	EPA 7471	288970
40168629005	**B-1, 2'**	EPA 7471	288898	EPA 7471	288970
40168629007	**B-2, 2'**	EPA 7471	288898	EPA 7471	288970
40168629009	**B-3, 2'**	EPA 7471	288898	EPA 7471	288970
40168629011	**B-5, 3'**	EPA 7471	288898	EPA 7471	288970
40168629013	**B-7, 2-1/2**	EPA 7471	288898	EPA 7471	288970
40168629015	**B-8, 2-1/2**	EPA 7471	288898	EPA 7471	288970
40168629001	**B-6, 4'**	EPA 3546	288149	EPA 8270 by SIM	288193
40168629003	**B-4, 2'**	EPA 3546	288149	EPA 8270 by SIM	288193
40168629005	**B-1, 2'**	EPA 3546	288149	EPA 8270 by SIM	288193
40168629007	**B-2, 2'**	EPA 3546	288149	EPA 8270 by SIM	288193
40168629009	**B-3, 2'**	EPA 3546	288149	EPA 8270 by SIM	288193
40168629011	**B-5, 3'**	EPA 3546	288270	EPA 8270 by SIM	288296
40168629013	**B-7, 2-1/2**	EPA 3546	288270	EPA 8270 by SIM	288296
40168629015	**B-8, 2-1/2**	EPA 3546	288270	EPA 8270 by SIM	288296
40168629001	**B-6, 4'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629002	**B-6, 8-1/2**	EPA 5035/5030B	288166	EPA 8260	288168
40168629003	**B-4, 2'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629004	**B-4, 5'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629005	**B-1, 2'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629006	**B-1, 8-1/2**	EPA 5035/5030B	288166	EPA 8260	288168
40168629007	**B-2, 2'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629008	**B-2, 7'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629009	**B-3, 2'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629010	**B-3, 6'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629011	**B-5, 3'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629012	**B-5, 6'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629013	**B-7, 2-1/2**	EPA 5035/5030B	288166	EPA 8260	288168
40168629014	**B-7, 5'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629015	**B-8, 2-1/2**	EPA 5035/5030B	288166	EPA 8260	288168
40168629016	**B-8, 6'**	EPA 5035/5030B	288166	EPA 8260	288168
40168629001	**B-6, 4'**	ASTM D2974-87	289356		
40168629002	**B-6, 8-1/2**	ASTM D2974-87	289356		
40168629003	**B-4, 2'**	ASTM D2974-87	289356		
40168629004	**B-4, 5'**	ASTM D2974-87	289369		
40168629005	**B-1, 2'**	ASTM D2974-87	289369		
40168629006	**B-1, 8-1/2**	ASTM D2974-87	289369		

REPORT OF LABORATORY ANALYSIS

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(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WASHINGTON SQUARE
Pace Project No.: 40168629

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40168629007	**B-2, 2'**	ASTM D2974-87	289369		
40168629008	**B-2, 7'**	ASTM D2974-87	289369		
40168629009	**B-3, 2'**	ASTM D2974-87	289369		
40168629010	**B-3, 6'**	ASTM D2974-87	289369		
40168629011	**B-5, 3'**	ASTM D2974-87	289369		
40168629012	**B-5, 6'**	ASTM D2974-87	289369		
40168629013	**B-7, 2-1/2**	ASTM D2974-87	289369		
40168629014	**B-7, 5'**	ASTM D2974-87	289369		
40168629015	**B-8, 2-1/2**	ASTM D2974-87	289369		
40168629016	**B-8, 6'**	ASTM D2974-87	289369		

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UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

Page 57 of 60

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CHAIN OF CUSTODY

401686 29

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)	
Company Name:	Seymour Env.
Branch/Location:	
Project Contact:	Robyn Seymour
Phone:	608 225 9407
Project Number:	
Project Name:	Washington Square
Project State:	Wisconsin
Sampled By (Print):	Robyn Seymour
Sampled By (Sign):	Robyn Seymour
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Robyn Seymour
Mail To Company:	Seymour Env
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
☐ EPA Level III
☐ EPA Level IV

MS/MSD
☐ On your sample (billable)
☐ NOT needed on your sample

Matrix Codes

A = Air	W = Water
B = Biota	DW = Drinking Water
C = Charcoal	GW = Ground Water
O = Oil	SW = Surface Water
S = Soil	WW = Waste Water
SI = Sludge	WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	Analyses Requested: VOCs	PAHs	RCRA metals						CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					N	F	N	A	A								
001	B-6, 4'	4/25	0840	S			X	X	X								
002	B-6, 8 1/2		0852				X										
003	B-4, 2'	4/26	0800				X	X	X						If you can take metals from PAH		
004	B-4, 5'		0815				X										
005	B-1, 2'	4/25	1300				X	X	X								
006	B-1, 8 1/2		1310				X										
007	B-2, 2'	4/26	1030				X	X	X								
008	B-2, 7'		1050				X										
009	B-3, 2'	4/26	1400				X	X	X								
010	B-3, 6'		1420				X										
011	B-5, 3'	5/2	0730				X	X	X								
012	B-5, 6'		0800				X										

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Robyn Seymour	5/3 1330		
CS Logistics	5/5/18 0730	[signature]	5/5/18 0730

PACE Project No.
401686 29

Receipt Temp = Rat °C

Sample Receipt pH
OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

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MN: 612-607-1700 WI: 920-469-2436

401688629

CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)	
Company Name:	Seymour Env
Branch/Location:	
Project Contact:	Robyn Seymour
Phone:	608 225 9407
Project Number:	
Project Name:	Washington Square
Project State:	Wisconsin
Sampled By (Print):	Robyn Seymour
Sampled By (Sign):	
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	Robyn Seymour
Mail To Company:	Seymour Env
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
☐ EPA Level III
☐ EPA Level IV

MS/MSD
☐ On your sample (billable)
☐ NOT needed on your sample

Matrix Codes

A = Air	W = Water
B = Biota	DW = Drinking Water
C = Charcoal	GW = Ground Water
O = Oil	SW = Surface Water
S = Soil	WW = Waste Water
SI = Sludge	WP = Wipe

FILTERED? (YES/NO)
PRESERVATION (CODE)*

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	Y/N	Pick Letter	Analyses Requested: VOCs	PAHs	RCRA Metals	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					N	F						
					N	A						
					N	M						
013	B-7, 2'12	5/2	1000	S			X	X	X			
014	B-7 5'		1030				X					
015	B-8 2'12		1200				X	X	X			
016	B-8, 6'		1230				X					

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Robyn Seymour	5/3 1330		
CSLog.Stz	5/5/18 0730		5/5/18 0730

PACE Project No.
401688629

Receipt Temp = 2.1 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Sample Preservation Receipt Form

Client Name: Seymour Eau. Project # 40168629

All containers needing preservation have been checked and noted below: □Yes □No □N/A

Lab Lot# of pH paper: Lab Std #ID of preservation (if pH adjusted): Initial when completed: Date/ Time:

Pace Lab #	Glass							Plastic							Vials						Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3C	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T	ZPLC	GN							
001																																	2.5 / 5 / 10
002																																	2.5 / 5 / 10
003																																	2.5 / 5 / 10
004																																	2.5 / 5 / 10
005																																	2.5 / 5 / 10
006																																	2.5 / 5 / 10
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016																																	2.5 / 5 / 10
017																																	2.5 / 5 / 10
018																																	2.5 / 5 / 10
019																																	2.5 / 5 / 10
020																																	2.5 / 5 / 10

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: Headspace in VOA Vials (>6mm) : □Yes □No □N/A ***If yes look in headspace column**

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic HNO3	DG9T	40 mL amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL		
AG5U	100 mL amber glass unpres	BP3C	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			GN:	

Pace Analytical™ 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 25Apr2018
	Document No.: F-GB-C-031-Rev.07	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: Seymour Env. Project #: WO#: 40168629

Courier: ☒ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: 462.0548

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - N/A **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: Rol /Corr: _____

Temp Blank Present: ☐ yes ☒ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Person examining contents:
Date: 5/5/18
Initials: SSh

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☒Yes ☐No	6.
Rush Turn Around Time Requested:	☐Yes ☒No	7.
Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD: ☐Yes ☒No ☐N/A		8.
Correct Containers Used:	☒Yes ☐No	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☒N/A	
Containers Intact:	☒Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: S	☐Yes ☒No ☐N/A	12. 001- IDs only on jars 009- vial ID "B-3-6'" -placed by time SSh 5/5/18
Trip Blank Present:	☐Yes ☒No ☐N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AL for DM **Date:** 5/5/18

Exhibit E

CGC, Inc.

Construction • Geotechnical
Consulting Engineering/Testing

May 23, 2018
C18151

Mr. Todd Waller
Lee & Associates
6430 Bridge Road, Suite 230
Madison, WI 53713

Re: Geotechnical Exploration Report
Proposed Redevelopment
East Washington Avenue & North First Street
City of Madison, Dane County, Wisconsin

Dear Mr. Waller:

Construction • Geotechnical Consultants, Inc. (CGC) has completed the subsurface exploration program for the above-referenced project. The purpose of this program was to evaluate the subsurface conditions within the proposed construction area and to provide geotechnical recommendations regarding site preparation, foundation, floor slab, below-grade wall, retaining wall and pavement design/construction. A determination of the site class for seismic design is also included. We are sending you an electronic copy of this report, and we can provide a paper copy upon request.

SITE AND PROJECT DESCRIPTION

We understand the west corner of the intersection East Washington Avenue and North First Street in Madison, Wisconsin is to be redeveloped. The project area is bounded by East Washington Avenue to the southeast, North First Street to the northeast, Department of Public Works and Madison Metro Sewage District facilities to the northwest and a WSOR track/Burr Jones Park to the southwest. The site currently contains a strip mall with associated at-grade parking lot, as well as an auto repair shop. The project area also extends into southern portions of the Department of Public Works facility, where several garage buildings currently exist. Surrounding the existing buildings, the site is generally paved with asphalt.

According to publicly-available topographic data (DCiMap; 2-ft contour lines), current site grades are generally fairly flat, with existing ground surface elevations ranging between about EL 850 and 854 ft. As an exception, site grades are slightly higher in the east (near the auto repair shop; approximately EL 858 to 860 ft), and a concrete retaining wall separates the upper from lower portions of the site. Based on a historic aerial image (DCiMap; dated 1957) a building was present in southwestern parts of the site (along the train tracks), which was demolished prior to 1968. It is our understanding that an environmental investigation was previously conducted on this site, and several (potentially abandoned) groundwater monitoring wells and a treatment building exist in the parking

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FAX: 608/288-7887

lot. The site is located approximately half-way between Lake Mendota and Lake Monona (slightly closer to Lake Mendota), and about 500 to 1,000 ft northeast of the Yahara River.

The redevelopment of the site involves demolition of the strip-mall, auto repair shop and some of the Public Works garages. Subsequently, a one- or two-story, slab-on-grade public market building is to be constructed in southwest portions of the site. We understand finish main floor elevation of the public market building is tentatively set at EL 852 ft, which is approximately at existing site grades in that portion of the site. In the northeast, a 100-unit residential building with some retail space and a 100-key hotel building are envisioned. The mixed-use and hotel buildings are proposed to share a partially-exposed level of below-grade parking and are each to include five to six levels above grade. Finish first and lower-level elevations of the mixed-use/hotel structure are tentatively set at EL 858 and 848 ft, respectively, with finish preliminary lower-level elevation being about 4 to 12 ft below existing site grades in that portion of the site. Information regarding structural loads of the new development was not available to us at the time of this report. Paved at-grade parking is planned between the buildings and to the northwest of the public market building (in the area of the current Public Works garages).

SUBSURFACE CONDITIONS

Subsurface conditions for this study were explored by drilling eight Standard Penetration Test (SPT) soil borings to planned depths between 25 and 35 ft below current site grades. Note, however, that auger refusal occurred in Boring 1 at a depth of approximately 31 ft on a possible cobble/boulder or sandstone bedrock. In Boring 5, shallow refusal occurred on apparent concrete (probable remnants of the former building) at about 1.5 ft below the ground surface, and the boring was subsequently offset several times in an attempt to bypass the obstruction, with the final boring location about 20 ft east of the initially planned location. The boring locations were selected by the planning team and located in the field by CGC at locations slightly adjusted, as needed, to work around existing site features (buildings, drives, parked cars, utilities, etc.). The soil borings were conducted by Badger State Drilling (under subcontract to CGC) on April 25 and 26, and May 2, 2018 using a truck-mounted CME-55 rotary drill rig equipped with hollow stem augers and an automatic SPT hammer. During drilling, soil samples were screened for potential environmental contamination by a representative of Seymour Environmental Services, Inc. (subcontracted to the client). (Specific results of the field screening are not included in this report.) The specific procedures used for drilling and sampling are described in Appendix A, and the boring locations are shown in plan on the Soil Boring Location Exhibit presented in Appendix B. Ground surface elevations at the boring locations were estimated by CGC using publicly-available topographic data (DCiMap; 2-ft contour lines), and elevations should therefore be considered approximate.

The subsurface profiles at the boring locations were fairly consistent, and the following strata were typically encountered (in descending order):

- About 3.5 to 6 in. of ***asphalt pavement*** over about 4 to 8 in. of ***base course***; over
- About 5 to 8 ft of very loose to medium dense ***granular fill*** with variable amounts of fines, that was intermixed with *cinders* in some areas; underlain by
- About 1 to 3 ft of very soft to medium stiff ***lean clay*** in Borings 1 and 4; and/or
- About 4.5 to 7.5 ft of very loose to loose ***sedimentary peat*** and very loose to medium dense ***sand*** (possible sandy marl) with occasional peat seams; followed by
- Generally medium dense ***sand, silty sand and clayey silt*** strata to the maximum depths explored, that were interspersed with fairly thin clay seams/lenses, as well as thicker layers of stiff ***lean to silty clay*** in Borings 5 and 6.

It must be noted that the shallow fill soils containing cinders (and other debris) may require landfill disposal if excavated and removed from the site. We recommend Seymour Environmental Services, Inc. be retained to advise on these issues, if necessary. In addition, apparent petroleum odors were noted in isolated samples obtained from the peat, sand and silt strata in Borings 1, 2 and 8.

The natural moisture content in a representative sample obtained from the shallow clay in Boring 1 was determined to be 22.2%, and the shallow clays should be considered slightly to moderately compressible based on moisture contents and pocket penetrometer readings (q_p; an estimate of the unconfined compressive strength of cohesive soils). Natural moisture and organic contents in representative peat samples ranged from 73.3% to 178.5% and 33.0% to 45.1%, respectively. The peat layers (and sand soils containing peat seams) are compressible in the short term, and are subject to decomposition causing further (secondary) settlement in the long term. Samples obtained from the deeper clay layers encountered in Borings 5 and 6 had natural moisture contents between 19.0% and 19.2%, and these soils are considered slightly compressible.

As mentioned above, auger refusal occurred in Boring 1 at a depth of about 31 ft below the ground surface, but the boring was inconclusive if refusal was due to a cobble/boulder contained in the natural sands or sandstone bedrock. Apparent bedrock (or auger/split-spoon refusal) was not encountered in the other borings performed on this site.

Groundwater was encountered in the borings at depths between about 3.5 and 8.5 ft below the ground surface during and up to about 30 minutes after the completion of drilling (corresponding to approximately EL 843.5 to 849.5 ft). Note, however, that some of the on-site soils are fairly fine-grained, typically associated with a fairly low hydraulic conductivity), which may delay inflow of groundwater into the boreholes. Groundwater readings during the fairly short period of drilling (and shortly thereafter) should therefore be considered approximate. In the borings drilled on April 25 and 26, groundwater levels were read about one to two days after the completion of drilling (on April 27, prior to backfilling), and the groundwater table was observed approximately 4.6 to 8.1 ft below the ground surface (corresponding to approximately EL 845.7 to 848.4 ft). Due to the proximity of the site to Lakes Mendota and Monona, as well as the Yahara River connecting the two lakes,

groundwater levels are generally expected to be between lake levels. The water level in Lake Mendota is typically between about EL 848 and 850 ft, and the water level in Lake Monona between approximately EL 842 and 845 ft. For reference, lake levels on April 27 (the day of the longer-term groundwater level readings) were about EL 850 and 845 ft in Lakes Mendota and Monona, respectively. In addition to the influence from the water levels in Lakes Mendota and Monona (and Yahara River), groundwater levels are expected to fluctuate with pumping rates in nearby wells and seasonal variations in precipitation, infiltration, evapotranspiration, as well as other factors. A more detailed description of the site soil and groundwater conditions is presented on the soil boring logs attached in Appendix B, which also contain the laboratory test results.

DISCUSSION AND RECOMMENDATIONS

1. Overview

Based on the subsurface exploration, the widespread presence of somewhat variable, undocumented fill over highly compressible sedimentary peat and/or lower-strength clays, that were generally underlain by very loose to loose sand layers containing peat seams (possible sandy marl) to about 13 ft below the ground surface in the soil borings, in combination with the fairly shallow groundwater table, is expected to present some challenges to construct the proposed buildings. Our recommendations, further elaborated in the subsequent sections of this report, can be outlined as follows:

- The **public market building** can potentially be supported on shallow spread footing foundations if structural loads are fairly light and provided that peat layers and sand soils containing peat seams be undercut and replaced below footings. Note that the minimum required undercut depth is dependent upon the vertical extent of the peat seams within the sand soils. If peat seams are only present at the transition from the peat into the sand layers, the undercut excavations may terminate slightly below the bottom of the peat layer, but undercuts may have to extend all the way down to the clay layers if peat seams are present all throughout the very loose to loose sand soils. However, a complete undercut of very loose to loose sands below the building may not be feasible due to deep undercutting below the groundwater table. Note that, with some very loose sands potentially remaining in-place below the building footprint, foundation design will be limited to a fairly low allowable bearing pressure. As an alternative to the (partial) undercut/replacement scenario, or if moderate to high structural loads are expected, the building could be supported on intermediate foundations (aggregate piers, stone columns, etc.) or deep foundations (e.g., helical piers or driven piles).

- We also recommend that the compressible organic soils be undercut below floor slabs similar to below foundations. Note, however, that in the event some peat remains below floor slab areas of the public market building (e.g., if undercutting is only performed below footings, or intermediate/deep foundation support is utilized for footings but not for the floor slab), surcharging the building pad could be considered in order to reduce (although not eliminate) the risk for unacceptable long-term floor slab performance due to secondary compression of the peat. If the owner is not willing to accept this risk or a surcharging program is not feasible, a mass-undercut of the peat (and sand with peat seams) will be required within the building footprint, or a conventional floor slab will have to be supported on aggregate piers (or similar). Alternatively, a structural floor slab with deep foundation support should be pursued.

- It is our opinion that the foundations of the **mixed-use and hotel buildings with shared lower level** will likely be moderately to highly loaded and will need to be supported on aggregate piers, stone columns, etc. because widespread, deep undercutting of peat and very loose to loose sand strata below footings does not appear feasible unless a significant dewatering program is undertaken. Intermediate foundation support will likely also be required for floor slab support. Alternatively, the building (and structural floor slab) could be supported on deep foundations.

- The potential landfill disposal costs of impacted soils should also be included in both planned structure excavations, as well as undercutting below structures. The additional disposal costs from deep undercutting/replacement may render intermediate or deep foundation alternatives more favorable.

- Temporary dewatering during construction is generally expected, which could be fairly significant for the public market building if conventional spread footing foundations with undercutting of unsuitable soils should be pursued. Deep undercutting necessitating significant dewatering measures may also require modifications to the temporary earth retention system (if any), with effective dewatering potentially involving the implementation of vacuum well point or deep well systems. Additionally, the potentially significant depth below the water table may require a more robust retention system. Environmentally impacted water may have special treatment or disposal requirements.

- In addition, a permanent sub-floor dewatering system will be required below the parking level of the mixed-use and hotel buildings. Long-term dewatering could result in significant operations and maintenance (O&M) costs throughout the life of the buildings. Alternatively, the portions of the lower level that are below the groundwater table could be designed/constructed as watertight (i.e., “bathtub”).

Although technically feasible, the costs associated with establishing a lower level below the water table will be significant and should not be underestimated.

Subject to the limitations discussed below, our recommendations for site preparation, foundation, floor slab, below-grade wall, retaining wall and pavement design/construction, along with our assessment of the site class for seismic design, are presented in the following subsections. Additional information regarding the conclusions and recommendations presented in this report is discussed in Appendix C.

2. Site Preparation

We recommend that topsoil, where present, be stripped at least 10 ft beyond the proposed construction area, including areas requiring fill beyond the building footprints and pavement limits. The topsoil can be stockpiled on-site and later re-used as fill in landscaped areas. Topsoil was not encountered in the soil borings but may be present in isolated unpaved areas. Trees and root zones should be removed from construction areas prior to or in conjunction with topsoil stripping. We further recommend that the existing asphalt (and concrete, if any) pavement be removed within the footprint of the planned buildings. Where fill is planned beyond the proposed building footprints, the existing pavement should be broken up (pulverized) to promote drainage, or be removed as well.

We understand the existing strip mall, auto repair shop and some of the Department of Public Works garages are to be demolished to facilitate the proposed redevelopment. We generally recommend the buildings be demolished and removed in their entirety, including floor slabs, footings and below-grade walls (if any), and we recommend the same for buried remnants of the former southwestern building. Underground utilities associated with the existing (and former) buildings should also be removed prior to beginning new construction. After demolition, the subgrade soils should be checked for their pavement, floor slab and footing support suitability, and areas where below-grade structures have been removed and existing building grades are below proposed grades should be backfilled with granular backfill compacted to at least 95% compaction based on modified Proctor methods (ASTM D1557) in accordance with our Recommended Compacted Fill Specifications presented in Appendix D. Alternatively, 3-in. dense graded base (DGB) that is placed in loose 10-in. lifts and compacted until deflection ceases can be used to restore grades. In new pavement areas, existing structures can potentially remain in-place provided they are broken off at least 2 ft below proposed pavement subgrade elevations and do not interfere with new utility construction. Slabs that remain in-place below pavement areas should be broken up to allow drainage.

After topsoil stripping/pavement removal, exposed soils are generally expected to consist of existing variable granular fill soils. In areas remaining at-grade or requiring additional fill, we recommend the granular soils exposed be thoroughly recompacted with a vibratory smooth-drum roller. Zones that remain loose after recompaction should be undercut and replaced with granular backfill compacted to at least 95% compaction based on modified Proctor methods (ASTM D1557) in accordance with our Recommended Compacted Fill Specifications presented in Appendix D. Alternatively, 3-in.

dense graded base (DGB) that is placed in loose 10-in. lifts and compacted until deflection ceases can be used to restore grades in undercut areas. Note that cohesive and fine-grained soils (if exposed) should be statically recompacted (i.e., without vibration) and subsequently proof-rolled with a piece of heavy rubber-tire construction equipment, such as a loaded tri-axle dump truck, to check for soft/yielding areas. If soft/yielding areas develop, these soils should be undercut and replaced or stabilized as described above. Areas subsequently receiving fill should be checked for their pavement, floor slab and footing support suitability prior to fill placement.

