STATE OF MICHIGAN

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

This contract authorizes the professional services contractor to provide professional services.
(Authority: 1984 PA 431)

CONTRACT FOR PROFESSIONAL ENVIRONMENTAL SERVICES: Indefinite Scope-Indefinite Delivery

THIS CONTRACT, authorized this 17th day of February the year two-thousand and twenty-three (2023), by the Director, Department of Technology, Management and Budget, BETWEEN the STATE OF MICHIGAN acting through the STATE FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION of the DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET, 3111 W. St. Joseph Street, Lansing, Michigan, 48917, hereinafter called the Department, and

Barr Engineering Co.
3005 Boardwalk St., Suite 100
Ann Arbor, MI 48108

the Prime Professional Services Contractor, hereinafter called the

Professional. WHEREAS the Department proposes securing

professional services for:

Indefinite-Scope, Indefinite-Delivery Contract No. 00924
Index No. (To Be Established)
Contract Order No. Y (To Be Assigned)
File No. (To Be Assigned)

Department of Technology, Management and Budget, State Facilities Administration, Design and Construction Division, Professional Environmental Services Indefinite-Scope, Indefinite-Delivery Contract (ISID) for Minor Projects –

2023 Environmental ISID Services
Various State Departments and Facilities
Various Site Locations, Michigan

NOW THEREFORE, the Department and the Professional in consideration of the covenants of this Contract agree as follows:

I. The Professional shall provide primary environmental investigation/assessment/design/construction oversight services for the assigned projects to the extent authorized by the Department of Technology, Management and Budget State Facilities Administration (SFA), Design and Construction Division (DCD) [The Department] and be solely responsible for such professional services. The Professional's services shall be performed in strict accordance with the assigned Project scope of work.

II. If authorized, the Professional shall provide environmental services for the regions and project types identified below.

Regions							
Western UP	Eastern UP	Northern LP	Saginaw Bay	Western LP	Central LP	Southwestern LP	Southeastern LP
			x	x	x	x	x

Project Types and Services Offered	
Asbestos/Lead/Mold/Biohazard/Free Product Regulated Waste Survey/Abatement	
Brownfield Development	x
Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration	x
Environmental Investigation / Characterization / Pilot Tests / Feasibility Study	x
Environmental Roto Sonic Drilling / Well Abandonment	x
Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field Screening	x
Landfill Maintenance / Monitoring	x
Nuclear Waste Management / Disposal / Remediation	
Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation	x
Phase I / Phase II / Baseline Environmental Assessments	x
Remediation Systems Design / Construction Oversight / O & M / Decommissioning	x
Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning	x
Underground / Aboveground Storage Tank (UST / AST) Removal / Demolition/ Soil Excavation / Closure	x
Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O & M Services	x

NOTE: Blackened box(es) indicate a service that the committee did not select for your firm.

III. The State of Michigan shall compensate the Professional for providing their professional services for the Project in accordance with the conditions of this Professional Services Contract.

IN WITNESS, WHEREOF, each of the parties has caused this Professional Services Contract to be executed by its duly authorized representatives on the dates shown beside their respective signatures, with the Contract to be effective upon the date on which the Professional received a copy executed by the authorized State of Michigan representative(s) by regular, registered, or certified mail or by delivery in person.

FOR THE PROFESSIONAL:

Barr Engineering Co.
Firm Name

VS0109084
SIGMA Vendor ID Number

2-28-2023
Date

Signature

Thomas Boom, Vice President
Title

FOR THE STATE OF MICHIGAN:

March 3, 2023
Date

Director, DTMB | SFA | Design and Construction

WHEREAS this Professional Services Contract constitutes the entire agreement as to the Project between the parties, any Contract Modification of this Contract and the Department's approved and attached Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional firm's final design Contract Documents/architectural and engineering design errors, omissions, or neglect on the part of the Professional.

ARTICLE I
PROFESSIONAL SERVICES SCOPE OF WORK

Provide professional environmental services, technical staff, and support personnel for ISID minor projects on an as-needed basis at various State/Client Agencies within the various site location areas as defined by the State of Michigan.

This Contract is for professional environmental investigation and/or design services for an unspecified number of ISID projects ("Assignment"). The scope of work for each assigned project will be defined at the time the project is awarded by the State to the Professional firm. The professional environmental services required for each of these assigned projects requested by the Department may include any or all of the Tasks included in the Phase 100 – Study through the Phase 900 – Operation and Maintenance Management.

The Professional firm's environmental services shall be performed in strict accordance with this Professional Services Contract and be in compliance with the Department's approved and attached Appendix I– Project/Program Statement.

This Contract does not warrant or imply to the Professional environmental firm, entitlement to perform any specific percentage (%) amount of environmental work during the life of this Contract.

This Contract will remain in effect for **three (3) years** from the date of this Contract award but may be unilaterally terminated by the State of Michigan at any time, for cause or its convenience, by written notification of the State, to the Professional. Furthermore, this Contract may be extended for **one (1) additional year**, at the sole option and discretion of the State upon the Department providing written notice to the Professional prior to the expiration of the original Contract time period. Any such time extension shall be subject to the terms and conditions of this Contract, including, but not limited to, the existing hourly billing rates included in this Contract for the Professional, their Consultant, and their employees or agents.

Please note that the Professional Services Contract ISID Contract No., as noted on page 1, must be provided on all Project correspondence and documents. Also, services are not to be provided or expenses incurred until individual ISID Projects are assigned to this Contract (see the Article II – Compensation and the Appendix 1 – Project/Program Statement).

Upon award of this Contract and each subsequent assignment, the Professional understands and agrees that time is of the essence. Failure to adhere to timely completion will be grounds for the Department, at its sole discretion, to terminate or limit future work under this Contract.

The Professional shall provide all professional services, technical staff, and support personnel necessary to complete the Project as described in its Project/Program Statement, in the best interest of the State, and within the Professional's fee(s) herein authorized by the State. Assigned project services shall comprise, without exception, every professional discipline and expertise necessary to meet all the requirements as described in the Project/Program Statement and in accordance with the accepted industry standards for professional practice and services. The Professional's services include attendance at all Project related meetings and conferences. Professional services for the assigned projects under this contract shall be provided in the Phase/Task sequence shown below and shall be rendered in accordance with the Professional's proposed and approved Project Study, Design, and Proposed Construction Schedule. The Professional's study, design, and proposed construction schedule shall be detailed, undated, and time sequence related for all Phase/Task services appropriate for the Project. The Professional shall field-check and verify the accuracy of all study/drawing and any data furnished by the Department, the State/Client Agency or any other Project related source. The Professional shall not employ or consult with any firms in completing the Professional's obligations herein who it anticipates will be a construction Bidder for the Project or any part thereof, unless specifically authorized, in writing, by the Department.

The Professional acknowledges that the Department is the first interpreter of the Professional's performance under this Contract.

The Professional acknowledges by signing this Professional Services Contract having a clear understanding of the requested professional environmental services required by the Department, and further agrees that the terms and conditions of this Professional Services Contract provide adequate professional fee(s) for the Professional to provide the requested Project scope of work requirements for each assigned project. No increase in compensation to the Professional will be allowed unless there is a material change made to the scope of work of the Assignment/Program Statement and the change is accepted and approved, in writing, by the State. Professional services shall not be performed, and no Project expenses shall be incurred by the Professional prior to the issuance of a written and signed Professional Services Contract and a Contract Order authorizing the Professional to start the Project work. Compensation for Department directed changes to the Project will be provided to the Professional by a Contract Modification and/or Contract Change Order signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Project Director/Agency Project Manager, on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall immediately inform the Department whenever it is indicated that the Professional's authorized not-to-exceed Budget for any of the assigned Projects may be exceeded. The Professional shall make recommendations to the Department for revisions to be implemented in order to not exceed the original authorized Budget. Any revision to the Project must be accepted and approved by the Department in writing.

The professional services may also include participation in legislative presentations as described in the "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" and as the legislature or the Department may prescribe.

No substitution of any "Key Personnel/Employee" essential for the successful completion of the Project and identified in the Professional's Organizational Chart will be allowed by the Professional for this Contract without the prior written consent from the Project Director/Agency Project Manager. Before any "Key Personnel/Employee" substitution takes place, the Professional shall submit a written request to the Project Director/Agency Project Manager, and this substitution request shall include the following information: (1) A request in writing for a No Cost Contract Modification; (2) Detailed written justification for this substitution; (3) The Professional's qualifications of any proposed "Key Principal Personnel/Employee" replacement; and (4) A written statement from the Professional assuring the Department that the Project scope of work will not be adversely affected by this substitution. This request to modify their Professional Services Contract must be accepted and approved in writing by the Project Director/Agency Project Manager and the Director of the Department.

The Department will designate individuals to serve as the Project Director and Agency Project Manager for the Project scope of work who shall be fully acquainted with the Project/Program Statement and have the authority to render Project decisions and furnish information promptly. Except in connection with issues under the Article XII - Contract Claims and Disputes text, the Project Director/Agency Project Manager will exercise general management and administration for the Professional's services in so far as they affect the interest of the State. The Professional shall indemnify, defend, and hold harmless the State against exposure to claims arising from delays, negligence, or delinquencies by the Professional for the professional services of this Contract.

During the Construction Administration Services Phase of the Project, the Professional is required to complete and submit, the on-site inspection record form, "DTMB-0452, The Professional's Inspection Record," for all on-site inspection visits to the Project site. The Inspection Record shall be completed and signed by the Professional and submitted monthly, with the original document sent to the Project Director/Agency Project Manager and copies sent to the Construction Contractor. The Inspection Record shall accompany the Professional's monthly payment request.

The "DTMB-0460, Project Procedures" contains Department forms which shall be used during the Construction Administration Phase of this Contract. All professional services will be consistent with the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" unless otherwise approved in writing by the Department.

The professional services required for each Phase of this Contract shall be performed by the Prime Professional and their Consultants in accordance with service descriptions in this article. The following service descriptions outlined in this Contract represent the Department's standard of care for the Professional's responsibilities for providing the professional services of this Contract; but by inclusion, or omission, the descriptions do not limit or exclude any regular or normal professional services necessary to accomplish the Project in accordance with the approved Project Budget and the industries accepted practice and standards for professional services. All of the services outlined in this Contract may not be applicable to the Project/Program Statement. The Professional shall determine and coordinate the interface of the services required for the Project and is responsible for identifying any additional services necessary to successfully complete the Project.

The professional shall execute the following PHASES upon written authorization from the Project Director.

PHASE 100 - ENVIRONMENTAL INVESTIGATION/STUDY SERVICES

Provide complete and comprehensive Environmental Investigation/Study Deliverables to meet the requirements of the Project/Program Statement. Upon completion of all field investigation, assessment, research, review and/or oversight, prepare a complete report with an executive summary, and in such detail, as the Project Director may prescribe. The services under this phase may include but not be limited to coordination, environmental assessments, drilling, field sampling/oversight, data/document review/management, feasibility study, and reporting as described in the Project/Program Statement. Project reports must be in accordance with Department/Client/Agency requirements and as outlined in the Project/Program Statement but shall include, as a minimum and as appropriate, the following items: (1) Problem; (2) Conclusion; (3) Recommendations; and (4) Discussion, details, and documentation.

PHASE 300–SCHEMATIC DESIGN

Prepare Schematic Design Deliverables consistent with the Project/Program Statement. The deliverables shall consist of conceptual remediation system, drawings, outline specifications, a Schematic Construction Cost Estimate, other related documentation, and shall diagrammatically depict the areas, scales, and relationships of the functions. The services under this phase may include but not be limited to coordination, construction codes and design reviews, civil/site staging investigation, schematic design and utilities review, drafting, and project cost/proposed construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement. Acceptance of the Schematic Design by the Department/Client/Agency does not limit subsequent inclusion of minor, but essential, schematic or design details whose necessity and arrangement may best become apparent during subsequent Phases of the Project design. Revise design as necessary and obtain approval from the Department/Client/Agency.

PHASE 400—DESIGN DEVELOPMENT

Prepare Design Development Deliverables based on the Owner-accepted Schematic Design to depict the intent of the designed remediation system(s). The deliverables shall consist of draft drawings and specifications, Construction Cost Estimates and other related documentation to clearly establish the complete basis for further detail into final design drawings/specifications. The deliverables shall further define the Project by fixing and describing the Project size, character, site relationships, and other appropriate elements including the environmental, civil, structural, architectural, mechanical, electrical, and safety systems. The services under this phase may include but not be limited to coordination, draft drawings/specifications, site specific staging investigation, structural calculations and preliminary environmental/architectural/engineering design development/reviews of drawings/specifications, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 500—CONSTRUCTION DOCUMENTS AND BIDDING DOCUMENTS

Prepare Construction Documents that revise, refine, amplify, and depict, in detail, the Project. The documents shall set forth, in detail, quality levels of and requirements for the construction, and shall consist of final drawings/specifications that comply with applicable regulatory and construction code requirements, enacted at the time of completion of the one hundred percent (100%) Construction Documents. Prepare Bidding Documents in Phases/Bid packages appropriate to the Project requirements and funding. Incorporate the current edition of DTMB “MICHSPEC”, “DCSPEC” or “50KSPEC”, as adopted and modified by the State of Michigan. The Construction Documents shall contain all information necessary to bid and construct the Project. The services under this phase may include but not be limited to coordination, final drawings/specifications and bidding documents, civil/site staging design, final structural calculations, final environmental/architectural/engineering design development/reviews of drawings/specifications, construction testing program, hazardous materials, health and safety risks, final design correction procedures, design and construction budget, construction codes/permits and construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 600 - CONSTRUCTION ADMINISTRATION - OFFICE SERVICES

Provide all required construction oversight administration and timely professional review and administrative services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial actions/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, review and approval of shop drawings and submittals, reporting of construction progress, construction quality testing, construction contractor performance review, punch list procedures, claims, establishing close-out procedures and developing/review of as-built documents, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 700 - CONSTRUCTION ADMINISTRATION - FIELD SERVICES

Provide all required Construction Oversight and Field Services, including timely inspection and professional services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial action/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, field inspections, progress meetings and final project inspection, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 900 – OPERATION AND MAINTENANCE SERVICES – REMEDIATION FACILITY

Provide all required Operation and Maintenance (O&M) Services and perform, in a safe and secure environment, all functions, including timely inspection, sampling and professional services, necessary to maintain uninterrupted, effective and efficient facility/system components for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, general system operation/inspections, routine system/building/ground maintenance, sampling, spare replacement parts, consumable supplies, utilities, waste materials removal/treatment/disposal, non-routine emergency services, progress meetings and reporting, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

ARTICLE II
COMPENSATION

In consideration of the performance of this Contract, the Department agrees to pay the Professional, as compensation for professional services, an hourly billing rate for each employee providing a direct service to this Project, on a not-to-exceed basis as specified herein, subject to subsequent modifications mutually agreeable to the parties hereto; provided, however, the Professional may not incur costs, or bill the Department, for professional services in excess of the estimates established for this Project without the prior written agreement of the Department. The attached proposal prepared by the Professional in response to the Request for Proposal, by the Owner, may describe methodology, services, schedule, and other aspects of the work to be performed under the Contract but does not supersede the Contract.

Compensation to the Professional shall be on an hourly billing rate basis for professional services rendered by salaried and non-salaried professional, technical, and technical support employees, except for any authorized reimbursable expenses provided for in this Contract. Total compensation for any Phase shall not exceed the amount authorized for that Phase, unless authorized in writing by the Department’s approved Contract Change Order. Professional services shall not be performed, and no Project expense shall be incurred by the Professional firm prior to the issuance of a written and signed Professional Services Contract and a DTMB Form 0402 - Contract Order by the Department to the Professional, authorizing the Professional to start the Project.

Compensation to the Professional for services and authorized technical and technical support employees performing a direct service for this Project shall be determined using the Professional firm's billing rates. The Professional firm's hourly billing rate shall be the actual amount paid for the employee services on the Project including fringe benefits, vacations, sick leave, other indirect costs, and profit. The Professional firm's hourly billing rates shall not change during the life of this Contract without written approval by the Department. See attached Appendix**, Overhead Items Allowed for the Professional Services Contractor Firm's Hourly Billing Rate Calculation**, for the guide to overhead items allowed for the professional services contractor firm's hourly billing rate calculation. Reimbursement for the Project/Program Statement scope of work requirements will be provided only for Department approved items authorized for reimbursement compensation in this Contract. The State will not reimburse the Professional for downtime, or for personnel involved in downtime due to mechanical problems or failure of Professional's or Subcontractor equipment.

The preparation of Bulletins and Contract Change Orders resulting from changes to the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Department on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and one- half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall provide, but no additional monetary compensation shall be allowed for the services necessary to respond to and resolve all claims arising wholly or in part from the Professional's errors and/or omissions or other aspects of the Project's design or the Professional firm's performance which is inconsistent with the Professional or Construction Contract.

2.1 PREMIUM TIME/OVERTIME: This Contract anticipates that no premium or overtime is required to achieve the Project's scope of work. No compensation will be allowed to the Professional for any premium or overtime cost incurred to achieve the Project schedule of this Contract, unless directed in writing by the Project Director/Agency Project Manager and approved by the Department.

2.2 EMPLOYEE HOURLY BILLING RATES: Hourly billing rates will include all direct and indirect monetary costs to the State for the Professional's services under this Contract other than the authorized and approved reimbursements. Hourly billing rates shall be based on the Professional's documented historical operating expenses and adjusted for Project specific costs. In no case shall this documentation period include more than eighteen (18) months prior to the date of award of this Contract.

Lump-sum payments to employees are not allowed under this Contract. Billing rates for employees who perform professional services of a subordinate or of a position classification having a lower classification/pay range shall be accounted and paid for at the lower hourly billing pay rate. The hourly billing rate charge of any employee may be changed by the Professional with a written and Department approved Contract Modification to account for normal personnel pay increases.

Hourly billing rates include, but are not limited to: Overhead items such as employee fringe benefits, vacations, sick leave, insurance, taxes, pension funds, retirement plans, meals, lodging, and all Project related travel expenses for Projects **less than** one-hundred (100) miles in each direction from the Professional's nearest Michigan office, computer costs/operating costs, data entry, and time, telephone, telephone- related services, and all reproduction services (except Contract Bidding Documents/Deliverables).

The hourly billing rate also includes all reproduction costs for design interpretations, study/design clarifications and Bulletins related to design errors or omissions, construction code compliance (precipitating either from design code compliance and plan review, design interpretations, or construction on-site/field inspections), and all similar, or avoidable costs.

All incidental postage, mail, or other shipping or delivery services, acquisition, bad debts, previous business losses, employment fees, depreciation, and operating costs for equipment, including computer design and/or computer drafting systems, and any specialized testing equipment are to be included. The hourly billing rate shall include, without exception, secretarial, computer/typing/word processing, editing, and clerical services utilized in any way for the Project as well as other non-technical and/or employees providing indirect services. The hourly billing rate also includes all profit without regard to its form or distribution.

Items not allowable as part of the Professional's calculated hourly billing rate include but are not limited to: Any costs associated with litigation and settlements for the Professional, other liability suits, out-of-state offices and associated travel, bonuses, profit sharing, premium/overtime costs, public relations, entertainment, business promotion, contributions, and various speculative allowances.

The hourly billing rate for the Professional may not be applied to the work of the Professional's Sub- Consultant's staff. Each Sub-Consultant firm must submit a separate hourly billing rate with proper documentation for Sub-Consultant services provided as part of the Proposal. The hourly billing rate of the respective Consultant firm shall be used for that Consultant firm's personnel only. No mark-up to Consultant firm's charges will be allowed.

2.3 RANGE OF EMPLOYEE HOURLY BILLING RATES: The Professional shall identify the service being provided and include the Professional's or Consultant's employee(s) full names and position classifications for the Project and their current hourly billing rates at the beginning and at the anticipated end of the Project. This hourly billing rate range shall reflect any anticipated pay increases over the life of the Contract. The range of hourly billing rates for any employee position or classification may not be changed without an approved Contract Modification.

2.4 DIRECT COST REIMBURSEMENT ITEMS: The Professional's Consultant services and authorized reimbursable expenses shall be treated as an authorized reimbursable expense item at a direct cost. The Professional shall be responsible for the selection of the supplier of the professional services or materials; the coordination, adequacy, and application of the professional services, whether provided by the Professional's staff or provided by their Consultant, and any Project costs that exceed the budget for each Phase.

Project related travel expenses (mileage, meals, lodging) for Projects **more than** one-hundred (100) miles in one- way from the Professional's nearest office shall be treated as an authorized reimbursable expense at the State of Michigan's current travel rates.

Unless authorized elsewhere in this Contract, direct cost reimbursement items shall be limited to the actual cost of printing and reproduction of project deliverables such as Final Study Reports, Surveys, Bidding Documents, and U. S. Mail regular shipping postage of the project deliverables listed above. In addition, direct cost reimbursement items may include soil borings, site surveys and any required laboratory testing, Design Code Compliance and Plan Review Approval Fees by the licensing agency; reproduction of documents for legislative presentation, artistic productions, mobilization of testing equipment, laboratory costs for testing samples, per-linear-foot cost of soil borings and specialized inspections of the structural, mechanical, electrical, chemical or other essential components of the Project.

Compensation for this Contract shall not exceed the budget per Project Phase identified in the attached Contract Order unless authorized by a Department approved Contract Modification. It shall be the Professional's responsibility to carefully monitor Project costs, activities, and progress and to provide the Project Director/Agency Project Manager timely notification of any justifiable need to increase the authorized budget. The Professional may not proceed with professional services that have not been authorized by the Project Director/Agency Project Manager and shall immediately notify the Project Director/Agency Project Manager if such services have been requested or have become necessary.

Professional/Sub-Consultant staff and hourly billable rates are identified in the attached Professional's proposal.

ARTICLE III
PAYMENTS

Payment for the professional services shall be based on the Professional's performance of authorized professional service(s) performed prior to the date of each submitted payment request. Payment requests shall be submitted monthly to the Project Director/Agency Project Manager on a payment request form (DTMB-440). Payment for each monthly submitted payment request shall be made within thirty (30) consecutive calendar days following the Department's approval of the payment request. Payment requests shall include signed certification by the Professional of the actual percentage of work completed as of the date of invoicing for each Phase and summarize the amounts authorized, earned, previously paid, and currently due for each Project Phase.

Payment requests shall be supported by itemized records or documentation in such form and detail as the Department may require.

Each of the Professional's Consultant's submitted payment request applications shall include similar information. This includes, but is not limited to:

- Phase Numbers for the professional services provided.
- Professional's personnel and position/classification providing service and hours worked. Current hourly billing rate charges for each individual position/classification.
- Copy of certified on-site visitation log or site visit report showing time on-site.
- Itemized invoices from each of the Professional's Consultant's documenting that firm's professional services charge and the Project work related services provided.
- Authorized reimbursable expense items provided with receipts and invoices.

The State has the right to withhold payment of any disputed amounts until the parties agree as to the validity of the disputed amount. The State will notify the Professional of any dispute within a reasonable time. Payment by the State will not constitute a waiver of any rights as to the Professional's continuing obligations, including claims for deficiencies or substandard Contract Activities. The Professional's acceptance of final payment by the State constitutes a waiver of all claims by the Professional against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed.

The State will only disburse payments under the Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at http://www.michigan.gov/SIGMAVSS to receive electronic funds transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy if may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract

ARTICLE IV
ACCOUNTING

The Professional shall keep current and accurate records of Project costs and expenses, hourly billing rates, authorized reimbursable expense items, and all other Project related accounting documents to support the Professional's monthly application for payment. Project records shall be kept on a generally recognized accounting basis. Such records shall be available to the Department for a period of ten (10) years after the Department's final payment to the Professional. The State of Michigan reserves the right to conduct, or have conducted, an audit and inspection of these Project records at any time during the Project or following its completion.

ARTICLE V
INSURANCE

The Professional shall purchase, maintain and require such insurance that will provide protection from claims set forth below which may arise out of or result from the Professional firm's services under this Contract, whether such service is performed by the Professional or performed by any of the Professional firm's Consultant's or by anyone directly or indirectly employed by them, or by anyone for whose acts they may be liable. The following insurance policy limits described below are intended to be the minimum coverage acceptable by the State:

For the purpose of this Section, "State" includes its departments, divisions, agencies, offices, commissions, officers, employees, and agents.

(a) The Contractor must provide proof that it has obtained the minimum levels of insurance coverage indicated or required by law, whichever is greater. The insurance must protect the State from claims that may arise out of or result from or are alleged to arise out of or result from the Contractor's or a Subcontractor's performance, including any person directly or indirectly employed by the Contractor or a Subcontractor, or any person for whose acts the Contractor or a Subcontractor may be liable.

(b) The Contractor waives all rights against the State for the recovery of damages that are covered by the insurance policies the Contractor is required to maintain under this Section. The Contractor's failure to obtain and maintain the required insurance will not limit this waiver.

(c) All insurance coverage provided relative to this Contract is primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State.

(d) The State, in its sole discretion, may approve the use of a fully-funded self-insurance program in place of any specified insurance identified in this Section.

(e) Unless the State approves, any insurer must have an A.M. Best rating of "A" or better and a financial size of VII or better, or if those ratings are not available, a comparable rating from an insurance rating agency approved by the State. All policies of insurance must be issued by companies that have been approved to do business in the State. To view the latest A.M. Best's Key Ratings Guide and the A.M. Best's Company Reports (which include the A.M. Best's Ratings) visit the A.M. Best Company internet web site at http://www.ambest.com.

(f) Where specific coverage limits are listed in this Section, they represent the minimum acceptable limits. If the Contractor's policy contains higher limits, the State is entitled to coverage to the extent of the higher limits.

(g) The Contractor must maintain all required insurance coverage throughout the term of this Contract and any extensions. However, in the case of claims-made Commercial General Liability policies, the Contractor must secure tail coverage for at least three (3) years following the termination of this Contract.

(h) The minimum limits of coverage specified are not intended and may not be construed; to limit any liability or indemnity of the Contractor to any indemnified party or other persons.

(i) The Contractor is responsible for the payment of all deductibles.