Note that due to the presence of potentially impacted soils at the site, we recommend that excavated soils either be kept on site and appropriately capped (if impacted soils are determined to be within regulatory limits for this approach) or screened for environmental contaminants before being hauled off site. A materials management plan should be developed, and impacted soils removed from the site should be properly disposed of in a licensed landfill. We recommend that Seymour Environmental Services, Inc. provide guidance on the need for special handling and disposal of impacted soils, as well as other environmental-related questions.

Fill placement to establish site, pavement and floor slab grades, where required, can then proceed. To the extent possible, we recommend using granular soils (i.e., sands/gravels, including natural sand soils excavated on-site) as structural fill within the building envelopes and upper 2 to 3 ft in pavement areas because these soils are relatively easy to place and compact in most weather conditions compared to clay/silt soils. To the extent possible, clay and silt soils excavated on-site are generally not recommended as structural fill because moisture conditioning by discing and drying (aeration) will likely be required to achieve desired compaction levels, which is highly weather-dependent (i.e., dry, warm and windy conditions) and could delay construction progress. In our opinion, clay/silt soils are best used as fill in landscaping or potentially as lower lifts in pavement areas provided the moisture contents can be sufficiently lowered from the natural states to facilitate compaction efforts. We recommend that structural fill be compacted to at least 95% compaction based on modified Proctor methods (ASTM D1557) following Appendix D guidelines. Periodic field density tests should be taken by CGC staff within the fill to document the adequacy of compactive effort.

In order to facilitate mass-excavations to establish lower-level elevation of the mixed-use and hotel building, as well as mass-undercutting of the footprint of the public market building (if this approach should be pursued), we anticipate that earth retention systems could potentially be required on some sides of the excavations. Note that watertight systems, such as sheet pile walls or overlapping concrete secant walls, should be considered for excavations extending fairly deep below the groundwater table, and tie-back anchors or similar may be required to retain these walls. Other earth retention systems (e.g., cantilever soldier pile walls with wood lagging and potentially tie-backs, etc.) may potentially be used for shallower excavations. Earth retention systems should be designed by a qualified professional engineer in conjunction with the dewatering system such that appropriate hydrostatic pressures are accounted for. Some excavation sidewalls could potentially also be sloped back according to OSHA requirements. We anticipate that excavation slopes will be controlled by

variable fill, softer clays, peat and very loose to loose sands, typically classified as OSHA "Type C" soils, with slopes of 1.5H:1.0V or flatter expected to be at least temporarily stable. Note that flatter side slopes will likely be required where perched or seeping water is present that destabilizes the side slopes. *The appropriate excavation side slopes should be determined by a competent person completing the earthwork in accordance with OSHA slope guidelines.* Depending on the effectiveness of the dewatering system at lowering the water table below the bottom of the excavation, it may be necessary to install a stone stabilization layer at the bottom of the excavation to develop a working platform for construction activities. On past projects this has involved about 12 in. of coarse stone underlain or potentially enveloped by a geotextile fabric for separation and reinforcement purposes.

It is important to note that footing excavations of the mixed-use/hotel structure will likely extend on the order of 1 to 4 ft (potentially more) below the groundwater table, and undercut excavations below footings of the public market building could extend as much as 6 ft (potentially more) below the groundwater table. *In light of this, dewatering is anticipated to play a critically important role in order to develop suitable subgrades* and a significant dewatering effort should generally be expected, especially if shallow foundations with undercutting should be considered for the public market building. To allow for construction in the dry, water levels should be lowered a minimum of 2 ft below the bottom of excavations *in advance of final excavation*. It has been our experience that groundwater drawdowns on the order of 1 to 2 ft can typically be achieved using submersible pumps that operate from filtered sump pits. Drawdowns exceeding about 2 ft will likely require alternative dewatering measures, such as deep well or vacuum well point systems. Note, however, that the silt and clay strata encountered in the soil borings are expected to be difficult to dewater, likely requiring the use of a vacuum well-point system regardless of drawdown depths. Cleaner sand layers, on the other hand, are expected to have a fairly high hydraulic conductivity which may result in significant pumping rates. Supplemental dewatering in shallow sumps outside the footing lines may also be required. Dewatering means and methods are the contractor's responsibility. *If groundwater is not adequately controlled, significant undercuts, flatter side slopes and wider excavations could be required.* Inadequate dewatering could also compromise earth retention systems not designed to accommodate hydrostatic pressures. The construction dewatering system will need to remain operational until the permanent subfloor dewatering system of the mixed-use/hotel structure becomes operational or sufficient building load is applied for a watertight bathtub system (see Floor Slab section).

As mentioned above, surcharging the footprint of the public market building should be considered in order to reduce (although not eliminate) the risk for unacceptable long-term floor slab performance if peat remains below the floor slab. The purpose of surcharging is to induce stresses matching (and slightly exceeding) stresses resulting from the weight floor slab concrete and live loads in order to pre-consolidate the peat layers prior to slab construction. For typical floor slab live loads (i.e., in the range of 100 to 200 psf), we estimate that an approximately 2 to 3 ft tall surcharge pile (above finish first floor elevation) and a surcharging period on the order of 1 to 3 months should be sufficient for this project. The full height of the surcharge pile should be extended about 10 ft beyond the building

footprint. Settlement platforms or monitoring points (see details in Appendix E) should be established and surveyed prior to fill placement and again surveyed immediately after the surcharge pile reaches its intended height. Thereafter, the settlement should be measured periodically (e.g., semi-weekly in the beginning and then weekly) until the settlement data indicates that the target settlement has occurred or that settlement has largely ceased. At this point, the surcharge pile can be removed to the floor slab subgrade, and the typical construction sequence can continue. To be clear, the peat should still be undercut below foundations, even if a surcharging program will be implemented to pre-load/consolidate the peat within floor slab areas. Foundation excavation and undercutting would likely occur after the floor slab surcharging program is completed. We can provide additional details upon request.

3. Preliminary Foundation Design

We understand finish main floor elevation of the public market building is tentatively set at EL 852 ft, which is approximately at existing site grades in that portion of the site. Finish first and lower-level elevations of the mixed-use/hotel structure are tentatively set at EL 858 and 848 ft, respectively, with finish preliminary lower-level elevation being about 4 to 12 ft below existing site grades in that portion of the site. Information regarding structural loads of the new development was not available to us at the time of this report. *Since provided building grades are preliminary, the foundation recommendations contained herein should also be considered preliminary and may require adjustment depending on final elevations.*

Footings of the mixed-use/hotel structure are generally expected to extend at least a couple feet below finish lower-level elevation, with elevator pits a few feet deeper. Footings of the public market building are anticipated to extend on the order of 2 to 5 ft below finish main floor elevation. As discussed above, conventional spread footing foundations designed for a fairly low allowable bearing pressure could be considered for the public market building provided structural loads are fairly light and unsuitable soils are undercut below footings. For the mixed-use/hotel structure, it is our opinion that intermediate or deep foundations will be required, and intermediate foundations could also be considered for the public market in order to improve the allowable bearing pressure for foundation design while reducing the potential for undercutting.

A. Shallow Foundations (Public Market Building)

With preliminary finish main floor elevation set at EL 852 ft and based on the soil conditions encountered in Borings 5 and 6, footings of the public market building are expected to bear within existing, variable fill over peat and very loose to loose sands with peat seams. The existing fill, peat and sand with peat seams are not considered suitable for footing support due to the potential for long-term settlement exceeding typically tolerable levels, and we recommend these soils be undercut and replaced below footings. The vertical extent of the peat seams within the very loose to loose sand layers is somewhat unclear, and undercut depths could range from 2 to 12 ft below the bottom of footings (about 0.5 to 6.5 ft below the groundwater table encountered in the soil borings).

In order to reduce undercutting, the very loose to loose sand soils could be undercut as deep as peat seams are encountered, with lower portions of the very loose to loose sands potentially remaining in-place provided an effective dewatering/excavation plan allows these soils to be stabilized. Under this scenario, we recommend a maximum allowable bearing pressure of 1,000 psf be used for *preliminary* foundation design. However, in the event that peat seams are present down to the bottom of the very loose to loose sands and these soils will be undercut entirely to expose the top of the stiff clays, a maximum allowable bearing pressure of 3,000 psf may be implemented for *preliminary* foundation design.

As discussed above, effective dewatering is considered paramount in order to establish suitable foundation subgrades. However, even with effective dewatering measures in-place, some footing subgrades may remain fairly wet, and these subgrades should be stabilized with a thin (approximately 6-in. thick) layer of crushed clear stone that is compacted into the subgrade until deflection ceases. If the clear stone layer exceeds 12 in., it should be enveloped with non-woven geotextile fabric (e.g., Mirafi 160N or equivalent). Alternatively, footing subgrades could be stabilized with thin (i.e., 3 to 4-in. thick) "lean mix" concrete mud mats. The lean mix concrete should be able to develop a minimum 28-day design strength of 1,000 psi.

We recommend the following additional parameters be used for *preliminary* foundation design:

- Minimum foundation widths:
  - Continuous wall footings: 18 in.
  - Column pad footings: 30 in.

- Minimum footing depths below finish site grades:
  - Exterior/perimeter footings: 4 ft
  - Interior footings: no minimum requirement

Footing subgrades should be checked by a CGC field representative to document that the subgrade soils are suitable for footing support and advise on corrective measures, if necessary. We recommend using a smooth-edged backhoe bucket for footing and undercut excavations. The base of undercut excavations should be widened beyond the footing edges at least 0.5 ft in each direction for each foot of undercut depth for stress distribution purposes. (Note that a mass-undercut may simplify undercutting, depending on the spacing of footings and the required undercut depth.) OSHA slope guidelines should be followed if workers need to enter footing excavations. Granular soils exposed at footing grade or the bottom of undercut excavations *above the water table* should be thoroughly recompacted with a large vibratory plate compactor or an excavator-mounted hoe-pack prior to backfilling or formwork/concrete placement to densify soils loosened during the excavation process. Soils potentially susceptible to disturbance from vibratory compaction (e.g., cohesive/fine-grained soils or sands near or below the water table) should be hand-trimmed. Subgrades that are fairly wet should be stabilized with a thin (approximately 6 in. thick) layer of crushed clear stone that is compacted into the subgrade until deflection ceases or protected with lean mix mud mats, as

described above.

In order to re-establish footing grade in undercut areas above the water table, we generally recommend using granular backfill compacted to at least 95% compaction based on modified Proctor methods (ASTM D1557), in accordance with the Recommended Compacted Fill Specifications presented in Appendix D. Alternatively, 3-in. DGB that is placed in loose 10-in. lifts and compacted until deflection ceases can also be used to restore grades above the water table in undercut areas. Below the water table, undercut excavations should be backfilled with crushed clear stone that is placed in loose lifts of 12 in. or less, which are subsequently compacted with a large vibratory plate compactor or excavator-mounted hoe-pack until deflection ceases. Where total clear stone layer thickness exceeds 12 in., the clear stone should be wrapped in non-woven geotextile fabric (e.g. Mirafi 160N or equivalent) to prevent migration of fines into the void spaces of the clear stone. Alternatively, foundation grade below the water table can be restored with lean mix concrete that is capable of developing a minimum 28-day strength of 1,000 psi. Note that with the use of lean mix concrete as backfill, undercut excavations should be laterally oversized 0.5 ft from the edges of the foundation and geotextile fabric is not required at the bottom of the excavation. (Appropriate OSHA sloping should occur if workers need to enter the excavation.)

Provided the preliminary foundation design/construction recommendations discussed above are followed, we estimate that total and differential settlements should be on the order of 1.0 and 0.5 in., respectively.

B. Intermediate Foundations

Finish lower-level elevation of the mixed-use/hotel structure is tentatively set at EL 848 ft, and structural loads of the five- to six-story tall mixed-use and hotel buildings will likely be moderate to fairly high. Based on Borings 1 through 4, 7 and 8, footings are generally anticipated to bear within very loose to loose existing fill, very soft to medium stiff clay, sedimentary peat, or very loose to loose sand containing peat seams. These soils are considered unsuitable for conventional spread footing (and floor slab) support and would have to be undercut/replaced below the mixed-use/hotel structure. Medium dense sand or clayey silt soils, which are the uppermost suitable bearing strata, were encountered about 7.5 to 9.5 ft below preliminary lower-level floor elevation (about 4.5 to 8.5 ft below the groundwater table in the soil borings). Since widespread undercutting would be required below footings of the mixed-use/hotel structure, extending fairly deep below the groundwater table, it is our opinion that a conventional spread footing foundation system is likely not feasible or favorable compared to other alternatives. Instead, the footings of the mixed-use/hotel structure could be supported on intermediate foundation systems such as aggregate piers, stone columns, etc., and aggregate piers (or similar) will likely also be required for floor slab support. In addition, aggregate pier (or similar) support could be considered for the footings (and potentially the floor slab) of the public market building in order to reduce the potential for undercutting while improving the allowable bearing pressure for foundation design.

Aggregate piers, stone columns, etc. are not deep (pile) foundations, but are considered intermediate foundation systems that instead essentially stiffen the lower-strength and marginal soils to a sufficient depth below grade such that conventional spread footings at a moderate to high bearing pressure are feasible without the need for deep undercutting. For foundation support, relatively closely-spaced holes are drilled into the ground to a sufficient depth to limit total settlement to less than 1 in. For floor slab support, spacing is generally expected to be wider than below footings but would depend on slab loading. We anticipate that the holes for this project would generally terminate within the at least medium dense sand/silt soils, although the exact termination depth would be determined by the contractor/designer of the aggregate piers (or similar). The holes are then filled with crushed stone/dense graded base and compacted with a specially designed hydraulic tamper. *It should be noted that the presence of organic soils represents a special condition for aggregate pier (or similar) design, as these soils can lose confinement over time.* Therefore, a grouted aggregate pier or a design that incorporates a plastic shell through the organic layers may be needed to maintain confinement and integrity of the aggregate pier. We have had positive experiences with these special-case systems from Ground Improvement Engineering in similar soil conditions in the Madison area.

The intermediate foundation contractor should be aware of the potential presence of miscellaneous debris within the existing fill soils and buried remnants of former buildings which will likely impact aggregate pier (or similar) installation and may require removal prior to installation. The intermediate foundation contractor should have provisions to deal with the presence of potential obstructions, such as removing obstructions with an excavator.

Several proprietary systems exist, and aggregate piers (or similar) can be bid as an alternative to undercutting/replacing unsuitable soils below the buildings or using deep foundations, with foundation design typically included in the package. Aggregate piers (or similar) have been used successfully on many projects in Wisconsin with similar soil conditions, including several projects along East Washington Avenue in Madison. Full-time inspection is recommended during aggregate pier installation to document their construction according to design requirements, and this cost is typically included in the installation cost by the contractor, who generally conduct one or more load or modulus tests to check that the installed piers satisfy design assumptions. Footing subgrade preparation where aggregate piers (or similar) are installed generally includes recompaction of the tops, recompaction or hand-trimming of the soils between the piers, as well as other site-specific guidelines determined by the contractor.

Note that the aggregate pier (or similar) installation process does generate vibrations, and care is required where piers will be installed near existing buildings. The completion of a pre-condition survey of nearby existing buildings, and possibly vibration monitoring during construction to determine if vibrations may potentially damage these structures, is recommended.

C. Deep Foundations

As an alternative to intermediate foundations, deep foundations (helical piers, auger-cast grout piles, micropiles, driven piles, etc.) could be considered for the mixed-use/hotel structure. However, the presence of organic soils may present a challenge to the use of auger-cast piles, and micropiles, although capable of developing high capacities, are generally relatively expensive compared to other alternatives. In our opinion, driven piles could be a suitable foundation system for the mixed-use/hotel structure, especially if high structural loads are expected. However, based on our experience from several completed projects along East Washington Avenue where buildings are pile-supported, additional deeper soil borings would have to be performed to obtain more subsurface information for driven pile foundation design, since these foundation elements would likely terminate within very dense soils or bedrock that are expected at somewhat greater depths. If desired, we can provide additional information and recommendation, as well as a proposal for supplemental soil borings and deep foundation evaluation at the appropriate time.

Helical piers are another potential deep foundation alternative if they can be designed to accommodate the structural loads. Helical piers are generally expected to extend through the existing fill, peat and lower-strength to marginal soils, and bear within at least medium dense silt and sand strata. Helical pier capacity will vary depending on the number and size of helices, depth of installation and bearing stratum. Soil parameters for the design of helical piers are included in Table 1. Using these parameters, we used the commercially available software, HeliCAP® 2.5.1, produced by Hubbell Power Systems, to estimate helical pier capacities for a three-helix configuration (10 in., 12 in. and 14 in.). Approximate target lengths (measured from existing site grades) for several ultimate helical pier capacities (in compression) are summarized in Table 2. Note that some of these helical piers at higher capacity will likely extend below the bottom of the soil borings, and for purpose of this preliminary evaluation, we have assumed that the soil conditions in the bottom of the borings extend deeper. Additional deeper borings are recommended that would assist in helical pier (or other deep foundation) evaluation. *Since helical piers are proprietary, the helical pier capacities should be considered approximate, and the helical pier installer should determine the helix configuration and depth necessary to satisfy project requirements. Soil stratigraphy and properties should be expected to vary across the site, as shown in the borings, which will affect helical pier installation depths to achieve given capacity. Actual design depths should be determined by a separate, independent analysis using specific helix configurations proposed on the project.*

TABLE 1

Recommended Soil Parameters for Helical Pier Foundations [1]

Proposed Redevelopment

East Washington Avenue & North First Street, City of Madison, Dane County, Wisconsin

Boring	Description	Approximate Depth below Existing Ground Surface (ft)	Moist Unit Weight (pcf)	Saturated Unit Weight (pcf)	Buoyant Unit Weight (pcf)	Angle of Internal Friction (deg)	Cohesion (psf)
1	Loose to Medium Dense Granular Fill	0.8 to 6.0	115	125	63	30	0
	Very Soft Lean Clay, Some Sand and Organics	6.0 to 8.0	105	110	48	0 [3] / 23 [4]	100 [3] / 0 [4]
	Loose Sedimentary Peat	8.0 to 13	80	100	38	20	0
	Medium Dense Clayey Silt with Thin Clay and Fine Sand Seams/Lenses	13 to 23	120	130	68	31	0
	Medium Dense to Very Dense Sand, Some Silt and Gravel, Scattered Cobbles/Boulders	23 to 31+ [2]	120	130	68	34	0
2	Very Loose to Loose Granular Fill	1.1 to 6.0	110	120	58	28	0
	Loose Sedimentary Peat	6.0 to 8.5	80	100	38	20	0
	Loose Sand with Shells and Peat Seams	8.5 to 13	115	125	63	29	0
	Loose to Medium Dense Clayey Silt with Thin Clay and Fine Sand Seams/Lenses	13 to 35+ [2]	120	130	68	31	0
3	Loose Granular Fill	0.8 to 8.5	115	125	63	30	0
	Loose Sand with Shells and Organics	8.5 to 13	115	125	63	29	0
	Medium Dense Clayey Silt with Thin Clay and Fine Sand Seams/Lenses	13 to 23	120	130	68	31	0
4	Loose to Medium Dense Granular Fill	1.0 to 6.0	115	125	63	30	0
	Medium Stiff Lean Clay, Some Sand and Organics	6.0 to 7.5	115	120	58	0 [3] / 24 [4]	750 [3] / 15 [4]
	Medium Dense Sand with Shells and Peat Seams	7.5 to 13	120	130	68	31	0
	Medium Dense Clayey Silt with Thin Clay and Fine Sand Seams/Lenses	13 to 28	120	130	68	31	0
	Medium Dense Silty Sand	28 to 35+ [2]	120	130	68	32	0

Notes: [1] Generalized to some degree; refer to boring logs for more detailed soil descriptions. Not including factor of safety (i.e., FS = 1).

[2] Soil boring termination depth.

[3] Short-term loading conditions.

[4] Long-term loading conditions.

Recommended Soil Parameters for Helical Pier Foundations [1]

Proposed Redevelopment

East Washington Avenue & North First Street, City of Madison, Dane County, Wisconsin

Boring	Description	Approximate Depth below Existing Ground Surface (ft)	Moist Unit Weight (pcf)	Saturated Unit Weight (pcf)	Buoyant Unit Weight (pcf)	Angle of Internal Friction (deg)	Cohesion (psf)
7	Very Loose to Loose Granular Fill	1.1 to 6.0	110	120	58	28	0
	Loose Sand with Shells and Peat Seams	6.0 to 13	115	125	63	29	0
	Medium Dense Clayey Silt with Thin Clay and Fine Sand Seams/Lenses	13 to 35+ [2]	120	130	68	31	0
8	Loose to Medium Dense Granular Fill	1.1 to 6.0	115	125	63	30	0
	Loose Sedimentary Peat	6.0 to 8.5	80	100	38	20	0
	Loose Sand with Shells	8.5 to 13	115	125	63	29	0
	Medium Dense Sand	13 to 18	120	130	68	32	0
	Medium Dense Clayey Silt with Thin Clay and Fine Sand Seams/Lenses	18 to 33	120	130	68	31	0
	Medium Dense Silty Sand	33 to 35+ [2]	120	130	68	32	0

Notes: [1] Generalized to some degree; refer to boring logs for more detailed soil descriptions. Not including factor of safety (i.e., FS = 1).

[2] Soil boring termination depth.

[3] Short-term loading conditions.

[4] Long-term loading conditions.

**Table 2 - Estimated Helical Pier Depths
for a Representative 10 in., 12 in. and 14 in. Helix Configuration**

Boring	Approximate Helical Pier Depth below Existing Grade (ft)		
	Ultimate Capacity of 40 kips (Compression) (1)	Ultimate Capacity of 70 kips (Compression) (1)	Ultimate Capacity of 100 kips (Compression) (1)
1	19	25	30 (2,3)
2	19	32	Below 40 (4)
3	17	28	Below 40 (4)
4	16	29	38 (2,4)
7	18	29	Below 40 (4)
8	15	29	38 (2,4)

Notes:

1) Ultimate capacities do not include a factor of safety (i.e., FS = 1); appropriate factor of safety of 2 to 3, depending on level of load testing, should be applied to ultimate capacity to determine allowable capacity.
2) Limited by structural capacity of the helices rather than geotechnical capacity of the soil.
3) Heavy-duty helical pier may be required due to significant gravel content and/or cobbles/boulders.
4) Assuming soil conditions near bottom of soil boring continue downward.

The installation torque is correlated with capacity, although static load tests can also be completed to confirm the ultimate and allowable capacities. A minimum factor of safety of 2.0 to 3.0 is generally used for helical pier design. If a factor of safety of 2.0 is used to determine the allowable helical pier capacity, we recommend that a minimum of one static load test be performed to confirm the helical pier design satisfies the project requirements. The static load test should be performed on a pier installed to similar installation depth and torque as production piers. Additionally, the torque of each pier should be monitored during installation to document that each pier is torqued to the minimum torque established by the static load test or empirical correlations to ultimate capacity. If a static load test is not performed, we recommend using a minimum factor of safety of 2.5 to 3.0 in determining the allowable capacity, and the installation torque of each pier should be monitored, which is empirically correlated to the ultimate capacity. *Since there are multiple proprietary helical pier systems, as well as different methods for estimating helical pier capacities, it is the responsibility of the contractor to determine that their selected helical pier configuration, installation procedures and termination criteria satisfy the project requirements.*

Other helical pier considerations include the following:

- Prospective helical pier contractors should be aware of the potential presence of miscellaneous debris within the existing fill soils and buried remnants of former buildings, as well as elevated gravel contents and cobbles/boulders in some of the deeper natural sand strata, which will likely impact helical pier installation and may require removal prior to installation. The helical pier installer should have provisions to deal with the presence of potential obstructions. If obstructions are encountered at shallow depths, removing obstructions with an excavator would be one method to deal with the obstructions. Under some circumstances, using smaller diameter helix configuration may also assist in the installation process but may require deeper piers to develop capacity.

- The organic soils and potentially some of the existing fill may be corrosive, so the helical pier shafts should include corrosion protection, which can include hot-dip galvanizing, anti-corrosion coatings or increased steel shaft thickness.

- Loose fill, organic and lower-strength cohesive and fine-grained soils have relatively low lateral capacity, so *round helical pier shafts*, which have higher resistance to buckling, are recommended over square shafts. A buckling analysis should be completed to check that the pier shaft has adequate buckling resistance.

- If lateral loads are high enough such that vertical helical piers do not provide sufficient lateral resistance, battered helical piers can be considered. It is also possible that battered micropiles may be needed in the event that high lateral loads need to be resisted.

- Pile caps below exterior walls of the building additions should be located a minimum of 4 ft below finish grade for frost protection.

- Pile cap excavations should be sloped in accordance with OSHA slope guidelines if workers need to enter the excavations, and the excavation should be monitored by a competent person to determine the appropriate excavation slopes.

4. Seismic Site Class

In our opinion, the average soil properties in the upper 100 ft of the site (based on SPT blow counts "N-values" between 15 and 50 blows/ft, on average, in the sand and silt soils underlying the site) may be characterized as a stiff soil profile. This characterization would place the site in Site Class D for seismic design according to the International Building Code (see Table 1613.5.2).

5. Floor Slabs

As discussed above, it is our opinion that the main floor slab of the public market building could be designed/constructed as a conventional slab after removal of the fill and underlying organic soils and replacement with engineered backfill, or potentially after surcharging the building pad. Alternatively, the floor slab could be supported on aggregate piers (or similar).

The lower-level slab of the mixed-use/hotel structure could be designed/constructed as a conventional slab with aggregate pier (or similar) support or as a structural slab supported on deep foundations. In addition, the lower-level slab will require permanent sub-floor dewatering, or portions of the mixed-use/hotel structure that extend below the groundwater table on a permanent basis could be designed/constructed as watertight.

Note that due to environmentally impacted soils at this site sub-floor venting systems may be required to remove harmful vapors that may accumulate below the slabs of both buildings. We recommend that Seymour Environmental Services, Inc. evaluate the need for and design of sub-floor venting systems.

A. Slab-On-Grade (Public Market Building)

As discussed above, the existing peat layers (and sand soils containing peat seams) encountered in Borings 5 and 6 are considered unsuitable for floor slab support due to the potential for long-term settlement resulting in slab movement and/or cracking. One way of addressing these soils would be to mass-undercut them within the building footprint, which may make sense if shallow foundations with undercut/replacement should be pursued. However, it must be noted that undercutting operations will likely require significant temporary dewatering efforts and potentially landfill disposal of some undercut material. Alternatively, the building footprint could be surcharged, as discussed in the Site Preparation section of this report, to pre-consolidate the peat layers prior to slab construction, if undercutting/replacement should only be performed below footings (but not below floor slab areas). The surcharging scenario should also be considered if the building foundations (but not the floor slab) are to be supported on aggregate piers (or similar). Note, however, that if the peat layers remain in-place below the floor slab, a risk of unacceptable long-term floor slab performance remains due to the potential of secondary settlement (i.e., non-load induced settlement resulting from decomposition) of the peat, as well as settlement of the existing, undocumented fill. If the owner is not willing to accept the risk that unacceptable total and differential settlement (including cracking) may occur over time, and a mass-undercut of the peat within the building footprint should not be desired (e.g., based on economics), the floor slab could be supported on aggregate piers (or similar), or a structural floor slab supported by deep foundations (e.g., helical piers, driven piles, etc.) could be considered.

The structural slab or aggregate pier-supported slab alternatives involve the least amount of risk of unacceptable floor slab performance (settlement, cracking, etc.), but the highest up-front costs, with the structural slab likely more expensive than the aggregate pier alternative. The conventional floor slab alternative with surcharging the building pad may involve the lowest up-front cost, but also carries the highest long-term risk of unacceptable floor slab performance, as mentioned above, as well as the potential for slab jacking if slab settlement becomes intolerable. The risk is the owner's responsibility. If the owner is willing to accept the risk that floor slab settlement and/or cracking may occur and a conventional floor slab will be constructed on a surcharged building pad, the owner's risk of undesirable slab performance can be reduced (though not eliminated) by careful slab preparation practices. The practices would involve thoroughly recompacting the existing fill subgrades with a large vibratory compactor and then proof-rolling the subgrades with a loaded tri-axle dump truck to check for loose/soft zones. If loose or soft zones are encountered, these areas should be undercut, with grade re-established with granular soil compacted to a minimum of 95% compaction (ASTM D 1557) or well-compacted 3-in. dense graded base. *We expect widespread undercutting of about 1 to 2 ft will be required to develop a reasonably firm subgrade within the existing fill soils.* Undercutting can likely be reduced where site grades are raised with high-quality granular fill.

To act as a capillary break below the slab, we recommend including a minimum 4 to 6-in. thick layer of well-graded sand/gravel with less than 5% passing the No. 200 U.S. standard sieve. Note, however, that some structural engineers require a layer of DGB, such as 1¼-in. DGB, rather than sand/gravel below the floor slab to increase the subgrade modulus immediately below the slab. To further reduce the potential for moisture migration through the slab, a plastic vapor barrier can also be utilized. Fill and base layer material below the floor slab should be placed as described in the Site Preparation section of this report. Slabs constructed on a minimum 6-in. thick dense graded base layer may be designed utilizing a subgrade modulus of 150 pci, and a subgrade modulus of 100 pci should be used for the design of slabs that are constructed on a sand/gravel layer. The design subgrade moduli are based on a firm or adequately stabilized, recompacted subgrade such that non-yielding conditions are developed. The slab should be structurally separated from the footings with a compressible filler and have construction joints and reinforcement for crack control.

B. Parking Level Slab (Mixed-Use/Hotel Structure)

Subgrade soils below the lower-level slab of the mixed-use/hotel structure are anticipated to consist of existing, very loose to loose granular fill or very soft to medium stiff natural clay, underlain by peat and/or loose sands with organics and peat seams. As noted above, these soil conditions are not considered suitable for floor slab support, and it is our opinion that widespread undercutting below the floor slab will likely not be feasible due to fairly deep undercuts below the groundwater table. Therefore, we recommend the floor slab of the mixed-use/hotel structure be supported on aggregate piers (or similar), or a structural slab with deep foundation (e.g., helical piers, driven piles, etc.) support be utilized.

Based on the groundwater observations made in the soils borings, the preliminary finish lower-level elevation (EL 848 ft) is within a few feet of to about 2 ft below the groundwater table (and about at to 2 ft below typical water levels in Lake Mendota). Although building below the water table can be accomplished, *the owner should understand that there are additional risks and considerable costs associated with such plans*. Where the lower level will extend below the water table on a permanent basis, two typical strategies can be used to deal with the water table:

1. Install a subfloor drainage system that *permanently* lowers the water table below lowest-level slab elevation for the life of the structure; or

2. Design and construct the levels below the water table as a watertight (i.e., "bath tub") structure capable of resisting hydrostatic uplift pressures below the slab and along the walls.

On past projects with groundwater drawdowns of similar magnitude to this project, the permanent subfloor dewatering alternative has typically been chosen based on economics, and additional recommendations for this alternative are provided below. However, we have been involved with a couple projects that have utilized a watertight design, and we can provide additional recommendations if desired, upon request. We understand that there are higher up-front costs associated with constructing a watertight structure (from additional concrete and waterproofing), but *it should be recognized that there will be higher long-term operation and maintenance (O&M) costs and greater risk associated with permanently lowering the water table below the floor slab during the lifetime of the building*. The costs associated with building below the water table will be reduced, at least somewhat, if the lowest floor slab grades are raised.

If a permanent subfloor dewatering system will be utilized below the floor slab of the mixed-use/hotel structure, we anticipate the system will involve the following components:

- A geotextile (e.g., Mirafi 160N or approved equivalent) should be carefully placed and positioned above the subgrade prior to stone placement to separate the drainage blanket from the subgrade soils. A minimum 2-ft overlap is recommended between adjoining geotextile sheets and the fabric should be wrapped up the sides of foundations, walls and columns a minimum of 2 ft. Careful attention is required so that the fabric is also sealed around vertical pipe penetrations. If perimeter walls will be backfilled with clear stone, the fabric should also be wrapped up the sides of the earth retention.

- The drainage blanket below the floor slab should be a minimum 12-in. thick layer of Size No. 1 washed stone (WDOT Specification Section 501.2.5.4.4) or an equivalent open-graded crushed clear stone.

- Drain lines should be spaced approximately 20- to 25-ft in the longitudinal direction. A slightly wider spacing may be acceptable if the plumbing designer determines that wider-spaced drain tile can adequately remove the water. The drain lines should be bedded in trenches that extend slightly below the drainage blanket, and the drain lines should be sloped towards either a header/collector pipe or the sump crocks. Note that we assume that the subgrade will be sloped towards the sump crocks and the drain lines will follow the general slope of the subgrade. The geotextile should be draped inside the shallow trenches before installing the bedding stone and pipe. The maximum drain slot size should be equal to 0.25 inches.

- Schedule 40 PVC drain pipe is recommended for the main/central drainage pipes. However, if flexible, corrugated ABS pipe can be effectively cleaned/jetted without damage through cleanouts extending through the slab, this type of material can be substituted for the PVC pipe.

- Pressure relief ports should be included in the slab design to prevent slab uplift in the event of a system shutdown. Note that the pressure relief ports are included to allow the lowest level to flood in the event that the subfloor drainage system is inoperable (e.g., during a power outage, etc.) during unlikely high water events. Although flooding of the lowest level may occur, damage to the slab is prevented. Pressure relief ports can be as simple as vertical pipes extending through the slab with a conventional floor drain as a cover. They should be installed at high points in the slab to prevent snow melt from collecting in the subfloor drainage system.

- Appropriate connections between the drainage system behind the earth retention system, drainage system behind the permanent basement walls and sub-floor drainage system should be provided to adequately drain water behind the below-grade walls and prevent the build-up of hydrostatic pressures (unless the below-grade walls are designed to accommodate such increased lateral pressures).

- Exterior basement walls below approximately EL 850 ft should be waterproofed with a waterproofing membrane.

- A qualified civil or mechanical engineering consultant experienced in the design of permanent drainage systems should be included on the design team for the project to detail the system required on this project. The drainage system should be designed so that it is continuously connected to an interior perimeter drain line which discharges to one or more sump pits. Details such as sump locations/sizes, pump selection, backup generator, pumps and alarm systems, final pipe sizes and locations should be completed by a plumbing designer and are not addressed in this report. We

recommend that redundancy be built into the system, such as duplicate sumps, pumps and backup generator, in the event of pump break-down or loss of primary power. If possible, critical electrical and mechanical equipment should not be located in the parking level to avoid potential damage in the event of subfloor drainage system shutdown and subsequent flooding.

Note that there is considerable flexibility in the details of the drainage system, and we can work with the design team to develop a system suitable for the project. We can also provide additional details regarding estimated long-term dewatering rates. If supplemental soil borings are to be performed to gather more information with regard to deep foundation design, we recommend the installation of a temporary groundwater monitoring well in one of the boreholes in order to obtain longer-term groundwater data. The *in situ* hydraulic conductivity can be estimated by conducting drawdown and recovery (slug) tests in the monitoring well, which can in turn be used to provide *preliminary* sub-floor dewatering rates based on the building footprint and groundwater drawdown. Sub-floor dewatering rates should be re-evaluated during construction to reflect actual construction dewatering rates, which will more accurately reflect anticipated long-term dewatering rates.

6. Below-Grade Walls

We anticipate that below-grade walls of the mixed-use/hotel structure will be laterally supported by the lower-level slab and upper-level framing. Therefore, *at-rest* lateral earth pressures should be used during design of these walls. To reduce the buildup of such pressures, high-quality backfill should be placed within 4 to 6 ft of the walls. We recommend that a perimeter drainage system be installed to intercept potential surface water infiltration and that the granular backfill be continuously connected to the drainage system. The perimeter drainage system, in turn, should be connected to the subfloor drainage layer, which discharges water by means of one or more sump pumps. The granular backfill should be well-graded sand or gravel having no more than 12% passing the No. 200 U.S. standard sieve (i.e., USCS designations SP, SP-SM, GP or GP-GM). The cleaner sands excavated on-site can potentially be used as wall backfill if selectively excavated and stockpiled, and on-site sands containing higher amounts of fines (denoted SM on the boring logs) can potentially also be used as wall backfill if a three-dimensional drainage board is included in the wall design. Soils containing cobbles/boulders should not be used in direct contact with below-grade walls. To impede the inflow of surface moisture, the final 2 ft of backfill in unpaved areas should consist of a clayey fill cap. The clayey cap (or pavement) should be graded to promote positive drainage away from the walls. Recommended perimeter drain details are presented in Appendix F.

Before placing the wall backfill, the exterior walls should be damp-proofed with spray-applied or mopped-on rubber or bituminous sealer. Portions of walls that will extend below the water table should be water-proofed. Compaction of the backfill within 3 to 5 ft of the walls should be performed with lightweight equipment to avoid the development of excessive lateral earth pressures. The backfill should be compacted to a minimum compaction level of 93% modified Proctor following Appendix D guidelines. Lower-level walls constructed in accordance with the above

recommendations may be designed for an equivalent fluid pressure of 55 psf per ft of depth (*at-rest* conditions). Additionally, the wall design should also account for surcharge effects that could be applied during or after construction as well as hydrostatic pressures. Note that for a watertight lower-level design, the portions of the below-grade walls that extend below the water table will need to be waterproofed, and the walls will need to be designed to resist hydrostatic pressures.

6. Retaining Walls

Cast-in-place concrete site retaining walls may not be laterally restrained from rotating. Therefore, these walls can be designed for *active* earth pressures behind the walls and *passive* pressures in front of the walls. Lateral earth pressures behind the retaining walls can be reduced by backfilling with sand with less than 12% passing the No. 200 U.S. standard sieve, as described in the preceding section. In addition, weepholes should be placed near the base of these walls on 10-ft centers to provide drainage of the wall backfill. The weepholes should be hydraulically connected with the backfill and should be protected with a non-woven geotextile fabric to minimize soil loss through the weepholes. The wall designer may have other and/or additional drainage requirements.

Retaining walls constructed in accordance with the above recommendations may be designed for an *active* equivalent fluid pressure of 35 psf/ft. *Passive* pressures are expected to be on the order of 200 psf/ft. The passive pressure value includes a safety factor of 2 to prevent excessive wall deflection. The retaining wall design should also take into account surcharge effects which could be applied during or after construction.

7. Pavement Design

We anticipate that pavement design will be controlled by the existing fill soils, and subgrades should be prepared as described in the Site Preparation section of this report, with recompaction/proof-rolling completed prior to base course placement. *Due to the widespread presence of undocumented fill, we recommend that the budget include a generous contingency for subgrade undercutting/stabilization, which could potentially include about 12 in. of additional coarse aggregate (e.g., 3-in. DGB) over biaxial geogrid (e.g., Tensar BX Type 1 or equivalent).* The need for undercutting below the pavement section will likely be reduced where site grades are raised at least 2 ft above existing grade with high-quality granular fill.

We anticipate that asphalt pavement on this site will be exposed to primarily automobile traffic with less than one 18-kip equivalent single axle load (ESAL) per day. In view of this, we have assumed Traffic Class I following Wisconsin Asphalt Pavement Association (WAPA) recommendations for parking areas and driveways that are mainly used by light passenger vehicles. However, main sections of the driveways are likely to experience heavier traffic loads (e.g., due to delivery and garbage trucks). For pavement areas where trucks will routinely travel, we have assumed a traffic load of less than 10 ESALs per day and Traffic Class II according to WAPA. The pavement sections summarized in Table 3 below were selected assuming a Soil Support Value "SSV" of about 4.0 for a

firm or adequately stabilized subgrade and a design life of around 20 years. Note that the pavement lifespan may be reduced somewhat by the presence of organic soils that may settle over time, which may require additional maintenance.

TABLE 3
Recommended Pavement Sections

Material	**Thicknesses (in.)**		**WDOT Specification** [(1)]
	Traffic Class I (Light Duty)	**Traffic Class II (Medium Duty)**	
Bituminous Upper Layer [(2,3)]	1.5	1.75	Section 460, Table 460-1, 9.5 mm
Bituminous Lower Layer [(2,3)]	2.0	2.25	Section 460. Table 460-1, 12.5 mm
Dense Graded Base Course [(2,4)]	8.0	10.0	Sections 301 and 305, 3 in. and 1¼ in.
Total Thickness	**11.5**	**14.0**	

Notes:

1) Wisconsin DOT *Standard Specifications for Highway and Structure Construction*, latest edition, including supplemental specifications, and *Wisconsin Asphalt Pavement Association 2018 Asphalt Pavement Design Guide*.

2) Compaction requirements:
   - Bituminous concrete: Refer to Section 460-3.
   - Base course: Refer to Section 301.3.4.2, Standard Compaction

3) Mixture Type LT (or E-0.3) bituminous; refer to Section 460, Table 460-2 of the *Standard Specifications*.

4) The upper 4 in. should consist of 1¼-in. DGB; the bottom part of the layer can consist of 3-in. DGB.

Note that if traffic volumes are greater than those assumed, CGC should be allowed to review the recommended pavement sections and adjust them accordingly. Alternative pavement designs may prove acceptable and should be reviewed by CGC. If there is a delay between subgrade preparation and placing the base course, the subgrade should be recompacted.

Where concrete pavement may be used, such as in pavement areas subjected to concentrated wheel loads (e.g., dumpster pads), we recommend that the concrete should be at least 6 in. thick and contain mesh reinforcement for crack control. Concrete slabs underlain by a minimum 6-in. thick dense graded base layer over a firm or stabilized subgrade can be designed utilizing a subgrade modulus of 150 pci.

CONSTRUCTION CONSIDERATIONS

Due to variations in weather, construction methods and other factors, specific construction problems are difficult to predict. Soil related difficulties which could be encountered on the site are discussed below:

- Due to the potentially sensitive nature of some of the on-site soils, we recommend that final site grading activities be completed during dry weather, if possible. Construction traffic should be avoided on prepared subgrades to minimize potential disturbance.

- Contingencies in the project budget for subgrade stabilization with coarse aggregate in pavement and floor slab areas should be increased if the project schedule requires that work proceed during adverse weather conditions.

- Earthwork construction during the late fall through early spring could be complicated as a result of wet weather and freezing temperatures. During cold weather, exposed subgrades should be protected from freezing before and after footing construction. Fill should never be placed while frozen or on frozen ground.

- Excavations extending greater than 4 ft in depth below the existing ground surface should be sloped or braced in accordance with current OSHA standards.

- Based on the observations made during our field exploration, dewatering of the lower-level excavation of the mixed-use/hotel structure as well as footing and undercut excavations of the public market building is expected, as previously discussed. In addition, water accumulating at the bottom of excavations as a result of precipitation or seepage should be quickly removed in a similar manner, with dewatering means and methods being the contractor's responsibility.

RECOMMENDED CONSTRUCTION MONITORING

The quality of the foundation, floor slab and pavement subgrades will be largely determined by the level of care exercised during site development. To check that earthwork and foundation construction proceed in accordance with our recommendations, the following operations should be monitored by CGC:

- Topsoil stripping and subgrade proof-rolling/compaction;
- Fill/backfill placement and compaction;
- Intermediate and/or deep foundation installation;
- Foundation excavation/subgrade preparation; and
- Concrete placement.

* * * * *

It has been a pleasure to serve you on this project. If you have any questions or need additional consultation, please contact us.

Sincerely,

CGC, Inc.

Tim F. Gassenheimer, E.I.T.
Staff Engineer

David A. Staab, P.E., LEED AP
Senior Consulting Professional

Encl: Appendix A - Field Exploration
Appendix B - Soil Boring Location Exhibit
Logs of Test Borings (8)
Log of Test Boring-General Notes
Unified Soil Classification System
Appendix C - Document Qualifications
Appendix D - Recommended Compacted Fill Specifications
Appendix E - Settlement Platform
Appendix F - Perimeter Drain Details

APPENDIX A

FIELD EXPLORATION

APPENDIX A

FIELD EXPLORATION

Subsurface conditions for this study were explored by drilling eight Standard Penetration Test (SPT) soil borings to planned depths between 25 and 35 ft below current site grades. Note, however, that auger refusal occurred in Boring 1 at a depth of approximately 31 ft on a possible cobble/boulder or sandstone bedrock. In Boring 5, shallow refusal occurred on apparent concrete (probable remnants of the former building) at about 1.5 ft below the ground surface, and the boring was subsequently offset several times in an attempt to bypass the obstruction, with the final boring location about 20 ft east of the initially planned location. The boring locations were selected by the planning team and located in the field by CGC at locations slightly adjusted, as needed, to work around existing site features (buildings, drives, parked cars, utilities, etc.). The soil borings were conducted by Badger State Drilling (under subcontract to CGC) on April 25 and 26, and May 2, 2018 using a truck-mounted CME-55 rotary drill rig equipped with hollow stem augers and an automatic SPT hammer.

The soil borings were sampled at 2.5-ft intervals to a depth of 10 ft and at 5-ft intervals thereafter. The samples were obtained in general accordance with specifications for standard penetration testing, ASTM D 1586. The specific procedures used for drilling and sampling are described below.

1. Boring Procedures between Samples

   The boring is extended downward, between samples, by a hollow-stem auger.

2. Standard Penetration Test and Split-Barrel Sampling of Soils
   (ASTM Designation: D 1586)

   This method consists of driving a 2-inch outside diameter split-barrel sampler using a 140-pound weight falling freely through a distance of 30 inches. The sampler is first seated 6 inches into the material to be sampled and then driven 12 inches. The number of blows required to drive the sampler the final 12 inches is recorded on the log of borings and is known as the Standard Penetration Resistance.