(j) If the Contractor fails to pay any premium for a required insurance policy, or if any insurer cancels or significantly reduces any required insurance without the State's approval, the State may, after giving the Contractor at least 30 days' notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor or require the Contractor to pay that cost upon demand.

(k) In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Michigan Attorney General.

The Professional firm's Errors and Omissions coverage shall include coverage for claims resulting from acts of forbearance that cause or exacerbate pollution and claims of bodily injury and property damage in the amount of $1,000,000 minimum coverage per occurrence, $3,000,000 annual aggregate. This insurance is required of all professional firms who conduct professional environmental services including, but not limited to, any of the following services:

(i) Remedial System Design.

(ii) Remediation Management.

(iii) Feasibility Development and Implementation.

(iv) Hydrogeological Evaluation.

(v) Media Testing and Analysis.

(vi) Subsurface and Geophysical Investigation.

(vii) Other related activities as determined by the Department.

Required Limits	Additional Requirements
Commercial General Liability Insurance	
Minimum Limits: $1,000,000 Each Occurrence Limit $1,000,000 Personal & Advertising Injury Limit $2,000,000 General Aggregate Limit $2,000,000 Products/Completed Operations	Professional must have their policy endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds using endorsement CG 20 10 11 85, or both CG 20 10 12 19 and CG 20 37 12 19.
Umbrella or Excess Liability Insurance	
Minimum Limits: $2,000,000 General Aggregate	Professional must have their policy follow form.
Automobile Liability Insurance	
Minimum Limits: $1,000,000 Per Accident	Professional must have their policy: (1) endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds; and (2) include Hired and Non-Owned Automobile coverage.
Workers' Compensation Insurance	
Minimum Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
Minimum Limits: $500,000 Each Accident $500,000 Each Employee by Disease $500,000 Aggregate Disease.	
Professional Liability (Errors and Omissions) Insurance	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate Deductible Maximum: $50,000 Per Loss	

Environmental and Pollution Liability (Errors and Omissions) ***	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate	Professional must have their policy: (1) be applicable to the work being performed, including completed operations equal to or exceeding statute of repose; (2) not have exclusions or limitations related to Transportation (upset overturn, spills during loading or unloading, Hazardous Materials Handling, and Non-Owned disposal site liability; and (3) endorsed to add "the State of Michigan, its departments, division, agencies, offices, commissions, officers, employees, and agents" as additional insured.

C

Contractual Liability insurance for claims for damages that may arise from the Professional's assumption of liability on behalf of the State under Article VI concerning indemnification for errors, omissions, or negligent acts in the course of the professional service or other provision within this Contract to the extent that such kinds of contractual liability are insurable in connection with and subject to limits of liability not less than for the general liability insurance and the professional liability insurance and set forth in subsections (c) and (d) above.

Except where the State has approved a subcontract with other insurance provisions, the Professional must require any Consultant/Subcontractor to purchase and maintain the insurance coverage required in this Article. Alternatively, the Contractor may include a Consultant/Subcontractor under the Professional's insurance on the coverage required in that Section. The failure of a Consultant/Subcontractor to comply with insurance requirements does not limit the Professional's liability or responsibility.

Certificate of Insurance documents, acceptable to the State, shall be provided and filed with the Department prior to commencement of the Professional's Project services, unless otherwise approved in writing, and not less than 20 days before the insurance expiration date every year thereafter. Facsimile copies of the Certificate of Insurance will not be accepted. Certificate of Insurance documents must be either submitted hard copy or portable document file (.pdf). The Certificate of Insurance documents must specify on the certificate in the oblong rectangle space labeled "Description of Operations/Locations/Vehicles/Exclusions Added By Endorsement/Special Provisions/Special Items" the following items: **(1) The ISID Title; (2) The ISID Contract Number; and (3) The State of Michigan must be named as an "Additional Insured on the General Liability and Automobile Insurance Policy."** The Certificate of Insurance documents shall contain a provision that the Project insurance coverage afforded under the insurance policies for this Contract will not be modified or canceled without at least thirty (30) consecutive calendar days prior written notice, except for 10 days for non-payment of premium, to the State of Michigan, Department.

This Section is not intended to and is not to be construed in any manner as waiving, restricting, or limiting the liability of either party for any obligations under this Contract (including any provisions hereof requiring Professional to indemnify, defend and hold harmless the State).

The attached, Certificates of Insurance documents required for this Project shall be in force for this Project until the final payment by the State to the Professional is made and shall be written for not less than any limits of liability specified above. The Professional has the responsibility for having their consultant firms comply with these insurance requirements.

ARTICLE VI
INDEMNIFICATION

(a) To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Professional in the performance of this Contract and that are attributable to the negligence or tortious acts of the Professional or any of its Subcontractors/Consultants, or by anyone else for whose acts any of them maybe liable.

(b) Employee Indemnification: In any and all claims against the State of Michigan, its departments, divisions, agencies, boards, sections, commissions, officers, employees and agents, by any employee of the Professional or any of its Subcontractors/Consultants, the indemnification obligation under this Contract shall not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Professional or any of its Subcontractors/Consultants under worker's disability compensation acts, disability benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.

(c) Patent/Copyright Infringement Indemnification: To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that such action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Professional or its Subcontractors/Consultants, or the operation of such equipment, software, commodity or service, or the use of reproduction of any documentation provided with such equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or services, or its operation, become or in the State's or Professional's opinion be likely to become the subject of a claim of infringement, the Professional shall at the Professional's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if such option is not reasonably available to the Professional, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if such option is not reasonably available to Professional, (iii) accept its return by the State with appropriate credits to the State against the Professional's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Professional shall have no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; or (ii) use of the equipment in a configuration other than implemented or approved in writing by the Professional, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Professional under this Contract.

ARTICLE VII
OWNERSHIP OF DOCUMENTS

All Project deliverables, including but not limited to: reports, Bidding Documents, Contract Documents, electronic documents and data, and other Project related documents, including the copyrights, prepared and furnished by the Professional shall become the property of the State of Michigan upon completion of the Project, completion and acceptance of the professional's work, or upon termination of the Contract. Project deliverables shall be delivered to the Department upon their request. The Professional shall have no claim for further employment or additional compensation as a result of this Contract requirement. The Professional may retain a copy of all Project documents for their files.

If the Professional is in default or breach of its obligations under this Contract, the State shall have full ownership rights of the Project deliverables, including Bidding Documents and Contract Documents, including all electronic data. If the Professional is in default or this Contract Agreement is terminated, the State shall not use the Contract Documents and deliverables of this Contract for completion of the Project by others without the involvement of other qualified Professionals who shall assume the professional obligations and liability for the Project work not completed by the Professional.

To the fullest extent allowed by law, the State releases the Professional, the Professionals Consultant(s) and the agents and employees of any of them from and against legal claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of the State's use of the Contract Documents other than in accordance with this Contract Agreement.

All Contract deliverables listed may be published or issued for informational purposes without additional compensation to the Professional. The Professional may not use any of the Contract Documents and Contract deliverables for any purpose that may misrepresent the professional services they provided.

The Professional shall retain full rights to the Contract Documents and deliverables and the right to reuse component information contained in them in the normal course of the Professional's professional activities.

The Contract deliverables, Contract Documents, or other documents produced under this Contract may be used by the Department, or others employed by the Department or State of Michigan, for reference in any completion, correction, remodeling, renovation, reconstruction, alteration, modification of or addition to the Project, without monetary compensation to the Professional.

The State of Michigan will not construct additional Projects or buildings based on the work of this Contract without notice to the Professional. Whenever renderings, photographs of renderings, photographs or models, or photographs of the Project are released by the State of Michigan for publicity, proper credit for design shall be given to the Professional, provided the giving of such credit is without cost to the State of Michigan.

ARTICLE VIII
TERMINATION

The State may, by written notice to the Professional, terminate this Contract and/or any Assignments, in whole or in part at any time, either for the State's convenience or because of the failure of the Professional to fulfill their Contract obligations. Upon receipt of such notice, the Professional shall:

a) Immediately discontinue all professional services affected (unless the notice directs otherwise), and

b) Deliver to the State all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the Professional in performing this Contract, whether completed or in process.

8.1 If the termination is for the convenience of the State, an equitable adjustment in the Contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed professional services.

8.2 If the termination is due to the failure of the Professional to fulfill their Contract obligations, the State may take over the work and prosecute the same to completion by Contract or otherwise. In such case, the Professional shall be liable to the State for any additional cost occasioned to the State thereby.

8.3 If, after notice of termination for failure to fulfill Contract obligations, it is determined that the Professional had not so failed, the termination shall be deemed to have been affected for the convenience of the State. In such event, adjustment in the Contract price shall be made as provided in Section 8.1 of this article.

8.4 The rights and remedies of the State provided in this article are in addition to any other rights and remedies provided by law or under this Contract.

ARTICLE IX
SUCCESSORS AND ASSIGNS

This Contract shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns; provided, however, that neither of the parties hereto shall assign this Contract without the prior written consent of the other.

ARTICLE X
GOVERNING LAWS

This Contract shall be construed in accordance with the current laws of the State of Michigan. Some Assignments to this Contract will be funded wholly or in part by the Federal Government through grant agreements and/or federal programs. The Professional must comply with such funding requirements along with any current applicable federal regulations in performing the tasks described in the Scope of Work, including but not limited to the following current federal regulations. The absence of reference to any law or regulation does not preclude its applicability to this Contract.

1. The Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended CERCLA (The Superfund Act);

2. Section 306 of the Clean Air Act (42 U.S.C. 1857 (h));

3. Section 508 of the Clean Water Act (33 U.S.C. 1368);

4. Public Law 98-473 as implemented in the Department of the Interior, Bureau of Indian Affairs;

5. Executive Order 11738; Office of Management and Budget Circular A-87, "Cost Principles for State, Local, and Indian Tribal Governments."

6. 25 CFR Part 20; Financial Assistance and Social Services Programs

7. 40 CFR Part 31; Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments

8. 40 CFR Part 32 Subpart F; Drug-Free Workplace

9. 40 CFR Part 33; Participation by Disadvantaged Business Enterprises in United States Environmental Protection Agency Programs

10. 40 CFR Part 35; State and Local Assistance

11. 40 CFR Part 35 Subpart 0; Cooperative Agreements and Superfund State Contracts for Superfund Response Actions

12. 48 CFR Chapter 1 Part 31 Subpart 31.2; Contracts with Commercial Organizations.

ARTICLE XI
NONDISCRIMINATION

In connection with the performance of the Project under this, the Professional agrees as follows:

a) The Professional will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex *(as defined in Executive Directive 2019-09)*, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position. The Professional will provide equal employment opportunities to ensure that applicants are employed and that employees are treated during employment, without regard to their race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

b) The Professional will, in all solicitations or advertisements for employees placed by or on behalf of the Professional, state that all qualified applicants will receive equal employment opportunity consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

c) The Professional or their collective bargaining representative will send to each labor union or representative of workers with which is held a collective bargaining agreement or other Contract or understanding, a notice advising the said labor union or workers' representative of the Professional's nondiscrimination commitments under this article.

d) The Professional will comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended, MCL 37.2201 et seq; the Michigan Persons with Disabilities Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et seq; *Executive Directive 2019-09*; and all published rules, regulations, directives and orders of the Michigan Civil Rights Commission which may be in effect on or before the date of award of this Contract.

e) The Professional will furnish and file nondiscrimination compliance reports within such time and upon such forms as provided by the Michigan Civil Rights

Commission; said forms may also elicit information as to the practices, policies, program, and employment statistics of the Professional and of each of their Consultant firms. The Professional will permit access to all books, records, and accounts by the Michigan Civil Rights Commission, and/or its agent, for purposes of investigation to ascertain nondiscrimination compliance with this Contract and with rules, regulations, and orders of the Michigan Civil Rights Commission relevant to Article 6, 1976 PA 453, as amended.

f) In the event that the Michigan Civil Rights Commission finds, after a hearing held pursuant to its rules, that the Professional has not complied with the contractual nondiscrimination obligations under this Contract, the Michigan Civil Rights Commission may, as part of its order based upon such findings, certify said findings to the State Administrative Board of the State of Michigan, which the State Administrative Board may order the cancellation of the Contract found to have been violated, and/or declare the Professional ineligible for future Contracts with the State and its political and civil subdivisions, departments, and officers, and including the governing boards of institutions of higher education, until the Professional complies with said order of the Michigan Civil Rights Commission.

   Notice of said declaration of future ineligibility may be given to any or all of the persons with whom the Professional is declared ineligible to Contract as a contracting party in future Contracts. In any case before the Michigan Civil Rights Commission in which cancellation of an existing Contract is a possibility, the State shall be notified of such possible remedy and shall be given the option by the Michigan Civil Rights Commission to participate in such proceedings.

g) The Professional shall also comply with the nondiscrimination provisions of 1976 PA 220, as amended, concerning the civil rights of persons with physical or mental disabilities.

h) The Professional will include, or incorporate by reference, the nondiscrimination provisions of the foregoing paragraphs a) through g) in every subcontract or Contract Order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission, and will provide in every subcontract or Contract Order that said nondiscrimination provisions will be binding upon each of the Professional's Consultant's or seller.

ARTICLE XII
CONTRACT CLAIMS AND DISPUTES

In any claim or dispute by the Professional which cannot be resolved by negotiation, the Professional shall submit the claim or dispute for an administrative decision by the Department of Technology, Management and Budget, Director of State Facilities Administration within thirty (30) consecutive calendar days of the end of the disputed negotiations, and any decision of the Director of State Facilities Administration may be appealed to the Michigan Court of Claims within one (1) year of the issuance of the Director's decision.

The Professional agrees that the Department's appeal procedure to the Director of State Facilities Administration is a prerequisite to filing a suit in the Michigan Court of Claims.

ARTICLE XIII
DEFINITION OF TERMS

The definition of terms and conditions of this Contract are described and outlined in the following Articles I through XIV and attached appendices. The capitalized defined terms used in this Professional Services Contract shall have the following definitions:

ADDENDA: Written or graphic numbered documents issued by the Department and/or the Professional prior to the execution of the Construction Contract which modify or interpret the Project Bidding Documents, including drawings, and specifications, by additions, deletions, clarifications or corrections. The Addenda shall: (1) Be identified specifically with a standardized format; (2) Be sequentially numbered; (3) Include the name of the Project; (4) Specify the Project Index No., Project File No., the Contract Order No. Y, and a description of the proposed Addenda; and (5) Specify the date of Addenda issuance. As such, the Addenda are intended to become part of the Project Contract Documents when the Construction Contract is executed by the Professional's recommended lowest responsive, responsible qualified Construction Contractor.

An Addendum issued after the competitive construction Bid opening to those construction Bidders who actually submitted a Bid, for the purpose of rebidding the Project work without re-advertising, is referred to as a post-Bid Addendum.

AGENCY PROJECT MANAGER: The assigned staff of the Department or the State/client Agency authorized by the State to represent and act on behalf of the Project Director on a given Project and to thereby provide direction and assistance to the Construction Contractor. The Agency Project Manager may designate in writing a person to act on behalf of the Agency Project Manager when they are unable to perform their required duties or is away from the office. In such cases, the Agency Project Manager must notify the Construction Contractor and the Project Director.

AGENCY FIELD INSPECTOR: An employee of the State of Michigan under the direction of the State/client Agency who provides the on-site, Inspection of construction Projects for compliance with the study/design intent of the Professional firm's Contract Documents/drawings and specification requirements and the building construction codes. The Agency Field Inspector is the liaison between the Construction Contractor, the Professional, and the Agency Project Manager. The Agency Project Manager, or their Agency Field Inspector, has the authority to require the Professional to respond to and resolve study/design related problems, construction on-site field problems and to attend Project related meetings.

BID: A written offer by a construction Bidder for the Department. Project construction work, as specified, which designates the construction Bidder's base Bid and Bid price for all alternates.

BIDDER: The person acting directly, or through an authorized representative, who submits a competitive construction Bid directly to the Department.

BIDDING DOCUMENTS: The Professional's Project Contract Documents as advertised, and all Addenda issued before the construction Bid opening, and after the construction Bid opening, if the Project construction work is rebid without re-advertising. Bidding Documents shall consist of the Phase 500 - Final Design drawings and specifications, any Addenda issued, special, general, and supplemental conditions of the Construction Contract, and modifications, if any, to standard forms provided by the Department. Such forms consist of the Project advertisement, the instructions to Bidders, the proposal forms, general, supplemental, and any special conditions of the Construction Contract, and the form of agreement between the Department and the Construction Contractor for the Project work requirements.

BID SECURITY: The monetary security serving as guarantee that the Bidder will execute the offered Construction Contract or as liquidated damages in the event of failure or refusal to execute the Construction Contract.

BUDGET: The maximum legislatively authorized Budget amount to be provided by the State of Michigan and available for a specific purpose or combination of purposes to accomplish the Project for this Contract.

BULLETIN: A standard document form (DTMB-0485, Bulletin Authorization No. and the DTMB-0489, Instructions to Construction Contractors for Preparation of Bulletin Cost Quotations for Contract Change Orders) used by the Department to describe a sequentially numbered change in the Project under consideration by the Department and the Professional and to request the Construction Contractor to submit a proposal for the corresponding adjustment in the Contract price and/or Contract time, if any. These standard document forms are a part of the "DTMB-0460, Project Procedures" documents package.

CONSTRUCTION CONTRACT: A separate written Contract agreement between the Construction Contractor and the Department for the construction, alteration, demolition, repair, or rebuilding of a State/Client Agency building or other State property.

CONSTRUCTION CONTRACTOR: Any construction firm under a separate Contract to the Department for construction services.

CONSTRUCTION INSPECTION SERVICES: The Professional's field Inspections of the Project during the construction Phase of this Contract which includes but is not limited to: (1) Documenting the quantity and quality of all Project construction work and verifying that the Project construction work is properly completed; (2) Resolve Project problems that are affecting the Project construction work, certify payment requests, process Bulletins, Contract Change Order recommendations, and requests for information (RFI's) in a timely manner as prescribed in the Department's, "MICHSPEC 2001 Edition of The Owner and Contractor Standard Construction Contract and General Conditions for Construction (Long Form)" or the current Department, DTMB Short Form 401 - Proposal and Contract/Front-End Package for Small Projects for Professional Services Contractors (PSC) with General Conditions for Construction and Instructions to Bidders" as adopted and modified by the State of Michigan and incorporated into the Construction Contract; and the (3) Inspection of Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's Project

Director/Agency Project Manager and their Department Field Representative that the Project construction work is in compliance with the Professional's design intent and that the Project has been completed by the Construction Contractor in accordance with the Professional's Phase 500 - Contract Documents/drawings and specifications requirements.

The Professional shall provide sufficient Inspections of the Project during the construction Phase to administer the construction Phase field and office services as directly related to the degree of Project complexity, up to and including full-time field Inspections. Construction field Inspections shall occur as the construction field conditions and the Project may require and during the regularly scheduled monthly progress and payment meetings.

The Professional shall use for their construction field Inspection services, only personnel having professional expertise, experience, authority, and compatibility with departmental procedures as the Department may approve. The Professional agrees that such characteristics are essential for the successful completion of the Project. Such individuals shall be replaced for cause where the Department determines and notifies the Professional, in writing, of their unacceptable performance.

CONSULTANT: Any individual, firm, or employee thereof, not a part of the Professional's staff, but employed by the Professional and whose professional service cost is ultimately paid by the State of Michigan, either as a direct cost or authorized reimbursement. This includes the recipient(s) of Contract Orders for material, support, and/or technical services. Also, included are persons and firms whose management and/or direction of services are assigned to the Prime Professional as may be provided elsewhere in this Contract.

CONTRACT CHANGE ORDER: A standard document form (DTMB-0403) issued and signed by the State of Michigan and signed by the Professional which amends the Project Design Professional's Contract Documents for changes in the Project/Program Statement or an adjustment in Contract price and/or Contract time, or both.

CONTRACT DOCUMENTS: The Professional's Phase 100 – Study, Final Report and Phase 500 - Final Design plans/drawings, specifications, Construction Contract, instructions to construction Bidders, proposal, Bidding Documents, agreement, conditions of the Contract, payment bond, performance/labor and material bond, prevailing wages, all Addenda, and attachments as may be necessary to comprise a Construction Contract for the Project. Specifications for this Contract will be prepared for Division 00 through 49, in the current version MasterFormat Outline by the Construction Specifications Institute (C.S.I.), as appropriate for the Project.

CONTRACT MODIFICATION: A form (DTMB-0410) amending the Contract signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project/Program Statement or previously unknown on-site field conditions as approved by the Department will be compensated to the Professional by way of the Contract Modification in accordance with the Article II, Compensation text of this Contract.

Any Contract Modification of this Professional Services Contract must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the Department may require. No Contract Modification will be approved to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional's Phase 100 – Study, Final Report and Phase 500 - Contract Documents study/design errors, omissions or neglect on the part of the Professional.

CONTRACT ORDER: A form (DTMB-0402) issued and signed by the State of Michigan authorizing a Professional to: (1) Begin to incur Project expenses and proceed with the Project on-site; and (2) Provide professional services for the fee amount designated in the Phases of the Contract Order. Issuance of the DTMB-0402 certifies that: (1) The State will enter into a Professional Services Contract for the professional services described in the various Phases of this Contract; and that (2) The proper three (3) sets of Certificate of Insurance documents have been received and accepted by the State along with the approval and signing of the Professional's Professional Services Contract by the SFA, DCD Director.

DEPARTMENT: The Department of Technology, Management and Budget, Facilities and Business Administration, Design and Construction Division. The Department will represent the State of Michigan in all matters pertaining to this Project. This Professional Services Contract will be administered through the Department on behalf of the State of Michigan and The State/Client Agency.

DESIGN MANUAL: Provides the Professional with information regarding the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" review process requirements regarding the uniformity in Contract materials presented to it by the Professional and the State/Client Agency(ies). This manual contains the following noted standards, instructions, and procedures information for: (1) General instructions for planning documents from Phase 100-Study through Phase 500-Final Design; (2) Net and gross area/volume; (3) Project cost format; (4) Outline architectural and engineering specifications; (5) Specifications in documentation Phase; (6) Instructions for proposal; (7) Bidders questionnaire; and the (8) Project job sign.

DIRECTOR: The Director of the Department of Technology, Management and Budget or their authorized State of Michigan representative.

DIRECTOR-SFA: The Director of the Department of Technology, Management and Budget, State Facilities Administration or their authorized State of Michigan representative.

DEPARTMENT FIELD REPRESENTATIVE: An employee of the State under the direction of the Department who provides the Inspection of construction Projects for compliance with the design intent of the Professional's Phase 500 - Contract Documents/ architectural and/or engineering drawings and specification requirements and the building construction codes. The Department Field Representative is the liaison between the Construction Contractor, the Professional, and the Project Director/Agency Project Manager. The Project Director/Agency Project Manager, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project

meetings. Unless delegated by specific written notice from the Department, the Department Field Representative has no authority to order any changes in the Project scope of work or authorize any adjustments in Contract price or Contract time.

INSPECTION: The Professional and their Consultant firm's on-site and/or off-site examination of the Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's, Project Director/Agency Project Manager and their Department Field Representative that the quantity and quality of all Project construction work is in accordance with the design intent of the Professional's Phase 500 - Contract Documents/ drawings and specifications requirements.

KEY PRINCIPAL PERSONNEL/EMPLOYEE: An individual employee of a Professional who is essential for the successful completion of the Project.

NOTICE OF INTENT TO AWARD: A written notice to the Construction Contractor, by the Department accepting the Professional's written recommendation to award the construction Bid to the lowest responsive, responsible qualified construction Bidder. The Notice of Intent to Award letter will also designate the Contract price and itemize the alternates that the Department, at its sole discretion has accepted.

PHASE: A discretely distinguishable step necessary to produce the Project in the course of the Professional providing study, design and construction administration services.

PRIME PROFESSIONAL SERVICES CONTRACTOR/PROFESSIONAL: An individual, firm, partnership, corporation, association, or other legal entity who is legally permitted by law to sign and seal final design construction Contract Documents and licensed under the State of Michigan's professional licensing and regulation provisions of the Occupational Code (State Licensing Law), Act 299 of the Public Acts of 1980, Article 20, as amended, to practice architecture, engineering, environmental engineering, geology, civil, land surveying, or landscape architecture services in the State of Michigan.

The Prime Professional Services Contractor/Professional is also legally permitted by the State of Michigan's regulation provisions of the State Construction Code, Act 230 of the Public Acts of 1972, as amended, and designated in a Construction Contract by the Department to recommend construction progress payments to the Construction Contractor.

PROJECT: Any new construction, existing site, new utilities, existing building renovation, roof repairs and/or removal and replacement, additions, alteration, repair, installation, construction quality control and material testing services, painting, decorating, demolition, conditioning, reconditioning or improvement of public buildings, works, bridges, highways or roads authorized by the Department that requires professional study/design services as part of this Contract.

PROJECT COST: The total Project cost including, but not limited to, site purchase, site survey and investigation, hazardous material abatement, construction, site development, new utilities, telecommunications (voice and data), professional fees, construction quality control and material testing services, testing and balancing services, furnishings, equipment, plan(s)/drawing(s) design code compliance and plan review approval fees and all other costs associated with the Project.

PROJECT DIRECTOR: The professional licensed employee of the Department who is responsible for directing and supervising the Professional's services during the life of this Contract. The Project Director, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project related meetings.

PROJECT/PROGRAM STATEMENT: The Project/Program Statement is provided by the Department and defines the scope of the problem, describes why this Project is desirable, and provides a preferred resolution of the problem.

PROJECT TEAM: The Professional, the Project Director/Agency Project Manager, Department Field Representative, a representative of the State/Client Agency, and others as considered appropriate by the Department.

PUNCH LIST: A list of minor construction Project items to be completed or corrected by the Construction Contractor, any one of which do not materially impair the use of the Project work, or the portion of the Project work inspected, for its intended purpose. A Punch List shall be prepared by the Professional upon having made a determination that the Project work, or a portion of the Project construction work inspected, in concert with the Professional, the Construction Contractor, the Department, the Project Director/Agency Project Manager and their Department Field Representative, and any construction manager, is substantially complete and shall be attached to the respective DTMB-0455, Certificate of Substantial Completion form. This standard document form is a part of the "DTMB-0460, Project Procedures" documents package.