During the field exploration, the driller visually classified the soil and prepared a field log. Field screening of the soil samples for possible environmental contaminants was conducted by an environmental consultant (subcontracted to the owner) during drilling. Water level observations were made in each boring during and after drilling and are shown at the bottom of each boring log. Upon completion of drilling, the borings were backfilled with bentonite to satisfy WDNR regulations and the soil samples were delivered to our laboratory for visual classification and laboratory testing. The soils were visually classified by a geotechnical engineer using the Unified Soil Classification System. The Soil Boring Location Exhibit, the final logs prepared by the engineer including laboratory test results and a description of the Unified Soil Classification System are presented in Appendix B.

APPENDIX B

SOIL BORING LOCATION EXHIBIT
LOGS OF TEST BORINGS (8)
LOG OF TEST BORING-GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM

Legend

Denotes Soil Boring Location and Number

Notes

1. Borings were performed by Badger State Drilling on April 25 and 26, and May 2, 2018.
2. Boring locations are approximate.
3. Base map was obtained via DCiMap.

Date: 05/2018	CGC, Inc.	**BORING LOCATION EXHIBIT** **Proposed Redevelopment** **East Washington Avenue & North First Street** **City of Madison, Dane County, Wisconsin**
Job No. C18151		

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **1**
Surface Elevation (ft) **854±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						5 in. Asphalt Pavement/4 in. Base Course					
1		14	M	10		FILL: Loose to Medium Dense, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2		12	M	5	5						
3		16	M	4		Very Soft, Bluish Gray Lean CLAY, Some Sand and Organics (CL)	(<0.25)	22.2			
4		10	W	7	10	Loose, Black Sedimentary PEAT, Trace Sand (PT)		73.3			
5		15	W	17	15	Medium Dense, Light Brown Clayey SILT with Thin Clay and Fine Sand Seams/Lenses (ML) Slight Apparent Petroleum Odor noted in Samples 5 and 6					
6		18	W	13	20						
7		10	W	24	25	Medium Dense to Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles/Boulders (SM)					
8		8	W	50/3"	30	Possible Sandstone in Tip of Spoon Near 29.5 ft					
						End Boring/Auger Refusal at 31 ft on Possible Cobble/Boulder or Bedrock Borehole backfilled with bentonite chips and asphalt patch					
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **6.0'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **48 Hours**
Depth to Water _____ _____ _____ **7.7'** ▼
Depth to Cave in _____ _____ _____ **19'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/25/18** End **4/25/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **2**
Surface Elevation (ft) **853±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						5 in. Asphalt Pavement/8 in. Base Course					
1	■	12	M	9		FILL: Very Loose to Loose, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2	■	12	W	3							
3	■	8	W	7	5	Loose, Black Sedimentary PEAT, Trace Sand (PT) Slight Apparent Petroleum Odor Noted in Sample 3		109.5			33.0
4	■	14	W	5		Loose, Light Brown to Gray Fine SAND, Trace Silt with Occasional Shells, Peat Seams (SP)					
5	■	18	W	6	10	Loose to Medium Dense, Light Brown Clayey SILT with Thin Clay and Fine Sand Seams/Lenses (ML)					
6	■	16	W	19	15						
7	■	18	W	14	20						
8	■	18	W	16	25						
9	■	18	W	19	30						
					35	End Boring at 35 ft Borehole backfilled with bentonite chips and asphalt patch					
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **3.5'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **24 Hours**
Depth to Water _____ _____ _____ **4.6'** ▼
Depth to Cave in _____ _____ _____ **5.8'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/26/18** End **4/26/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **3**
Surface Elevation (ft) **854±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						4 in. Asphalt Pavement/6 in. Base Course					
1		16	M	10		FILL: Very Loose to Medium Dense, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2		15	M	4	5						
3		18	M/W	4							
4		8	W	9	10	Loose, Light Brown to Gray Fine SAND, Trace Silt and Organics with Occasional Shells (SP)		20.1			0.7
5		18	W	16	15	Medium Dense, Light Brown Clayey SILT with Thin Clay and Fine Sand Seams/Lenses (ML)					
6		16	W	15	20						
7		18	W	21	25						
8		16	W	18	30						
9		16	W	19	35						
						End Boring at 35 ft Borehole backfilled with bentonite chips and asphalt patch					
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **8.5'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **24 Hours**
Depth to Water _____ _____ _____ **8.10'** ▼
Depth to Cave in _____ _____ _____ **11.2'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/26/18** End **4/26/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **4**
Surface Elevation (ft) **852±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						4 in. Asphalt Pavement/8 in. Base Course					
1	■	8	M	17		FILL: Very Loose to Medium Dense, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2	■	16	W	4	▽ ▼ 5						
3	■	8	W	6		Medium Stiff, Bluish Gray Lean CLAY, Some Sand and Organics (CL)	(0.75)				
4	■	18	W	11	10	Loose to Medium Dense, Light Brown to Gray Fine SAND, Trace Silt with Numerous Shells, Peat Seams (SP)					
5	■	18	W	14	15	Medium Dense, Light Brown Clayey SILT with Thin Clay and Fine Sand Seams/Lenses (ML)					
6	■	18	W	12	20						
7	■	18	W	13	25						
8	■	18	W	13	30	Medium Dense, Light Brown Silty Fine SAND (SM)					
9	■	18	W	14	35						
					40	End Boring at 35 ft Borehole backfilled with bentonite chips and asphalt patch					

WATER LEVEL OBSERVATIONS

While Drilling ▽ **3.5'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **24 Hours**
Depth to Water _____ _____ _____ **5'** ▼
Depth to Cave in _____ _____ _____ **7.4'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/26/18** End **4/26/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **5**
Surface Elevation (ft) **852±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						3.5 in. Asphalt Pavement/7 in. Base Course					
1		16	M	16		FILL: Medium Dense, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2		14	M	11	5						
3		8	M/W	3		Very Loose, Black Sedimentary PEAT, Trace Sand (PT)		178.5			
4		12	W	5	10	Loose, Light Brown to Gray Fine SAND, Trace Silt with Occasional Shells and Thin Peat Seams (SP)					
5		18	W	7	15	Stiff, Gray to Light Brown Silty to Lean CLAY (CL-ML/CL)	(1.25)	19.2			
6		18	W	12	20	Medium Dense, Light Brown to Gray Silty Fine SAND (SM)					
7		18	W	15	25						
						End Boring at 25 ft Borehole backfilled with bentonite chips and asphalt patch Refusal encountered at 1.5 ft below pavement at staked location on apparent concrete. Offset 20'E and completed					
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **8.5'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **30 Mins.**
Depth to Water _____ _____ _____ **7'** ▼
Depth to Cave in _____ _____ _____ **7'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **5/2/18** End **5/2/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **6**
Surface Elevation (ft) **853±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						4 in. Asphalt Pavement/4 in. Base Course					
1		8	M	8		FILL: Loose, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2		14	M	9	5	FILL: Loose, Black Mix of Sand, Cinders and Gravel					
3		10	M/W	5		Loose, Black Sedimentary PEAT (PT)		152.9			45.1
4		16	W	4	10	Very Loose to Loose, Light Brown to Gray Fine SAND, Trace Silt with Occasional Shells (SP)					
5		18	W	11	15	Medium Stiff to Stiff, Gray to Light Brown Silty to Lean Clay (CL-ML/CL)	(1.0-1.5)	19.0			
6		18	W	11	20	Medium Dense, Light Brown Clayey SILT with Thin Clay and Fine Sand Seams/Lenses (ML)					
7		18	W	13	25						
						End Boring at 25 ft Borehole backfilled with bentonite chips and asphalt patch					
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **6.0'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **48 Hours**
Depth to Water _____ _____ _____ **7.3'** ▼
Depth to Cave in _____ _____ _____ **10.3'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/25/18** End **4/25/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **7**
Surface Elevation (ft) **852±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						5 in. Asphalt Pavement/8 in. Base Course					
1	■	12	M	10		FILL: Very Loose to Medium Dense, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2	■	10	M/W	2	5						
3	■	14	W	5		Loose, Light Brown to Gray Fine SAND, Trace Silt with Occasional Shells and Peat Seams (SP)					
4	■	18	W	6	10						
5	■	16	W	16		Medium Dense, Light Brown Clayey SILT with Thin Clay and Fine Sand Seams/Lenses (ML)					
6	■	18	W	14	15						
7	■	18	W	15	20						
8	■	18	W	11	25						
9	■	16	W	16	30						
					35	End Boring at 35 ft Borehole backfilled with bentonite chips and asphalt patch					
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **6.0'**	Upon Completion of Drilling			
Time After Drilling				**30 Mins.**
Depth to Water				**6.5'** ▼
Depth to Cave in				**8'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **5/2/18** End **5/2/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Proposed Redevelopment**
East Washington Avenue & North First Street
Location **City of Madison, Dane County, Wisconsin**

Boring No. **8**
Surface Elevation (ft) **852±**
Job No. **C18151**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						6 in. Asphalt Pavement/7 in. Base Course					
1		10	M	10		FILL: Loose to Medium Dense, Brown Fine to Medium Sand, Little to Some Silt and Gravel					
2		10	M	6	5	FILL: Loose, Black Mix of Sand, Cinders and Gravel					
3		12	M	8		Loose, Black Sedimentary PEAT, Trace Sand (PT) Apparent Petroleum Odor Noted in Sample 3		163.0			
4		18	W	5	10	Loose, Light Brown to Gray Fine SAND, Trace Silt with Occasional Shells (SP) Apparent Petroleum Odor Noted in Sample 4					
5		15	W	20	15	Medium Dense, Light Brown to Gray Fine SAND, Trace Silt (SP)					
6		14	W	11	20	Medium Dense, Light Brown Clayey SILT with Thin Clay and Fine Sand Seams/Lenses (ML)					
7		17	W	12	25						
8		18	W	13	30						
9		16	W	17	35	Medium Dense, Light Brown to Gray Silty Fine SAND (SM)					
						End Boring at 35 ft Borehole backfilled with bentonite chips and asphalt patch					
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **8.5'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **30 Mins.**
Depth to Water _____ _____ _____ **8.5'** ▼
Depth to Cave in _____ _____ _____ **8.5'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **5/2/18** End **5/2/18**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **AJB**
Drill Method **2.25" HSA; Autohammer**

CGC, Inc.

LOG OF TEST BORING

General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12”	Larger than 12”
Cobbles	3” to 12”	3” to 12”
Gravel: Coarse	¾” to 3”	¾” to 3”
Fine	4.76 mm to ¾”	#4 to ¾”
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Physical Characteristics
Color, moisture, grain shape, fineness, etc.
Major Constituents
Clay, silt, sand, gravel
Structure
Laminated, varved, fibrous, stratified, cemented, fissured, etc.
Geologic Origin
Glacial, alluvial, eolian, residual, etc.

Relative Density

Term	“N” Value
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

Relative Proportions Of Cohesionless Soils

Proportional Term	Defining Range by Percentage of Weight
Trace	0% - 5%
Little	5% - 12%
Some	12% - 35%
And	35% - 50%

Consistency

Term	q_u-tons/sq. ft
Very Soft	0.0 to 0.25
Soft	0.25 to 0.50
Medium	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	Over 4.0

Organic Content by Combustion Method

Soil Description	Loss on Ignition
Non Organic	Less than 4%
Organic Silt/Clay	4 – 12%
Sedimentary Peat	12% - 50%
Fibrous and Woody Peat	More than 50%

Plasticity

Term	Plastic Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6” penetrations of the 2” split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30” and is seated to a depth of 6” before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS – Continuous Sampling
RC – Rock Coring: Size AW, BW, NW, 2”W
RQD – Rock Quality Designation
RB – Rock Bit/Roller Bit
FT – Fish Tail
DC – Drove Casing
C – Casing: Size 2 ½”, NW, 4”, HW
CW – Clear Water
DM – Drilling Mud
HSA – Hollow Stem Auger
FA – Flight Auger
HA – Hand Auger
COA – Clean-Out Auger
SS - 2” Dia. Split-Barrel Sample
2ST – 2” Dia. Thin-Walled Tube Sample
3ST – 3” Dia. Thin-Walled Tube Sample
PT – 3” Dia. Piston Tube Sample
AS – Auger Sample
WS – Wash Sample
PTS – Peat Sample
PS – Pitcher Sample
NR – No Recovery
S – Sounding
PMT – Borehole Pressuremeter Test
VS – Vane Shear Test
WPT – Water Pressure Test

Laboratory Tests

q_a – Penetrometer Reading, tons/sq ft
q_a – Unconfined Strength, tons/sq ft
W – Moisture Content, %
LL – Liquid Limit, %
PL – Plastic Limit, %
SL – Shrinkage Limit, %
LI – Loss on Ignition
D – Dry Unit Weight, lbs/cu ft
pH – Measure of Soil Alkalinity or Acidity
FS – Free Swell, %

Water Level Measurement

▽ - Water Level at Time Shown
NW – No Water Encountered
WD – While Drilling
BCR – Before Casing Removal
ACR – After Casing Removal
CW – Cave and Wet
CM – Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

CGC, Inc.

Madison - Milwaukee

Unified Soil Classification System

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)		
		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)		
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)		
		SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)		
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

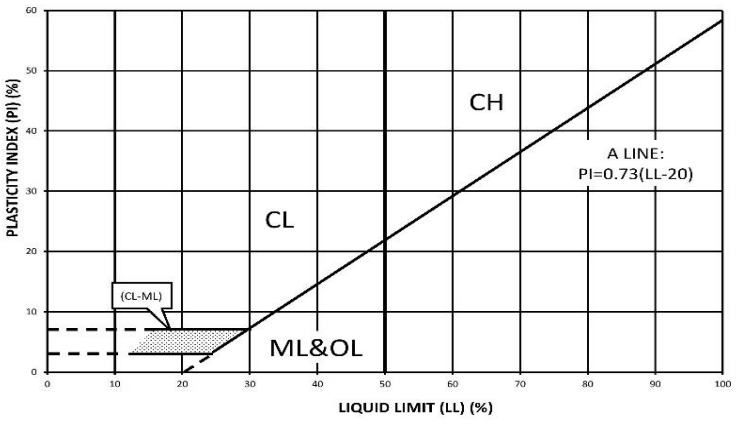
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limts below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limts above "A" line or P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART



APPENDIX C

DOCUMENT QUALIFICATIONS

APPENDIX C
DOCUMENT QUALIFICATIONS

I. GENERAL RECOMMENDATIONS/LIMITATIONS

CGC, Inc. should be provided the opportunity for a general review of the final design and specifications to confirm that earthwork and foundation requirements have been properly interpreted in the design and specifications. CGC should be retained to provide soil engineering services during excavation and subgrade preparation. This will allow us to observe that construction proceeds in compliance with the design concepts, specifications and recommendations, and also will allow design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction. CGC does not assume responsibility for compliance with the recommendations in this report unless we are retained to provide construction testing and observation services.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices and no other warranties are expressed or implied. The opinions and recommendations submitted in this report are based on interpretation of the subsurface information revealed by the test borings indicated on the location plan. The report does not reflect potential variations in subsurface conditions between or beyond these borings. Therefore, variations in soil conditions can be expected between the boring locations and fluctuations of groundwater levels may occur with time. The nature and extent of the variations may not become evident until construction.

II. IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes. While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you* - should apply the report for any purpose or project except the one originally contemplated.

READ THE FULL REPORT

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *CGC cannot accept responsibility or liability for problems that occur because our reports do not consider developments of which we were not informed.*

SUBSURFACE CONDITIONS CAN CHANGE

A geotechnical engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

MOST GEOTECHNICAL FINDINGS ARE PROFESSIONAL OPINION

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgement to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ - sometimes significantly - from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most

effective method of managing the risks associated with unanticipated conditions.

A REPORT'S RECOMMENDATIONS ARE NOT FINAL

Do not over-rely on the confirmation-dependent recommendations included in your report. *Those confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *CGC cannot assume responsibility or liability for the report's confirmation-dependent recommendations if we do not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical engineering report. Confront that risk by having CGC participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

DO NOT REDRAW THE ENGINEER'S LOGS

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

GIVE CONSTRUCTORS A COMPLETE REPORT AND GUIDANCE

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

READ RESPONSIBILITY PROVISIONS CLOSELY

Some clients, design professionals, and constructors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineer's responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

ENVIRONMENTAL CONCERNS ARE NOT COVERED

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

OBTAIN PROFESSIONAL ASSISTANCE TO DEAL WITH MOLD

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

RELY ON YOUR GEOTECHNICAL ENGINEER FOR ADDITIONAL ASSISTANCE

Membership in the Geotechnical Business Council (GBC) of Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with CGC, a member of GBC, for more information.

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Geotechnical Business Council
of the Geoprofessional Business Association
8811 Colesville Road, Suite G 106
Silver Spring, MD 20910

APPENDIX D

RECOMMENDED COMPACTED FILL SPECIFICATIONS

APPENDIX D

CGC, INC.

RECOMMENDED COMPACTED FILL SPECIFICATIONS

General Fill Materials

Proposed fill shall contain no vegetation, roots, topsoil, peat, ash, wood or any other non-soil material which by decomposition might cause settlement. Also, fill shall never be placed while frozen or on frozen surfaces. Rock, stone or broken concrete greater than 6 in. in the largest dimension shall not be placed within 10 ft of the building area. Fill used greater than 10 ft beyond the building limits shall not contain rock, boulders or concrete pieces greater than a 2 sq ft area and shall not be placed within the final 2 ft of finish subgrade or in designated utility construction areas. Fill containing rock, boulders or concrete pieces should include sufficient finer material to fill voids among the larger fragments.

Special Fill Materials

In certain cases, special fill materials may be required for specific purposes, such as stabilizing subgrades, backfilling undercut excavations or filling behind retaining walls. For reference, WisDOT gradation specifications for various types of granular fill are attached in Table 1.

Placement Method

The approved fill shall be placed, spread and leveled in layers generally not exceeding 10 in. in thickness before compaction. The fill shall be placed at moisture content capable of achieving the desired compaction level. For clay soils or granular soils containing an appreciable amount of cohesive fines, moisture conditioning will likely be required.

It is the Contractor's responsibility to provide all necessary compaction equipment and other grading equipment that may be required to attain the specified compaction. Hand-guided vibratory or tamping compactors will be required whenever fill is placed adjacent to walls, footings, columns or in confined areas.

Compaction Specifications

Maximum dry density and optimum moisture content of the fill soil shall be determined in accordance with modified Proctor methods (ASTM D1557). The recommended field compaction as a percentage of the maximum dry density is shown in Table 2. Note that these compaction guidelines would generally not apply to coarse gravel/stone fill. Instead, a method specification would apply (e.g., compact in thin lifts with a vibratory compactor until no further consolidation is evident).

Testing Procedures

Representative samples of proposed fill shall be submitted to CGC, Inc. for optimum moisture-maximum density determination (ASTM D1557) prior to the start of fill placement. The sample size should be approximately 50 lb.

CGC, Inc. shall be retained to perform field density tests to determine the level of compaction being achieved in the fill. The tests shall generally be conducted on each lift at the beginning of fill placement and at a frequency mutually agreed upon by the project team for the remainder of the project.

Table 1
Gradation of Special Fill Materials

Material	WisDOT Section 311	WisDOT Section 312	WisDOT Section 305			WisDOT Section 209		WisDOT Section 210
	Breaker Run	Select Crushed Material	3-in. Dense Graded Base	1 1/4-in. Dense Graded Base	3/4-in. Dense Graded Base	Grade 1 Granular Backfill	Grade 2 Granular Backfill	Structure Backfill
Sieve Size	Percent Passing by Weight							
6 in.	100							
5 in.		90-100						
3 in.			90-100					100
1 1/2 in.		20-50	60-85					
1 1/4 in.				95-100				
1 in.					100			
3/4 in.			40-65	70-93	95-100			
3/8 in.				42-80	50-90			
No. 4			15-40	25-63	35-70	100 (2)	100 (2)	25-100
No. 10		0-10	10-30	16-48	15-55			
No. 40			5-20	8-28	10-35	75 (2)		
No. 100						15 (2)	30 (2)	
No. 200			2-12	2-12	5-15	8 (2)	15 (2)	15 (2)

Notes:

1. Reference: Wisconsin Department of Transportation *Standard Specifications for Highway and Structure Construction.*
2. Percentage applies to the material passing the No. 4 sieve, not the entire sample.
3. Per WisDOT specifications, both breaker run and select crushed material can include concrete that is 'substantially free of steel, building materials and other deleterious material'.

Table 2
Compaction Guidelines

Area	Percent Compaction (1)	
	Clay/Silt	Sand/Gravel
Within 10 ft of building lines		
Footing bearing soils	93 - 95	95
Under floors, steps and walks		
- Lightly loaded floor slab	90	90
- Heavily loaded floor slab and thicker fill zones	92	95
Beyond 10 ft of building lines		
Under walks and pavements		
- Less than 2 ft below subgrade	92	95
- Greater than 2 ft below subgrade	90	90
Landscaping	85	90

Notes:

1. Based on Modified Proctor Dry Density (ASTM D 1557)

APPENDIX E

SETTLEMENT PLATFORM

Settlement Platform Instructions

Settlement platforms will be placed as close to the bottom of the fill as is practical. The surface upon which the settlement platform should rest must be cleaned off to a flat compacted surface. The settlement platform should then be placed in this surface and backfill should be placed over the top of the settlement platform to a depth of at least two feet.

Initial elevations should be taken on the top of the first section of the pipe riser. These should be referenced to the elevation at the platform so that all future additional lengths of riser pipe can be referenced to the elevation of the platform.