SOIL EROSION AND SEDIMENTATION CONTROL: The planning, design and installation of appropriate Best Management Practices (as defined by the most current version of the Department's Soil Erosion and Sedimentation Control Guidebook) designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. and comply with the Soil Erosion and Sedimentation Control in the State of Michigan as regulated under the 1994 Public Act 451, as amended – The Natural Resources Environmental Protection Act, Part 91 – Soil Erosion and Sedimentation Control. Soil Erosion and Sedimentation Control associated with this Contract will be monitored and enforced by the Department of Technology, Management and Budget, State Facilities Administration, Soil Erosion and Sedimentation Control Program.

STATE: The State of Michigan in its governmental capacity, including its departments, agencies, boards, commissions, officers, employees, and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

STATE/CLIENT AGENCY: A Department of the State of Michigan, for whose use the Project will ultimately serve, which requires professional design services.

SUBSTANTIAL COMPLETION: The form (DTMB-0445) stating that the Project work, or a portion of the Project work eligible for separate Substantial Completion, has been completed in accordance with the design intent of the Professional's Contract Documents to the extent that the Department and the State/Client Agency can use or occupy the entire Project work, or the designated portion of the Project work, for the use intended without any outstanding, concurrent work at the Project work site, except as may be required to complete or correct the Project work Punch List items.

SUSTAINABLE DESIGN: The Professional's use of a balance of appropriate materials, products and design methods that reduce the impact to the natural ecosystems and be within the Budget constraints of the Project. Sustainable Design shall be used wherever possible by the Professional in their Project design and an itemized list shall be provided with the Professional's Contract Documents that identifies the processes and products.

TASK: Shall mean the following: (1) A quantifiable component of design related professional study/design Task services required to achieve a Phase of the Project; (2) The most manageable sub-element within a study/design Phase; (3) A unique item of work within a study/design Phase for which primary responsibility can be assigned; and (4) Has a time related duration and a cost that can be estimated within a study, design, and construction Phase.

ARTICLE XIV
COMPLETE AGREEMENT / MODIFICATION

This Professional Services Contract constitutes the entire agreement as to the Project between the parties. Any Contract Modification of this Contract and the Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for the Professional firm's final design Contract Documents/study/design errors, omissions or neglect on the part of the Professional.

APPENDIX 1

PROJECT/PROGRAM STATEMENT

PROJECT STATEMENT

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design and Construction Division
3111 West St. Joseph Street
Lansing, Michigan 48909

FILE NUMBER		**PROPOSAL DUE DATE**
Various		Thursday, January 12.2023, at 2:00 p.m., EASTERN

CLIENT AGENCY
Department of Environment, Great Lakes, and Energy (EGLE)

PROJECT NAME AND LOCATION
2023 Environmental Indefinite Services Indefinite Delivery (ISID)

PROJECT ADDRESS (if applicable)
Various

CLIENT AGENCY CONTACT	**TELEPHONE NUMBER**
Bridget Walsh	(517) 420-6379
DTMB - DCD PROJECT DIRECTOR	**TELEPHONE NUMBER**
Indumathy Jayamani	(517) 582-1089

WALK-THROUGH INSPECTION DATE, TIME, AND LOCATION:
There is no Pre-Proposal Meeting required.

☐ **MANDATORY** (Check box if Mandatory)

☐ **LEIN Check** (Department of Corrections ONLY) All contractor / vendor representatives attending Preproposal Walk Through Meeting must submit a Vendor / Contractor LEIN Request form five business days prior to the meeting date (See the attached Vendor/Contractor LEIN Request Form). Send the LEIN Request form, filled and signed, by email to Daniel T. Smith at email address: smithD76@michigan.gov . The email "Subject" must include (facility name, project name, date, and time of Pre-Proposal Walk Through Meeting).

PROJECT DESCRIPTION/SERVICES REQUESTED
Provide professional environmental ISID services for a variety of State or Federally funded cleanup sites. The professional will be required to effectively perform tasks at assigned contaminated and/or hazardous waste sites through appropriate screening/investigation and/or remedial/corrective action plan to abate human health or environmental risks or bring an assigned site to an acceptable closure in accordance with the applicable Part 201 or Part 213 of the Michigan Natural Resources and Environmental Protection Act (NREPA) Public Act 451 of 1994, as amended and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and other relevant state and federal statutes and requirements. The Professional is required to refer to State and Federal statutes, procedures, guidelines, and the administration rules when providing the services or entering contracts with sub-consultants / subcontractors to provide the services. The Professional MUST upload their proposal to the State of Michigan Procurement website (SIGMA VSS). The Professional must use the attached appropriate forms to indicate the billing rates and questionnaires. The Professional may check one or more of the project types that they are interested in providing services. The State of Michigan reserves the right not to award the contract(s) or award the contract(s) to one or more firms.

Please NOTE:

- Proposal responses MUST be uploaded to SIGMA VSS. Please enter the total cost for all phases as the bid amount.
- Firms should only submit one (1) attachment (being less than 6 MB) for proposal submission. The attachment is to be the technical and cost proposal combined.
- Do not wait until just before the 2:00 p.m. solicitation deadline to submit your proposal response. SIGMA VSS will not allow a proposal to be submitted after 2:00 p.m., even if a portion of the

proposal response has been uploaded.

- If you experience issues or have questions regarding your electronic submission, you must contact the SIGMA Help Desk for assistance prior to the 2:00 p.m., solicitation deadline. You may contact the SIGMA Help Desk by telephone at 517.284.0540 or toll-free at 888.734.9749. You may also email the SIGMA Help Desk at sigma-procurement-helpdesk@michigan.gov
- Please email the Design and Construction Contract Specialists if you are having SIGMA VSS issues. Please include your SIGMA ticket number and any supporting documentation (i.e., screenshots) to Anne Watros (WatrosA@michigan.gov) and Don Klein (KleinD4@michigan.gov).
- You may be asked by our contract specialists to email your proposal. Emailed submissions will require DCD approval and will be handled on a case-by-case basis.
- Approved emailed submissions MUST be received prior to 2:00 p.m. deadline to be considered responsive and responsible.
- Responses should not be emailed to the Project Director.

NIGP CODES

90629; 91842; 91843; 92535; 92577; 92615; 92623; 92629; 92630; 92645; 92652; 92658; 92678; 92683; 92685; 92690; 92691; 92693; 92696; and 96273

DESIRED SCHEDULE OF WORK

Dependent on the assigned project

ACCEPTING RFP QUESTIONS UNTIL:

Please do not submit online questions via SIGMA VSS. ALL questions should be emailed to Indumathy Jayamani at jayamanii1@michigan.gov address no later than 2:00 p.m., Eastern on December 16, 2022.

REFERENCE STANDARDS: This project will comply with all codes, standards, regulations, and workers' safety rules that are administered by federal agencies (EPA, OSHA, and DOT), state agencies (DHHS, EGLE, DNR, and MIOSHA), and any other local regulations and standards that may apply.

This form is required to be a part of the professional service contract. (Authority: 1984 PA 431)

MINOR STATE CAPITAL OUTLAY PROJECTS

REQUEST FOR PROPOSALS
FROM
PROFESSIONAL SERVICE CONTRACTORS

(Authority PA 431 of 1984)

For Indefinite Scope Indefinite Delivery
Not-to-Exceed Fee, Billable-Rate

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
Request for Proposal for
2023 Indefinite Scope Indefinite Delivery (ISID) for Environmental Services
Various Locations, Michigan

PROPOSAL DUE DATE: Thursday, January 12, 2023, 2:00 p.m., Eastern Time

ISSUING OFFICE

Department of Technology, Management & Budget
State Facilities Administration
Design and Construction Division

Minor State Capital Outlay Projects
REQUEST FOR PROPOSALS

Part I - Technical Proposal
Part II – Cost Proposal

Professional Services for
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
2023 Indefinite Scope Indefinite Delivery (ISID) Contract
for Environmental Services
Various Locations, Michigan

SECTION I GENERAL INFORMATION

I-1 Purpose

This Request for Proposals invites the prospective professional service contractor (Professional) to prepare a qualifications statement and proposal for an Indefinite Scope Indefinite Delivery (ISID) contract. ISID contracts provide the State of Michigan with a simple and streamlined qualifications-based selection process for obtaining professional environmental services for minor, emergency and / or routine investigation and remediation projects. Professionals holding an ISID contract may be contacted by a Department of Technology, Management and Budget (DTMB), State Facilities Administration (SFA), Design and Construction (DCD) Project Director to provide a specific proposal of services and fees for a particular project, which, if found acceptable, will then be assigned to that Professional under their ISID contract. Services requested may include, but not be limited to investigate, evaluate, design and supervise the implementation of abatements / remedies at assigned sites of environmental contamination under Parts 201 and 213 of the Michigan Natural Resources and Environmental Protection Act (NREPA) Public Act 451 of 1994, as amended, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (42 U. S. C. Chapter 103) and other relevant state / federal statutes and requirements. The services to be completed should encompass as a minimum the following phase(s) from DTMB's Sample Standard ISID Contract for Professional Environmental Services.

Projects will be located statewide, within both developed and undeveloped areas. Proposing firms must indicate regions and service areas in which they are willing to provide services, (refer to Questionnaire Articles 2 and 3, Project Types and Service Offered and Project Location, respectively).

The ISID contracts will supplement, but not replace, standard requests for proposals or qualifications as a method for obtaining professional services.

The 2023 Professional Environmental Services ISID contract will be limited to a term of three base years and one option year for assignments. A firm holding an ISID contract may not re-propose until their contract term is exhausted.

Firms with ISID contracts are eligible to participate in MIDeal, a cooperative purchasing program, local units of government, K-12 schools, state colleges and universities, and not for profit hospitals, may, if the firm agrees to participate, contract with an ISID contract holder at the billable rates specified in the ISID contract.

Please Note:

1. FIRMS HOLDING ISID CONTRACTS ARE NOT GUARANTEED ANY ASSIGNMENTS

If DTMB, Design and Construction Division (DCD) determines that a particular project is suited to the ISID contracting method, The DCD Project Director will select an ISID Professional to provide a specific proposal of services and fee for that project. If the proposal is acceptable, the project will be assigned to that Professional under their ISID contract.

DCD reserves the option of requesting such proposals from more than one professional for a particular project.

ISID contracts may include, but not be limited to, the following phase(s) from DTMB's attached Sample Standard ISID Contract for Professional Environmental services.

Phase–

100 Study
300 Schematic Design
400 Preliminary Design
500 Final Design
600 Construction Administration - Office Services
700 Construction Administration - Field Services
900 Operation and Maintenance Management – Remediation Facility

The minimum professional qualifications to complete the scope of work for this project are demonstrated experience in the successful planning and execution of similar projects in full accordance with all applicable Local, State, and Federal regulations.

I-2 Project/Program Statement

See attached project/program statement for more detailed information. The Professional, by submitting a Technical (Part I) and Cost (Part II) Proposal to DTMB for evaluation, states that they can and will provide complete services when an individual project is assigned to them.

No increase in compensation to the Professional will be allowed unless there is a material change made to the scope of work of the project/program statement and the change to the project/program statement is approved in writing by DTMB, State Facilities Administration (SFA), Design and Construction Division (DCD).

I-3 Issuing Office

This RFP is issued by the Department of Technology, Management and Budget (DTMB), on behalf of the State of Michigan and its Client Agencies. PROPOSALS SHALL BE RETURNED TO THE ISSUING OFFICE via State of Michigan Procurement website – SIGMA VSS.

The point of contact for all other items in this Request for Proposal is:

Indumathy Jayamani, Project Director
Department of Technology, Management and Budget
State Facilities Administration, Design and Construction Division
Telephone Number: (517) 582-1089
Email: jayamanii1@michigan.gov

I-4 Contract Award

Professionals are requested to submit a two-part proposal, Technical Proposal - Part I, including a Qualifications Questionnaire, and Cost Proposal - Part II. Proposals will be evaluated by an Ad Hoc Advisory Committee based on the Technical Portion - Part I eighty percent (80%) and the Cost Proposal - Part II twenty percent (20%) with the following tentative percentage breakdown:

The Technical Portion will include the following breakdown:

Capacity and Quality	30%
Experience	30%
Personnel Staffing	30%
Business Organization and Contract Understanding	5%
Special Factors	5%

The Cost Portion will include the following breakdown:

Professional Billing Rates	75%
Billing Rate Increase	25%

The professional firm must complete the Professional Questionnaire (Appendix III) and select the Project Types and Project Locations they wish to be considered for. Provide attachments illustrating a minimum of three (3) examples, with references, of successful projects performed in the last five years for each item selected. Please include all the submitted resumes for all Project Types under one (1) appendix.

DTMB will offer a contract to several professional firms recommended by the Ad Hoc Advisory Committee after evaluation of the proposals. Recommendation is expected within forty-five (45) days following the due date of the proposal.

The Professional must include signed PSC Certification forms and the Addendum Acknowledgment form located at the end of this RFP as part of your proposal response.

I-5 Rejection of Proposals

The State of Michigan reserves the right to reject any or all proposals, in whole or in part, received because of this Request for Proposals.

I-6 Incurring Costs

The State of Michigan is not liable for any cost incurred by the Professional prior to acceptance of a proposal and the award and execution of a contract and issuance of the state's contract order.

I-7 Mandatory Pre- Proposal Meeting

NO MANDATORY PRE-PROPOSAL MEETING will be conducted by the Issuing Office for this Request for Proposal.

Questions that arise because of this RFP **MUST BE EMAILED to Indumathy Jayamani at jayamanii1@michigan.gov** to the issuing office no later than **Friday, December 16, 2022,** at **2:00 p.m.,** Eastern time (ET). If it becomes necessary to amend any part of this RFP, addenda will be posted on the SIGMA VSS website.

I-8 Responsibilities of Professional

The Professional will be required to assume responsibility for all professional services offered in their proposal whether they possess them within their organization or not. Further, the State of Michigan will consider the Professional to be the sole point of contact regarding contractual matters, including payment of all charges resulting from the contract. The prime professional shall possess a license to practice in the State of Michigan pursuant to the Occupational Code (PA 299 of 1980).

I-9 Proposals

The professional must submit a complete, straightforward response to this Request for Proposal. The proposal should describe the professional's ability to meet the requirements of the Request for Proposal.

The proposal must be submitted electronically through the State of Michigan Procurement System (SIGMA VSS). No other distribution of proposals will be made by the Professional. To be considered responsible and responsive, proposals must be uploaded to SIGMA VSS **on or before 2:00 p.m., Eastern time (ET), on Thursday, January 12, 2022.** The proposal must be signed by an official authorized to bind the professional firm to its provisions. NO FACSIMILES OR E-MAILS OF THE REQUEST FOR PROPOSAL WILL BE ACCEPTED.

The proposal and attachments must be fully uploaded and submitted prior to the proposal deadline. **Please do not wait until the last minute to submit a proposal**, as the SIGMA VSS system **will not** allow a proposal to be submitted after the proposal deadline identified in the solicitation, even if a portion of the proposal has been uploaded.

SIGMA has a maximum size limit on file uploads. When uploading, your attachment(s) the attachment must be 6mb or less.

Also, when entering proposal amount, please enter the total cost amount as $1.00. Bidder's failure to submit a proposal as required may result in being deemed nonresponsive.

Questions on vendor registration, proposal submissions, or navigation in the SIGMA VSS system can be answered by contacting the SIGMA Help Desk either by telephone at 517.284.0540 or toll free at 888.734.9749 or by email at sigma-procurement-helpdesk@michigan.gov

SECTION II PROPOSAL FORMAT - PART I – TECHNICAL

The proposal must be submitted in the format outlined below. Paginate proposals and ensure that the proposals refer specifically to the project at hand. Proofread proposals for language and mathematical errors. The items shown below are considered in the Ad Hoc Committee proposal review of technical qualifications.

II-l General Information and Project Team

State the full name, address, and SIGMA Vendor Number of the organization and, if applicable, the branch office, consultants or other subordinate elements that will provide or assist in providing the service. Indicate whether you operate as an individual, partnership, or corporation. If a corporation, include the state in which you are incorporated. State whether you are licensed to operate and practice in the State of Michigan.

II-2 Understanding of Project and Tasks

The professional must demonstrate an understanding of the project being considered and the professional services needed to achieve the state's goal. State your understanding of the project requirements and summarize your plan for accomplishing the project. Outline your experience with similar projects, sites, and clients as examples.

Explain how your firm or project team is the best suited to provide the services required for this project and would provide the best value to the State of Michigan for this work.

II-3 Personnel

The professional must be able to staff a project team which has the qualifications and expertise necessary to undertake the project. Include the full names of all personnel by classification that will be employed in the project.

Indicate which of these individuals you consider to be "Key Personnel" for the successful completion of these project types, identify them by position and classification and provide their resumes.

The Professional must identify all Key Personnel that will be assigned to this contract in the table below which includes the following:

a. Name and title of staff that will be designated as Key Personnel.
b. Key Personnel years of experience in the current classification.

c. Key Personnel's roles and responsibilities, as they relate to this RFP, if the Professional is successful in being awarded the Contract. Descriptions of roles should be functional and not just by title.

d. Identify if each Key Personnel is a direct, or consultant employee.

e. Identify where each Key Personnel staff member will be physically located (city and state) during the Contract performance.

The Professional must provide detailed, chronological resumes of all proposed Key Personnel, including a description of their work experience relevant to their proposed role as it relates to the RFP. Qualifications will be measured by education and experience with particular emphasis to experience on projects similar to that described in the RFP.

Provide an organization chart outlining authority and communication lines for each professional firm, including Key Personnel, including sub-consultants, client agency, and DTMB.

II-4 *Management Summary, Work Plan, and Schedule*

This is for reference only and will be required for future assignments, but not required at this time. The professional must outline their work plan and methodology so that it is understood what services and deliverables will be provided, and the quality of the services and deliverables as well. Describe in detailed narrative form your plan for accomplishing the project. Describe clearly and concisely each professional task, event, and deliverable required for project completion. Do not simply reiterate language and tasks from the DTMB Professional Services Contract. Describe your constructability review and quality control plan. Include a detailed time sequenced – related but undated schedule, showing each event, task, and phase in your work plan. Allow time in the assignment schedule for the Owner's review.

II-5 *Questionnaire*

The professional firm submitting a proposal must complete the Professional Questionnaire (refer to attached fillable form in Microsoft Word format). This questionnaire must be accompanied by a narrative addressing the items above.

NOTE: Any information provided in one location can be referenced as needed in other locations

II-6 *References*

Provide references, with contact information of previous clients, particularly for similar projects. Outline your experience with similar projects, sites, and contacts.

SECTION III PROPOSAL FORMAT - PART II - COST

III-1 Instructions and Information – Billable Rate

Outline the billable rates for the Professional's staff members who may be assigned to these projects. Specific proposals for individual projects will be obtained at the time of individual project assignment and shall correspond to all phases/tasks of the work plan requested at that time.

If sub-consultants are used for a particular assigned project, their fees shall be provided. **No mark-up** of the sub- consultants' fees or billing rates will be allowed.

Reimbursable Expenses: The State will reimburse the Professional for the actual cost of printing and reproduction of project deliverables such as surveys, reports, and bidding documents (drawings and specifications).

The State will also reimburse for U.S. Mail regular shipping or postage, soil borings, and any required laboratory testing. **No mark-up** of reimbursable expenses will be allowed.

The Professional firm's hourly billing rate shall be the actual amount paid for the employee services on the Project including fringe benefits, vacations, sick leave, other indirect costs, and profit. The Professional firm's hourly billing rates shall not change during the life of this Contract without written approval by the Department. See attached**, Overhead Items Allowed for the Professional Services Contractor Firm's Hourly Billing Rate Calculation**, for the guide to overhead items allowed for the professional services contractor firm's hourly billing rate calculation. Reimbursement for the Project/Program Statement scope of work requirements will be provided only for Department approved items authorized for reimbursement compensation in this Contract. The State will not reimburse the Professional for downtime, or for personnel involved in downtime due to mechanical problems or failure of Professional's or sub-consultant/subcontractor equipment.

Project related travel expenses (mileage, meals, lodging) for Projects **more than** one hundred (100) miles in one-way from the Professional's nearest office shall be treated as an authorized reimbursable expense at the State of Michigan's current travel rates based on DTMB's Vehicle and Travel Services Travel Rate.

III-2 *Identification of Personnel and Estimated Compensation*

Provide compensation information for the Professional as well as any Sub-consultants. Note that employees of a separate professional firm or consultant, if proposed, should also be included, and noted.

A. Primary Professional and Sub-consultant(s) – Position, Classification and Employee Billable Rate Information

Using the format of Form II-2-A (attached), identify the service being provided and the Professional's or Sub-consultant's employee(s) names and position classifications.

See Appendix II for guidelines for position classifications. For each employee, list the current hourly billable rate for each year covered under this proposal, Hourly billing rates shall include any anticipated pay increases over the life of the Professional's three-year ISID contract duration. Sub-consultant fees will be included in individually assigned project contracts as not-to-exceed reimbursable amounts.

For individual assigned projects, the proposal will identify the estimated cost for each task.

The total of all phases/tasks shall become the Professional's maximum not-to-exceed cost for the assigned project. Compensation for each phase will be in accordance with the attached sample contract Article II – Compensation.

The following items B, C, and D will be required only at the time a proposal for an individual assigned project is requested.

Forms II-2-B, II-2-C, and II-2-D are for reference only and will be required for future assignments. These forms are not required for this proposal at this time.

A. Fee with Anticipated Hours by Phase – for Individual Assigned Projects

Using the format of Form II-2-B, identify for each phase the estimated hours for each employee and include the billable rate for each employee. Provide totals.

B. Reimbursable Expenses – for Individual Assigned Projects

Using the format of Form II-2-C, identify the phase number, firm name, and description of sub-consulting services, and/or description of all reimbursable direct expenses expressed as a not-to-exceed amount (travel over 100 miles one-way, printing, tests, etc.). Provide totals.

C. Total, Summarized by Phase – for Individual Assigned Projects

Using the format of Form II-2-D, provide a total of the fees and reimbursable expenses, by phase, as outlined in items B and C above. The total of all phases shall become the Professional's maximum not-to-exceed contract for all design services. Compensation for each phase will be in accordance with the "Sample Standard ISID – Environmental Contract for Professional Services."

Use the attached forms to establish your total compensation and trade contract reimbursables.

The following instructions are to be used by the Professional Services Contractor firms to determine the hourly billing rate to use on State of Michigan Projects.

The Professional's Consultant must submit a separate hourly billing rate for the professional consultant services they will provide for State of Michigan Projects. No mark – up of the Professional's Consultant services hourly billing rates will be allowed.

The Department will reimburse the Professional for the actual cost of printing and reproduction of the Contract Bidding Documents, soil borings, surveys and any required laboratory testing services and use of field equipment. **No mark-up of these Project costs will be allowed if services are performed in house.**

2023 HOURLY BILLING RATE
Based on 2022 Expenses

OVERHEAD ITEMS ALLOWED FOR THE PROFESSIONAL SERVICES CONTRACTOR FIRM'S HOURLY BILLING RATE CALCULATION

SALARIES:	**EMPLOYEE BENEFITS:**	**INSURANCE:**
Principals (Not Project Related)	Hospitalization	Professional Liability Insurance
Clerical / Secretarial	Employer's Federal Insurance Contributions Act (FICA)Tax	Flight and Commercial Vehicle
Technical (Not Project Related)	Unemployment Insurance	Valuable Papers
Temporary Help Tax	Federal Unemployment	Office Liability
Technical Training	Disability	Office Theft
Recruiting Expenses	Worker's Compensation	Premises Insurance
	Vacation	Key – Personnel Insurance
	Holidays	Professional Liability Insurance
	Sick Pay	
	Medical Payments	
	Pension Funds	
	Insurance - Life	
	Retirement Plans	

TAXES:	**SERVICES (PROFESSIONAL)**	**EQUIPMENT RENTALS:**
Franchise Taxes	Accounting	Computers
Occupancy Tax	Legal	Typewriter
Unincorporated Business Tax	Employment Fees	Bookkeeping
Single Business Tax	Computer Services Bond)	Dictating
Property Tax	Research	Printing
Income Tax	Project / Contract Bond	Furniture and Fixtures
		Instruments

OFFICE FACILITIES:

Rents and Related Expenses
Utilities
Cleaning and Repair

LOSSES:

Bad Debts (net)

Uncollectible Fee
Thefts (not covered by Project / Contract)
Forgeries (not covered by Project / Contract)

FINANCIAL:

Depreciation

SUPPLIES:

Postage

Drafting Room Supplies
General Office Supplies
Library
Maps and Charts
Magazine Subscriptions

PRINTING AND DUPLICATION:

Specifications (other than Contract Bidding documents)
Drawings (other than Contract Bidding documents)
Xerox / Reproduction

Photographs

SERVICES (NONPROFESSIONAL):

Telephone and Telegram

Messenger Services

TRAVEL:

All Project – Related Travel*

MISCELLANEOUS:

Professional Organization Dues for Principals and Employees
Licensing Fees

II-2-A. Position, Classification and Employee Billing Rate Information

Firm Name XYZ, Inc.

Yearly Hourly Billing Rate Increase ≈2%

Position/Classification	Year 2023	Year 2024	Year 2025	Year 2026
Principal/Project Manager**	$100.00	$105.00	$110.00	$116.00
Senior Architect	$100.00	$105.00	$110.00	$116.00
Quality Control/Assurance	$100.00	$105.00	$110.00	$116.00
Licensed Surveyor**	$90.00	$95.00	$99.00	$104.00
Project Engineer**	$90.00	$95.00	$99.00	$104.00
Mechanical Engineer**	$90.00	$95.00	$99.00	$104.00
Sr. Structural Engineer	$80.00	$84.00	$88.00	$92.00
Electrical Engineer	$80.00	$84.00	$88.00	$92.00
Scientist/Surveyor	$65.00	$68.00	$71.00	$75.00
Staff Engineer	$65.00	$68.00	$71.00	$75.00
Staff geologist	$65.00	$68.00	$71.00	$75.00
CAD Operator	$75.00	$79.00	$83.00	$87.00
Technician	$65.00	$68.00	$71.00	$75.00
Field Technician	$50.00	$53.00	$56.00	$59.00
Technical Support	$35.00	$37.00	$39.00	$41.00

*Billing Rate will be in accordance with the attached guideline page for instructions regarding the "Overhead Items used for Professional Billing Rate Calculation," and the "Sample Standard Contract for Professional Services," Article 5, Compensation Text.