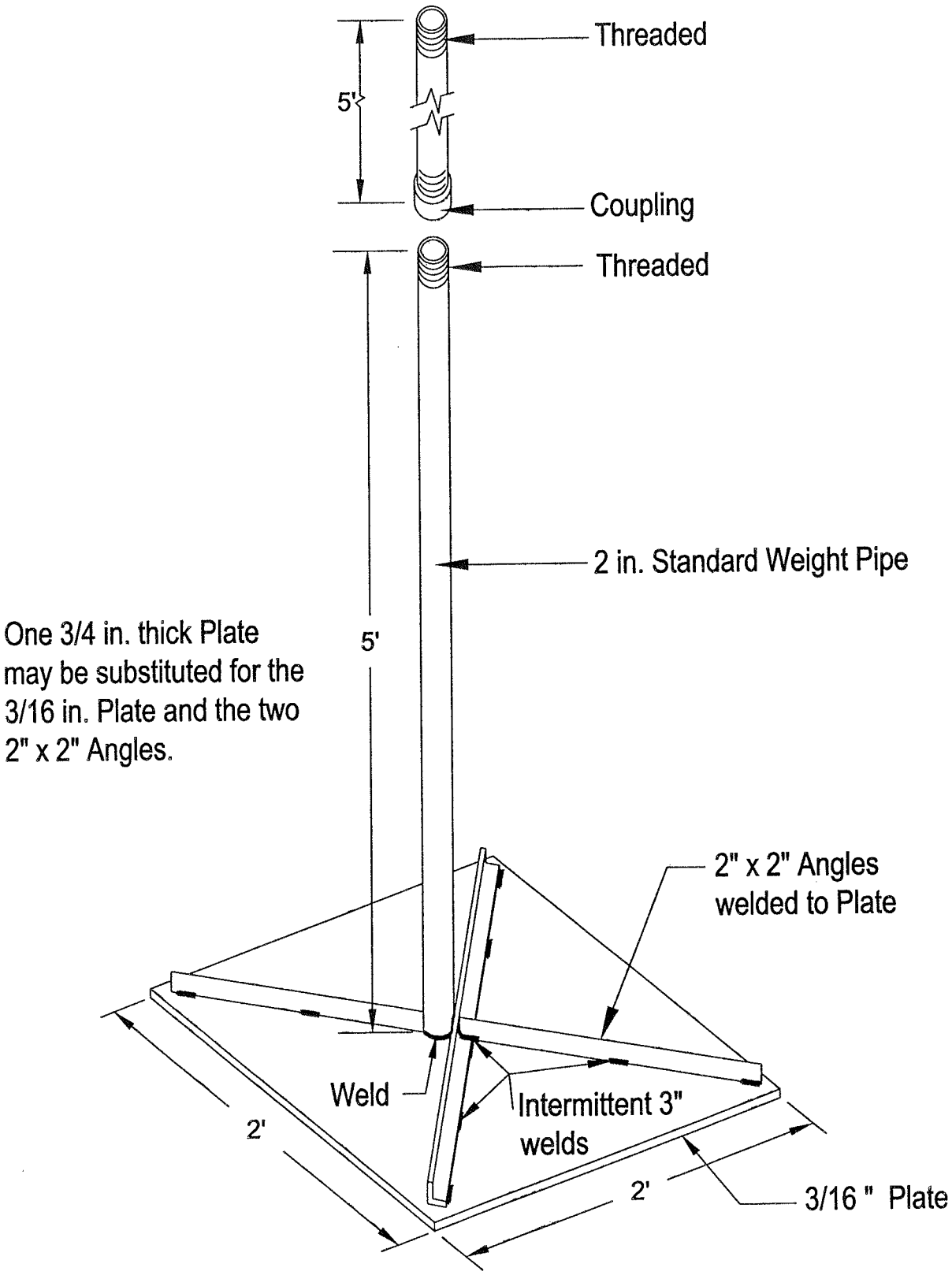
The settlement platform locations should be guarded with tall stakes driven into the fill marked with red flags. No equipment should be permitted to operate closer than three feet from the riser pipes. As each layer of fill is being added to the area, fill should be carefully placed around the riser pipe to an elevation slightly above the surrounding area. The vibrating compactor then should be moved to within a foot or so of the riser pipe with care being taken so as to avoid disturbance of the riser pipe. If necessary, hand compacting equipment should be used to avoid damage to the riser pipe.

When settlement platform readings are taken, the elevation of nearby fill should also be taken.

The elevation at the settlement platform and the nearby fill should be observed at least once each week, and during the period that fill is being placed in the vicinity of the platform, these elevations should be obtained daily. All elevation data should be plotted according to time, with one graph prepared per settlement platform. The plotting should contain the time scale along the abscissa and the vertical scale should be height of fill shown going upward from the middle of the paper, and the settlement of the settlement platforms should be plotted downward from the middle of the paper. The time sale should include both the actual calendar date and also the number of days since the platform was installed.

The benchmark to be used in reading the various settlement platforms should be well away from the proposed excavation or filling areas.

If damage occurs to any settlement platform riser pipe, it is suggested that the pipe be repaired as quickly as possible and the readings continued. The adjustment of these readings can be made, considering that settlement rate during the period of damage was uniform.



CGC, Inc.	Typical Detail Settlement Platform

APPENDIX F

PERIMETER DRAIN DETAILS

General Notes

1. This system's primary function is to intercept infiltrating surface water. These alternates are not appropriate for use in situations of high groundwater (i.e., cases where the water table approaches floor slab elevation).

2. Grade surface cap to slope away from structure.

3. Exterior surface of walls below grade should be damp-proofed.

4. A plastic vapor barrier should be installed below the slab.

5. Recommended types of drain pipes:

Specification	Description
ASTM D2729	Polyvinyl Chloride (PVC) Drain Pipe
ASTM F405	Corrugated Polyethylene Drain Pipe
ASTM D2852	Styrene-Rubber Plastic Drain Pipe
AASHTO M1366	Corrugated Metal Underdrain Pipe

6. Minimum slope of drain pipes should be 2 in. per 100 lin ft.

7. Place drain pipe below basement floor level and orient the perforations toward the bottom.

8. Clean-outs should be provided to service the pipe.

9. Collected field water should be discharged to a sump, storm sewer or drainage field.

10. The geotextile for Alternative Nos. 2 and 3 may be eliminated if filter requirements are satisfied between the wall and pipe backfill, as well as between backfill materials and natural soils.

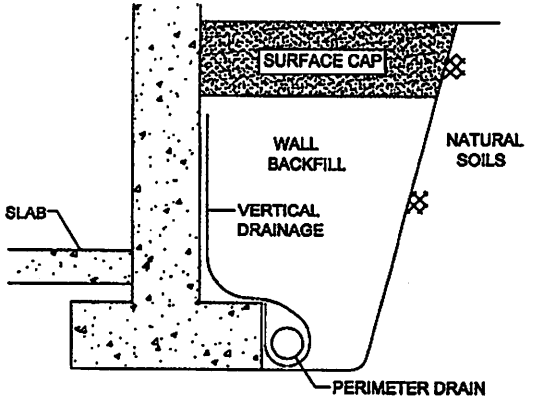
11. Pipe backfill materials should satisfy filter requirements for the slot width or hole diameter of the perforated pipe.

12. Care should be taken during backfilling not to damage the integrity of the system. For compaction requirements, refer to geotechnical report.

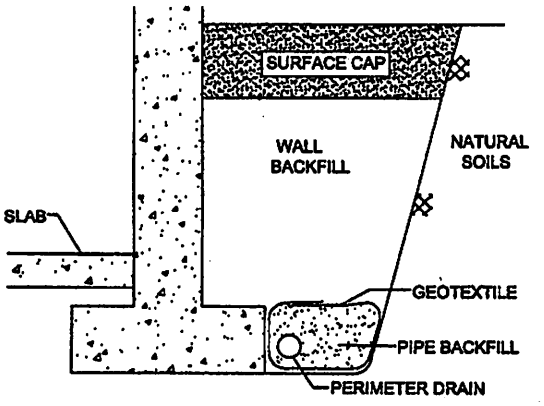
13. Pipe, geotextile, and geocomposite should be installed according to manufacturer specifications.

CGC, Inc.

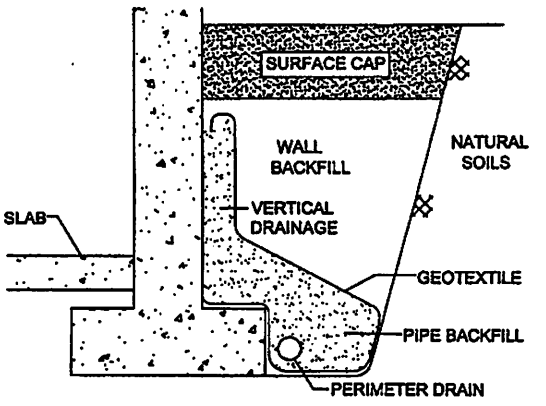
Typical Perimeter Drain Detail
General Notes



ALTERNATE NO. 1



ALTERNATE NO. 2



ALTERNATE NO. 3

DRAINAGE SYSTEM COMPONENTS

Component	Alternate No. 1	Alternate No. 2	Alternate No. 3
Surface Cap	1 to 2 ft of clayey soils. Minimum 1 ft thick if overlain by pavement	Refer to Alternate No. 1	Refer to Alternate No. 1
Vertical Drainage	3-dimensional drainage geocomposite hydraulically connected to perimeter drain.	Relatively free-draining granular soils with P200 (% fines) ≤12%.	Minimum 6-in. wide zone of free-draining granular soils with P200 ≤ 5% hydraulically connected to perimeter drain. Provide geotextile as required (see note 10.
Perimeter Drain	Perforated pipe encapsulated in geocomposite.	Perforated pipe surrounded by free-draining granular pipe backfill with P200 ≤ 5%. Provide geotextile as required (See Note 10).	Refer to Alternate No. 2
Wall Backfill	Excavation spoils or imported materials (granular soils preferred).	Relatively free-draining granular soils with P200 ≤ 12%.	Refer to Alternate No. 1

CGC, Inc.

Typical Perimeter Drain Detail

Exhibit F

SCHEMATIC CONCEPT MEETING

March 16, 2018

JLA ARCHITECTS

BUILDING	PROGRAM	GROSS SQUARE FOOTAGE/QUANITIES	PARKING		
			LOWER LEVEL/ COVERED	SURFACE	RATIOS
A.	PUBLIC MARKET	27,000 SF	0	96	3.5 CARS/1,000 SF
B1.	RESIDENTIAL	100 UNITS	100		1.0 CAR/UNIT
B2.	HOTEL	100 KEYS	100		1.0 CAR/KEY
B2.	RESTAURANT #1	4,000 SF	40		10.0 CARS/1,000 SF
B1.	RESTAURANT #2	4,000 SF	30	10	10.0 CARS/1,000 SF
B1/B2	RETAIL	14,500 SF	40	33	5 CARS/1,000 SF
	SHARED PARKING			21	
			310	160	TOTAL PARKING = 470

TOTAL BUILDING AREA = XXXXX GSF+MARKET

*THESE TOTALS DO NOT REFLECT PARKING UNDER THE MARKET. POTENTIAL FOR ADDITIONAL xx STALLS IF SINGLE LEVEL BELOW MARKET.

SITE MASTERPLAN

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - A

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - A

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - A

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - A

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - A

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - A

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - A

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - B

JLA ARCHITECTS

STREET VIEW CONCEPTUAL IMAGE - C

JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE SE - A

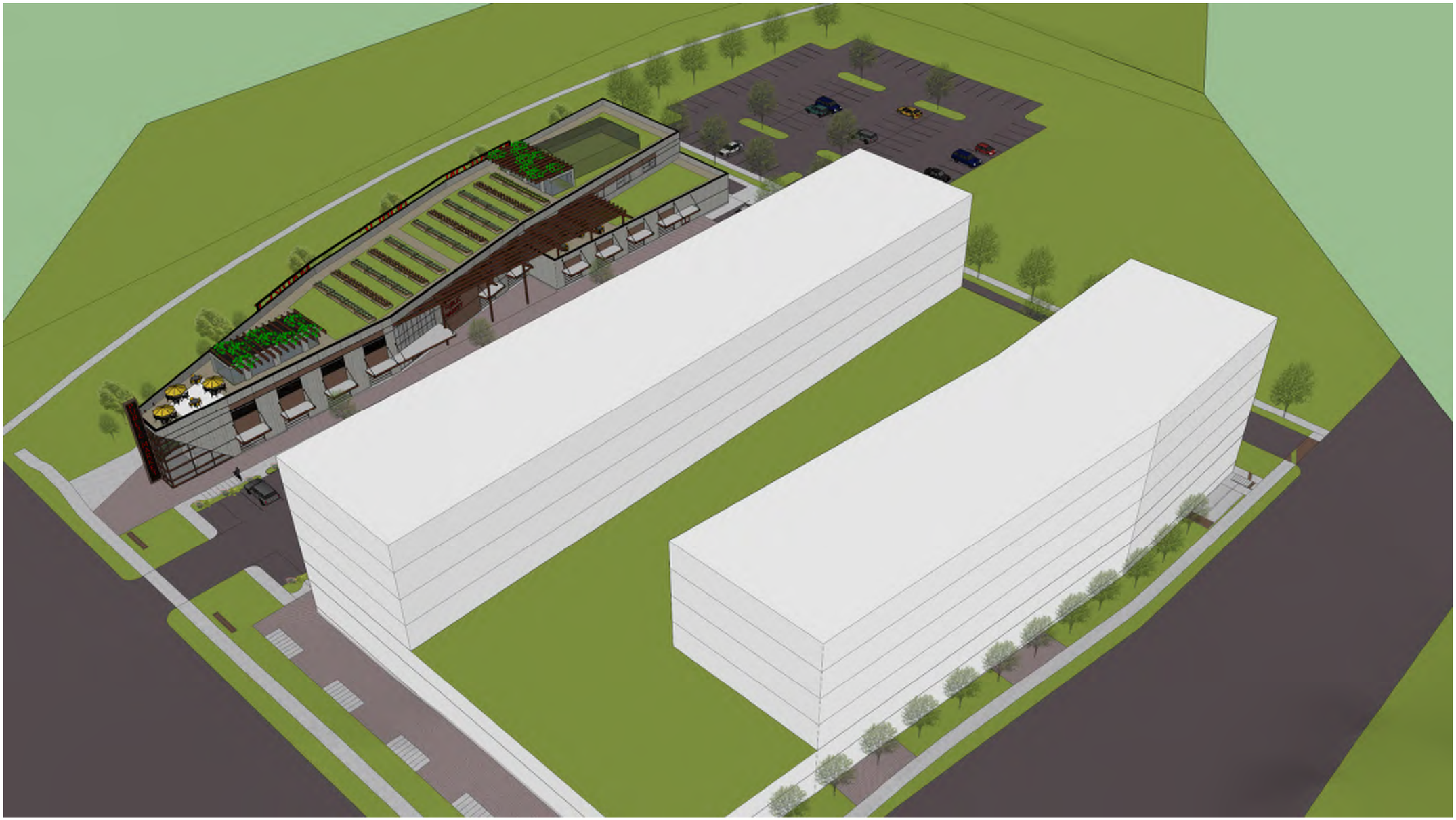
JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE SE - B

JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE SE - C

JLA ARCHITECTS



CONCEPTUAL AERIAL IMAGE NE - A

JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE NE - B

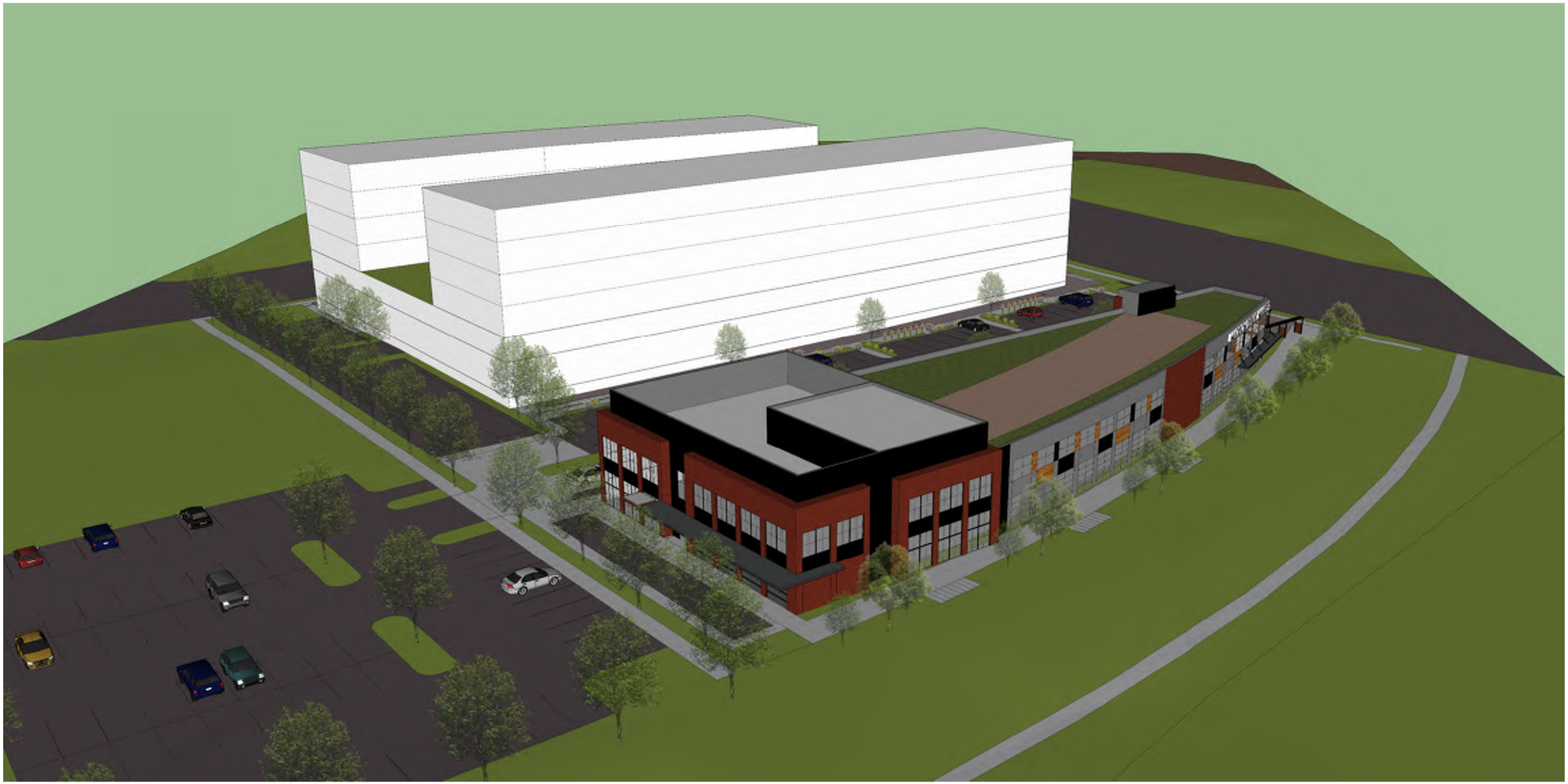
JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE NE - C

JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE SW - A

JLA ARCHITECTS



CONCEPTUAL AERIAL IMAGE SW - B

JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE SW - C

JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE NW - A

JLA ARCHITECTS

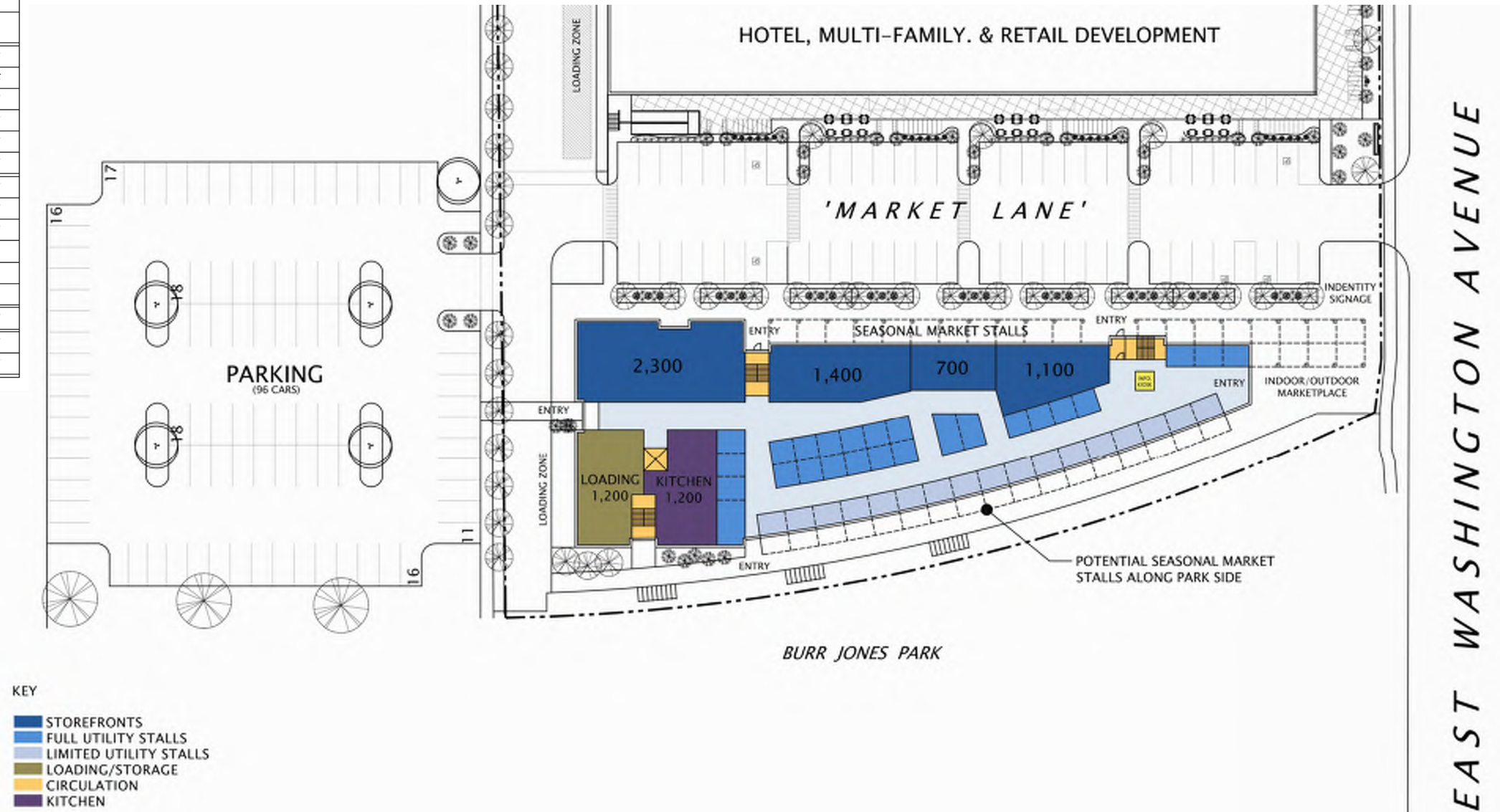
CONCEPTUAL AERIAL IMAGE SW - B

JLA ARCHITECTS

CONCEPTUAL AERIAL IMAGE NW - C

JLA ARCHITECTS

MADISON PUBIC MARKET BUILDING DATA - OPTION 'A'		
FL.	PROGRAM	AREA
FIRST FLOOR	INTERIOR STOREFRONTS	5,500 SF
	UTILITY STALLS	4,800 SF
	PRODUCTION KITCHEN	1,200 SF
	LOADING	1,200 SF
	CIRCULATION/COMMON	7,100 SF
	SUB-TOTAL	19,800 SF
MEZZANINE	OPEN EVENT SPACE	3,400 SF
	PROCESSING KITCHEN	1,200 SF
	ADMINISTRATIVE OFFICES	1,000 SF
	STORAGE	350 SF
	CIRCULATION/RESTROOMS	1,150 SF
	SUB-TOTAL	7,100 SF
	TOTAL	26,900 SF
ROOF	INTERIOR EVENT SPACE	1,600 SF
	OCCUPIED ROOF DECK	1,200 SF



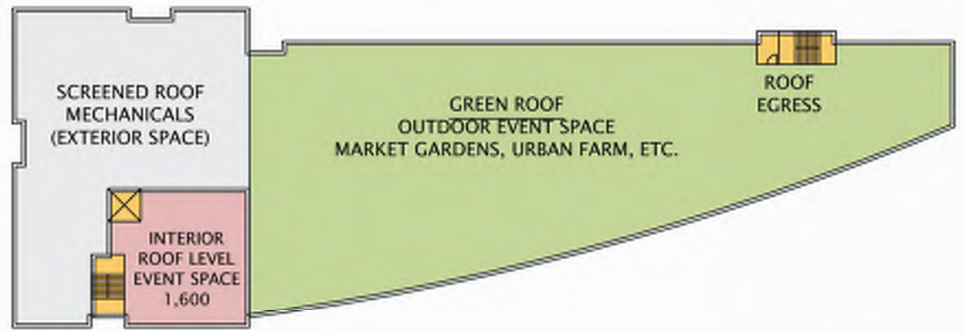
PROGRAM - EXAMPLE FLOOR PLAN – GROUND FLOOR - B

JLA ARCHITECTS

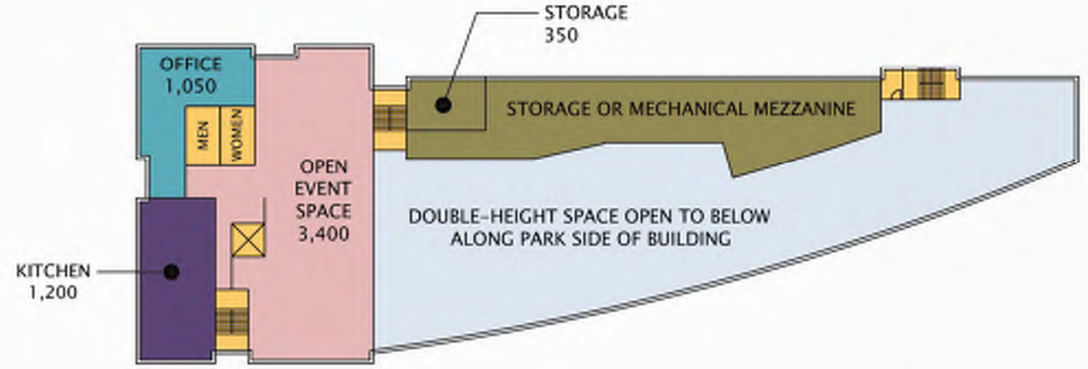
MADISON PUBIC MARKET BUILDING DATA – OPTION 'A'		
FL.	PROGRAM	AREA
FIRST FLOOR	INTERIOR STOREFRONTS	5,500 SF
	UTILITY STALLS	4,800 SF
	PRODUCTION KITCHEN	1,200 SF
	LOADING	1,200 SF
	CIRCULATION/COMMON	7,100 SF
	SUB-TOTAL	19,800 SF
MEZZANINE	OPEN EVENT SPACE	3,400 SF
	PROCESSING KITCHEN	1,200 SF
	ADMINISTRATIVE OFFICES	1,000 SF
	STORAGE	350 SF
	CIRCULATION/RESTROOMS	1,150 SF
	SUB-TOTAL	7,100 SF
	TOTAL	26,900 SF
ROOF	INTERIOR EVENT SPACE	1,600 SF
	OCCUPIED ROOF DECK	1,200 SF

KEY

- EVENT SPACE
- OFFICE
- OPEN TO BELOW
- LOADING/STORAGE
- CIRCULATION
- KITCHEN
- GREEN ROOF
- ROOFTOP MECHANICAL SPACE



ROOF LEVEL



MEZZANINE LEVEL

PROGRAM - EXAMPLE FLOOR PLAN – MEZZ & ROOF - B

JLA ARCHITECTS

Exhibit G

6009 Cottontail Trail

Madison, WI 53718
414.716.4400 O
262.490.2744 C
www.middleton-cc.com

CITY OF MADISON
PUBLIC MARKET
Option 3

Madison, WI

Conceptual Estimate
January 22, 2018

Prepared For:
City of Madison
Department of Public Works
City-County Building

NOTES REGARDING PREPARATION OF ESTIMATE

This estimate was prepared based on the following documents provided by
The city of Madison

1 Plans received through 11/27/17

2 Information regarding the project was also obtained via meetings, phone conversations, and email messages that clarified the project scope.

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been generated from current material/labor rates, historical production data, and discussions with relevant subcontractors and material suppliers. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated.

Pricing reflects probable construction costs obtainable in the Madison, WI area on the bid date. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors with a minimum of 3 bidders for all items of subcontracted work and a with a minimum of 3 bidders for a general contractor. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since Middleton Consulting has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, this statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents Middleton Consulting's best judgment as professional construction cost consultants familiar with the construction industry. However, Middleton Consulting cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

ASSUMED CONSTRUCTION PARAMETERS

The pricing is based on the following project parameters:

1. A construction bid date of 1st Quarter 2019
2. A construction period of 12-16 months
3. The contract will be competitively bid to multiple contractors.
4. The contractors will have full access to the site during normal working hours
5. Estimate includes pricing as of December 2017
6 Material purhases over $5,000 assumed to be tax exempt

EXCLUSIONS
The following are excluded from the cost of this estimate:

1. Professional Design Fees
2. Testing Fees
3. Scope Changes/Change Orders
4. Premium Time / Restrictions on Contractor Working Hours
5. Cost Escalation -Other than Noted
6. Finance and Legal Charges
7. Environmental Abatement Costs
8. Contaminated Soil Removal
9. Lead and Radio Frequency Shielding
10. Temporary Facilities
11. Temporary Power & HVAC
12. Art Work

COST SUMMARY: OPTIONS W/ OH&P and Mark-ups added	BUILDING TOTAL	
BASE BUILDING-CITY PROVIDED	$8,582,450	
STORE FRONTS-CITY OF MADISON PROVIDED	$462,000	~~$568,260~~
FULL UTILITY STALLS- CITY OF MADISON PROVIDED	$82,000	~~$100,860~~
LIMITED UTILITY STALLS- CITY OF MADISON PROVIDED	$79,200	~~$101,376~~

COST SUMMARY CITY OF MADISON PROVIDED ITEMS	$9,205,650	~~$9,352,946~~
COST SUMMARY- ENTIRE PROJECT	$9,205,650	~~$9,352,946~~

	COST SUMMARY-SCENARIO 2	27,800 GSF	$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		$0.00	$0
02000	EXISTING CONDITIONS		$1.93	$53,640
03000	CONCRETE		$10.96	$304,817
04000	MASONRY		$3.30	$91,739
05000	METALS		$14.72	$409,137
06000	WOODS, PLASTICS & COMPOSITES		$0.85	$23,680
07000	THERMAL & MOISTURE PROTECTION SYSTEM		$27.02	$751,049
08000	OPENINGS		$24.15	$671,251
09000	FINISHES		$37.50	$1,042,376
10000	SPECIALTIES		$0.40	$11,120
11000	EQUIPMENT		$1.92	$53,464
12000	FURNISHINGS		$0.00	$0
13000	SPECIAL CONSTRUCTION		$0.00	$0
14000	CONVEYING EQUIPMENT		$2.43	$67,483
21000	FIRE SUPPRESSION		$2.59	$71,999
22000	PLUMBING		$7.74	$215,096
23000	HEATING, VENTILATING & AIR CONDITIONING		$30.00	$834,000
26000	ELECTRICAL		$30.34	$843,405
27000	COMMUNICATIONS		$1.56	$43,454
28000	ELECTRONIC SAFETY AND SECURITY		$3.11	$86,580
31000	EARTHWORK		$3.69	$102,460
32000	EXTERIOR IMPROVEMENTS		$14.39	$400,000
33000	UTILITIES		$6.91	$192,049
	SUBTOTAL		**$225.50**	**$6,268,799**
	GENERAL CONDITIONS/BOND/INSURANCE	5.0%	$11.27	$313,440
	CONTRACTOR'S FEES	4.0%	$9.47	$263,290
	ESCALATION TO BID DATE	4.5%	$11.08	$308,049
	DESIGN CONTIGENCY FOR CONCEPT LEVEL	10.0%	$25.73	$715,358
	BPW CONTINGENCY	8.0%	$22.64	$629,515
	TOTAL ESTIMATED BID		**$305.70**	**$8,498,450**
	Add for Pavilion @ 2,800 sqft		**$3.02**	**$84,000**
	TOTAL ESTIMATED BID WITH PAVILLION		**$308.72**	**$8,582,450**

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
BUILDING SHELL				
02000 EXISTING CONDITIONS				
Demolish Auxillary Fleet Buildings	400,000	CUFT	0.13	53,640
TOTAL: EXISTING CONDITIONS				**$53,640**
03000 CONCRETE				
Formwork for strip footings	3,115	SQFT	6.43	20,037
Formwork for isolated column footings	4,018	SQFT	7.29	29,276
Formwork for foundation walls	4,985	SQFT	6.96	34,685
Reinforcement in strip footings, avg 65 lbs/cy	5	TONS	2,303.95	10,368
Reinforcement in isolated column footings, avg 80 lbs/cy	6	TONS	2,303.95	13,709
Reinforcement in foundation walls, avg 115 lbs/cy	8	TONS	2,441.85	19,584
Concrete in strip footings, 4,000 psi	139	CUYD	157.23	21,854
Concrete in isolated column footings, 4,000 psi	149	CUYD	164.13	24,455
Concrete in foundation walls, 4,000 psi	140	CUYD	162.16	22,702
Concrete slab on grade, 5" thk, with W6x6-2.9x2.9	21,800	SQFT	4.01	87,477
Vapor barrier at slab	21,800	SQFT	0.95	20,671
TOTAL: CONCRETE				**$304,817**
04000 MASONRY				
8" CMU backup- Behind Metal Panels	6,240	SQFT	14.70	91,739
TOTAL: MASONRY				**$91,739**
05000 METALS				
Miscellaneous angles, channels, lintels, etc.	27,800	SQFT	1.32	36,621
Metal pan stairs, 6'-0" wide	76	RSR	259.48	19,721
Grand Stair	1	EACH	44,123.63	44,124
Steel railing system, painted	120	LNFT	114.10	13,693
Mezzanine Structure/Finishes/Railing	6,000	SQFT	49.16	294,979
TOTAL: METALS				**$409,137**
06000 WOODS, PLASTICS & COMPOSITES				
Miscellaneous wood blocking & rough carpentry	27,800	SQFT	0.85	23,680
TOTAL: WOODS, PLASTICS & COMPOSITES				**$23,680**
07000 THERMAL & MOISTURE PROTECTION				
2" foundation insulation	2,493	SQFT	2.30	5,724
1" fiberboard roof insulation	21,800	SQFT	1.41	30,771
2" polyisocyanurate insulation	21,800	SQFT	1.02	22,334
5" polyisocyanurate insulation	21,800	SQFT	1.99	43,354
Insulated metal siding-40% of exterior siding	6,000	SQFT	42.16	252,933
Standing seam metal roof	21,800	SQFT	18.00	392,400
Miscellaneous caulking & sealants	27,800	SQFT	0.13	3,533
TOTAL: THERMAL & MOISTURE PROTECTION				**$751,049**

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
08000 OPENINGS				
HM frame	27	EACH	295.91	7,990
Doors	27	EACH	363.27	9,808
Elect operated OH door	2	EACH	5,805.82	11,612
Exterior storefront @ 20 % of exterior	3,000	SQFT	56.31	168,938
Hardware set, single	17	EACH	653.18	11,104
Hardware set, double	10	EACH	1,122.32	11,223
Exterior curtainwall @ 40 % of Exterior Wall	6,000	SQFT	75.10	450,576
TOTAL: OPENINGS				**$671,251**
09000 FINISHES				
Elevator Shaft walls	2,250	SQFT	17.57	39,523
Structural steel beams & columns, roof, allow 7 lbs/sf	21,800	SQFT	12.83	279,670
Perforated acoustic roof deck, cellular with flat bottom profile, galvanized, 18 ga	21,800	SQFT	8.72	190,092
Build-outs at Market Offices	900	SQFT	40.00	36,000
Build-outs at Training Processing Kitchen	2,400	SQFT	113.00	271,200
Build-outs at Market Support	4,000	SQFT	15.00	60,000
Build-outs at Storage	1,900	SQFT	10.00	19,000
Build-outs at events/seating	3,200	SQFT	15.00	48,000
Paint exterior door	27	EACH	93.69	2,530
Paint door frame	27	EACH	53.27	1,438
Misc Painting	1	LS	16,934.00	16,934
Paint exposed structure	21,800	SQFT	1.14	24,791
Prime & paint cmu walls, by brush, 3 coats	9,970	SQFT	1.83	18,198
Fiber Optic Line	1	LS	35,000.00	35,000
TOTAL: FINISHES				**$1,042,376**
10000 SPECIALTIES				
Miscellaneous specialties allowance	27,800	SQFT	0.40	11,120
TOTAL: SPECIALTIES				**$11,120**
11000 EQUIPMENT				
Dock leveler	1	EACH	5,975.00	5,975
Dock board	2	EACH	1,810.50	3,621
Dock bumpers	2	EACH	120.00	240
Neoprene corner guard	4	EACH	155.82	623
Freezer/Cooler	5	EACH	8,600.86	43,004
TOTAL: EQUIPMENT				**$53,464**
14000 CONVEYING EQUIPMENT				
Hydraulic psgr elev stop	2	EACH	33,741.33	67,483
TOTAL: CONVEYING EQUIPMENT				**$67,483**
21000 FIRE SUPPRESSION				
Wet sprinkler system - $/SF	27,800	SQFT	2.59	71,999

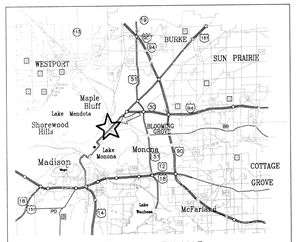
DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
TOTAL: FIRE SUPPRESSION				**$71,999**
22000 PLUMBING				
Builidng Water Piping- Complete	27,800	SQFT	5.00	139,000
Building Storm Drainage	27,800	SQFT	0.87	24,186
Building Underground Sanitary Systems	27,800	SQFT	1.40	38,920
Incoming service, 6", w/3" meter & backflow preventers	1	EACH	4,307.04	4,307
Water meter, 6"	1	EACH	8,682.72	8,683
TOTAL: PLUMBING				**$215,096**
23000 HEATING VENTILATION & AIR CONDITIONING				
AHU's/Exhaust/Ductwork	27,800	SQFT	30.00	834,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				**$834,000**
26000 ELECTRICAL				
Solar Array Panel	50	KW	3,680.00	184,000
Service and distribution - Main switchboard, distribution panels, transformers and associated feeders	27,800	SQFT	2.68	74,409
Service and distribution - Branch panelboards and associated feeders	27,800	SQFT	1.66	46,087
Lighting System - Light fixtures including installation and hook up	27,800	SQFT	9.39	261,061
Lighting System - Emergency and Exit Light fixtures including installation and hook up	27,800	SQFT	0.65	18,045
Lighting System - Switching	27,800	SQFT	0.85	23,636
Lighting System - Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	27,800	SQFT	1.92	53,279
Branch Power - Miscellaneous receptacles and electrical equipment hook up	27,800	SQFT	3.41	94,904
Branch Power - Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	27,800	SQFT	2.32	64,399
Motors connection, disconnect switches and associated feeders	27,800	SQFT	0.85	23,586
TOTAL: ELECTRICAL				**$843,405**
27000 COMMUNICATIONS				
Telecommunication/Data & Television System, rough-in only	27,800	SQFT	1.56	43,454
TOTAL: COMMUNICATIONS				**$43,454**
28000 ELECTRONIC SAFETY & SECURITY				
Fire alarm System, complete	27,800	SQFT	1.87	51,917
Intrusion Detection System, complete	27,800	SQFT	1.25	34,664
TOTAL: ELECTRONIC SAFETY & SECURITY				**$86,580**
31000 EARTHWORK				
Excavate for foundations- Parking Ramp eliminated	21,800	SQFT	4.70	102,460
TOTAL: EARTHWORK				**$102,460**
32000 EXTERIOR IMPROVEMENTS				
Site Improvements/Paving/Walks/Planters	1	LS	300,000.00	300,000
Landscaping allowance	1	LSUM	100,000.00	100,000

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
TOTAL: EXTERIOR IMPROVEMENTS				**$400,000**
33000 UTILITIES				
Water Service	1	LS	25,000.00	25,000
Storm System Tie-Ins/Piping/Detention?	1	LS	100,000.00	100,000
Sanitary System/tie-Ins	1	LS	30,000.00	30,000
Gas Tie-ins	1	LSUM	4,000.00	4,000
Site Electrical - Incoming service	27,800	SQFT	0.71	19,716
Site Electrical - Exterior lighting	27,800	SQFT	0.48	13,333
TOTAL: UTILITIES				**$192,049**
TOTAL: BUILDING SHELL				**$6,268,798**
INTERIOR STOREFRONTS				
09000 FINISHES				
Build-outs at storefronts/walls/Floors/Gates	5,500	SQFT	84.00	462,000
TOTAL: FINISHES				**$462,000**
TOTAL: INTERIOR STOREFRONTS				**$462,000**
FULL UTILITY STALLS				
09000 FINISHES				
Build-outs at full utility stalls/ceiling structure and mechanicals	2,000	SQFT	41.00	82,000
TOTAL: FINISHES				**$82,000**
TOTAL: FULL UTILITY STALLS				**$82,000**
LIMITED UTILITY STALLS				
09000 FINISHES				
Build-outs at limited utility stalls/ceiling structure and mechanicals	3,600	SQFT	22.00	79,200
TOTAL: FINISHES				**$79,200**
TOTAL: LIMITED UTILITY STALLS				**$79,200**

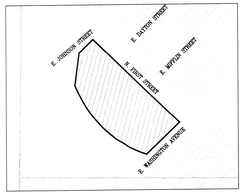
Exhibit H

ALTA/NSPS LAND TITLE SURVEY

PART OF LOTS 1–7, FLEURY'S REPLAT OF PART OF BLOCK 277, FARWELL'S REPLAT AND ADDITION & PART OF BLOCK 310, RILEY PLAT, CITY OF MADISON, AS RECORDED IN VOLUME 11 OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 698351, DANE COUNTY REGISTRY, PART OF LOTS 2–13, BLOCK 310, MADISON SQUARE RILEY PLAT, AS RECORDED IN VOLUME 3 OF PLATS, ON PAGES 9 AND 9A, AS DOCUMENT NUMBER 253138, DANE COUNTY REGISTRY, PART OF BLOCK 276 AND 277, FARWELL'S REPLAT & ADDITION, AS RECORDED IN VOLUME A OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 105, DANE COUNTY REGISTRY, LOCATED IN THE SOUTHWEST QUARTER AND THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 06, TOWNSHIP 07 NORTH, RANGE 10 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN.



CITY OVERVIEW MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

0 10 20 40 60
SCALE : ONE INCH = TWENTY FEET

GRID NORTH
BEARINGS ARE BASED ON THE WISCONSIN COORDINATE SYSTEM DANE ZONE, NAD 1997

DOOR ENTRY ELEVATION TABLE

NUMBER	ELEVATION
A	852.36'
B	852.39'
C	852.34'
D	852.35'
E	852.32'
F	852.18'
G	852.26'
H	852.19'
I	852.38'
J	852.33'
K	852.31'
L	853.36'
M	853.24'

NOTES:

1. See sheet 4 for Storm Sewer and Sanitary Sewer Elevation Table.
2. See sheet 4 for additional notes.
3. See sheet 3 for legend.
4. See sheet 3 for lot area table.

EAST JOHNSON STREET
PUBLIC STREET
R/W WIDTH VARIES

EXISTING 15' UNDERGROUND GAS AND ELECTRIC EASEMENT DOC. NO. 1207423

BENCHMARK: LP1
TOP CNC. BASE=852.02'

156.76'

POSSIBLE BURIED TANKS PER WOODWARD–CLYDE SURVEY 1997–00802

BUILDING
NO ADDRESS
PUMP HOUSE
19.7' x 13.7'

N50°23'25"E 134.87'

EXISTING 10' SANITARY SEWER EASEMENT DOC. NO. 1617301

EXISTING 10' ELECTRIC UTILITY EASEMENT DOC. NO. 3888764

EXISTING SANITARY SEWER EASEMENT DOC. NO. 3480336 AND 3504853

N44°15'35"E 66.00'

EXISTING 15' ELECTRIC UTILITY EASEMENT DOC. NO. 3888764

BUILDING
212 N. FIRST ST.
PEAK ELEV=868.8'

S44°15'35"W 66.00'

N45°44'25"W 90.00'

TITLE REPORT NO. 820574L

BENCHMARK: HYD1
TOP NUT=850.58'

NORTH FIRST STREET
PUBLIC STREET
99' R/W WIDTH

MADISON SQUARE RILEY PLAT
BLOCK 312

CNC. CURB AND GUTTER TYP.

BENCHMARK: HYD3
TOP NUT=850.10'

EAST DAYTON STREET

RILEY PLAT
BLOCK 312

N10°35'01"E 265.71'

LANDS FORMERLY CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC RAILROAD
OWNER: CITY OF MADISON ENGINEER WALKWAYS & BIKEPATHS 536

NO DEED OR TITLE REPORT PROVIDED AS ITS OUTSIDE THE SCOPE

BURR OAKS ESTATES PUBLIC PARK

MADISON PARK CAP

100.00'

175.30'

UNION PACIFIC RAILROAD
100' R/W

BALLAST
RAILROAD TRACKS
BALLAST

CG

APPARENT GAS MAIN EASEMENT

PAVEMENT MARKING

17 REGULAR PARKING STALLS

6 REGULAR PARKING STALLS

2 REGULAR PARKING STALLS

4 REGULAR PARKING STALLS

3 REGULAR PARKING STALLS

1 REGULAR PARKING STALL

FENCE WITH GATE

METAL FENCE

WOOD FENCE

GAS PUMP

BUILDING
NO ADDRESS
32.2' x 14.4'

BOLLARD ATTACHED TO BUILDING (TYP.)

WASTE OIL TANK

BULK ANTIFREEZE TANK

BUILDING
200 N. FIRST STREET
FIRST STREET GARAGE FACILITIES
PEAK ELEV=875.6'

TITLE REPORT NO. 820577L

SQUARE STRUCTURE UNKNOWN USE

MATCH LINE A

SURVEYED FOR:
CITY OF MADISON
REAL ESTATE SERVICES
210 MARTIN LUTHER KING JR. BLVD
MADISON, WI 53703

SURVEYED BY:
Burse
surveying & engineering Inc.
2801 International Lane, Suite 101
Madison, WI 53704 608.250.9263
Fax: 608.250.9266
email: mburse@bse-inc.net
www.bursesurveyengr.com

Plot Date: 07-14-2016
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ALTA/NSPS LAND TITLE SURVEY

PART OF LOTS 1–7, FLEURY'S REPLAT OF PART OF BLOCK 277, FARWELL'S REPLAT AND ADDITION & PART OF BLOCK 310, RILEY PLAT, CITY OF MADISON, AS RECORDED IN VOLUME 11 OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 698351, DANE COUNTY REGISTRY, PART OF LOTS 2–13, BLOCK 310, MADISON SQUARE RILEY PLAT, AS RECORDED IN VOLUME 3 OF PLATS, ON PAGES 9 AND 9A, AS DOCUMENT NUMBER 253138, DANE COUNTY REGISTRY, PART OF BLOCK 276 AND 277, FARWELL'S REPLAT & ADDITION, AS RECORDED IN VOLUME A OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 105, DANE COUNTY REGISTRY, LOCATED IN THE SOUTHWEST QUARTER AND THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 06, TOWNSHIP 07 NORTH, RANGE 10 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN.