** Key Project Personnel

II-2-B. Fee with Anticipated Hours and Billing Rate

	POSITION/ CLASSIFICATION	TOTAL HOURS	BILLING RATE	TOTAL
	Principal/Project Manager	30	100.00	3,000.00
	Senior Architect	17	100.00	1,700.00
	Licensed Surveyor	9	90.00	810.00
	Project Engineer	8	90.00	720.00
	Mech. Engineer.	8	90.00	720.00
	Sr. Structural Engineer	8	80.00	640.00
	Electrical Engineer	22	80.00	1,760.00
	Draftsperson	40	35.00	1,400.00
	Quality Control	2	100.00	200.00
	CAD Operator	42	35.00	1,470.00
	SUBTOTAL	186		$10,667.50

II-2C. Authorized Reimbursables -- Sub-consultants, Testing and Expenses

***Firm's Mark-Up Percentage:_____**

PHASE	NAME OF FIRM	DESCRIPTION OF SERVICES PROVIDED	TOTAL AMOUNT* (Including mark-up)
Phase 400	Forrest T. Arrea, Landscape Architect, Howell, Michigan	Design of Stormwater Management Rain Garden	500.00
Phase 500	XYZ Productions, Inc. Lansing, Michigan	Printing and reproduction of bidding documents	500.00
Phase 500	Forrest T. Arrea, Landscape Architect, Howell, Michigan	Design of Stormwater Management Rain Garden	500.00
	SUBTOTAL		$ 1,500.00

III-2D. Total, Summarized by Phase

PHASE	Phase 300	Phase 400	Phase 500	Phase 600	Phase 700	TOTAL
Professional Fee	1,597.50	2,820.00	3,970.00	1,120.00	1,160.00	10,667.50
Reimbursable Expenses	0.00	750.00	1,250.00	0.00	500.00	1,500.00
SUB-TOTAL	1,597.50	3,570.00	5,220.00	1,120.00	1,660.00	
TOTAL CONTRACT AMOUNT						$ 12,167.50

R 08/20

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Certification of a Michigan Based Business

(Information Required Prior to Contract Award for Application
of State Preference/Reciprocity Provisions)

To qualify as a Michigan business:

Vendor must have, during the 12 months immediately preceding this bid deadline:
or
If the business is newly established, for the period the business has been in existence, it has:

(Check all that apply):

- ☐ Filed a Michigan single business tax return showing a portion, or all the income tax base allocated or apportioned to the State of Michigan pursuant to the Michigan Single Business Tax Act, 1975 PA 228, MCL • ˜208.1 – 208.145: or

- ☐ Filed a Michigan income tax return showing income generated in or attributed to the State of Michigan; or

- ☐ Withheld Michigan income tax from compensation paid to the bidder's owners and remitted the tax to the Department of Treasury; or

I certify that **I have personal knowledge** of such filing or withholding, that it was more than a nominal filing for the purpose of gaining the status of a Michigan business, and that it indicates a significant business presence in the state, considering the size of the business and the nature of its activities.

I authorize the Michigan Department of Treasury to verify that the business has or has not met the criteria for a Michigan business indicated above and to disclose the verifying information to the procuring agency.

Bidder shall also indicate one of the following:

- ☐ Bidder qualifies as a Michigan business (provide zip code: _____)

- ☐ Bidder does not qualify as a Michigan business (provide name of State: _____).

- ☐ Principal place of business is outside the State of Michigan, however service/commodity provided by a location within the State of Michigan (provide zip code: _____)

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Bidder: _____

_____
Authorized Agent Name (print or type)

_____
Authorized Agent Signature & Date

Fraudulent Certification as a Michigan business is prohibited by MCL 18.1268 § 268. A BUSINESS THAT PURPOSELY OR WILLFULLY SUBMITS A FALSE CERTIFICATION THAT IT IS A MICHIGAN BUSINESS OR FALSELY INDICATES THE STATE IN WHICH IT HAS ITS PRINCIPAL PLACE OF BUSINESS IS GUILTY OF A FELONY, PUNISHABLE BY A FINE OF NOT LESS THAN $25,000 and subject to debarment under MCL 18.264.

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Responsibility Certification

The bidder certifies to the best of its knowledge and belief that, within the past three (3) years, the bidder, an officer of the bidder, or an owner of a 25% or greater interest in the bidder:

(a) Has not been convicted of a criminal offense incident to the application for or performance of a contract or subcontract with the State of Michigan or any of its agencies, authorities, boards, commissions, or departments.

(b) Has not had a felony conviction in any state (including the State of Michigan).

(c) Has not been convicted of a criminal offense which negatively reflects on the bidder's business integrity, including but not limited to, embezzlement, theft, forgery, bribery, falsification, or destruction of records, receiving stolen property, negligent misrepresentation, price-fixing, bid rigging, or a violation of state or federal anti-trust statutes.

(d) Has not had a loss or suspension of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question.

(e) Has not been terminated for cause by the Owner.

(f) Has not failed to pay any federal, state, or local taxes.

(g) Has not failed to comply with all requirements for foreign corporations.

(h) Has not been debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency.

(i) Has not been convicted of a criminal offense or other violation of other state or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, which in the opinion of DTMB indicates that the bidder is unable to perform responsibly or which reflects a lack of integrity that could negatively impact or reflect upon the State of Michigan, including but not limited to, any of the following offenses under or violations of:

   i. The Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.101 to 324.90106.
   ii. A persistent and knowing violation of the Michigan Consumer Protection Act, 1976 PA 331, MCL 445.901 to 445.922.

iii. 1965 PA 166, MCL 408.551 to 408.558 (law relating to prevailing wages on state projects) and a finding that the bidder failed to pay the wages and/or fringe benefits due within the period required.

iv. Repeated or flagrant violations of 1978 PA 390 MCL 408.471 to 408.490 (law relating to payment of wages and fringe benefits).

v. A willful or persistent violation of the Michigan Occupational Health and Safety Act, 1974, PA 154, MCL 408.10001 to 408.1094, including: a criminal conviction, repeated willful violations that are final orders, repeated violations that are final orders, and failure to abate notices that are final orders.

vi. A violation of federal or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.

vii. Been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U. s. C. 158 (1980 PA 278, as amended, MCL 423.321 et seq).

(j) Is NOT an Iran linked business as defined in MCL 129.312.

I understand that a false statement, misrepresentation, or concealment of material facts on this certification may be grounds for rejection of this proposal or termination of the award and may be grounds for debarment.

Bidder: _____ _____
Authorized Agent Name (print or type)

_____
Authorized Agent Signature & Date

☐ I am unable to certify to the above statements. My explanation is attached.

ACKNOWLEDGMENT OF ADDENDUMS

PSC acknowledges receipt of Addenda: No. ___ dated: _____,

No. ___ dated: _____ No. ___ dated: _____

2023 Indefinite Scope Indefinite Delivery (ISID) Contract for Professional Environmental Consulting Services Scope of Work

SUMMARY

The State of Michigan is requesting the services of Professional Services Contractor(s) to provide high-quality environmental services to investigate, evaluate, design, and supervise the implementation of abatements/remedies at assigned sites of environmental contamination under Parts 201 and 213 of the Michigan Natural Resources and Environmental Protection Act (NREPA), 1994 P.A. 451, as amended; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); and other relevant federal statutes and requirements. The State intends to form a list of firms for several project types. If the professional chooses to be considered for one or more of the project types, the Professionals must be able to perform tasks required by each checked project type to bring the assigned site(s) into compliance with current state and federal environmental requirements.

For the list, preference will be given to firms, in the State of Michigan, generally meeting the following requirements.

- Experience working at Parts 201 and 213 of NREPA 1994 P.A. 451, as amended sites.
- Experience working at CERCLA regulated sites.
- Experience in conducting effective environmental assessment, RI, and FS services.
- Experience in conducting effective vapor intrusion to indoor air assessments and mitigation of vapor intrusion risks to both residential and non-residential structures.
- Experience with the development of human health and ecological risk assessments.
- Experience with database development and management.
- Ability to perform sampling and provide technical review and Quality Assurance/Quality Control (QA/QC) of provided laboratory data.
- Ability to provide comprehensive professional services for the assigned projects.
- Accounting systems with capability to provide detailed cost documentation.

- Consideration will be given to the number and location of the satellite offices, record of past performance, and financial and technical resources.
- Expertise with the selected project type(s).

A number of contaminated sites have been identified in Michigan. This includes sites appearing on the list of contaminated sites authorized by Part 213 and Part 201 of the NREPA 1994 PA 451, as amended. Major steps in resolving the contamination problems at these sites are environmental assessment/investigation and abatement. The State, through review and evaluation of the responses to this RFP, anticipates selecting one or more Professionals to place on a list to provide environmental services on small, urgent, and simple projects. The professional will be required to provide professional environmental services, technical staff, and support personnel for the ISID minor projects on an as- needed basis for various State/Client Agencies within the State of Michigan.

The executed contract will be for professional environmental services for an unspecified number of ISID projects. The scope of work for each assigned project will be defined at the time the project is awarded by the State to the Professional. The professional environmental services required for each of these assigned projects requested by the Department may include any or all the Tasks included in the Phase 100 – Study through the Phase 900 – Operation and Maintenance Management as detailed in the attached SAMPLE contract.

SCOPE OF WORK

The typical environmental services to be performed at these sites under these ISID contracts may include but not be limited to:

1. Asbestos / Lead / Mold / Biohazard / Free Product / Regulated Waste Survey / Abatement
2. Brownfield Development
3. Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration
4. Environmental Investigation / Characterization / Pilot Tests / Feasibility Study
5. Environmental/ Roto Sonic Drilling / Well Abandonment
6. Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field Screening
7. Landfill Maintenance / Monitoring
8. Nuclear Waste Management / Disposal / Remediation
9. Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation
10. Phase I / Phase II / Baseline Environmental Assessments
11. Remediation Systems Design / Construction Oversight / O&M / Decommissioning
12. Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning

13. Underground / Aboveground Storage Tank (UST/AST) Removal / Demolition / Soil Excavation / Closure

14. Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O&M Services

While performing this work, the consultant may be required to develop site specific project work plans, health, and safety plans (HASPs), quality assurance/quality control plans, bid specifications, and community relations plans.

In addition to these activities, the State may request the Professional to perform the following additional tasks, including but not limited to: assisting the State in acquiring site access; professional assistance for assessing potential uncontrolled hazardous material sites; obtain any permits which are required for the performance of the work; conduct work in a timely manner; ensure security of the site and equipment; comply with the State Environmental Policy Act and local, State and Federal permit requirements prior to conducting remedial actions; provide enforcement support, such as documentation of facts and information about a site and expert testimony during enforcement proceedings; and provide other program development and management assistance for the State departments/agencies. This assistance may include review of plans, drawings, specifications, proposals, technical reports, and other work products associated with a hazardous substance/contaminated site where a release has occurred or is likely to occur; the assessment of environmental and public health risks; record searches; historical reviews; research on technical issues; and personnel training.

ASSIGNMENTS

Services will be requested for an assigned project and will be in accordance with a cost proposal submitted and approved at that time. The professional is expected to have the costs of all required activities needed to complete the assignment.

Individual project assignments will be based on a written Statement of Objectives provided by the State and a proposal from the Professional to perform the scope of work. It is anticipated the assigned work will be completed before the expiration date of the Contract. However, assignments made during the period of the Contract may include work that will continue after the end date of the Contract period. If the State determines there is an imminent endangerment of human health or the environment, design of an emergency abatement system may be assigned under the Contract.

DISPOSAL OF WASTE

Any wastes generated during the performance of work under this Contract must be disposed of in conformance with all applicable state and federal laws, rules, and/or regulations. For all wastes being disposed under this Contract, it is the responsibility of the Professional to ensure compliance with this directive.

The Professional shall sign waste manifests on behalf of the State attesting to the accuracy and completeness of the manifest, when requested, at sites for which they are performing oversight. The State will retain generator status for these wastes. If necessary, the State will provide a letter to the Professional conveying this authority.

The Professional shall properly dispose of any samples they retain during site work upon written permission from the Agency Project Manager. Disposal of samples is not a billable expense but may be included in the Professional's overhead.

ENVIRONMENTAL DRILLING

The Professional shall competitively bid environmental drilling work to at least three (3) drilling contractors for each drilling assignment unless the Professional can demonstrate to the Agency Project Manager's satisfaction that there is only one qualified firm who can adequately perform the work as specified. If the Professional determines the services of a specific drilling firm are required, the Professional must state those reasons in writing to the Agency Project Manager for concurrence. The written request will address cost effectiveness, time constraints, geologic situations, and drilling methodologies.

The format and process used for bidding will be in accordance with industry standards and based upon a method chosen by the Professional that is most advantageous to the State. The frequency of bidding necessary within one project assignment will be decided upon between the Professional and the Agency Project Manager. Copies of all bid documents will be provided to the Agency Project Manager. Costs incurred by the subcontractor for environmental drilling shall be billed to the State as a reimbursement.

Ineligible Costs - The Professional cannot bill the State for the drilling subcontractor's time to develop work plans, prepare bid specifications for work plans, or to attend site safety meetings.

Billing Rates - If a drilling subcontractor provides other technical services such as geophysical testing, then the Professional must submit billing rates, fees, resumes, wages, and salary ranges for that Subcontractor.

Downtime for Equipment and Supplies - The Agency Project Manager has the option to purchase supplies and equipment. If the State purchases equipment for use at a site, the State is responsible for that equipment and may need to compensate the Professional for downtime or demobilization costs if the equipment does not function properly. If the Professional furnishes supplies and equipment that do not function properly and causes downtime, the State will not compensate the Professional for the downtime. Also, the State will not reimburse the Professional for backup supplies and equipment. The State will only reimburse the Professional for supplies and equipment used at the site or that must be available as indicated specifically by the health and safety or work plan.

LABORATORIES

The Professional may be required to obtain samples, prepare them for shipping, ship, and pick up samples or any other activity associated with sample collection and interpretation as determined necessary by the Agency Project Manager.

All laboratory analyses shall be performed by the EGLE lab, unless the Agency Project Manager approves use of a current ISID Environmental Laboratory contract holder, an EPA - CLP lab, or another lab as deemed necessary by the State. If a private lab, other than an ISID State Contract Lab, is to be used to perform the analyses, prior written permission by the Agency Project Manager is required.

The private lab must report data in a format consistent with the format used by the State and must include the same level of detail regarding QA/QC documentation and chain of custody records.

EQUIPMENT AND SUPPLY PURCHASES AND RENTAL PROCEDURES

Certain Agency procedures may apply to equipment, supplies, surveys, and other items as specified by the Project Director/Agency Project Manager and will be treated as reimbursements or Other Direct Costs (ODCs). Computers and computer related materials may be included as part of such procedures; however, prior written approval from the Department regarding computers and software must be secured.

If an item will be consumed or would be expected to be rendered unusable during the project assignment, then renting is not a viable alternative and purchasing the item is necessary. Examples of consumption are bags of cement and installed casing. Examples of items expected to be rendered unusable are tyveks and disposable bailers. If the rental price or price of using the Professional's equipment exceeds the purchase price the item shall be purchased.

If renting is an option, the cost shall be based upon the expected time of usage of that service or equipment or supply. The rental charge or charge for the Professional's equipment shall include maintenance, calibration, parts replacement, and service charges for the equipment. A table recording the costs incurred to date to rent equipment, or to use the Professional's equipment, shall be included in each monthly progress report. This table shall also include the purchase price for each piece of equipment. Each item required for the project shall be listed separately.

At the end of the project, the State has the OPTION to accept ownership of a purchased piece of equipment.

If an assignment must be modified to provide for additional scope of work, the cost effectiveness of purchasing, renting, or using the Professional's equipment must be determined for the additional work.

All deposit charges will be paid by the Professional and will not be reimbursed by the State.

HEALTH AND SAFETY PLANS (HASP)

The nature of the work to be performed under this Contract is hazardous.

In addition to Health and Safety Plan requirements noted in the Phase/Task section of the Contract the following will also apply:

The Professional shall satisfy **29 CFR 1910.120** and Section 24 of Act 154 PA 1974 as amended and corresponding rules and all federal, state, and local statutes, regulations, ordinances, etc., regarding health and safety **(40 CFR 35.6055(b)).**

Prior to executing any work at the assigned site, the Professional shall develop and submit all HASPs for the site to the Agency Project Manager for review, acceptance, and inclusion into the work plan.

The Professional shall arrange for all its employees that will be working on a contaminated site to attend a health and safety training course, and/or a personnel protection course. The Professional is responsible for all costs related to the training. When requested by the State, the Professional must provide proof of completion of health and safety training for each employee working on a site prior to the employee entering the site for any purpose.

The Professional will ensure that employees and sub-consultant's/subcontractor's employees wear protective clothing and use equipment specified in the site Health and Safety Plan at all times the employee is on the site.

Health and Safety Training and Medical Monitoring are not considered reimbursable items under this Contract. When working in any level of safety equipment, the level itself does not dictate additional costs, but the equipment costs above Level D are reimbursable.

INVOICING AND PAYMENT PROCEDURES

Documentation for payment will be submitted monthly per the requirements in the Contract. Project costs will be reimbursed to the Professional on an as-incurred basis in accordance with the terms of the Contract for Professional Services. Invoices received covering service periods for which the progress reports have not been received by the State will not be processed until the progress reports are received. These will be considered incomplete invoices.

Each invoice that includes labor will include a one-page summary sheet that lists by date the name of the individual providing the professional service, the individual's position/classification, hours worked that day, and hourly billing charge. Each invoice that includes reimbursable expenses will include a one-page summary with the following categories: *Meals, Lodging, Travel, Shipping, Equipment Rental, Field Supplies/Equipment Purchase, sub-consultants, and Miscellaneous*. Under Meals and Lodging categories, the date, name of the individual and total daily cost will be included. Under Travel category, the Professional will include the date, name of the individual, total mileage (above the allowed amount specified in the Contract), mileage rate, and total daily cost. Under Shipping, the Professional will include the date shipped, description of item shipped (e.g., tech memo, etc.) and the cost to ship the item. Under Equipment Rental, the Professional will include the range of dates equipment rented, description of equipment rented and rental cost. Under Field Supplies/Equipment Purchase and Miscellaneous categories, the Professional will include the date purchased, description and purpose of the item purchased and the cost. Under sub-consultants/subcontractors, the Professional will list the date of the sub-consultant/subcontractor work, name of the sub-consultant/subcontractor, description of work conducted, and the cost. The cost for each category will be totaled.

Contract Close-Out – Final payment shall be withheld until all deliverables have been received and accepted by the State. In addition, the Professional will be required to submit to the Agency Project Manager, an unconditional waiver, signed by an authorized representative of each sub-consulting/subcontracting firm, used on the project, indicating that they have been paid in-full by the Professional for all work performed.

LITIGATION SUPPORT

The Professional's personnel and the personnel of its sub-consultants/subcontractors will be required, if requested by the Agency Project Manager on behalf of EGLE's attorneys, to provide assistance to the State in the form of participation in legal actions against alleged responsible parties for violation of state and/or federal environmental law or the recovery of public expenditures regarding any of the operations the Professional or its sub-consultants/subcontractors are involved in under this Contract. This assistance may include, but is not limited, to the preparation of reports and assisting state and/or federal attorneys in preparation of the government's case, including the preparation and execution of interrogatories, affidavits, and testimony as a fact witness.

The State will reimburse the Professional for such assistance as described above at the contractually approved rates for the Professional's personnel at the time services are required. The Professional shall insert an identical obligation to provide such assistance in all sub-consultants/subcontractor agreements to perform work under this Contract. Failure to meet the requirement of this section shall be considered a breach of this Contract.

In addition, the Professional agrees that upon the Agency Project Manager request on behalf of the State attorney, that the Professional's personnel or the personnel of its sub-consultants/subcontractor will appear at trial as an expert witness. If expert testimony is requested, the Professional and State mutually agree while the State cannot, due to Section 2164 of the Revised Judicature Act, guarantee to pay the Professional's personnel any sum in excess of the current per day expert witness fee, the State attorney may ask the court to permit the State to pay the Professional's personnel for the appearance as an expert witness on behalf of the State, at a rate equal to the rate of the employee's contractually approved rates at the time services are required, for the actual time of court appearance plus travel time and standard expenses as defined in the Contract. To the extent that the court grants such a request, the Professional agrees to reimbursement at such rates.

1. If the Professional receives a subpoena or if an Assistant Attorney General assigned to the site requests information regarding one of the Professional's assignments, the Professional may release that information without the Agency Project Manager's prior written permission. However, the Professional must provide, in writing, to the Agency Project Manager a letter documenting what information has been released, to whom and when. Any other requests to release information continue to require the Agency Project Manager prior written permission. The party requesting the information has an obligation to pay for any copying costs. If the State requests duplicate copies, the State will reimburse the Professional for copying costs.

2. If a party other than the State requests the Professional provide testimony regarding an assignment for which they have performed work under this Contract, either through deposition or testimony in court, the State will NOT reimburse the Professional for that testimony. Depositions or testimony requested by parties other than the State are not covered by this Contract, and payment for a deposition or testimony may be prohibited by MCL 600.2164.

3. If a State Assistant Attorney General requests the Professional assist in preparation for litigation, i.e., answering interrogatories, preparing for trial via interviews, and discussions concerning the site, this time is reimbursable under this Contract.

PROJECT CONTROL REPORTS AND DELIVERABLES

1. Deliverables

   The Professional shall provide electronic copies of all final reports, plans, specifications, drawings, and other significant deliverables in Microsoft Word, Excel, AutoCAD, and ArcGIS as applicable, as well as in separate PDF format, provided on one (1) portable media device. Reports that require submittal into RIDE shall be submitted by the Professional as applicable. In addition, the Professional shall provide one unbound, reproducible copy of each deliverable for each of the assigned projects or as specified in the assigned project scope of work. The Department/Agency will be responsible for obtaining access to the assigned sites, providing a map for the assigned sites, and where applicable, previous investigation/analytical results for work conducted at the assigned sites.

2. Project Control

   A. The Professional will carry out the assignments under this Contract under the direction of the Project Director and/or the Agency Project Manager.

   B. The Professional will submit brief written monthly (or any other interval deemed necessary by the State) progress reports that outline: the work accomplished during the reporting period including basis for significant decisions; work to be accomplished during the subsequent reporting period; daily field activity logs; problems, encountered or anticipated; notification of any significant deviation from the approved work plans; and budget/expenditure information including: project budget, cumulative expenses, projected expenses, and explanations of budget deviations for each major task. Staff time and costs to correct errors, omissions, and deficiencies in the work are not reimbursable. The Agency Project Manager may adjust the frequency of reports depending upon the nature of the project or phase of a particular project.

3. Reports

   All project reports required as deliverables to this Contract will begin with an Executive Summary.

   This will briefly outline the conditions encountered at the site, work performed at the site, conclusions drawn from this work, a list of the recommended alternatives for site remediation (where applicable), and a short description of any specifications prescribed by the report. The Executive Summary will be a synopsis of all information presented in the report and organized in logical manner to present an overview of the specific report. Each assignment will require specific reporting requirements.

The following are examples of reports that may be required from the Professional:

A. Monthly progress reports.

B. Draft and Final Preliminary Site Investigation Work Plans and assessment reports

C. Draft and Final FS/RI Work Plans and reports

D. RI technical memoranda for groundwater sampling, surface water sampling, soil/sediment sampling, air quality sampling, and site hazards assessment. The technical memoranda should summarize the data and collection techniques and include an evaluation of the data.

E. Daily field logs which include equipment and supply charges and personnel on site. These shall be maintained and attached to the corresponding monthly-progress reports.

The following tasks may be required to produce reports/work products listed above:

- Community Relations
- FS (including Risk Assessment)
- Natural Resource Damage Assessment (NRDA)
- UST removal/closure and other Related Work
- Potentially Responsible Party (PRP) Identification
- Preliminary Site Investigation
- Risk-Based-Corrective-Action Activities
- RI and recommendations
- Baseline Environmental Assessments Review
- Contract Transition Tasks

All draft documents and communications with the State regarding guidance, input, acceptance, and approval shall be marked “DRAFT” and “Deliberative Process – FOIA Exempt”. Information so designated shall not be provided in response to a Freedom of Information Act (FOIA) request.

4. The Professional and/or its sub-consultants/subcontractors shall follow the current edition of ASTM Standard D 5299-92 (Standard Guide for Decommissioning Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities) and other guidance as provided by the State as a performance standard for monitoring well, soil boring, and vadose zone monitoring device abandonment.

SELECTION CRITERIA

Responses to this RFP will be evaluated based upon the technical merit, conciseness, clarity, creativity, thoroughness of the proposal, understanding of the assignments and contract requirements. Also, evaluations of qualifications and experience will be conducted for each of the project types checked in the proposal.

Depending on available funding for cleanup activities, the State anticipates awarding contracts to one or more professionals meeting the requirements of the RFP and receiving the highest scores in the evaluation. The State reserves the right not to award the contract(s) or award contract(s) to one or more firms for the submitted proposals. The State may reject proposals in whole or in part and may waive any informality or technical defects if, in the judgment of the selection committee, the best interest of the State will be served.

Department of Technology, Management and Budget
2023 Indefinite-Scope Indefinite-Delivery – Request for Qualifications
Professional Environmental Consulting Services Questionnaire
Various Locations, Michigan

INSTRUCTIONS: Firms shall complete the following information in the form provided. A separate sheet may be used if additional space is needed; please key the continuation paragraphs to the questionnaire. Answer questions completely and concisely to streamline the review process. If you provide information in this questionnaire that is relevant to any other parts of the proposal, please reference the article numbers to avoid repetition.