GRID NORTH
BEARINGS ARE BASED ON THE WISCONSIN COUNTY COORDINATE SYSTEM DANE ZONE NAD 83 1997

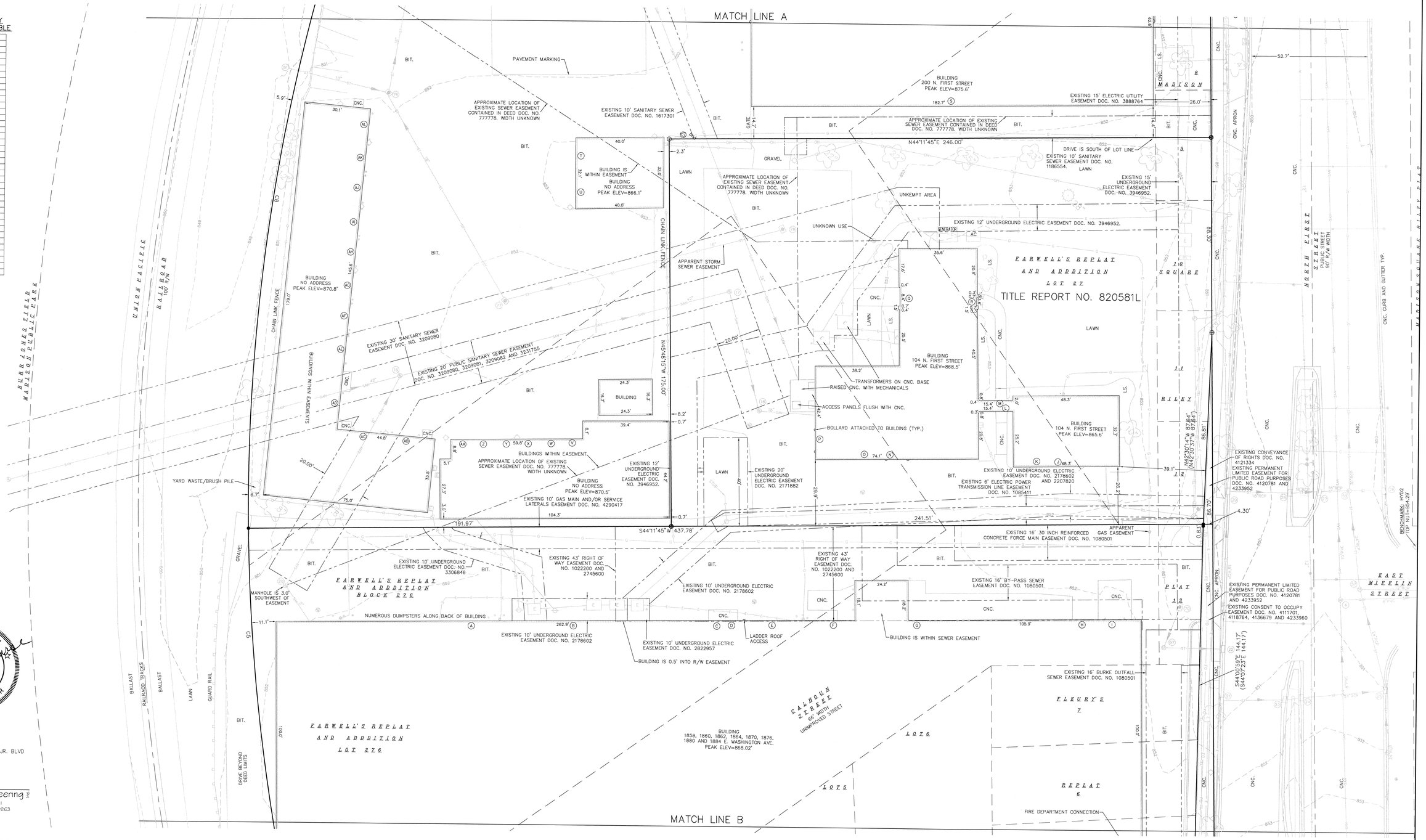
0 10 20 40 60
SCALE : ONE INCH = TWENTY FEET

NOTES:

1. See sheet 4 for Storm Sewer and Sanitary Sewer Elevation Table.
2. See sheet 4 for additional notes.
3. See sheet 3 for legend.
4. See sheet 4 for lot area table.

DOOR ENTRY ELEVATION TABLE

NUMBER	ELEVATION
A	852.59'
B	852.67'
C	852.62'
D	852.65'
E	852.68'
F	852.68'
G	852.65'
H	852.67'
I	852.65'
J	853.20'
K	853.24'
L	853.25'
M	853.23'
N	852.81'
O	852.80'
P	852.76'
Q	853.30'
R	853.23'
S	852.35'
T	853.66'
U	853.67'
V	852.94'
W	852.94'
X	852.93'
Y	852.93'
Z	852.92'
AA	852.93'
AB	852.83'
AC	852.75'
AD	852.75'
AE	852.74'
AF	852.73'
AG	852.76'
AH	852.77'
AI	852.80'
AJ	852.81'
AK	852.79'
AL	852.76'



WISCONSIN MICHELLE BURSE S-2020 Sun Prairie WI 07/14/2016 LAND SURVEYOR

SURVEYED FOR:
CITY OF MADISON
REAL ESTATE SERVICES
210 MARTIN LUTHER KING JR. BLVD
MADISON, WI 53703

SURVEYED BY:

Burse
surveying & engineering Inc.
2801 International Lane, Suite 101
Madison, WI 53704 608.250.9263
Fax: 608.250.9266
email: mburse@bse-inc.net
www.bursesurveyengr.com

Plot Date: 07-14-2016
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ALTA/NSPS LAND TITLE SURVEY

PART OF LOTS 1–7, FLEURY'S REPLAT OF PART OF BLOCK 277, FARWELL'S REPLAT AND ADDITION & PART OF BLOCK 310, RILEY PLAT, CITY OF MADISON, AS RECORDED IN VOLUME 11 OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 698351, DANE COUNTY REGISTRY, PART OF LOTS 2–13, BLOCK 310, MADISON SQUARE RILEY PLAT, AS RECORDED IN VOLUME 3 OF PLATS, ON PAGES 9 AND 9A, AS DOCUMENT NUMBER 253138, DANE COUNTY REGISTRY, PART OF BLOCK 276 AND 277, FARWELL'S REPLAT & ADDITION, AS RECORDED IN VOLUME A OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 105, DANE COUNTY REGISTRY, LOCATED IN THE SOUTHWEST QUARTER AND THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 06, TOWNSHIP 07 NORTH, RANGE 10 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN.

SCALE : ONE INCH = TWENTY FEET

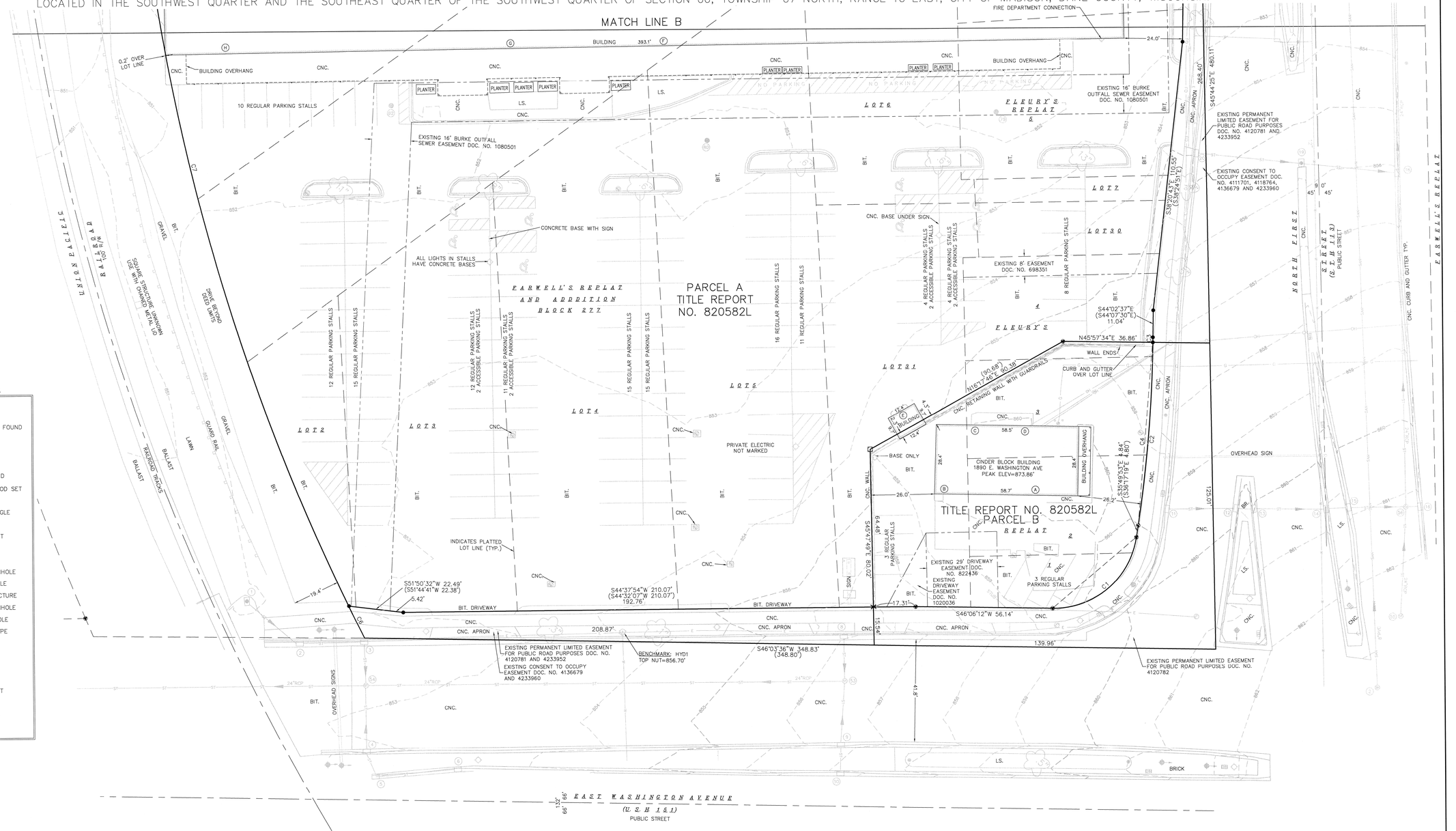
GRID NORTH
BEARINGS ARE BASED ON THE WISCONSIN COORDINATE SYSTEM DANE ZONE NAD 1937

DOOR ENTRY ELEVATION TABLE

NUMBER	ELEVATION
A	860.43'
B	860.22'
C	860.10'
D	860.39'
E	855.51'
F	852.58'
G	852.49'
H	852.63'

NOTES:

1. See sheet 4 for Storm Sewer and Sanitary Sewer Elevation Table.
2. See sheet 4 for additional notes.



LEGEND

OVERHEAD UTILITY	3/4" SOLID IRON ROD FOUND
BURIED GAS MAIN	MAG NAIL FOUND
WATER MAIN	1" IRON PIPE
SANITARY SEWER	CUT X FOUND
STORM SEWER	RAILROAD SPIKE FOUND
BURIED TELEPHONE	3/4" X18" SOLID IRON ROD SET
BURIED ELECTRIC	MAG NAIL SET
BURIED CABLE TV	CATCH BASIN RECTANGLE
BURIED FIBER OPTIC	CATCH BASIN ROUND
FIRE HYDRANT	STORM SEWER H-INLET
WATER VALVE	ELECTRIC MANHOLE
GAS VALVE	TRAFFIC MANHOLE
CABLE TV PEDESTAL	COMMUNICATIONS MANHOLE
ELECTRIC PEDESTAL	STORM SEWER MANHOLE
TELEPHONE PEDESTAL	STORM ACCESS STRUCTURE
UTILITY POLE	SANITARY SEWER MANHOLE
LIGHT POLE	WATER UTILITY MANHOLE
GUY WIRE	UNKOWN MANHOLE TYPE
TV HANDHOLE	MONITORING WELL
SIGN	DECIDUOUS TREE
STOPLIGHT	CONIFEROUS TREE
BOLLARD	LS. LANDSCAPING
EXISTING CONTOUR MAJOR	BIT. BITUMINOUS PAVEMENT
EXISTING CONTOUR MINOR	CNC. CONCRETE PAVEMENT
	TE TRAFFIC ENGINEERING
	BR. BRICK PAVERS

WISCONSIN
MICHELLE L. BURSE
S-2020
Sun Prairie
WI
07/14/2016
LAND SURVEYOR

CURVE TABLE

NUMBER	ARC LENGTH	CENTRAL ANGLE	RADIUS	CHORD DIRECTION	CHORD LENGTH
C1	49.08	82°42'09"	34.00	S05°11'33"W	44.93
	(49.06)			(S05°02'36"W)	(44.91)
C2	77.13	07°50'08"	564.00	S40°07'33"E	77.07
				(S40°12'26"E)	
C3	2.10	00°12'49"	564.00	N43°56'12"W	2.10
C4	75.03	07°37'19"	564.00	N40°01'08"W	74.97
C5	695.28	45°07'43"	882.74	N49°08'40"W	677.45
C6	14.62	00°56'56"	882.74	S71°14'03"E	14.62
C7	380.90	24°43'23"	882.74	S58°23'53"E	377.95
C8	299.76	19°27'24"	882.74	S36°18'30"E	298.32
C9	114.37	04°49'11"	1359.65	N24°11'46"W	114.34

LOT AREA AND PARKING STALL TABLE

NUMBER	AREA sq. ft.	AREA acres	DESCRIPTION	REGULAR PARKING STALLS	ACCESSIBLE PARKING STALLS
820574L	5,940	0.1364		0	0
820577L	147,440	3.3848		33	0
820581L	43,033	0.9879	TOTAL	0	0
820581L	42,847	0.9836	EXCLUDES PLE		
820581L	186	0.0043	PLE		
820582L	142,304	3.2668	PARCEL A TOTAL	133	8
820582L	136,564	3.1351	PARCEL A EXCLUDES PLE		
820582L	5,739	0.1317	PARCEL A PLE		
820582L	15,691	0.1267	PARCEL B TOTAL	6	0
820582L	10,172	0.2335	PARCEL B EXCLUDES PLE		
820582L	5,519	0.1267	PARCEL B PLE		

SURVEYED FOR:
CITY OF MADISON
REAL ESTATE SERVICES
210 MARTIN LUTHER KING JR. BLVD
MADISON, WI 53703

SURVEYED BY:
Burse surveying & engineering Inc.
2801 International Lane, Suite 101
Madison, WI 53704 608.250.9263
Fax: 608.250.9266
email: mburse@bse-inc.net
www.burseurveyengr.com

Plot Date: 07-14-2016
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ALTA/NSPS LAND TITLE SURVEY

PART OF LOTS 1–7, FLEURY'S REPLAT OF PART OF BLOCK 277, FARWELL'S REPLAT AND ADDITION & PART OF BLOCK 310, RILEY PLAT, CITY OF MADISON, AS RECORDED IN VOLUME 11 OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 698351, DANE COUNTY REGISTRY, PART OF LOTS 2–13, BLOCK 310, MADISON SQUARE RILEY PLAT, AS RECORDED IN VOLUME 3 OF PLATS, ON PAGES 9 AND 9A, AS DOCUMENT NUMBER 253138, DANE COUNTY REGISTRY, PART OF BLOCK 276 AND 277, FARWELL'S REPLAT & ADDITION, AS RECORDED IN VOLUME A OF PLATS, ON PAGE 6, AS DOCUMENT NUMBER 105, DANE COUNTY REGISTRY, LOCATED IN THE SOUTHWEST QUARTER AND THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 06, TOWNSHIP 07 NORTH, RANGE 10 EAST, CITY OF MADISON, DANE COUNTY, WISCONSIN.

STORM SEWER AND SANITARY SEWER ELEVATION TABLE

NUMBER	RIM/TC	ELEVATION		ELEVATION		ELEVATION		ELEVATION		DESCRIPTION
STORM SEWER										
1	851.35	Fabric-No Invert Measured								2'x3' CATCH BASIN CITY ID: IN5542-040
2	852.91	NE	848.09	W	848.17					3'X2' CURB INLET CITY ID: IN-5542-039
3	852.77	SW	847.95	SE	847.45					3'X2' CURB INLET CITY ID: IN-5542-038
4	853.26	NW	847.44	SE	847.44					2'X1.5' CURB INLET CITY ID: IN-5542-041
5	853.46	NW	847.84	NE	847.84	SE	847.84			2'X1.5' CURB INLET CITY ID: IN-5542-042
6	853.63	SW	848.45							2'X1.5' CURB INLET CITY ID: IN-5542-043
8	856.31	SE	851.15							3'X2' CURB INLET CITY ID: IN-5542-049
9	856.81	NW	851.73	SE	851.73					2'X1.5' CURB INLET CITY ID: IN-5542-047
10	857.13	NW	852.1							2'X1.5' CURB INLET CITY ID: IN-5542-048
11	859.57	NE	856.75							2'X1.5' CURB INLET CITY ID: IN-5542-082
12	860.16	SW	856.68	NE	856.6					3'X2' CURB INLET CITY ID: IN-5542-081
13	860.51	SW	856.43	NE	856.43					3'X2' CURB INLET CITY ID: IN-5542-080
14	861.08	SW	856.13	NE	856.13					3'X2' CURB INLET CITY ID: IN-5542-079
15	861.26	SW	855.35	NE	855.35					2'X1.5' CURB INLET CITY ID: IN-5542-033
16	861.7	SW	857.3							2'X1.5' CURB INLET CITY ID: IN-5542-043
18	856.56	SE	849.56	NW	849.58	SW	850.01			2'X1.5' CURB INLET CITY ID: IN-5542-076
19	855.64	NE	850.64	SW	850.66					2'x3' CATCH BASIN CITY ID: IN-5542-077
20	854.96	NE	850.96	SW	851.02					2'X1.5' CURB INLET CITY ID: IN-5542-078
21	851.17	NE	847.92							2'X1.5' CURB INLET CITY ID: IN-5542-075
22	850.74	SW	845.15	NW	845.2					2'X1.5' CURB INLET CITY ID: IN-5542-084
23	851.74	SW	847.76	NE	847.76					2'X1.5' CURB INLET CITY ID: IN-5542-074
24	851.92	SW	847.57	NE	847.57					2'X1.5' CURB INLET CITY ID: IN-5542-073
25	851.51	SE	846.31	SW	846.43	NW	846.31			2'X1.5' CURB INLET CITY ID: IN-5542-072
26	850.4	SW	847.22							2'X1.5' CURB INLET CITY ID: IN-5542-060
27	850.92	NE	845.17	SW	845.2					2'X1.5' CURB INLET CITY ID: IN-5542-061
28	850.56	NE	845.2	SW	845.2					2'X1.5' CURB INLET CITY ID: IN-5542-062
29	850.06	NE	845.32	SE	845.48					2'X1.5' CURB INLET CITY ID: IN-5542-063
30	850.15	NW-DEBRIS	846.47							2'X1.5' CURB INLET CITY ID: IN-5542-057
31	849.99	SE	846.21	NE	846.14	NW	846.15			2'X1.5' CURB INLET CITY ID: IN-5542-056
32	849.83	SE	846.33							2'X1.5' CURB INLET CITY ID: IN-5542-058
33	849.96	NW	846.04							2'X1.5' CURB INLET CITY ID: IN-5542-053
34	849.89	SE	845.92	SW	845.89					2'X1.5' CURB INLET CITY ID: IN-5542-054
35	849.59	N	845.85							3'X2' CURB INLET CITY ID: IN-5542-052
36	849.52	SE	845.94	N	846.83					3'X2' CURB INLET CITY ID: IN-5541-052
37	849.3	NW	845.48							2'X1.5' CURB INLET CITY ID: IN-5541-045
38	849.32	SE	845.18	SW	845.16					2'X1.5' CURB INLET CITY ID: IN-5541-046
39	849.43	NW	845.52							2'X1.5' CURB INLET CITY ID: IN-5541-048
40	849.43	SE	845.31	NE-C	845.26					2'X1.5' CURB INLET CITY ID: IN-5541-047
41	850.62	NW-LOTS OI	847.87							3'X2' CURB INLET CITY ID: IN-5541-018
42	850.51	SE	846.74	N	846.46					3'X2' CURB INLET CITY ID: IN-5541-017
43	851.96	NNE	847.32							3'X2' CURB INLET CITY ID: IN-5541-035
44	851.74	SEE NOTE	843.58							3'X2' CURB INLET CITY ID: IN-5541-037
45	852.24	NW-LOTS OI	849.01							3'X2' CURB INLET CITY ID: IN-5541-034
46	853.55	NW-LOTS OI	849.28							3'X2' CURB INLET CITY ID: IN-5542-005
47	853.72	FILLED TO RIM WITH DEBRIS								3'X2' CURB INLET CITY ID: IN-5542-027
51	852.54	CENTER-SO	842.56							10'X4' BOX CITY ID: ??
52	851.27	CENTER-SO	842.15							10'X4' BOX CITY ID: 5541-038
53	856.36	NW	851.11	SW	850.34	SE	850.77			STORM SEWER MANHOLE CITY ID: AS5542-047
54	852.74	NW	847.01	NE	846.61	SE	846.88	SW	846.71	STORM SEWER MANHOLE CITY ID: AS5542-037
55	862.73	NW	855.75	NE	855.71					STORM SEWER MANHOLE CITY ID: AS5542-034
56	861.18	NW	854.42	NE	856.59	SE	854.46	SW	854.62	STORM SEWER MANHOLE CITY ID: AS5542-042
57	850.51	NW	845.81	NE	845.92	SE	846.35			STORM SEWER MANHOLE CITY ID: AS5542-067
58	850.54	NW	847.1	NE	847.08	SE	847.15	SW	847.21	STORM SEWER MANHOLE CITY ID: AS5542-068
59	850.32	NW	844.77	NE	845.36	SE	845.13	SW	844.89	STORM SEWER MANHOLE CITY ID: AS5542-059
60	849.75	NW	844.24	NE	845.17	SE	844.39	SW	844.9	STORM SEWER MANHOLE CITY ID: AS5542-053
61	849.65	NW	844.18	NE	844.73	SE	844.14			STORM SEWER MANHOLE CITY ID: AS5542-050
62	849.21	NW	845.19	NE	845	SE	845.05	SW	844.85	STORM SEWER MANHOLE CITY ID: AS5542-051
63	849.1	NW	843.59	NE	843.91	SE	843.71	SW	843.92	STORM SEWER MANHOLE CITY ID: AS5541-044
64	849.49	NW	843.03	SE	843.16					STORM SEWER MANHOLE CITY ID: AS5541-043
66	852.38	CENTER	843.85							STORM SEWER BOX
67	851.45	N	845.95	NE	844.69	NE	844.73	SE	844.64	STORM SEWER MANHOLE
67	851.45	SE	842.7							DOUBLE PIPES GOING SE & NE
68	851.45	SW	846.72	NE	846.63					STORM SEWER MANHOLE
69	851.49	NW	847.17	NE	846.61	SE	846.97	SW	846.6	STORM SEWER MANHOLE
70	850.81	SE	847.09							2'x3' CATCH BASIN
71	851.34	NE	846.9	SW	846.88					6'X3' CATCH BASIN (WITH SS-72)
72	851.33	CENTER	845.14							6'X3' CATCH BASIN (WITH SS-71)
73	850.51	SE	848.37							3'X2' CURB INLET
74	850.6	NW	847.9	SE	847.32					2'x3' CATCH BASIN
75	851.06	NW	848.12	SE	848.08					2'x3' CATCH BASIN
76	851.79	NW	848.64	SE	848.74	SW	848.96			2'x3' CATCH BASIN
77	851.44	NW	849.26	NE	849.51					2'x3' CATCH BASIN
78	852.08	SW	850.01							2'x3' CATCH BASIN
79	851.29	FUNNELS N	847.39							2' DIAMETER CATCH BASIN
80	851.34	FUNNELS N	847.99							2' DIAMETER CATCH BASIN
81		NE	848.48							END PIPE INVERT
82	851.31	COULD NOT MEASURE DUE TO CARS ON IT								2' DIAMETER CATCH BASIN
SANITARY SEWER										
SN2	863.41	NE	851.31	NW	851.34					SANITARY SEWER MANHOLE
SN3	850.75	NE	844.38	SW	844.27					SANITARY SEWER MANHOLE
SN4	850.74	6.28	NW	TOP	844.63	TOP	844.58			SANITARY SEWER MANHOLE
SN5	849.82	NW	841.87	SE	841.99					SANITARY SEWER MANHOLE
SN6	849.58	NW	841.94	NE	841.96	SE	841.36	SW	841.29	SANITARY SEWER MANHOLE
SN7	849.92	NE	837.42	SW	837.26	SE	838.42			SANITARY SEWER MANHOLE
SN8	850.75	NE	837.58	SE	837.56					SANITARY SEWER MANHOLE
SN10	851.01	N	837.22	SE	837.03					SANITARY SEWER MANHOLE
SN11	851.62	NE	837.41	NW	836.92	NW	836.9	N-AB	836.5	SANITARY SEWER MANHOLE
SN12	851.68	NW	837.37	NE	837.35	NE	842.38	SW	837.32	SANITARY SEWER MANHOLE
SN13	851.22	NW	837.59	NE	838.48	NE	839.54	SE	842.55	SANITARY SEWER MANHOLE
SN13	851.22	SW	837.54							
SN14	851.61	NE	837.22	SW	836.78	NW	843.78			SANITARY SEWER MANHOLE
SN15	851.35	NE	836.47	SE	836.4					SANITARY SEWER MANHOLE
SN16	852.32	SW	832.71	NE	832.83	STAI	846.43			SANITARY SEWER MANHOLE
SN17	852.4	SE	832.79	SW	832.72					SANITARY SEWER MANHOLE
SN18	852.89	NE	832.76	NW	832.49					SANITARY SEWER MANHOLE
SN19	851.46	SW	845.46	NW	845.42					SANITARY SEWER MANHOLE
SN20	851.42	NNW	841.53	SE	842.36					SANITARY SEWER MANHOLE
SN21	851.99	SW	832.82	NE	832.84					SANITARY SEWER MANHOLE