ARTICLE 1: BUSINESS ORGANIZATION

1. Full Name: Click or tap here to enter text.
   Address: Click or tap here to enter text.
   Telephone and Fax: Click or tap here to enter text.
   Website: Click or tap here to enter text. E-Mail: Click or tap here to enter text.
   SIGMA Vendor ID: Click or tap here to enter text.

   If applicable, state the branch office(s), partnering organization or other subordinate element(s) that will perform, or assist in performing, the work: Click or tap here to enter text.

   If awarded a contract and / or subsequent assignment(s), state the specific SIGMA business address which you would like associated for all communication (Contracts, Contract Order, Contract Modifications and Payments)? Click or tap here to enter text.

   Please list all person(s) authorized to receive and sign a resulting contract and / or subsequent assignment(s). Please include persons name, title, address, email and phone number. Click or tap here to enter text.

2. Check the appropriate status:

   ☐ Individual firm ☐ Association☐ Partnership☐ Corporation, or ☐ Combination –

   Explain: Click or tap here to enter text.

   If you operate as a corporation, include the state in which you are incorporated and the date of incorporation: Click or tap here to enter text.

   Include a brief history of the Professional's firm: Click or tap here to enter text.

3. Provide an organization chart depicting key personnel and their roles for a typical assigned project. Include generic supporting staff positions.

4. Has there been a recent change in organizational structure (e.g., management team) or control (e.g. merger or acquisition) of your company? If the answer is yes: (a) explain why the change occurred and (b) how this change affected your company. Click or tap here to enter text.

5. Provide a four year rate schedule per position.

ARTICLE 2: PROJECT TYPES AND SERVICES OFFERED

Identify the project types and professional services for which your firm is exceptionally qualified and experienced. Contractor should have the capability to form potential teams with adequate experience in environmental investigation and remediation services. Provide attachments illustrating a minimum of three examples, with references, of successful projects performed in the last five years for each item checked. Identification of specialties will assist the State project directors/managers in matching firms with projects.

☐ Asbestos / Lead / Mold / Biohazard / Free Product / Regulated Waste Survey / Abatement

☐ Brownfield Development

☐ Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration

☐ Environmental Investigation / Characterization / Pilot Tests / Feasibility Study

☐ Environmental/ Roto Sonic Drilling / Well Abandonment

☐ Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field Screening

☐ Landfill Maintenance / Monitoring

☐ Nuclear Waste Management / Disposal / Remediation

☐ Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation

☐ Phase I / Phase II / Baseline Environmental Assessments

☐ Remediation Systems Design / Construction Oversight / O&M / Decommissioning

☐ Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning

☐ Underground / Aboveground Storage Tank (UST/AST) Removal / Demolition / Soil Excavation / Closure

☐ Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O&M Services

ARTICLE 3: PROJECT LOCATION

Identify the regions where your firm can most efficiently provide services. Assignments may vary from the regions checked, depending on the specialties and services required.

☐ Western Upper Peninsula (west of Marquette)

☐ Eastern Upper Peninsula (east of Marquette)

☐ Northern Lower Peninsula (north of Grayling)

☐ Saginaw Bay area (east of 127, north of I-69 and M 57, south of Grayling)

☐ Western Lower Peninsula (west of 127, north of Muskegon, south of Grayling)

☐ Central Lower Peninsula (east of Battle Creek, west of Chelsea, south of M 46 and M 57)

☐ Southwestern Lower Peninsula (west of Battle Creek, south of Muskegon)

☐ Southeastern Lower Peninsula (east of Chelsea, south of I-69)

ARTICLE 4: CONTRACT UNDERSTANDING

The following items should be addressed on the assumption that your firm is awarded an Indefinite-Scope, Indefinite-Delivery contract. (See attached sample contract).

4.1 Is it understood that your firm is required to respond to small projects (less than $25,000) as well as larger projects?

Yes ☐ No ☐

4.2 Is it understood that there is no guarantee of any work under this contract?

Yes ☐ No ☐

4.3 Is it understood that your firm will be required to execute the attached standard State of Michigan contract language for professional services?

Yes ☐ No ☐

4.4 Is it clearly understood that professional liability insurance is required at the time of execution of the ISID contract? (See Article 5 of the attached Sample Contract.)

Yes ☐ No ☐

4.5 Is it understood that your firm must comply with State of Michigan law as it applies to your services?

Yes ☐ No ☐

4.6 Does your firm have prior experience working with the State of Michigan?

Yes ☐ No ☐

If yes, explain: Click or tap here to enter text.

ARTICLE 5: CAPACITY AND QUALITY

5.1 Briefly describe your firm's methods and procedures for quality control for your deliverables and services.

Click or tap here to enter text.

5.2 Has your firm been involved in claims or suits associated with professional services errors and / or omissions?

Yes ☐ No ☐

If yes, explain: Click or tap here to enter text.

5.3 Will there be a key person who is assigned to a project for its duration?

Yes ☐ No ☐

5.4 Please present your understanding of the relationship between your firm, the DTMB Design and Construction Division, and the State Agency for whom a project will be completed.

Click or tap here to enter text.

5.5 Describe your approach if a bidder proposes a substitution of a specified material during bidding.

Click or tap here to enter text.

5.6 Describe your approach if a contractor proposes a substitution of a specified material or detail with shop drawing submittals or in construction.

Click or tap here to enter text.

5.7 How will your firm provide consistent and continuous communication pertaining to project activities and project status to the State of Michigan during the progress of projects?

Click or tap here to enter text.

5.8 Does your company have an FTP or similar site for quick posting and distribution of information, drawings, field inspection reports, and other communications?
Yes ☐ No ☐

5.9 Describe your method of estimating construction costs and demonstrate the validity of that method.

Click or tap here to enter text.

5.10 Describe your approach to minimizing construction cost over-runs.

Click or tap here to enter text.

5.11 What percentage of the construction cost should be devoted to construction administration (office and field)?

Click or tap here to enter text. %

5.12 What portion of the assigned work will be performed with your staff and what portion will be provided by sub-consultants?

Click or tap here to enter text. %

5.13 On a typical project, what would be your response time, from the time receive a project assignment to starting investigation and design work? A typical project might be one involving several disciplines and in the neighborhood of a $25,000 fee.)

Click or tap here to enter text. Days/Weeks

5.14 How do you assess whether a construction bidder is responsive and responsible?

Click or tap here to enter text.

5.15 Describe your experience with similar ISID contracts.

Click or tap here to enter text.

5.16 Describe your approach to a construction contractor's request for additional compensation for a change in the project scope.

Click or tap here to enter text.

5.17 Is a sample of field activity logs detailing a 1-week period (from one of the three (3) prior experience sites) and a weekly report provided?

☐Yes ☐No

ARTICLE 6: PERSONNEL STAFFING

6.1 Is an organizational chart that includes each person on your project team and their identified roles for a typical assigned project provided?

☐Yes ☐No

6.2 Please fill out the following information regarding the personnel your firm considers key to the successful completion of the study or project scope of work:

Key Personnel 1

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training with an up to date 8 hour HAZWOPER refresher training?

☐Yes ☐No

Key Personnel 2

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

Key Personnel 3

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

Key Personnel 4

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

Key Personnel 5

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

6.3 Does the Professional Project Manager (PM) have at least three years' experience as a PM? ☐Yes ☐No

6.4 Does the Professional PM have a minimum of 10 years' experience with similar projects? ☐Yes ☐No

6.5 Are the resumes for the key personnel provided? ☐Yes ☐No

ARTICLE 7: SPECIAL FACTORS

Include a brief description of your firm's special qualifications such as awards, recognitions, innovations, etc. that would pertain to this RFP. (As examples: any awards or recognition received by the firm or individuals for similar work, special approaches or concepts developed by the firm appropriate to this project, financial capacity, etc. Respondents may say anything they wish in support of their qualifications). Click or tap here to enter text.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of **at least three (3) projects in the last five years closely related to each of the project types** and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Project 1 Reference Information

Project Name: Click or tap to enter text

Project Address: Click or tap to enter text

Key Personnel: Click or tap to enter text

Project City / State / Zip: Click or tap to enter text

Contact Name / Phone Number / Email Address: Click or tap to enter text

Project Description: Click or tap to enter text

Project 2 Reference Information

Project Name: Click or tap to enter text

Project Address: Click or tap to enter text

Key Personnel: Click or tap to enter text

Project City / State / Zip: Click or tap to enter text

Contact Name / Phone Number / Email Address: Click or tap to enter text

Project Description: Click or tap to enter text

Project 3 Reference Information

Project Name: Click or tap to enter text

Project Address: Click or tap to enter text

Key Personnel: Click or tap to enter text

Project City / State / Zip: Click or tap to enter text

Contact Name / Phone Number / Email Address: Click or tap to enter text

Project Description: Click or tap to enter text

GUIDELINES FOR POSITION CLASSIFICATIONS

The Professionals are required to use the following guidelines as the basis for classification of personnel to be assigned under their contracts. Changes in the key personnel under the contract must be done by Contract Modification. In addition, the Professionals must provide with their modification requests the names, hourly billing rates, and resumes for the new **Key Personnel** to be added to the contracts. A Key Personnel is any staff member of the Professional who is essential for the successful completion of the Project scope of work and authorized to make decisions affecting the work at the sites under the contracts.

1. PROFESSIONAL KEY PERSONNEL

A. **Level 4** (P4) - Plans, conducts, and supervises projects of major significance, necessitating proven managerial skills and knowledge of hazardous waste sites. Must demonstrate ability to originate and apply new and/or unique methods and procedures. Supplies technical advice and council to other professionals. Generally, operates with wide latitude for independent action.

Typical Title:

National Manager, Project Leader, Chief Engineer, or Scientist.

Qualifications and Experience:

Ph.D. degree with 10 years or more experience.

MS degree with 12 years or more experience.

BS degree with 14 years or more experience.

Experience Factors:

Technical experience in discipline directly related to the requirements of this contract. Minimum of 4 years' experience in supervising multidisciplinary professionals and general office management including budgetary requirements.

B. **Level 3** (P3) - Under general supervision of P4 Manager, plans, conducts and supervises assignments on a project- by-project basis. Estimates and schedules work to meet completion dates. Directs assistance, reviews progress and evaluates results; makes changes in methods, design or equipment are made where necessary. Responsible for safe and cost-effective approaches to achieve the objectives of the project.

Typical Title:

Regional Team Leader, Project Engineer.

Qualifications and Experience:

Ph.D. degree with 4 to 10 years' experience

MS degree with 6 to 12 years' experience

BS degree with 8 to 14 years' experience

Experience Factors:

Technical experience in disciplines directly related to the requirements of this contract. Minimum of 4 years' experience or equivalent. Must have demonstrated ability to manage group of interdisciplinary professionals.

2. PROFESSIONAL NON-KEY PERSONNEL

A. **Level 2** (P2) - Under supervision of a senior or project leader, carries out assignments associated with projects. Work assignments are varied and require some originality and ingenuity. Applies training of professional discipline to assigned projects and translates technical guidance and training received into usable data products and reports. Evaluates data associated with various watersheds for use in developing digital flood insurance map production and development of updated flood data.

Typical Title:

Surveyor, Engineer, Construction Manager, Project Manager, Scientist, Analyst

Qualifications and Experience:

MS degree with 2 to 6 years' experience.

BS degree with 3 to 8 years' experience.

Experience Factors:

Minimum of 2 years in area directly related to contract requirements.

B. **Level 1** (P1) - Entry level for professional classification; works under supervision of team or project leader. Gathers and correlates basic data and performs routine tasks and other duties as assigned. Makes recommendations on work assignments and on variables which affect field operations. Assists field operations as directed, including manual tasks of equipment setup and maintenance. Performs other duties as assigned.

Typical title:

Junior Associate (Surveyor, Engineer, Scientist, Geologist, etc.)

Qualifications and Experience:

MS degree with 0 to 2 years' experience.

BS degree with 0 to 3 years' experience.

Experience Factor: None

3. TECHNICIAN NON-KEY PERSONNEL

A. **Level 3** (T3) - Performs non-routine and complex assignments. Works under general supervision of a surveyor, scientist or engineer. Performs experiments or tests which may require non-standard procedures and complex instrumentation. Records, computes and analyzes test data, prepares test reports. May supervise lower level technicians or trades personnel.

Typical Title:

Senior Technician

Qualifications and Experience:

6 years or more experience.

Experience Factor:

Related to scope of contract.

B. **Level 2** (T2) - Performs non-routine and complex tasks in addition to routine assignments. Works at the direction of the team or project leader. Gathers and correlates basic data and performs routine analyses. May also perform experiments or tests which may require non-standard procedures and complex instrumentation. May construct components or sub-assemblies or prototype models. May troubleshoot malfunctioning equipment and make simple repairs as authorized by team or project leader.

Typical Title:

Senior Technician

Qualifications and Experience:

Two to six years' experience or equivalent

Experience Factor:

Related to scope of contract.

C. **Level 1** (T1) - Entry level; performs simple, routine tasks under supervision as established in chain-of- command procedures. Performs routine maintenance and may install, set up or operate field equipment of moderate complexity. Provides a wide variety of support functions during field operations.

Typical Title:

Junior Technician (field technician)

Qualifications and Experience:

0 to 2 years' experience.

Experience Factor:

None

4. TECHNICAL SUPPORT (TS) NON-KEY PERSONNEL

Performs project specific technical support work such as spreadsheet preparation, data entry, etc.

Typical Title:

Project Assistant, Data Entry Clerk, etc.

Qualifications and Experience:

0 to 2 years or more

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION

PROFESSIONAL SERVICES - 2023 ENVIRONMENTAL ISID

Firm Name _____
Yearly Percentage Billing Rate Increase_____

LEVEL	CLASSIFICATION	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027

*Billing Rate will be in accordance with the attached guideline page for instructions regarding the "Overhead Items used for Professional Billing Rate Calculation," and the attached "Sample Standard Contract for Professional Services," Article II, Compensation.

** Key Project Personnel

EPA

COST OR PRICE SUMMARY

(see accompanying instructions before completing this form)

Form approved
OMB No. 2030-0011
Approval expires 10-31-86

PART I - GENERAL

1. RECIPIENT	2. ASSISTANCE IDENTIFICATION NO.
3. NAME CONTRACTOR OR SUBCONTRACTOR	4. DATE OF PROPOSAL
5. ADDRESS OF CONTRACTOR OR SUBCONTRACTOR *(Include ZIP Code)*	6. TYPE OF SERVICE TO BE FURNISHED
TELEPHONE NUMBER*(Include Area Code)*	

PART II - COST SUMMARY

7. DIRECT LABOR *(specify labor categories)*	ESTIMATED HOURS	HOURLY RATE	ESTIMATED COST	**TOTALS**
		$	$	
DIRECT LABOR TOTAL:				$

8. INDIRECT COSTS *(Specify indirect cost pool)*	RATE	x BASE =	ESTIMATED COST	
		$	$	
INDIRECT COSTS TOTAL:				$

9. OTHER DIRECT COSTS				
a. TRAVEL			ESTIMATED COST	
(1) TRANSPORTATION			$	
(2) PER DIEM			$	
TRAVEL SUBTOTAL:			$	
b. EQUIPMENT, MATERIALS, SUPPLIES *(Specify categories)*	QTY	COST	ESTIMATED COST	
		$	$	
EQUIPMENT SUBTOTAL:				
c. SUBCONTRACTS			ESTIMATED COST	
			$	
SUBCONTRACTS SUBTOTAL:			$	
d. OTHER *(Specify categories)*			ESTIMATED COST	
			$	
OTHER SUBTOTAL:			$	
e. OTHER DIRECT COSTS TOTAL:				$
10.TOTAL ESTIMATED COST				$
11. PROFIT				$
12. TOTAL PRICE				$

PART III - PRICE SUMMARY

13. COMPETITOR'S CATALOG LISTINGS, IN-HOUSE ESTIMATES, PRIOR QUOTES *(Indicate basis for price comparison)*	MARKET PRICE(S)	PROPOSED PRICE
		$

PART IV - CERTIFICATIONS

14 CONTRACTOR

14a. HAS A FEDERAL AGENCY OR FEDERALLY CERTIFIED STATE OR LOCAL AGENCY PERFORMED ANY REVIEW OF YOUR ACCOUNTS OR RECORDS IN CONNECTION WITH ANY OTHER FEDERAL ASSISTANCE AGREEMENT OR CONTRACT WITHIN THE PAST 12 MONTHS?

☐ YES ☐ NO *(If "Yes" give name, address, and telephone number of reviewing office)*

14b. THIS SUMMARY CONFORMS WITH THE FOLLOWING COST PRINCIPLES

14c. This proposal is submitted for use in connection with and in response to:

(1)

This is to certify to the best of my knowledge and belief that the cost and pricing data summarized herein are complete, current, and accurate as of:	(2) DATE

I futher certify that a finacial management capability exists to fully accurately account for the finacial transactions under this project. I further certify that I understand that the subagreement price may be subject to downward renegotiation and/or recoupment where the above cost and pricing data have been determined, as a result of audit, not to have been complete, current, and accurate as of the date above.

(3) TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION

15. RECIPIENT REVIEWER

I certify that I have reviewed the cost/price summary set forth herein and the proposed cost/price appear acceptable for subagreement award.

TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION

16. EPA REVIEWER

TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION

PURPOSE AND APPLICABILITY

The purpose of this form is to provide a simple form for the display of cost and price data. 40 CFR 33.290 requires the recipient to perform cost or price analysis for every procurement action, including subagreement modifications. This form is not required by EPA, but may be used at the recipient's option. If the recipient currently uses a cost and price analysis form which accomplishes the same objectives as this form, the recipient may use its own form.

INSTRUCTIONS

If this form is used, CAREFULLY READ AND FOLLOW ALL INSTRUCTIONS. Many items are not self-explanatory. Attach additional sheets if necessary.

Use only the applicable portion of this form:

Part I is applicable to all subagreements.
Part II is applicable to all subagreements requiring a cost analysis pursuant to EPA procurement regulations.
Part III is applicable to all subagreements where review is based on price comparison (i.e., price analysis).
Part IV certification will be executed as required by the instructions for each block.

PART I - GENERAL

Item 1 - Enter the name of the of the recipient as shown on the assistance agreement.
Item 2 - Enter the assistance identification number shown on the assistance agreement (or assigned to the project, if no assistance agreement has yet been executed).
Item 3 - Enter the name of the contractor or subcontractor with whom the subagreement is proposed to be executed.
Item 4 - Enter the date of the contractor's or subcontractor's proposal to the recipient.
Item 5 - Enter the full mailing address of the contractor or subcontractor.
Item 6 - Give a brief description of the work to be performed under the proposed subagreement.

Part II - COST SUMMARY

This portion of the form is to be completed by the contractor (or his/her subcontractor) with whom a subagreement is a formally advertised, competitively bid, fixed price subagreement.

Nothing in the following discussion should be interpreted as recommending the inclusion as direct costs any items normally treated as overhead costs in the firm's accounting or estimating system. 40 CFR Part 30 identifies general cost principles applicable to subagreements under EPA assistance. Pursuant to that Part, all subagreements awarded to profit-making organizations are subject to cost principles of 48 CFR 31.2. Architect engineer and construction contracts are also subject to 48 CFR 31.105.

Item 7 - Direct Labor

Direct labor costs normally include salaries at a regular time rate. Overtime premiums should be identified separately on an attachment. Incurrence of unanticipated overtime costs requires the approval of the recipient at the time of incurrence. If significant overtime is known to be needed at the time of completion of the cost review form, the reasons therefore, labor categories, rates and hours should be identified on the attachment. Also included is the cost of partners' or principals' time when they are directly engaged in services to be rendered under the subagreement. In case the full time of any employee is not to be devoted to work to be performed under the subagreement, only the cost of actual time to be applied should be included. The compensation of a partner or principal shall be included as direct cost only for the time that she/he is expected to be engaged directly in the performance of work under the subagreement and only if it is the firm's normal practice to charge such time directly to all jobs. The rate of compensation of a partner or principal shall be commensurate with the cost of employing another qualified person to do such work, but the salary portion shall not exceed the actual salary rate of the individual concerned. Distribution of profits shall not be included in the rate of compensation.

Enter in block 7 the categories of professional or technical personnel necessary to perform each major element of work under the subagreement scope of services. Estimate hours worked for each category and extend them by the wage rates to be paid during the actual performance of the work. Current rates, adjusted for projected increases, if any should be useful for the actual categories of labor contemplated. All projected increases should be supported by recent experience or established personnel policy. Enter in the far right column the total estimated direct labor cost.

Supporting records to be maintained by the contractor and which must be submitted or made available to the recipient or EPA upon request include:
a. The method of estimating proposed hours worked.
b. The computation techniques used in arriving at proposed labor rates.
c. The specific documents, books or other records used as factual source material to develop proposed hours worked and labor rates.
d. Detailed rate computations which were used in computing the information submitted on the form.

If in block 14a, the contractor has checked "No," a brief narrative description of the methods used in arriving at items a though d above shall be included on an attached sheet.

Item 8- Indirect Costs
Indirect cost may consist of one or more pools of expenses which are grouped on the basis of the benefits accruing to the cost objectives represented by the distribution base or bases to which they are allocated. Since accounting practices vary, the use of particular groupings is not required. Neither is the use of any particular allocation base mandatory. However, it is mandatory that the method used results in an equitable allocation of indirect costs objectives which they support.

Normally, the firm's accounting system and estimating practices will determine the method used to allocate overhead costs. The firm's established practices, if in accord with generally accepted accounting principles and PROVIDED THEY PRODUCE EQUITABLE RESULTS IN THE CIRCUMSTANCES, will generally be accepted. Proposed overhead rates should represent the firm's best estimate of the rates to be experienced during the subagreement period. They should be based upon recent experience and be adjusted for known factors which will influence experienced trends.

Common overhead groupings are overhead on direct labor and general and administrative expenses. The first groupings usually include employment taxes, fringe benefits, holidays, vacation idle time, bonuses, applicable and direct labor, etc. The second generally includes the remaining costs, which, because of their incurrence for common or joint objectives, are not readily subject to treatment as direct costs. It is expected, however, that proposal groupings will correspond with the firm's normal method for accumulating indirect costs. (Under some accounting systems, the first grouping would be included instead under item 7.) No special categorization is required, provided the results are realistic and equitable.

Direct salaries are the normal distribution base for overhead cost but in some circumstances other bases produce more equitable results. As in the case of overhead cost groupings, the method to be used will depend upon the firm's normal practices and the equity of the results produced in the circumstances.

In the case of multibranch firms, joint ventures, or affiliates, it is expected that overhead costs applicable to specific location(s) where

work is to be based on cost data from the most recent fiscal periods updated to reflect changes in volume of business or operations.

Enter in block 8 the indirect cost pools normally used by the firm for allocation of indirect costs. Enter indirect cost rate for each pool and extend each one by the rate base to which it applies to arrive at the estimated indirect costs to be incurred during the actual performance of the work. If the indirect labor total from block 7 is not used as the rate base for any of the indirect cost pools, the rate base used must be explained on an attached sheet.

A brief narrative statement outlining the firm's policies and practices for accumulating indirect costs. Enter the indirect cost rate costs and the method used to compute the proposed rate or rates shall accompany the form. Include comment on the firm's policies regarding the pricing and costing of principals' time. The normal accounting treatment of principals' salaries, the annual amounts, and the hourly charge rate, if used, should be discussed.

Enter in the far right column the total estimated indirect costs.

Supporting records to be maintained by the contractor and which must be submitted or made available to the recipient or EPA upon request include:

a. Detailed cost data showing overhead accounts, allocation bases, and rate computations for the preceding fiscal period. If more than six months of the current fiscal period have elapsed, cost data for this period should be included as one of the three period(s).

b. Company budgets, budgetary cost data and overhead rates computations for future period(s).

Item 9 - Other Direct Costs

The following items are illustrative of costs normally included in this category of costs:

a. Travel cost, including transportation, lodging, subsistence, and incidental expenses incurred by personnel or consultants while in travel status in connection with the performance of services required by the contract. The cost principles generally require the use of less than first class air accommodations and also limit the cost of private aircraft.

b. Equipment, Materials, and Supplies

(1) Long distance telephone calls, telegraph and cable expenses to be incurred in connection with the performance of services required in connection the subagreement.

(2) Reproduction costs, including blueprints, black and white prints, ozalid prints, photographs, photostats, negatives; and express charges.

(3) Commercial printing, binding, artwork, and models.

(4) Special equipment.

c. Subcontractors

d. Other Direct costs, if any, not included above.

Enter in blocks 9a-d all other direct costs proposed. Travel costs entered must be supported by an attachment which identifies the number of staff trips proposed and the estimated cost per staff trip for both local and long distance transportation. The number of days and the rate per day must be provided to support the per diem shown. Each subcontract and consultant agreement must be identified separately in block 9c.

Enter in the far right column on line 9e the total of all other direct costs (9a-d).

Supporting data to be maintained by the contractor and which must be submitted or made available to the recipient or EPA upon request include:

a. basis for other direct costs proposed.

b. factual sources of costs, rates, etc., used in computing proposed amount of each cost element.

Item 10 - Total Estimated Cost

Enter the total of all direct labor, indirect costs and other direct costs from items 7, 8, and 9.

Item 11 - Profit

A fair and reasonable provision for profit cannot be made by simply applying a certain predetermined percentage to the total estimated cost. Rather, profit will be estimated as a dollar amount after considering:

a. degree of risk.

b. nature of the work to be performed.

c. extent of firm's investment.

d. subcontracting of work, and

e. other criteria.

The Federal Acquisition Regulation cost principles applicable to subagreements with profit-making organizations (40 CFR 31.2 and 31.105) disallow certain types of costs which are sometimes incurred by firms in the normal conduct of their business. Examples of costs which are not allowable under these costs principles include, but are not limited to, entertainment, interest on borrowed capital, and bad debits. Because the Government considers "profit" to be the excess of price over allowable costs, such computation can indicate a higher profit estimate that the firm's experienced profit as it customarily computes it. The contractor may separately disclose to the recipient its customary computations.

Enter the dollar amount of profit in block 11.

Item 12 - Total Price

Enter the total of items 10 and 11.

Part III - PRICE SUMMARY

This portion of the form is for use by a recipient when price comparison, i.e., price analysis, is used subagreement review. It may also be used by a contractor when price comparison is used as a basis for award of a subcontract.

Item 13 - Competitor's Catalog Listings, In-House Estimates, Price Quotes

Enter sources of all competitive bids or quotes received, or catalogs used and their prices, or in-house estimates made, if appropriate, for comparison. Attach additional sheets if necessary, particularly for purchases of several different items.

Enter in the far right column the proposed price for the subagreement.

Part IV - CERTIFICATIONS

Item 14 - Contractor - FOR USE BY CONTRACTOR OR SUBCONTRACTOR ONLY.

Complete this block only if part II has been completed.

Enter the specific cost principles with which the costs summary of Part II conforms. Cost principles applicable to subagreements with various types or organizations are identified in 40 CFR Part 30.4010. Cost principles applicable to subagreements with profit-making organizations are those at 48 CFR 31.2 and, for architect-engineer or construction contracts, 48 CFR 31.105.

c. (1) **Describe** the proposal, quotation, request for price adjustment, or other submission involved, giving appropriate identifying number (e.g., RFP No. _____).

(2) **Enter** the date when the price negotiations were concluded and the contract price was agreed to. The responsibility of the subagreement is not limited by the personal knowledge of the contractor's negotiator if the time of agreement, showing that the negotiated price is not based on complete, current, and accurate data.

(3) **Enter** the date of signature. This date should be as close as practicable to the date when the price negotiations were concluded and the subagreement price was agreed to (not to exceed 30 days).

Item 15 - Recipient Reviewer - FOR USE BY RECIPIENT ONLY.

If required by applicable assistance regulations, the recipient must submit the signed form for EPA review prior to execution of the subagreement.

Item 16 - EPA Reviewer - FOR USE BY EPA ONLY.

STATE OF MICHIGAN

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

This contract authorizes the professional services contractor to provide professional services.
(Authority: 1984 PA 431)

CONTRACT FOR PROFESSIONAL ENVIRONMENTAL SERVICES:
Indefinite Scope-Indefinite Delivery

THIS CONTRACT, authorized this DATE day of MONTH the year two-thousand and twenty-three (2023), by the Director, Department of Technology, Management and Budget, BETWEEN the STATE OF MICHIGAN acting through the STATE FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION of the DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET, 3111 W. St. Joseph Street, Lansing, Michigan, 48917, hereinafter called the Department, and

PSC NAME
MAILING ADDRESS
CITY, STATE, ZIP

the Prime Professional Services Contractor, hereinafter called the

Professional. WHEREAS, the Department proposes securing

professional services for:

Indefinite-Scope, Indefinite-Delivery Contract No. 00XXX
Index No. (To Be Established)
Contract Order No. Y (To Be Assigned)
File No. (To Be Assigned)

Department of Technology, Management and Budget, State Facilities Administration, Design and Construction Division, Professional Environmental Services Indefinite-Scope, Indefinite-Delivery Contract (ISID) for Minor Projects –

2023 Environmental ISID Services
Various State Departments and Facilities
Various Site Locations, Michigan

NOW THEREFORE, the Department and the Professional in consideration of the covenants of this Contract agree as follows:

I. The Professional shall provide primary environmental investigation/assessment/design/construction oversight services for the assigned projects to the extent authorized by the Department of Technology, Management and Budget State Facilities Administration (SFA), Design and Construction Division (DCD) [The Department] and be solely responsible for such professional services. The Professional's services shall be performed in strict accordance with the assigned Project scope of work.

II. If authorized, the Professional shall provide environmental services for the identified project types.

Regions								Project Types and Services Offered													
Western UP	**Eastern UP**	**Northern LP**	**Saginaw Bay**	**Western LP**	**Central LP**	**Southwestern LP**	**Southeastern LP**	**Regulated Waste Survey/Abatement**	**Utility Inspection/Cleaning**	**Nuclear Waste Mgmt./Disposal/Remediation**	**GPR/LIF Field Screening**	**Phase I/Phase II/BEA**	**Well Drilling/Abandonment**	**Env Investigation/Pilot Tests/Feasibility Study**	**UST & AST removal/Demolition/Excavation**	**Remediation Sys Design/O&M/Decommissioning**	**Vapor Intrusion Mitigation Design and O&M**	**Ecological RA/Forestry/Wetland/Streams/Lakes**	**Landfill Maintenance/Monitoring**	**Brownfield Development**	**Per-& Polyfluoroalkyl Substances (PFAS) Sampling**
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x

NOTE: Blackened box(es) indicate a service that the committee did not select for your firm.

III. The State of Michigan shall compensate the Professional for providing their professional services for the Project in accordance with the conditions of this Professional Services Contract.

IN WITNESS, WHEREOF, each of the parties has caused this Professional Services Contract to be executed by its duly authorized representatives on the dates shown beside their respective signatures, with the Contract to be effective upon the date on which the Professional received a copy executed by the authorized State of Michigan representative(s) by regular, registered, or certified mail or by delivery in person.

FOR THE PROFESSIONAL:

Firm Name	SIGMA Vendor ID Number
Signature	Date
Title	

FOR THE STATE OF MICHIGAN:

Director, DTMB | SFA | Design and Construction	Date

WHEREAS, this Professional Services Contract constitutes the entire agreement as to the Project between the parties, any Contract Modification of this Contract and the Department's approved and attached Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional firm's final design Contract Documents/architectural and engineering design errors, omissions or neglect on the part of the Professional.

ARTICLE I
PROFESSIONAL SERVICES SCOPE OF WORK

Provide professional environmental services, technical staff, and support personnel for ISID minor projects on an as-needed basis at various State/Client Agencies within the various site location areas as defined by the State of Michigan.

This Contract is for professional environmental investigation and/or design services for an unspecified number of ISID projects ("Assignment"). The scope of work for each assigned project will be defined at the time the project is awarded by the State to the Professional firm. The professional environmental services required for each of these assigned projects requested by the Department may include any or all of the Tasks included in the Phase 100 – Study through the Phase 900 – Operation and Maintenance Management.

The Professional firm's environmental services shall be performed in strict accordance with this Professional Services Contract and be in compliance with the Department's approved and attached Appendix I– Project/Program Statement.

This Contract does not warrant or imply to the Professional environmental firm, entitlement to perform any specific percentage (%) amount of environmental work during the life of this Contract.

This Contract will remain in effect for **three (3) years** from the date of this Contract award but may be unilaterally terminated by the State of Michigan at any time, for cause or its convenience, by written notification of the State, to the Professional. Furthermore, this Contract may be extended for **one (1) additional year**, at the sole option and discretion of the State upon the Department providing written notice to the Professional prior to the expiration of the original Contract time period. Any such time extension shall be subject to the terms and conditions of this Contract, including, but not limited to, the existing hourly billing rates included in this Contract for the Professional, their Consultant, and their employees or agents.

Please note that the Professional Services Contract ISID Contract No., as noted on page 1, must be provided on all Project correspondence and documents. Also, services are not to be provided or expenses incurred until individual ISID Projects are assigned to this Contract (see the Article II – Compensation and the Appendix 1 – Project/Program Statement).

Upon award of this Contract and each subsequent assignment, the Professional understands and agrees that time is of the essence. Failure to adhere to timely completion will be grounds for the Department, at its sole discretion, to terminate or limit future work under this Contract.

The Professional shall provide all professional services, technical staff, and support personnel necessary to complete the Project as described in its Project/Program Statement, in the best interest of the State, and within the Professional's fee(s) herein authorized by the State. Assigned project services shall comprise, without exception, every professional discipline and expertise necessary to meet all the requirements as described in the Project/Program Statement and in accordance with the accepted industry standards for professional practice and services. The Professional's services include attendance at all Project related meetings and conferences. Professional services for the assigned projects under this contract shall be provided in the Phase/Task sequence shown below and shall be rendered in accordance with the Professional's proposed and approved Project Study, Design, and Proposed Construction Schedule. The Professional's study, design, and proposed construction schedule shall be detailed, undated, and time sequence related for all Phase/Task services appropriate for the Project. The Professional shall field-check and verify the accuracy of all study/drawing and any data furnished by the Department, the State/Client Agency or any other Project related source. The Professional shall not employ or consult with any firms in completing the Professional's obligations herein who it anticipates will be a construction Bidder for the Project or any part thereof, unless specifically authorized, in writing, by the Department.

The Professional acknowledges that the Department is the first interpreter of the Professional's performance under this Contract.

The Professional acknowledges by signing this Professional Services Contract having a clear understanding of the requested professional environmental services required by the Department, and further agrees that the terms and conditions of this Professional Services Contract provide adequate professional fee(s) for the Professional to provide the requested Project scope of work requirements for each assigned project. No increase in compensation to the Professional will be allowed unless there is a material change made to the scope of work of the Assignment/Program Statement and the change is accepted and approved, in writing, by the State. Professional services shall not be performed, and no Project expenses shall be incurred by the Professional prior to the issuance of a written and signed Professional Services Contract and a Contract Order authorizing the Professional to start the Project work. Compensation for Department directed changes to the Project will be provided to the Professional by a Contract Modification and/or Contract Change Order signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Project Director/Agency Project Manager, on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall immediately inform the Department whenever it is indicated that the Professional's authorized not-to-exceed Budget for any of the assigned Projects may be exceeded. The Professional shall make recommendations to the Department for revisions to be implemented in order to not exceed the original authorized Budget. Any revision to the Project must be accepted and approved by the Department in writing.

The professional services may also include participation in legislative presentations as described in the "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" and as the legislature or the Department may prescribe.

No substitution of any "Key Personnel/Employee" essential for the successful completion of the Project and identified in the Professional's Organizational Chart will be allowed by the Professional for this Contract without the prior written consent from the Project Director/Agency Project Manager. Before any "Key Personnel/Employee" substitution takes place, the Professional shall submit a written request to the Project Director/Agency Project Manager, and this substitution request shall include the following information: (1) A request in writing for a No Cost Contract Modification; (2) Detailed written justification for this substitution; (3) The Professional's qualifications of any proposed "Key Principal Personnel/Employee" replacement; and (4) A written statement from the Professional assuring the Department that the Project scope of work will not be adversely affected by this substitution. This request to modify their Professional Services Contract must be accepted and approved in writing by the Project Director/Agency Project Manager and the Director of the Department.

The Department will designate individuals to serve as the Project Director and Agency Project Manager for the Project scope of work who shall be fully acquainted with the Project/Program Statement and have the authority to render Project decisions and furnish information promptly. Except in connection with issues under the Article XII - Contract Claims and Disputes text, the Project Director/Agency Project Manager will exercise general management and administration for the Professional's services in so far as they affect the interest of the State. The Professional shall indemnify, defend, and hold harmless the State against exposure to claims arising from delays, negligence, or delinquencies by the Professional for the professional services of this Contract.

During the Construction Administration Services Phase of the Project, the Professional is required to complete and submit, the on-site inspection record form, "DTMB-0452, The Professional's Inspection Record," for all on-site inspection visits to the Project site. The Inspection Record shall be completed and signed by the Professional and submitted monthly, with the original document sent to the Project Director/Agency Project Manager and copies sent to the Construction Contractor. The Inspection Record shall accompany the Professional's monthly payment request.

The "DTMB-0460, Project Procedures" contains Department forms which shall be used during the Construction Administration Phase of this Contract. All professional services will be consistent with the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" unless otherwise approved in writing by the Department.

The professional services required for each Phase of this Contract shall be performed by the Prime Professional and their Consultants in accordance with service descriptions in this article. The following service descriptions outlined in this Contract represent the Department's standard of care for the Professional's responsibilities for providing the professional services of this Contract; but by inclusion, or omission, the descriptions do not limit or exclude any regular or normal professional services necessary to accomplish the Project in accordance with the approved Project Budget and the industries accepted practice and standards for professional services. All of the services outlined in this Contract may not be applicable to the Project/Program Statement. The Professional shall determine and coordinate the interface of the services required for the Project and is responsible for identifying any additional services necessary to successfully complete the Project.

The professional shall execute the following PHASES upon written authorization from the Project Director.

PHASE 100 - ENVIRONMENTAL INVESTIGATION/STUDY SERVICES

Provide complete and comprehensive Environmental Investigation/Study Deliverables to meet the requirements of the Project/Program Statement. Upon completion of all field investigation, assessment, research, review and/or oversight, prepare a complete report with an executive summary, and in such detail, as the Project Director may prescribe. The services under this phase may include but not be limited to coordination, environmental assessments, drilling, field sampling/oversight, data/document review/management, feasibility study, and reporting as described in the Project/Program Statement. Project reports must be in accordance with Department/Client/Agency requirements and as outlined in the Project/Program Statement but shall include, as a minimum and as appropriate, the following items: (1) Problem; (2) Conclusion; (3) Recommendations; and (4) Discussion, details, and documentation.

PHASE 300–SCHEMATIC DESIGN

Prepare Schematic Design Deliverables consistent with the Project/Program Statement. The deliverables shall consist of conceptual remediation system, drawings, outline specifications, a Schematic Construction Cost Estimate, other related documentation, and shall diagrammatically depict the areas, scales, and relationships of the functions. The services under this phase may include but not be limited to coordination, construction codes and design reviews, civil/site staging investigation, schematic design and utilities review, drafting, and project cost/proposed construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement. Acceptance of the Schematic Design by the Department/Client/Agency does not limit subsequent inclusion of minor, but essential, schematic or design details whose necessity and arrangement may best become apparent during subsequent Phases of the Project design. Revise design as necessary and obtain approval from the Department/Client/Agency.

PHASE 400–DESIGN DEVELOPMENT

Prepare Design Development Deliverables based on the Owner-accepted Schematic Design to depict the intent of the designed remediation system(s). The deliverables shall consist of draft drawings and specifications, Construction Cost Estimates and other related documentation to clearly establish the complete basis for further detail into final design drawings/specifications. The deliverables shall further define the Project by fixing and describing the Project size, character, site relationships, and other appropriate elements including the environmental, civil, structural, architectural, mechanical, electrical, and safety systems. The services under this phase may include but not be limited to coordination, draft drawings/specifications, site specific staging investigation, structural calculations and preliminary environmental/architectural/engineering design development/reviews of drawings/specifications, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 500–CONSTRUCTION DOCUMENTS AND BIDDING DOCUMENTS

Prepare Construction Documents that revise, refine, amplify, and depict, in detail, the Project. The documents shall set forth, in detail, quality levels of and requirements for the construction, and shall consist of final drawings/specifications that comply with applicable regulatory and construction code requirements, enacted at the time of completion of the one hundred percent (100%) Construction Documents. Prepare Bidding Documents in Phases/Bid packages appropriate to the Project requirements and funding. Incorporate the current edition of DTMB “MICHSPEC”, “DCSPEC” or “50KSPEC”, as adopted and modified by the State of Michigan. The Construction Documents shall contain all information necessary to bid and construct the Project. The services under this phase may include but not be limited to coordination, final drawings/specifications and bidding documents, civil/site staging design, final structural calculations, final environmental/architectural/engineering design development/reviews of drawings/specifications, construction testing program, hazardous materials, health and safety risks, final design correction procedures, design and construction budget, construction codes/permits and construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 600 - CONSTRUCTION ADMINISTRATION - OFFICE SERVICES

Provide all required construction oversight administration and timely professional review and administrative services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial actions/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, review and approval of shop drawings and submittals, reporting of construction progress, construction quality testing, construction contractor performance review, punch list procedures, claims, establishing close-out procedures and developing/review of as-built documents, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 700 - CONSTRUCTION ADMINISTRATION - FIELD SERVICES

Provide all required Construction Oversight and Field Services, including timely inspection and professional services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial action/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, field inspections, progress meetings and final project inspection, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 900 – OPERATION AND MAINTENANCE SERVICES – REMEDIATION FACILITY

Provide all required Operation and Maintenance (O&M) Services and perform, in a safe and secure environment, all functions, including timely inspection, sampling and professional services, necessary to maintain uninterrupted, effective and efficient facility/system components for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, general system operation/inspections, routine system/building/ground maintenance, sampling, spare replacement parts, consumable supplies, utilities, waste materials removal/treatment/disposal, non-routine emergency services, progress meetings and reporting, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

ARTICLE II
COMPENSATION

In consideration of the performance of this Contract, the Department agrees to pay the Professional, as compensation for professional services, an hourly billing rate for each employee providing a direct service to this Project, on a not-to-exceed basis as specified herein, subject to subsequent modifications mutually agreeable to the parties hereto; provided, however, the Professional may not incur costs, or bill the Department, for professional services in excess of the estimates established for this Project without the prior written agreement of the Department. The attached proposal prepared by the Professional in response to the Request for Proposal, by the Owner, may describe methodology, services, schedule, and other aspects of the work to be performed under the Contract but does not supersede the Contract.

Compensation to the Professional shall be on an hourly billing rate basis for professional services rendered by salaried and non-salaried professional, technical, and technical support employees, except for any authorized reimbursable expenses provided for in this Contract. Total compensation for any Phase shall not exceed the amount authorized for that Phase, unless authorized in writing by the Department's approved Contract Change Order. Professional services shall not be performed, and no Project expense shall be incurred by the Professional firm prior to the issuance of a written and signed Professional Services Contract and a DTMB Form 0402 - Contract Order by the Department to the Professional, authorizing the Professional to start the Project.

Compensation to the Professional for services and authorized technical and technical support employees performing a direct service for this Project shall be determined using the Professional firm's billing rates. The Professional firm's hourly billing rate shall be the actual amount paid for the employee services on the Project including fringe benefits, vacations, sick leave, other indirect costs, and profit. The Professional firm's hourly billing rates shall not change during the life of this Contract without written approval by the Department. See attached Appendix**, Overhead Items Allowed for the Professional Services Contractor Firm's Hourly Billing Rate Calculation**, for the guide to overhead items allowed for the professional services contractor firm's hourly billing rate calculation. Reimbursement for the Project/Program Statement scope of work requirements will be provided only for Department approved items authorized for reimbursement compensation in this Contract. The State will not reimburse the Professional for downtime, or for personnel involved in downtime due to mechanical problems or failure of Professional's or Subcontractor equipment.

The preparation of Bulletins and Contract Change Orders resulting from changes to the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Department on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and one- half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall provide, but no additional monetary compensation shall be allowed for the services necessary to respond to and resolve all claims arising wholly or in part from the Professional's errors and/or omissions or other aspects of the Project's design or the Professional firm's performance which is inconsistent with the Professional or Construction Contract.

2.1 PREMIUM TIME/OVERTIME: This Contract anticipates that no premium or overtime is required to achieve the Project's scope of work. No compensation will be allowed to the Professional for any premium or overtime cost incurred to achieve the Project schedule of this Contract, unless directed in writing by the Project Director/Agency Project Manager and approved by the Department.

2.2 EMPLOYEE HOURLY BILLING RATES: Hourly billing rates will include all direct and indirect monetary costs to the State for the Professional's services under this Contract other than the authorized and approved reimbursements. Hourly billing rates shall be based on the Professional's documented historical operating expenses and adjusted for Project specific costs. In no case shall this documentation period include more than eighteen (18) months prior to the date of award of this Contract.

Lump-sum payments to employees are not allowed under this Contract. Billing rates for employees who perform professional services of a subordinate or of a position classification having a lower classification/pay range shall be accounted and paid for at the lower hourly billing pay rate. The hourly billing rate charge of any employee may be changed by the Professional with a written and Department approved Contract Modification to account for normal personnel pay increases.

Hourly billing rates include, but are not limited to: Overhead items such as employee fringe benefits, vacations, sick leave, insurance, taxes, pension funds, retirement plans, meals, lodging, and all Project related travel expenses for Projects **less than** one-hundred (100) miles in each direction from the Professional's nearest Michigan office, computer costs/operating costs, data entry, and time, telephone, telephone- related services, and all reproduction services (except Contract Bidding Documents/Deliverables).

The hourly billing rate also includes all reproduction costs for design interpretations, study/design clarifications and Bulletins related to design errors or omissions, construction code compliance (precipitating either from design code compliance and plan review, design interpretations, or construction on-site/field inspections), and all similar, or avoidable costs.

All incidental postage, mail, or other shipping or delivery services, acquisition, bad debts, previous business losses, employment fees, depreciation, and operating costs for equipment, including computer design and/or computer drafting systems, and any specialized testing equipment are to be included. The hourly billing rate shall include, without exception, secretarial, computer/typing/word processing, editing, and clerical services utilized in any way for the Project as well as other non-technical and/or employees providing indirect services. The hourly billing rate also includes all profit without regard to its form or distribution.

Items not allowable as part of the Professional's calculated hourly billing rate include but are not limited to: Any costs associated with litigation and settlements for the Professional, other liability suits, out-of-state offices and associated travel, bonuses, profit sharing, premium/overtime costs, public relations, entertainment, business promotion, contributions, and various speculative allowances.

The hourly billing rate for the Professional may not be applied to the work of the Professional's Sub- Consultant's staff. Each Sub-Consultant firm must submit a separate hourly billing rate with proper documentation for Sub-Consultant services provided as part of the Proposal. The hourly billing rate of the respective Consultant firm shall be used for that Consultant firm's personnel only. No mark-up to Consultant firm's charges will be allowed.

2.3 RANGE OF EMPLOYEE HOURLY BILLING RATES: The Professional shall identify the service being provided and include the Professional's or Consultant's employee(s) full names and position classifications for the Project and their current hourly billing rates at the beginning and at the anticipated end of the Project. This hourly billing rate range shall reflect any anticipated pay increases over the life of the Contract. The range of hourly billing rates for any employee position or classification may not be changed without an approved Contract Modification.

2.4 DIRECT COST REIMBURSEMENT ITEMS: The Professional's Consultant services and authorized reimbursable expenses shall be treated as an authorized reimbursable expense item at a direct cost. The Professional shall be responsible for the selection of the supplier of the professional services or materials; the coordination, adequacy, and application of the professional services, whether provided by the Professional's staff or provided by their Consultant, and any Project costs that exceed the budget for each Phase.

Project related travel expenses (mileage, meals, lodging) for Projects **more than** one-hundred (100) miles in one- way from the Professional's nearest office shall be treated as an authorized reimbursable expense at the State of Michigan's current travel rates.

Unless authorized elsewhere in this Contract, direct cost reimbursement items shall be limited to the actual cost of printing and reproduction of project deliverables such as Final Study Reports, Surveys, Bidding Documents, and U. S. Mail regular shipping postage of the project deliverables listed above. In addition, direct cost reimbursement items may include soil borings, site surveys and any required laboratory testing, Design Code Compliance and Plan Review Approval Fees by the licensing agency; reproduction of documents for legislative presentation, artistic productions, mobilization of testing equipment, laboratory costs for testing samples, per-linear-foot cost of soil borings and specialized inspections of the structural, mechanical, electrical, chemical or other essential components of the Project.

Compensation for this Contract shall not exceed the budget per Project Phase identified in the attached Contract Order unless authorized by a Department approved Contract Modification. It shall be the Professional's responsibility to carefully monitor Project costs, activities, and progress and to provide the Project Director/Agency Project Manager timely notification of any justifiable need to increase the authorized budget. The Professional may not proceed with professional services that have not been authorized by the Project Director/Agency Project Manager and shall immediately notify the Project Director/Agency Project Manager if such services have been requested or have become necessary.

Professional/Sub-Consultant staff and hourly billable rates are identified in the attached Professional's proposal.

ARTICLE III
PAYMENTS

Payment for the professional services shall be based on the Professional's performance of authorized professional service(s) performed prior to the date of each submitted payment request. Payment requests shall be submitted monthly to the Project Director/Agency Project Manager on a payment request form (DTMB-440). Payment for each monthly submitted payment request shall be made within thirty (30) consecutive calendar days following the Department's approval of the payment request. Payment requests shall include signed certification by the Professional of the actual percentage of work completed as of the date of invoicing for each Phase and summarize the amounts authorized, earned, previously paid, and currently due for each Project Phase.

Payment requests shall be supported by itemized records or documentation in such form and detail as the Department may require.

Each of the Professional's Consultant's submitted payment request applications shall include similar information. This includes, but is not limited to:

- Phase Numbers for the professional services provided.
- Professional's personnel and position/classification providing service and hours worked. Current hourly billing rate charges for each individual position/classification.
- Copy of certified on-site visitation log or site visit report showing time on-site.
- Itemized invoices from each of the Professional's Consultant's documenting that firm's professional services charge and the Project work related services provided.
- Authorized reimbursable expense items provided with receipts and invoices.

The State has the right to withhold payment of any disputed amounts until the parties agree as to the validity of the disputed amount. The State will notify the Professional of any dispute within a reasonable time. Payment by the State will not constitute a waiver of any rights as to the Professional's continuing obligations, including claims for deficiencies or substandard Contract Activities. The Professional's acceptance of final payment by the State constitutes a waiver of all claims by the Professional against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed.

The State will only disburse payments under the Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at http://www.michigan.gov/SIGMAVSS to receive electronic funds transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy if may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract

ARTICLE IV
ACCOUNTING

The Professional shall keep current and accurate records of Project costs and expenses, hourly billing rates, authorized reimbursable expense items, and all other Project related accounting documents to support the Professional's monthly application for payment. Project records shall be kept on a generally recognized accounting basis. Such records shall be available to the Department for a period of ten (10) years after the Department's final payment to the Professional. The State of Michigan reserves the right to conduct, or have conducted, an audit and inspection of these Project records at any time during the Project or following its completion.

ARTICLE V
INSURANCE

The Professional shall purchase, maintain and require such insurance that will provide protection from claims set forth below which may arise out of or result from the Professional firm's services under this Contract, whether such service is performed by the Professional or performed by any of the Professional firm's Consultant's or by anyone directly or indirectly employed by them, or by anyone for whose acts they may be liable. The following insurance policy limits described below are intended to be the minimum coverage acceptable by the State:

For the purpose of this Section, "State" includes its departments, divisions, agencies, offices, commissions, officers, employees, and agents.