NOTES:

1. Dates of field work: April 19 and 20, May 05, 17 and 23, 2016.

2. Elevations are based upon NAVD88 datum per benchmarks provided to the Surveyor by the City of Madison Engineering Department.

3. Routing of public utilities is based upon markings provided by Digger's Hotline Ticket Numbers 20161401667, 20161401688, 20161401702, 20161401734 and 20161401739, drawings obtained from City of Madison Engineering Department and visible aboveground structures. Additional buried utilities/structures may be encountered. No excavations were made to locate utilities. Before excavations are performed contact Digger's Hotline. Appears private electric utilities were not marked on the parcels.

4. No attempt has been made as a part of this survey to obtain or show data concerning condition or capacity of any utility or municipal/public service facility. For information regarding these utilities or facilities, please contact the appropriate agencies.

5. All surface and subsurface improvements on and adjacent to the site are not necessarily shown hereon.

6. All trees, hedges and ground cover on the site may not necessarily be shown hereon.

7. By graphic plotting only, this parcel is located in Zone X per the Flood Insurance Rate Map Community Panel Number 55025C0428G, dated January 02, 2009 and Zone X per the Flood Insurance Rate Map Community Panel Number 55025C0426H, dated September 17, 2014.

8. Except as specifically stated or shown on this map, this survey does not purport to reflect any of the following which may be applicable to the subject real estate: easements; building setback lines; restrictive covenants; subdivision restrictions; zoning or other land use regulations; and any other facts that an accurate and current title search may disclose.

9. Surveyor has made no investigation or independent search for easements of record, encumbrances, restrictive covenants, ownership title evidence, or any other facts that an accurate and current title search may disclose. Surveyor was provided with Title Reports as shown below.

10. See sheet 3 for parking stall table.

TITLE REPORT NUMBER 820571L
A parcel of land located in part of Lots Two (2), Three (3), Five (5), Six (6), Seven (7), Eight (8) and Nine (9), Block Three Hundred Ten (310), Madison Square Riley Plat, and part of the Southwest ¼ of Section 6, Township 7 North, Range 10 East, all in the City of Madison, Dane County, Wisconsin, more particularly described as follows: Commencing at the intersection of the Southwesterly right of way line of North First Street with the Southwesterly prolongation of the Northwesterly right of way line of East Mifflin Street; thence Southwesterly along said prolongation a distance of 246 feet, more or less, to the point of beginning; thence continuing Southwesterly along said prolongation to the intersection with the Northeasterly right of way line of the Chicago & Northwestern Railroad (now owned by the Union Pacific Railroad Company); thence Northwesterly along said railroad right of way line to the intersection with the southeasterly right of way line of the Chicago, Milwaukee, St. Paul & Pacific Railroad right of way (now owned by the City of Madison); thence Northeasterly along said right of way line to the intersection with the Southeasterly right of way line of East Johnson Street; thence Northeasterly along said Southeasterly right of way line of East Johnson Street to the intersection with the Southwesterly right of way line of North First Street; thence Southeasterly along said Southwesterly right of way line of North First Street to a point that is 175 feet, more or less, distant Northwesterly from the intersection of said right of way line with the Southwesterly prolongation of the Northwesterly right of way line of East Mifflin Street; thence Southwesterly along a line that is parallel to and 175 feet, more or less, distant from the Southwesterly prolongation of the Northwesterly right of way line of East Mifflin Street a distance of 246 feet, more or less, thence Southeasterly along a line parallel to the Southwesterly right of way line of North First Street a distance of 175 feet, more or less, to the point of beginning. EXCEPTING THEREFROM the following described parcel: Part of the Southwest ¼ of the Southwest ¼ of Section 6, Township 7 North, Range 10 East, including Lot Four (4) and part of Lots Three (3) and Five (5), Block Three Hundred Ten (310), Madison Square Riley Plat, in the City of Madison, Dane County, Wisconsin, being more fully described as follows: Commencing at the most Northerly corner of Block 310, Madison Square Riley Plat; thence Southeasterly 117 feet along the Southwest line of North First Street as platted in said plat to the point of beginning of this description; thence Southwesterly at right angles to North First Street 90 feet; thence Southeasterly parallel to North First Street 90 feet; thence Northeasterly at right angles to last mentioned line 90 feet to the Southwest line of North First Street; thence Northwesterly along the Southwest line of North First Street 90 feet to the point of beginning. EXCEPT that part conveyed in the Quit Claim Deed recorded in Vol. 817 of Deeds, page 456 as Document No. 1159979. [Surveyor's Notes are in brackets]
a. Easements, restrictions and others matters shown on the Plat of Madison Square Riley Plat recorded July 16, 1903 as Document No. 253138. [Nothing found on plat]
b. Restrictions and other matters contained in the Deed recorded August 31, 1911 in Vol. 208 of Deeds, page 351 as Document No. 313047. [General in nature and cannot be depicted on map]
c. Reservation of easements and other matters contained in the Deed recorded March 14, 1949 in Vol. 526 of Deeds, page 156 as Document No. 777760. [General in nature and cannot be depicted on map]
d. Reservation of easements and other matters contained in the Deed recorded March 15, 1949 in Vol. 526 of Deeds, page 166 as Document No. 777778. [shown on map]
e. Easement and other matters contained in the instrument recorded April 7, 1961 in Vol. 360 of Miscellaneous, page 187 as Document No. 1022200 [shown on map]; Amendment to Easement recorded March 15, 1996 in Vol. 32285 of Records, page 19 as Document No. 2745600. [shown on map]
f. Easement for Underground Gas and Electric Utilities granted to Madison Gas and Electric Company and other matters contained in the instrument recorded February 28, 1968 in Vol. 11 of Records, page 398 as Document No. 1207423. [Easement shown and is not on site]
g. Sanitary Sewer Easement granted to Madison Metropolitan Sewerage District and other matters contained in the instrument recorded April 18, 1979 in Vol. 1052 of Records, page 455 as Document No. 1617301. [shown on map]
h. Grant and Declaration of Sanitary Sewer Easements granted to Madison Metropolitan Sewerage District and other matters contained in the instrument recorded May 1, 2000 as Document No. 3209080. [shown on map]
i. Permanent Limited Easement for Sanitary Sewer Purposes granted to Madison Metropolitan Sewerage District and other matters contained in the instrument recorded April 24, 2002 as Document No. 3480336 [shown on map]; modified by Affidavit of Correction recorded June 24, 2002 as Document No. 3504853. [shown on map]
j. Underground Electric Easement granted to Madison Gas and Electric Company and other matters contained in the instrument recorded March 16, 2004 as Document No. 3884569; superceded by Electric Utility Easement recorded March 26, 2004 as Document No. 3888764. [shown on map]
k. Easement to WilTel Communications, Inc. as evidenced by Order and Judgement recorded February 27, 2013 as Document No. 4965434. [easement is off site and not shown]

SURVEYOR'S CERTIFICATE:

To: CITY OF MADISON REAL ESTATE SERVICES AND KNIGHT BARRY TITLE GROUP:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 5, 7(A), 8, 9, 11 and 19 of Table A thereof. The fieldwork was completed on May 23, 2016.

Dated this _____ day of _____, 201_.

Signed: _____
Michelle L. Burse, P.L.S. No. 2020
EMAIL: MBURSE@BSE-INC.NET

TITLE REPORT NUMBER 820574L
Part of the Southwest ¼ of the Southwest ¼ of Section 6, Township 7 North, Range 10 East, including Lot Four (4) and part of Lots Three (3) and Five (5), Block Three Hundred Ten (310), Madison Square Riley Plat, in the City of Madison, Dane County, Wisconsin, being more fully described as follows: Commencing at the most Northerly corner of Block 310, Madison Square Riley Plat; thence Southeasterly 117 feet along the Southwest line of North First Street as platted in said plat to the point of beginning of this description; thence Southwesterly at right angles to North First Street 90 feet; thence Southeasterly parallel to North First Street 90 feet; thence Northeasterly at right angles to last mentioned line 90 feet to the Southwest line of North First Street; thence Northwesterly along the Southwest line of North First Street 90 feet to the point of beginning. EXCEPT that part conveyed in the Quit Claim Deed recorded in Vol. 817 of Deeds, page 456 as Document No. 1159979. [Surveyor's Notes are in brackets]
a. easements, restrictions and others matters shown on the Plat of Madison Square Riley Plat recorded July 16, 1903 as Document No. 253138. [Nothing found on plat]
b. Restrictions and other matters contained in the Deed recorded August 31, 1911 in Vol. 208 of Deeds, page 351 as Document No. 313047. [General in nature and cannot be depicted on map]
c. Reservation of easements and other matters contained in the Deed recorded March 14, 1949 in Vol. 526 of Deeds, page 156 as Document No. 777760. [General in nature and cannot be depicted on map]
d. Reservation of easements and other matters contained in the Deed recorded March 15, 1949 in Vol. 526 of Deeds, page 166 as Document No. 777778. [shown on map]
e. Sanitary Sewer Easement granted to Madison Metropolitan Sewerage District and other matters contained in the instrument recorded April 18, 1979 in Vol. 1052 of Records, page 455 as Document No. 1617301. [shown on map]
f. Underground Electric Easement granted to Madison Gas and Electric Company and other matters contained in the instrument recorded March 16, 2004 as Document No. 3884569; superceded by Electric Utility Easement recorded March 26, 2004 as Document No. 3888764. [shown on map]

TITLE REPORT NUMBER 820582L
Parcel A: Part of Lots Three (3) through Seven (7), Fleury's Replat of Part of Block 277, Farwell's Replat and Addition & Part of Block 310, Riley Plat, also part of Blocks 276 and 277 Farwell's Replat and Addition, and part of Block Three Hundred Ten (310), Madison Square Riley Plat, all being located in the Southwest 1/4 of Section 6, Township 7 North, Range 10 East, in the City of Madison, Dane County, Wisconsin, more particularly described as follows: Commencing at the intersection of the Northwesterly right of way line of East Washington Avenue, with the Southwesterly line of North First Street being the East corner of Lot 1, Fleury's Replat, as originally platted; thence South 45°42'57" West, 164.01 feet to the point of beginning; thence North 46°08'17" West, 80.00 feet; thence North 15°55'09" East, 90.51 feet; thence North 45°42'57" East, 60.00 feet; thence parallel with North First Street, North 46°08'17" West, 268.41 feet to its intersection with the extended Northwesterly line of East Mifflin Street; thence Southwesterly along the extended Northwesterly line of East Mifflin Street, South 43°51'05" West, 437.41 feet to its intersection with the Northeasterly line of the right of way of the Chicago & Northwestern Railroad (now owned by the Union Pacific Railroad Company); thence Southeasterly along the Northeasterly line of said right of way, along a curve to the left which has a radius of 882.74 feet and a chord which bears South 59°13'20" East, 392.23 feet to its intersection with the Northwesterly line of East Washington Avenue; thence along said Northwesterly line, North 45°42'57" East, 208.80 feet to the point of beginning.
Parcel B: Part of Lots One (1), Two (2), Three (3), and Four (4), Fleury's Replat of Part of Block 277, Farwell's Replat and Addition & Part of Block 310 Riley Plat and also part of Block 277, Farwell's Replat and Addition, all in the City of Madison, Dane County, Wisconsin, described as follows: Beginning at a point which is South 45°42'57" West, 24.01 feet from the Northeast corner of Lot 1, Fleury's Replat; thence South 45°42'57" West, 140.00 feet; thence North 46°08'17" West, 80.0 feet; thence North 15°55'09" East, 90.51 feet; thence North 45°42'57" East, 60.0 feet; thence South 46°08'17" East, 125.00 feet to the point of beginning. [Surveyor's Notes are in brackets]
a. Easements, restrictions and other matters shown on the Plat of Farwell's Replat and Addition recorded March 28, 1855 as Document No. 105. [No items found on plat]
b. Easements, restrictions and others matters shown on the Plat of Madison Square Riley Plat recorded July 16, 1903 as Document No. 253138. [Nothing found on plat]
c. Restrictions and other matters contained in the Deed recorded August 31, 1911 in Vol. 208 of Deeds, page 351 as Document No. 313047. [General in nature and cannot be depicted on map]
d. Restrictions, easements, conditions and other matters contained in the Warranty Deed recorded June 30, 1939 in Vol. 396 of Deeds, page 425 as Document No. 621243. [Easement has been vacated by Doc. No. 1082743.]
e. Easements, restrictions and other matters shown on the Plat of Fleury's Replat of Part of Block 277, Farwell's Replat and Addition & part of Block 310, Rile Plat recorded January 30, 1945 as Document No. 698351. [shown on map]
f. Easement and other matters contained in the Warranty Deed recorded August 30, 1951 in Vol. 567 of Deeds, page 520 as Document No. 822436. [shown on map]
g. Easement and other matters contained in the Warranty Deed recorded March 3, 1961 in Vol. 721 of Deeds, page 315 as Document No. 1020036. [shown on map]
h. Easement and other matters contained in the instrument recorded April 7, 1961 in Vol. 360 of Miscellaneous, page 187 as Document No. 1022200 [shown on map]; Amendment to Easement recorded March 15, 1996 in Vol. 32285 of Records, page 19 as Document No. 2745600. [shown on map]
i. Resolution by City of Madison regarding conveyances recorded June 24, 1962 in Vol. 371 of Miscellaneous, page 340 as Document No. 1041394; Affidavit clarifying resolution recorded September 12, 1963 in Vol. 397 of Miscellaneous page 453 as Document No. 108243. [General in nature and cannot be depicted on map]
j. Resolution by Madison Metropolitan Sewerage District regarding easements recorded August 19, 1963 in Vol. 396 of Miscellaneous, page 278 as Document No. 1080501. [shown on map]
k. Easement for electric power transmission line and other matters contained in the instrument recorded October 14, 1963 in Vol. 399 of Miscellaneous, page 136 as Document No. 1085411. [shown on map]
l. Right-of-Way Grant to Madison Gas and Electric Company and other matters contained in the instrument recorded December 29, 1989 in Vol. 13702 of Records, page 89 as Document No. 2178602. [shown on map]
m. Right-of-Way Grant to Madison Gas and Electric Company and other matters contained in the instrument recorded January 2, 1997 as Document No. 2822957. [shown on map]
n. Public Sanitary Sewer Easement granted to the City of Madison and other matters contained in the instrument recorded May 1, 2000 as Document No. 3209082[shown on map]; modified by Affidavit of Correction recorded July 18, 2000 as Document No. 3231755. [shown on map]
o. Right-of-Way Grant to Madison Gas and Electric Company and other matters contained in the instrument recorded April 12, 2001 as Document No. 3306846. [shown on map]
p. Short-Form Environmental Remediation Agreement and other matters contained in the instrument recorded June 24, 2005 as Document No. 4066383. [General in nature and cannot be depicted on map]
q. Consent to Occupy Easement by Madison Metropolitan Sewerage District and other matters contained in the instrument recorded September 23, 2005 as Document No. 4111701. [shown on map]
r. Consent to Occupy Easement by City of Madison and other matters contained in the instrument recorded October 10, 2005 as Document No. 4118764. [shown on map]
s. Permanent Limited Easement for Public Road Purposes granted to the City of Madison and other matters contained in the instrument recorded October 14, 2005 as Document No. 4120781 [shown on map]; modified by Affidavit of Correction recorded September 12, 2006 as Document No. 4233952. [shown on map]
t. Award of Compensation and other matters contained in the instrument recorded October 14, 2005 as Document No. 4120782 [shown on map]; modified by Affidavit of Correction recorded September 12, 2006 as Document No. 4233953. [General in nature and cannot be depicted on map]
u. Consent to Occupy Easement by Madison Gas and Electric Company and other matters contained in the instrument recorded November 28, 2005 as Document No. 4136679 [shown on map]; modified by Affidavit of Correction recorded September 12, 2006 as Document No. 4233960. [shown on map]
v. Deed Restriction and other matters contained in the instrument recorded February 28, 2006 as Document No. 4165832. [General in nature and cannot be depicted on map]
w. Right-of-Way Grant to Madison Gas and Electric Company and other matters contained in the instrument recorded March 19, 2007 as Document No. 4290417. [shown on map]
x. Easement to WilTel Communications, Inc. as evidenced by Order and Judgment recorded February 27, 2013 as Document No. 4965434. [Easement is off site and is not shown on map]

TITLE REPORT NUMBER 820581L
A parcel of land located in part of Block Three Hundred Ten (310), Madison Square Riley Plat, and part of the Southwest ¼ of Section 6, Township 7 North, Range 10 East, in the City of Madison, Dane County, Wisconsin, more particularly described as follows: Commencing at the intersection of the Southwest line of North First Street and the Northwest line of East Mifflin Street extended, thence Southwesterly 270 feet along the Northwesterly side of East Mifflin Street extended, thence Northwesterly 175 feet parallel to North First Street, thence Northeasterly 270 feet parallel to East Mifflin Street extended, thence Southeasterly 175 feet along the Southwest line of North First Street to the point of beginning. EXCEPT that part conveyed in the Quit Claim Deed recorded in Vol. 817 of Deeds, page 262 as Document No. 1159479 and furthering EXCEPTING that part conveyed in the Quit Claim Deed recorded as Document No. 4125778. [Surveyor's Notes are in brackets]
a. Easements, restrictions and others matters shown on the Plat of Madison Square Riley Plat recorded July 16, 1903 as Document No. 253138. [Nothing found on plat]
b. Restrictions and other matters contained in the Deed recorded August 31, 1911 in Vol. 208 of Deeds, page 351 as Document No. 313047. [General in nature and cannot be depicted on map]
c. Reservation of easements and other matters contained in the Deed recorded March 15, 1949 in Vol. 526 of Deeds, page 166 as Document No. 777778. [shown on map]
d. Easement and other matters contained in the instrument recorded April 7, 1961 in Vol. 360 of Miscellaneous, page 187 as Document No. 1022200 [shown on map]; Amendment to easement recorded March 15, 1996 in Vol. 32285 of Records, page 19 as Document No. 2745600. [shown on map]
e. Sanitary Sewer Easement granted to the City of Madison and other matters contained in the instrument recorded June 9, 1967 in Vol. 465 of Miscellaneous, page 191 as Document No. 1186554. [shown on map]
f. Right-of-Way grant to Madison Gas and Electric Company and other matters contained in the instrument recorded November 13, 1989 in Vol. 13537 of Records, page 39 as Document No. 2171882. [shown on map]
g. Right-of-Way grant to Madison Gas and Electric Company and other matters contained in the instrument recorded June 28, 1990 in Vol. 14375 of Records, page 18 as Document No. 2207820. [shown on map]
h. Public Sanitary Sewer Easement granted to the City of Madison and other matters contained in the instrument recorded May 1, 2000 as Document No. 3209081. [shown on map]
i. Right-of-Way grant to Madison Gas and Electric Company and other matters contained in the instrument recorded July 27, 2004 as Document No. 3946952. [shown on map]
j. Conveyance of Rights in Land by SBC Communications Inc. and other matters contained in the instrument recorded October 17, 2005 as Document No. 4121334. [shown on map]
[Document No. 1085411 is on this parcel]

SURVEYED FOR:
CITY OF MADISON
REAL ESTATE SERVICES
210 MARTIN LUTHER KING JR. BLVD
MADISON, WI 53703

SURVEYED BY:

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Plot Date: 07-14-2016
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