(a) The Contractor must provide proof that it has obtained the minimum levels of insurance coverage indicated or required by law, whichever is greater. The insurance must protect the State from claims that may arise out of or result from or are alleged to arise out of or result from the Contractor's or a Subcontractor's performance, including any person directly or indirectly employed by the Contractor or a Subcontractor, or any person for whose acts the Contractor or a Subcontractor may be liable.

(b) The Contractor waives all rights against the State for the recovery of damages that are covered by the insurance policies the Contractor is required to maintain under this Section. The Contractor's failure to obtain and maintain the required insurance will not limit this waiver.

(c) All insurance coverage provided relative to this Contract is primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State.

(d) The State, in its sole discretion, may approve the use of a fully-funded self-insurance program in place of any specified insurance identified in this Section.

(e) Unless the State approves, any insurer must have an A.M. Best rating of "A" or better and a financial size of VII or better, or if those ratings are not available, a comparable rating from an insurance rating agency approved by the State. All policies of insurance must be issued by companies that have been approved to do business in the State. To view the latest A.M. Best's Key Ratings Guide and the A.M. Best's Company Reports (which include the A.M. Best's Ratings) visit the A.M. Best Company internet web site at http://www.ambest.com.

(f) Where specific coverage limits are listed in this Section, they represent the minimum acceptable limits. If the Contractor's policy contains higher limits, the State is entitled to coverage to the extent of the higher limits.

(g) The Contractor must maintain all required insurance coverage throughout the term of this Contract and any extensions. However, in the case of claims-made Commercial General Liability policies, the Contractor must secure tail coverage for at least three (3) years following the termination of this Contract.

(h) The minimum limits of coverage specified are not intended and may not be construed; to limit any liability or indemnity of the Contractor to any indemnified party or other persons.

(i) The Contractor is responsible for the payment of all deductibles.

(j) If the Contractor fails to pay any premium for a required insurance policy, or if any insurer cancels or significantly reduces any required insurance without the State's approval, the State may, after giving the Contractor at least 30 days' notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor or require the Contractor to pay that cost upon demand.

(k) In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Michigan Attorney General.

The Professional firm's Errors and Omissions coverage shall include coverage for claims resulting from acts of forbearance that cause or exacerbate pollution and claims of bodily injury and property damage in the amount of $1,000,000 minimum coverage per occurrence, $3,000,000 annual aggregate. This insurance is required of all professional firms who conduct professional environmental services including, but not limited to, any of the following services:

(i) Remedial System Design.

(ii) Remediation Management.

(iii) Feasibility Development and Implementation.

(iv) Hydrogeological Evaluation.

(v) Media Testing and Analysis.

(vi) Subsurface and Geophysical Investigation.

(vii) Other related activities as determined by the Department.

Required Limits	Additional Requirements
Commercial General Liability Insurance	
Minimum Limits: $1,000,000 Each Occurrence Limit $1,000,000 Personal & Advertising Injury Limit $2,000,000 General Aggregate Limit $2,000,000 Products/Completed Operations	Professional must have their policy endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds using endorsement CG 20 10 11 85, or both CG 20 10 12 19 and CG 20 37 12 19.
Umbrella or Excess Liability Insurance	
Minimum Limits: $2,000,000 General Aggregate	Professional must have their policy follow form.
Automobile Liability Insurance	
Minimum Limits: $1,000,000 Per Accident	Professional must have their policy: (1) endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds; and (2) include Hired and Non-Owned Automobile coverage.
Workers' Compensation Insurance	
Minimum Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
Minimum Limits: $500,000 Each Accident $500,000 Each Employee by Disease $500,000 Aggregate Disease.	
Professional Liability (Errors and Omissions) Insurance	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate Deductible Maximum: $50,000 Per Loss	

Environmental and Pollution Liability (Errors and Omissions) ***	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate	Professional must have their policy: (1) be applicable to the work being performed, including completed operations equal to or exceeding statute of repose; (2) not have exclusions or limitations related to Transportation (upset overturn, spills during loading or unloading, Hazardous Materials Handling, and Non-Owned disposal site liability; and (3) endorsed to add "the State of Michigan, its departments, division, agencies, offices, commissions, officers, employees, and agents" as additional insured.

C

Contractual Liability insurance for claims for damages that may arise from the Professional's assumption of liability on behalf of the State under Article VI concerning indemnification for errors, omissions, or negligent acts in the course of the professional service or other provision within this Contract to the extent that such kinds of contractual liability are insurable in connection with and subject to limits of liability not less than for the general liability insurance and the professional liability insurance and set forth in subsections (c) and (d) above.

Except where the State has approved a subcontract with other insurance provisions, the Professional must require any Consultant/Subcontractor to purchase and maintain the insurance coverage required in this Article. Alternatively, the Contractor may include a Consultant/Subcontractor under the Professional's insurance on the coverage required in that Section. The failure of a Consultant/Subcontractor to comply with insurance requirements does not limit the Professional's liability or responsibility.

Certificate of Insurance documents, acceptable to the State, shall be provided and filed with the Department prior to commencement of the Professional's Project services, unless otherwise approved in writing, and not less than 20 days before the insurance expiration date every year thereafter. Facsimile copies of the Certificate of Insurance will not be accepted. Certificate of Insurance documents must be either submitted hard copy or portable document file (.pdf). The Certificate of Insurance documents must specify on the certificate in the oblong rectangle space labeled "Description of Operations/Locations/Vehicles/Exclusions Added By Endorsement/Special Provisions/Special Items" the following items: **(1) The ISID Title; (2) The ISID Contract Number; and (3) The State of Michigan must be named as an "Additional Insured on the General Liability and Automobile Insurance Policy."** The Certificate of Insurance documents shall contain a provision that the Project insurance coverage afforded under the insurance policies for this Contract will not be modified or canceled without at least thirty (30) consecutive calendar days prior written notice, except for 10 days for non-payment of premium, to the State of Michigan, Department.

This Section is not intended to and is not to be construed in any manner as waiving, restricting, or limiting the liability of either party for any obligations under this Contract (including any provisions hereof requiring Professional to indemnify, defend and hold harmless the State).

The attached, Certificates of Insurance documents required for this Project shall be in force for this Project until the final payment by the State to the Professional is made and shall be written for not less than any limits of liability specified above. The Professional has the responsibility for having their consultant firms comply with these insurance requirements.

ARTICLE VI
INDEMNIFICATION

(a) To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Professional in the performance of this Contract and that are attributable to the negligence or tortious acts of the Professional or any of its Subcontractors/Consultants, or by anyone else for whose acts any of them may be liable.

(b) Employee Indemnification: In any and all claims against the State of Michigan, its departments, divisions, agencies, boards, sections, commissions, officers, employees and agents, by any employee of the Professional or any of its Subcontractors/Consultants, the indemnification obligation under this Contract shall not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Professional or any of its Subcontractors/Consultants under worker's disability compensation acts, disability benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.

(c) Patent/Copyright Infringement Indemnification: To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that such action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Professional or its Subcontractors/Consultants, or the operation of such equipment, software, commodity or service, or the use of reproduction of any documentation provided with such equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or services, or its operation, become or in the State's or Professional's opinion be likely to become the subject of a claim of infringement, the Professional shall at the Professional's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if such option is not reasonably available to the Professional, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if such option is not reasonably available to Professional, (iii) accept its return by the State with appropriate credits to the State against the Professional's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Professional shall have no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; or (ii) use of the equipment in a configuration other than implemented or approved in writing by the Professional, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Professional under this Contract.

ARTICLE VII
OWNERSHIP OF DOCUMENTS

All Project deliverables, including but not limited to: reports, Bidding Documents, Contract Documents, electronic documents and data, and other Project related documents, including the copyrights, prepared and furnished by the Professional shall become the property of the State of Michigan upon completion of the Project, completion and acceptance of the professional's work, or upon termination of the Contract. Project deliverables shall be delivered to the Department upon their request. The Professional shall have no claim for further employment or additional compensation as a result of this Contract requirement. The Professional may retain a copy of all Project documents for their files.

If the Professional is in default or breach of its obligations under this Contract, the State shall have full ownership rights of the Project deliverables, including Bidding Documents and Contract Documents, including all electronic data. If the Professional is in default or this Contract Agreement is terminated, the State shall not use the Contract Documents and deliverables of this Contract for completion of the Project by others without the involvement of other qualified Professionals who shall assume the professional obligations and liability for the Project work not completed by the Professional.

To the fullest extent allowed by law, the State releases the Professional, the Professionals Consultant(s) and the agents and employees of any of them from and against legal claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of the State's use of the Contract Documents other than in accordance with this Contract Agreement.

All Contract deliverables listed may be published or issued for informational purposes without additional compensation to the Professional. The Professional may not use any of the Contract Documents and Contract deliverables for any purpose that may misrepresent the professional services they provided.

The Professional shall retain full rights to the Contract Documents and deliverables and the right to reuse component information contained in them in the normal course of the Professional's professional activities.

The Contract deliverables, Contract Documents, or other documents produced under this Contract may be used by the Department, or others employed by the Department or State of Michigan, for reference in any completion, correction, remodeling, renovation, reconstruction, alteration, modification of or addition to the Project, without monetary compensation to the Professional.

The State of Michigan will not construct additional Projects or buildings based on the work of this Contract without notice to the Professional. Whenever renderings, photographs of renderings, photographs or models, or photographs of the Project are released by the State of Michigan for publicity, proper credit for design shall be given to the Professional, provided the giving of such credit is without cost to the State of Michigan.

ARTICLE VIII
TERMINATION

The State may, by written notice to the Professional, terminate this Contract and/or any Assignments, in whole or in part at any time, either for the State's convenience or because of the failure of the Professional to fulfill their Contract obligations. Upon receipt of such notice, the Professional shall:

a) Immediately discontinue all professional services affected (unless the notice directs otherwise), and

b) Deliver to the State all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the Professional in performing this Contract, whether completed or in process.

8.1 If the termination is for the convenience of the State, an equitable adjustment in the Contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed professional services.

8.2 If the termination is due to the failure of the Professional to fulfill their Contract obligations, the State may take over the work and prosecute the same to completion by Contract or otherwise. In such case, the Professional shall be liable to the State for any additional cost occasioned to the State thereby.

8.3 If, after notice of termination for failure to fulfill Contract obligations, it is determined that the Professional had not so failed, the termination shall be deemed to have been affected for the convenience of the State. In such event, adjustment in the Contract price shall be made as provided in Section 8.1 of this article.

8.4 The rights and remedies of the State provided in this article are in addition to any other rights and remedies provided by law or under this Contract.

ARTICLE IX
SUCCESSORS AND ASSIGNS

This Contract shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns; provided, however, that neither of the parties hereto shall assign this Contract without the prior written consent of the other.

ARTICLE X
GOVERNING LAWS

This Contract shall be construed in accordance with the current laws of the State of Michigan. Some Assignments to this Contract will be funded wholly or in part by the Federal Government through grant agreements and/or federal programs. The Professional must comply with such funding requirements along with any current applicable federal regulations in performing the tasks described in the Scope of Work, including but not limited to the following current federal regulations. The absence of reference to any law or regulation does not preclude its applicability to this Contract.

1. The Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended CERCLA (The Superfund Act);

2. Section 306 of the Clean Air Act (42 U.S.C. 1857 (h));

3. Section 508 of the Clean Water Act (33 U.S.C. 1368);

4. Public Law 98-473 as implemented in the Department of the Interior, Bureau of Indian Affairs;

5. Executive Order 11738; Office of Management and Budget Circular A-87, "Cost Principles for State, Local, and Indian Tribal Governments."

6. 25 CFR Part 20; Financial Assistance and Social Services Programs

7. 40 CFR Part 31; Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments

8. 40 CFR Part 32 Subpart F; Drug-Free Workplace

9. 40 CFR Part 33; Participation by Disadvantaged Business Enterprises in United States Environmental Protection Agency Programs

10. 40 CFR Part 35; State and Local Assistance

11. 40 CFR Part 35 Subpart 0; Cooperative Agreements and Superfund State Contracts for Superfund Response Actions

12. 48 CFR Chapter 1 Part 31 Subpart 31.2; Contracts with Commercial Organizations.

ARTICLE XI
NONDISCRIMINATION

In connection with the performance of the Project under this, the Professional agrees as follows:

a) The Professional will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex *(as defined in Executive Directive 2019-09)*, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position. The Professional will provide equal employment opportunities to ensure that applicants are employed and that employees are treated during employment, without regard to their race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

b) The Professional will, in all solicitations or advertisements for employees placed by or on behalf of the Professional, state that all qualified applicants will receive equal employment opportunity consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

c) The Professional or their collective bargaining representative will send to each labor union or representative of workers with which is held a collective bargaining agreement or other Contract or understanding, a notice advising the said labor union or workers' representative of the Professional's nondiscrimination commitments under this article.

d) The Professional will comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended, MCL 37.2201 et seq; the Michigan Persons with Disabilities Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et seq; *Executive Directive 2019-09*; and all published rules, regulations, directives and orders of the Michigan Civil Rights Commission which may be in effect on or before the date of award of this Contract.

e) The Professional will furnish and file nondiscrimination compliance reports within such time and upon such forms as provided by the Michigan Civil Rights

Commission; said forms may also elicit information as to the practices, policies, program, and employment statistics of the Professional and of each of their Consultant firms. The Professional will permit access to all books, records, and accounts by the Michigan Civil Rights Commission, and/or its agent, for purposes of investigation to ascertain nondiscrimination compliance with this Contract and with rules, regulations, and orders of the Michigan Civil Rights Commission relevant to Article 6, 1976 PA 453, as amended.

f) In the event that the Michigan Civil Rights Commission finds, after a hearing held pursuant to its rules, that the Professional has not complied with the contractual nondiscrimination obligations under this Contract, the Michigan Civil Rights Commission may, as part of its order based upon such findings, certify said findings to the State Administrative Board of the State of Michigan, which the State Administrative Board may order the cancellation of the Contract found to have been violated, and/or declare the Professional ineligible for future Contracts with the State and its political and civil subdivisions, departments, and officers, and including the governing boards of institutions of higher education, until the Professional complies with said order of the Michigan Civil Rights Commission.

   Notice of said declaration of future ineligibility may be given to any or all of the persons with whom the Professional is declared ineligible to Contract as a contracting party in future Contracts. In any case before the Michigan Civil Rights Commission in which cancellation of an existing Contract is a possibility, the State shall be notified of such possible remedy and shall be given the option by the Michigan Civil Rights Commission to participate in such proceedings.

g) The Professional shall also comply with the nondiscrimination provisions of 1976 PA 220, as amended, concerning the civil rights of persons with physical or mental disabilities.

h) The Professional will include, or incorporate by reference, the nondiscrimination provisions of the foregoing paragraphs a) through g) in every subcontract or Contract Order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission, and will provide in every subcontract or Contract Order that said nondiscrimination provisions will be binding upon each of the Professional's Consultant's or seller.

ARTICLE XII
CONTRACT CLAIMS AND DISPUTES

In any claim or dispute by the Professional which cannot be resolved by negotiation, the Professional shall submit the claim or dispute for an administrative decision by the Department of Technology, Management and Budget, Director of State Facilities Administration within thirty (30) consecutive calendar days of the end of the disputed negotiations, and any decision of the Director of State Facilities Administration may be appealed to the Michigan Court of Claims within one (1) year of the issuance of the Director's decision.

The Professional agrees that the Department's appeal procedure to the Director of State Facilities Administration is a prerequisite to filing a suit in the Michigan Court of Claims.

ARTICLE XIII
DEFINITION OF TERMS

The definition of terms and conditions of this Contract are described and outlined in the following Articles I through XIV and attached appendices. The capitalized defined terms used in this Professional Services Contract shall have the following definitions:

ADDENDA: Written or graphic numbered documents issued by the Department and/or the Professional prior to the execution of the Construction Contract which modify or interpret the Project Bidding Documents, including drawings, and specifications, by additions, deletions, clarifications or corrections. The Addenda shall: (1) Be identified specifically with a standardized format; (2) Be sequentially numbered; (3) Include the name of the Project; (4) Specify the Project Index No., Project File No., the Contract Order No. Y, and a description of the proposed Addenda; and (5) Specify the date of Addenda issuance. As such, the Addenda are intended to become part of the Project Contract Documents when the Construction Contract is executed by the Professional's recommended lowest responsive, responsible qualified Construction Contractor.

An Addendum issued after the competitive construction Bid opening to those construction Bidders who actually submitted a Bid, for the purpose of rebidding the Project work without re-advertising, is referred to as a post-Bid Addendum.

AGENCY PROJECT MANAGER: The assigned staff of the Department or the State/client Agency authorized by the State to represent and act on behalf of the Project Director on a given Project and to thereby provide direction and assistance to the Construction Contractor. The Agency Project Manager may designate in writing a person to act on behalf of the Agency Project Manager when they are unable to perform their required duties or is away from the office. In such cases, the Agency Project Manager must notify the Construction Contractor and the Project Director.

AGENCY FIELD INSPECTOR: An employee of the State of Michigan under the direction of the State/client Agency who provides the on-site, Inspection of construction Projects for compliance with the study/design intent of the Professional firm's Contract Documents/drawings and specification requirements and the building construction codes. The Agency Field Inspector is the liaison between the Construction Contractor, the Professional, and the Agency Project Manager. The Agency Project Manager, or their Agency Field Inspector, has the authority to require the Professional to respond to and resolve study/design related problems, construction on-site field problems and to attend Project related meetings.

BID: A written offer by a construction Bidder for the Department. Project construction work, as specified, which designates the construction Bidder's base Bid and Bid price for all alternates.

BIDDER: The person acting directly, or through an authorized representative, who submits a competitive construction Bid directly to the Department.

BIDDING DOCUMENTS: The Professional's Project Contract Documents as advertised, and all Addenda issued before the construction Bid opening, and after the construction Bid opening, if the Project construction work is rebid without re-advertising. Bidding Documents shall consist of the Phase 500 - Final Design drawings and specifications, any Addenda issued, special, general, and supplemental conditions of the Construction Contract, and modifications, if any, to standard forms provided by the Department. Such forms consist of the Project advertisement, the instructions to Bidders, the proposal forms, general, supplemental, and any special conditions of the Construction Contract, and the form of agreement between the Department and the Construction Contractor for the Project work requirements.

BID SECURITY: The monetary security serving as guarantee that the Bidder will execute the offered Construction Contract or as liquidated damages in the event of failure or refusal to execute the Construction Contract.

BUDGET: The maximum legislatively authorized Budget amount to be provided by the State of Michigan and available for a specific purpose or combination of purposes to accomplish the Project for this Contract.

BULLETIN: A standard document form (DTMB-0485, Bulletin Authorization No. and the DTMB-0489, Instructions to Construction Contractors for Preparation of Bulletin Cost Quotations for Contract Change Orders) used by the Department to describe a sequentially numbered change in the Project under consideration by the Department and the Professional and to request the Construction Contractor to submit a proposal for the corresponding adjustment in the Contract price and/or Contract time, if any. These standard document forms are a part of the "DTMB-0460, Project Procedures" documents package.

CONSTRUCTION CONTRACT: A separate written Contract agreement between the Construction Contractor and the Department for the construction, alteration, demolition, repair, or rebuilding of a State/Client Agency building or other State property.

CONSTRUCTION CONTRACTOR: Any construction firm under a separate Contract to the Department for construction services.

CONSTRUCTION INSPECTION SERVICES: The Professional's field Inspections of the Project during the construction Phase of this Contract which includes but is not limited to: (1) Documenting the quantity and quality of all Project construction work and verifying that the Project construction work is properly completed; (2) Resolve Project problems that are affecting the Project construction work, certify payment requests, process Bulletins, Contract Change Order recommendations, and requests for information (RFI's) in a timely manner as prescribed in the Department's, "MICHSPEC 2001 Edition of The Owner and Contractor Standard Construction Contract and General Conditions for Construction (Long Form)" or the current Department, DTMB Short Form 401 - Proposal and Contract/Front-End Package for Small Projects for Professional Services Contractors (PSC) with General Conditions for Construction and Instructions to Bidders" as adopted and modified by the State of Michigan and incorporated into the Construction Contract; and the (3) Inspection of Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's Project

Director/Agency Project Manager and their Department Field Representative that the Project construction work is in compliance with the Professional's design intent and that the Project has been completed by the Construction Contractor in accordance with the Professional's Phase 500 - Contract Documents/drawings and specifications requirements.

The Professional shall provide sufficient Inspections of the Project during the construction Phase to administer the construction Phase field and office services as directly related to the degree of Project complexity, up to and including full-time field Inspections. Construction field Inspections shall occur as the construction field conditions and the Project may require and during the regularly scheduled monthly progress and payment meetings.

The Professional shall use for their construction field Inspection services, only personnel having professional expertise, experience, authority, and compatibility with departmental procedures as the Department may approve. The Professional agrees that such characteristics are essential for the successful completion of the Project. Such individuals shall be replaced for cause where the Department determines and notifies the Professional, in writing, of their unacceptable performance.

CONSULTANT: Any individual, firm, or employee thereof, not a part of the Professional's staff, but employed by the Professional and whose professional service cost is ultimately paid by the State of Michigan, either as a direct cost or authorized reimbursement. This includes the recipient(s) of Contract Orders for material, support, and/or technical services. Also, included are persons and firms whose management and/or direction of services are assigned to the Prime Professional as may be provided elsewhere in this Contract.

CONTRACT CHANGE ORDER: A standard document form (DTMB-0403) issued and signed by the State of Michigan and signed by the Professional which amends the Project Design Professional's Contract Documents for changes in the Project/Program Statement or an adjustment in Contract price and/or Contract time, or both.

CONTRACT DOCUMENTS: The Professional's Phase 100 – Study, Final Report and Phase 500 - Final Design plans/drawings, specifications, Construction Contract, instructions to construction Bidders, proposal, Bidding Documents, agreement, conditions of the Contract, payment bond, performance/labor and material bond, prevailing wages, all Addenda, and attachments as may be necessary to comprise a Construction Contract for the Project. Specifications for this Contract will be prepared for Division 00 through 49, in the current version MasterFormat Outline by the Construction Specifications Institute (C.S.I.), as appropriate for the Project.

CONTRACT MODIFICATION: A form (DTMB-0410) amending the Contract signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project/Program Statement or previously unknown on-site field conditions as approved by the Department will be compensated to the Professional by way of the Contract Modification in accordance with the Article II, Compensation text of this Contract.

Any Contract Modification of this Professional Services Contract must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the Department may require. No Contract Modification will be approved to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional's Phase 100 – Study, Final Report and Phase 500 - Contract Documents study/design errors, omissions or neglect on the part of the Professional.

CONTRACT ORDER: A form (DTMB-0402) issued and signed by the State of Michigan authorizing a Professional to: (1) Begin to incur Project expenses and proceed with the Project on-site; and (2) Provide professional services for the fee amount designated in the Phases of the Contract Order. Issuance of the DTMB-0402 certifies that: (1) The State will enter into a Professional Services Contract for the professional services described in the various Phases of this Contract; and that (2) The proper three (3) sets of Certificate of Insurance documents have been received and accepted by the State along with the approval and signing of the Professional's Professional Services Contract by the SFA, DCD Director.

DEPARTMENT: The Department of Technology, Management and Budget, Facilities and Business Administration, Design and Construction Division. The Department will represent the State of Michigan in all matters pertaining to this Project. This Professional Services Contract will be administered through the Department on behalf of the State of Michigan and The State/Client Agency.

DESIGN MANUAL: Provides the Professional with information regarding the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" review process requirements regarding the uniformity in Contract materials presented to it by the Professional and the State/Client Agency(ies). This manual contains the following noted standards, instructions, and procedures information for: (1) General instructions for planning documents from Phase 100-Study through Phase 500-Final Design; (2) Net and gross area/volume; (3) Project cost format; (4) Outline architectural and engineering specifications; (5) Specifications in documentation Phase; (6) Instructions for proposal; (7) Bidders questionnaire; and the (8) Project job sign.

DIRECTOR: The Director of the Department of Technology, Management and Budget or their authorized State of Michigan representative.

DIRECTOR-SFA: The Director of the Department of Technology, Management and Budget, State Facilities Administration or their authorized State of Michigan representative.

DEPARTMENT FIELD REPRESENTATIVE: An employee of the State under the direction of the Department who provides the Inspection of construction Projects for compliance with the design intent of the Professional's Phase 500 - Contract Documents/ architectural and/or engineering drawings and specification requirements and the building construction codes. The Department Field Representative is the liaison between the Construction Contractor, the Professional, and the Project Director/Agency Project Manager. The Project Director/Agency Project Manager, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project

meetings. Unless delegated by specific written notice from the Department, the Department Field Representative has no authority to order any changes in the Project scope of work or authorize any adjustments in Contract price or Contract time.

INSPECTION: The Professional and their Consultant firm's on-site and/or off-site examination of the Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's, Project Director/Agency Project Manager and their Department Field Representative that the quantity and quality of all Project construction work is in accordance with the design intent of the Professional's Phase 500 - Contract Documents/ drawings and specifications requirements.

KEY PRINCIPAL PERSONNEL/EMPLOYEE: An individual employee of a Professional who is essential for the successful completion of the Project.

NOTICE OF INTENT TO AWARD: A written notice to the Construction Contractor, by the Department accepting the Professional's written recommendation to award the construction Bid to the lowest responsive, responsible qualified construction Bidder. The Notice of Intent to Award letter will also designate the Contract price and itemize the alternates that the Department, at its sole discretion has accepted.

PHASE: A discretely distinguishable step necessary to produce the Project in the course of the Professional providing study, design and construction administration services.

PRIME PROFESSIONAL SERVICES CONTRACTOR/PROFESSIONAL: An individual, firm, partnership, corporation, association, or other legal entity who is legally permitted by law to sign and seal final design construction Contract Documents and licensed under the State of Michigan's professional licensing and regulation provisions of the Occupational Code (State Licensing Law), Act 299 of the Public Acts of 1980, Article 20, as amended, to practice architecture, engineering, environmental engineering, geology, civil, land surveying, or landscape architecture services in the State of Michigan.

The Prime Professional Services Contractor/Professional is also legally permitted by the State of Michigan's regulation provisions of the State Construction Code, Act 230 of the Public Acts of 1972, as amended, and designated in a Construction Contract by the Department to recommend construction progress payments to the Construction Contractor.

PROJECT: Any new construction, existing site, new utilities, existing building renovation, roof repairs and/or removal and replacement, additions, alteration, repair, installation, construction quality control and material testing services, painting, decorating, demolition, conditioning, reconditioning or improvement of public buildings, works, bridges, highways or roads authorized by the Department that requires professional study/design services as part of this Contract.

PROJECT COST: The total Project cost including, but not limited to, site purchase, site survey and investigation, hazardous material abatement, construction, site development, new utilities, telecommunications (voice and data), professional fees, construction quality control and material testing services, testing and balancing services, furnishings, equipment, plan(s)/drawing(s) design code compliance and plan review approval fees and all other costs associated with the Project.

PROJECT DIRECTOR: The professional licensed employee of the Department who is responsible for directing and supervising the Professional's services during the life of this Contract. The Project Director, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project related meetings.

PROJECT/PROGRAM STATEMENT: The Project/Program Statement is provided by the Department and defines the scope of the problem, describes why this Project is desirable, and provides a preferred resolution of the problem.

PROJECT TEAM: The Professional, the Project Director/Agency Project Manager, Department Field Representative, a representative of the State/Client Agency, and others as considered appropriate by the Department.

PUNCH LIST: A list of minor construction Project items to be completed or corrected by the Construction Contractor, any one of which do not materially impair the use of the Project work, or the portion of the Project work inspected, for its intended purpose. A Punch List shall be prepared by the Professional upon having made a determination that the Project work, or a portion of the Project construction work inspected, in concert with the Professional, the Construction Contractor, the Department, the Project Director/Agency Project Manager and their Department Field Representative, and any construction manager, is substantially complete and shall be attached to the respective DTMB-0455, Certificate of Substantial Completion form. This standard document form is a part of the "DTMB-0460, Project Procedures" documents package.

SOIL EROSION AND SEDIMENTATION CONTROL: The planning, design and installation of appropriate Best Management Practices (as defined by the most current version of the Department's Soil Erosion and Sedimentation Control Guidebook) designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. and comply with the Soil Erosion and Sedimentation Control in the State of Michigan as regulated under the 1994 Public Act 451, as amended – The Natural Resources Environmental Protection Act, Part 91 – Soil Erosion and Sedimentation Control. Soil Erosion and Sedimentation Control associated with this Contract will be monitored and enforced by the Department of Technology, Management and Budget, State Facilities Administration, Soil Erosion and Sedimentation Control Program.

STATE: The State of Michigan in its governmental capacity, including its departments, agencies, boards, commissions, officers, employees, and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

STATE/CLIENT AGENCY: A Department of the State of Michigan, for whose use the Project will ultimately serve, which requires professional design services.

SUBSTANTIAL COMPLETION: The form (DTMB-0445) stating that the Project work, or a portion of the Project work eligible for separate Substantial Completion, has been completed in accordance with the design intent of the Professional's Contract Documents to the extent that the Department and the State/Client Agency can use or occupy the entire Project work, or the designated portion of the Project work, for the use intended without any outstanding, concurrent work at the Project work site, except as may be required to complete or correct the Project work Punch List items.

SUSTAINABLE DESIGN: The Professional's use of a balance of appropriate materials, products and design methods that reduce the impact to the natural ecosystems and be within the Budget constraints of the Project. Sustainable Design shall be used wherever possible by the Professional in their Project design and an itemized list shall be provided with the Professional's Contract Documents that identifies the processes and products.

TASK: Shall mean the following: (1) A quantifiable component of design related professional study/design Task services required to achieve a Phase of the Project; (2) The most manageable sub-element within a study/design Phase; (3) A unique item of work within a study/design Phase for which primary responsibility can be assigned; and (4) Has a time related duration and a cost that can be estimated within a study, design, and construction Phase.

ARTICLE XIV
COMPLETE AGREEMENT / MODIFICATION

This Professional Services Contract constitutes the entire agreement as to the Project between the parties. Any Contract Modification of this Contract and the Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for the Professional firm's final design Contract Documents/study/design errors, omissions or neglect on the part of the Professional.

APPENDIX 1

PROJECT/PROGRAM STATEMENT

APPENDIX 2

PROFESSIONAL'S PROPOSAL

APPENDIX 3

PROFESSIONAL CERTIFICATION FORMS

APPENDIX 4

OVERHEAD ITEMS ALLOWED FOR THE PROFESSIONAL SERVICES CONTRACTOR FIRM'S HOURLY BILLING RATE CALCULATION

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APPENDIX 5

CERTIFICATES OF INSURANCE

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design and Construction Division

REQUEST FOR PROPOSAL
ADDENDUM NO. 01

This form identifies an Addendum to a Request for Proposal for Professional Services, and incorporates interpretations or clarifications, modifications, and other information into the Request for Proposals. Addenda will be numbered by the Project Director and distributed through SIGMA Vendor VSS as an attachment.

TO: ALL PROPOSERS	DATE ISSUED December 7, 2022
PROJECT NAME 2023 Environmental Services ISID	FILE NUMBER N/A
PROJECT DIRECTOR Indumathy Jayamani	PROPOSAL DUE DATE: Thursday, January 12, 2023

ADDENDUM ITEMS: (attach additional sheets and drawings if required)

This addendum is to clarify the date for questions.

Questions are to be emailed to Indumathy Jayamani at jaymanii1@michigan.gov, no later 2:00 p.m., EASTERN than on Friday, December 16, 2022

APPROVED BY:

PROJECT DIRECTOR Indumathy Jayamani

DATE December 6, 2022

STATE OF MICHIGAN

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
3111 W. St. Joseph Street
Lansing, Michigan 48917

ADDENDUM NO. 2

To: **All applicants and interested parties** Date: December 21, 2022

Subject: **Department of Technology, Management and Budget (DTMB)**
2023 Environmental Remediation ISID RFP
Professional Environmental Consulting Services
Various Locations, Michigan
Request for Proposal

Please acknowledge receipt of this Addendum in your proposal.

Questions and Answers:

The following questions have been compiled to clarify answers to questions regarding portions of the RFP package:

Q1. Please confirm only one sample 1-week period of field activity logs and a sample weekly report must be provided with the proposal and not under each scope area.

A1. Confirmed.

Q2. Based on the RFP text that Section II-4 is “not required at this time.” Please confirm DTMB is not expecting the consultant to provide an outline or any response to this requirement in the proposal at this time and it will only be “required at the time of future assignments”?

A2. Confirmed.

Q3. Please confirm which format is required for a proposal response: A) Only one questionnaire is required for the entire submission with the appropriate scope categories checked, regions checked, and applicable references/personnel for each desired scope; or B) A questionnaire is required for each scope category checked with applicable references/personnel for that desired scope (understanding there likely will be repetition across multiple questionnaires from a single company)?

A3. Only one questionnaire is required for the submission.

Q4. Please confirm whether or not a standalone document addressing Sections II-1 through II-6 of the RFP is required with the Questionnaire as part of this document (II-5) OR can just the Qualifications Questionnaire be submitted as the primary headings of Sections II-1 through II-6 are addressed within the Questionnaire?

A4. Yes, a written narrative addressing Section II-1 through Section II-6 (Section II-4 is for reference only, see A2), must accompany the questionnaire.

Q5. The RFP asks the respondent to provide "…at least three (3) projects in the last five years closely related to each of the project types". Is it acceptable for the respondent to provide a project example(s) that was completed while under the employ of another company?

A5. No, the project's provided as example should have been completed by the company responding to the RFP.

Q6. The Questionnaire and Proposal Format Part I – Technical, appear redundant. The RFP includes, "NOTE: Any information provided in one location can be referenced as needed in other locations." Please confirm that statements such as, "Refer to Questionnaire Response 5.1." or "Refer to Proposal Response II-4." is sufficient if a response is provided in one of the two documents. Or is the format intentionally redundant and EGLE requires a response in both locations, with a more expansive response provided in the proposal response narrative?

A6. For any information that is already provided in the questionnaire, referring that information is sufficient.

Q7. The billing rate document example provided as II-2-A. Position, Classification and Employee Billing Rate Information is similar, but differs from the MS Word document 2023 Environmental Fillable Position Class Billing Rate Worksheet (rev 221205). Please confirm the MS Word document is the format to include in the submittal.

A7. Confirmed.

Q8. Will EGLE include a list of sites and project types that will be included in the ISID contract in Year 1?

A8. No.

Q9. Is there a limit or targeted number of vendors the Department/Advisory Committee will offer a contract?

A9. No.

Q10. May respondents modify the 2023 Environmental Questionnaire to include additional project reference information (i.e., Project 4 Reference Information, Project 5 Reference Information)?

A10. Yes.

Q11. Page 9 of the proposal states, “The following items B, C, and D will be required only at the time a proposal for an individual assigned project is requested.”; however, the statement is followed by bulleted items A, B, C. Please clarify.

A11. Typo noted. The Bullets should have been named B, C, and D.

Q12. Section I-9 of the RFP (“Proposals”) states “when uploading, your attachment(s) the attachment must be 6mb or less.” Can a bidder’s proposal consist of more than one attachment, each being less then 6mb?

A12. Yes.

Q13. RFP, Section II, Part 1 Technical; Section II-3 Personnel. Please provide further detail regarding what is meant by chronological.

A13. Resumes of all proposed Key Personnel should include the period the experience occurred.

Q14. RFP, Section II, Part 1 Technical; II-5 Questionnaire? Please clarify what is meant by “narrative addressing the items above”.

A14. See A4.

Q15. Questionnaire, Article 1, subsections 3, requests an organization chart depicting key personnel and their roles for a typical assigned project. The projects under this contract are anticipated to include a wide range of scopes and required skill sets. Please provide additional detail on what constitutes a typical assigned project for use in developing the requested organizational chart.

A15. The organizational chart should note the Key Personnel and staff needed for the project types and services identified in the questionnaire.

Q16. Questionnaire, Article 1, subsections 5, states “provide a four-year rate schedule per position”. What is being asked for here? Is this different from II-2-A Position, Classification and Employee Billing Rate Information?

A16. The same information is being requested in both places.

Q17. Page 6 of the RFP states “when entering the proposal amount, please enter the total cost amount as $1.00”, but the Project Statement states, “please enter the total cost for all phases as the bid amount.” Which method is preferred?

A17. Discrepancy noted. Please enter the bid amount as “$1.00” as stated in the RFP.

Q18. In section II-2 of the RFP (page 6) states that the bidder should “Indicate which of these individuals you consider to be “Key Personnel” for the successful completion of these project types, identify them by position and classification and provide their resumes.” Should resumes only be included for individuals that meet the “Professional Key Personnel” criteria in the “Guidelines for Position Classifications” or can we include resumes for personnel we consider key, but may be considered non-key in the position classification criteria?

A18. Yes.

Q19. Section II of the RFP (proposal format) states that the proposal must be submitted in the format outlined. However, in subsection II-4 “Management Summary, Work Plan, and Schedule,” it is noted that this section is for reference only. May we omit this section heading from our proposal?

A19. See A2.

Q20. Question 4 in Article 1 of the questionnaire asks about recent changes in organizational structure (e.g., management team) or control of your company. Please define recent.

A20. Any changes within the past 12 months.

Q21. Several of the questionnaire questions, especially in Article 5, appear to request a singular number answer (as a percentage or number of days/weeks). We believe it may be helpful to provide more context for several of these questions. Will that type of response be accepted, or shall we limit our response to the singular, numerical answer only?

A21. At a minimum the percentage is required.

Q22. Article 6 of the questionnaire includes 5 Key Personnel. Should these include only the “Level 4” key personnel as described in the Guidelines for Position Classification or all Level 3 and Level 4 Key Personnel. If the latter, may we add an attachment for additional Key Personnel beyond the 5 spaces included in the questionnaire?

A22. See A18. Additional spaces can be added as needed.

Q23. In Article 6 of the questionnaire, questions 6.3 and 6.4 refer to the Professional Project Manager. Can you define “Professional Project Manager.” Can this be more than one person?

A23. Please refer to the Guidelines for Position Classifications. Yes, Project Manager, can be more than one person.

Q24. The RFP asks in II-2 for an “Outline your experience with similar projects, sites, and clients as examples.” The ask for similar project descriptions is repeated in II-6 and in Article 8 of the questionnaire. Is there a preference for which section includes the project examples?

A24. Responses are required for both parts. Also, see A6.

Q25. Page 6 of the Scope of Work document indicates that the Professional shall arrange for all its employees that will be working on a contaminated site to attend a health and safety training course, and/or a personnel protection course. Can you specifically identify which safety training courses are required?

A25. The professional, needs to identify all training required by State and Federal laws for personal working on a particular site type, and ensure that their employees working on that project/site have the necessary training.

Q26. RFP Page 8 and 12, Table II-2-A: Do we input employee names on this table? And classification (from “Guidelines for Position Classifications”)?

A26. Yes.

Q27. Under Article 8 of the Questionnaire, is it expected we provide three references overall that encompass all the service areas we select or three references per service area.

A27. Please ensure you provide a minimum of three references per service area.

Q28. Please clarify the preference provisions for Michigan-based firms. Preference is not stated in the RFP document, but it is stated in the Scope of Work, and a certification form is attached to the RFP. If there is a preference, how is it applied?

A28. None.

Q29. Are there any preference provisions for Small Business Enterprises or Disadvantaged Business Enterprises?

A29. None.

Q30. The RFP states that “The ISID contracts will supplement, but not replace, standard requests for proposals or qualifications as a method for obtaining professional services.” Please clarify how this contract will be used to supplement other methods for obtaining professional services.

A30. ISID contract is a standalone method in addition to the standard request for proposal process.

Q31. The RFP states that “DCD reserves the option of requesting …proposals from more than one professional for a particular project.” Please clarify the conditions, metrics or process for how the DCD decides whether to ask multiple ISID contract-holders to submit proposals for the same project.

A31. This will be decided on a case-by-case basis.

Q32. Are any terms of this (sample) contract negotiable, including, but not limited to, subjects of Indemnification, defend and hold harmless, and limitation of liability?

A32. No.

Q33. The scope of work states “The Professional’s personnel and the personnel of its sub-consultants/subcontractors will be required, if requested by the Agency Project Manager on behalf of EGLE's attorneys, to provide assistance to the State in the form of participation in legal actions against alleged responsible parties… including the preparation and execution of interrogatories, affidavits, and testimony as a fact witness… “The State will reimburse the Professional for such assistance as described above at the contractually approved rates for the Professional’s personnel at the time services are required.” May respondents submit classification-based labor rates for litigation support with the schedule of Position, Classification, and Employee Billing Rate Information, to be approved in the contract? And similarly, for Expert Witness Fees?

A33. The hourly billing rates for these types of services can be included.

Q34. Are subcontractors bound to contract rates (provided in the rate sheet)?

A34. No.

Q35. Can a sub (contractor) do lumpsum on the task orders?

A35. Payment of subcontractors is determined between the contractor and subcontractor.

Q36. Experience (questionnaire) – Do project examples need to be Michigan-specific (extra points?) or countrywide?

A36. Can be either.

Q37. Personnel (questionnaire) - Michigan based personnel required or given extra points?

A37. No.

Q38. Do sub-consultants need to complete the Environmental questionnaire?

A38. No.

APPENDIX 2

PROFESSIONAL'S PROPOSAL

resourceful. naturally.
engineering and environmental consultants

BARR

January 12, 2023

Indumathy Jayamani, Project Director
Department of Technology, Management and Budget
State Facilities Administration, Design and Construction Division
(517) 582-1089
jayamanii1@michigan.gov

Re: Proposal to provide professional services for 2023 Indefinite Scope Indefinite Delivery (ISID) Contract for Environmental Services Various Locations, Michigan

Dear Indumathy Jayamani:

Barr Engineering Co. is pleased to submit our proposal and qualifications to the Department of Technology, Management and Budget for an Indefinite Scope Indefinite Delivery (ISID) contract for professional environmental services for minor, emergency, and/or routine investigation and remediation projects. We believe our team is best suited to provide these integrated services to the State of Michigan because of our:

- **Established relationships with Michigan stakeholders keep projects on track.** Barr's involvement with complex contaminated sites over the past two decades in Michigan means we have built relationships and demonstrated technical reliability with Michigan and federal regulators, including the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the U.S. Environmental Protection Agency, across district offices and divisions.
- **Breadth and depth of investigation and remediation experience helps projects succeed.** Our multidisciplinary teams have worked on hundreds of Michigan projects and are well-versed in supporting the technical and risk management needs of our clients as well as helping clients navigate the changing technical and regulatory landscape of site investigation, remediation, and redevelopment at contaminated sites.
- **Collaborative consulting model means we work from your agenda, not ours.** At Barr, we pride ourselves on solving our client's problems as if they were our own. We'll bring to your projects the insights and expertise we've gained from our work on thousands of projects—and promise to do our best on your behalf.
- **Safety as a shared value means we will meet or exceed your safety goals.** Barr's employee owners have agreed on and are committed to workplace health and safety as a core shared value that requires our constant attention. It is our overarching goal to assure that all our coworkers, as well as other people affected by our work, are safe, and we demonstrated this commitment to safety by having zero recordable incidents in 2022.

We look forward to supporting the State of Michigan. If you have any questions, please contact me at tboom@barr.com or 616-970-6070.

Sincerely,

Tom Boom, PE
Vice President, Senior Environmental Engineer

proposal for

2023 Indefinite Scope Indefinite Delivery (ISID) for Environmental Services Various Locations, Michigan

prepared for

Department of Technology, Management and Budget

Submitted by Barr Engineering Co.
January 12, 2023

BARR

Contents

Part I – Technical Proposal

General information and project team

About Barr Engineering Co.

Incorporated in 1966, Barr is an employee-owned engineering and environmental consulting firm. Our more than 950 employees in 12 offices across the Midwest and North America work together to help our clients develop, manage, and restore natural resources. Barr's project teams specialize in solving complex and technically challenging environmental and engineering problems. We frequently work with clients at all levels of the public sector as well as industries such as power, refining, mining, and manufacturing. Our work includes environmental investigation and remediation, engineering and design, environmental permitting and compliance, sustainability and resiliency, and water management.

Barr's experience with investigation, remediation, and redevelopment of contaminated sites began in the late 1970s. Through our work nationwide, we've addressed thousands of sites and have completed hundreds of contaminated-site redevelopment projects. Barr does much more than investigate and clean up contaminated sites. Moving a site towards redevelopment or closure requires a wide array of experts who are organized and work together. Our multidisciplinary teams are structured around the unique needs of each specific project.

We have a strong regional presence in Michigan with more than 50 employees in our Ann Arbor office and more than 40 in our Grand Rapids office; these will serve as the primary offices for work under this contract. In addition, we have several remote employees elsewhere in the state, providing a broader geographic range. With Barr, the Department of Environment, Great Lakes, and Energy (EGLE) will receive individual attention from a dedicated, Michigan-anchored project team while having access to the breadth and depth of expertise and resources from more than 950 scientists and engineers available company-wide. We have a broad skill set and deep resource base to draw on to provide environmental services to EGLE, as demonstrated in our project examples and team resumes, provided in the pages that follow.

Project team location and capacity

Barr's more than 90 staff members in our Ann Arbor and Grand Rapids offices regularly work on projects throughout Michigan. We are able to staff projects from both of these offices and engage niche expert support from our other offices if needed. Our Michigan offices are within a reasonable driving distance of the project regions we have selected in Article 3 of the Questionnaire (see page 16). We also have remote employees located in northern counties who can respond to projects in the northern Lower Peninsula, significantly reducing response time and travel distances.

Additionally, our work on projects in nearly every county of the Lower Peninsula (and many in the Upper Peninsula) provides us with regional expertise to better understand localized site conditions. Our involvement on simple and complex Part 201 sites over the past two decades has allowed us to build relationships and credibility with EGLE staff members in district offices, on the Technical and

Program Support (TAPS) teams, and in the toxicology unit in Lansing. In fact, a majority of the contaminated sites our project teams work on are regulated by Part 201 and Part 213, so we regularly evaluate site data in the context of this regulatory framework—with an eye toward resolving issues and moving toward a regulatory endpoint. In addition, we have had success working with EGLE to achieve No Further Action status for a wide range of sites.

Barr's Michigan locations

Barr has a demonstrated track record of successfully providing clients with a wide range of environmental services. Many of these client relationships have continued and grown over decades as Barr assists with complicated long-term site characterization, redevelopment, and risk management. We also support our clients with short, relatively uncomplicated projects involving site assessment, sampling, or other finite project goals.

We have a broad bench of skill sets to draw upon to provide services as needed. Our services include site characterization (geology, geotechnical, hydrology, and hydrogeology); baseline environmental assessments; groundwater, contaminant-transport, and stormwater flow modeling; environmental monitoring network design and operation; remediation planning and oversight; and operations and closure assistance. In addition, Barr continues to provide our clients with cutting-edge remedial and mitigation solutions to emerging contaminants like per- and polyfluoroalkyl substances (PFAS).

Additional organizational information about Barr is located in the *Questionnaire* under ***Article 1: Business Organization***.

Understanding of projects and tasks

Project understanding

Barr understands that EGLE intends to request contractors to provide high-quality environmental services for sites of environmental contamination. Pursuant to Part 201 and Part 213 of the Michigan Natural Resources and Environmental Protection Act (NREPA) Public Act 451 of 1994, as amended and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and other relevant state and federal statutes and requirements, the contractor will conduct environmental assessments (desktop and field investigations) to characterize contaminants of concern for the sites; evaluate relevant exposure pathways for the protection of human health and the environment; design and evaluate effective mitigation or remediation methods; and provide support for ongoing due care obligations for the sites.

Specific services and skills are discussed in the capabilities and experience section as applicable to the scope of work included in this RFP. Additional information related to Barr's experience are detailed in the project examples found in Section 5.

Why choose Barr?

We believe that Barr is well-suited to serve the State of Michigan and can bring the best value for the following reasons:

Established relationships with Michigan stakeholders keep projects on track

Barr's involvement with complex contaminated sites over the past two decades in Michigan means we have built relationships and demonstrate technical reliability with both Michigan and federal regulators, including EGLE and the U.S. Environmental Protection Agency (USEPA), across district offices and departments. Our key team members have worked with EGLE's Remediation and Redevelopment Division, Materials Management Division, and Water Resources Division; the Materials Management Remediation Advisory Team; the Groundwater Modeling and Groundwater-surface Water Interface Technical and Program Support teams; and many different district offices. Likewise, we have developed significant experience working on projects with complex stakeholder relationships, including property owners and the public.

Breadth and depth of investigation and remediation experience facilitate project success

We have a demonstrated track record of successfully completing a variety of small to large projects for public clients, where Barr's role often spans environmental, engineering, stakeholder coordination, and close engagement with our clients to understand their needs. Our multidisciplinary teams have worked on hundreds of Michigan projects and are well-versed in supporting the technical and risk management needs of our clients as well as helping clients navigate the changing technical and regulatory landscape of site investigation, remediation, and redevelopment at contaminated sites. Specifically, Barr's core team has honed the skills you need including remediation projects in river settings and on the shores of Great Lakes, 3D modeling and visualizations, groundwater modeling, groundwater-surface water interface compliance, geotechnical engineering, investigation and cleanup of PFAS and other emerging contaminants, coal combustion residual compliance and cleanup, subsurface barrier technologies near-surface water, wetland delineation, permitting, and mitigation, and more. Our team is passionate about helping clients solve their most

pressing problems and seeing the fruition of their work improve conditions for the environment and community. We are excited for the opportunity to work as your partner on your projects.

In addition to our technical prowess, Barr focuses on the fundamentals by providing in-house data quality, data management, and data visualization needs. Barr's data quality group reviews individual lab reports and works directly with analytical laboratories to understand details such as bias flags or quality control omissions as well as methodology choices. Our data management team maintains Barr's environmental database housing analytical and associated data for Barr's multitude of client sites. This database is maintained and customized for the needs of each specific project and site. Finally, Barr's expertise in GIS, CADD, 3D modeling, and other data visualization options provides our clients with a plethora of communication tools to effectively communicate projects to a wide audience of project stakeholders.

A collaborative consulting model means we work from your agenda, not ours

At Barr, we pride ourselves on solving our clients' problems as if they were our own. We'll bring to your projects the insights and expertise we've gained from our work on thousands of projects—and promise to do our best on your behalf. Our principles of good client service include meeting your needs, adding value, keeping our promises, and working safely. You need consultants you can count on to complete projects efficiently and without hassles. Because we work with you—rather than just for you—you can feel confident that we will work with you to develop realistic expectations and milestones; send you regular progress reports, including budget and schedule tracking; identify potential problems or scope changes early to help avoid unpleasant surprises; and provide a seamless project team, a consistent approach, and accurate results.

Safety as a shared value means we will meet or exceed your safety goals

Barr's employee owners have agreed on and are committed to workplace health and safety as a core shared value that requires our constant attention. It is our overarching goal to assure that all our coworkers, as well as people affected by our work, are safe. Our concern motivates us to strive continually for no incidents or injuries at work. Barr's commitment to safety stretches across our company and into every project. In addition to standard HAZWOPER safety training, we have more than six separate training programs for different site conditions and operations, including the SafeStart program, which has been successfully implemented company wide. Our track record speaks for itself—we've had zero OSHA-recordable injuries in the past year.

Capabilities and experience

Below, we outline our experience and expertise in providing the services requested. Specific examples of our work can be found in Section 5.

Brownfield Development

Barr has helped numerous clients successfully complete brownfields redevelopments that are cost-effective and work within site constraints, allowing us to provide perspective on your sites' conditions. For example, since 1998, Barr has helped prepare more than 60 successful brownfields grant applications, resulting in nearly $30 million dollars for clients to assess or clean up their sites. And our environmental assessments and investigations can help you develop a clear understanding of the site while coordinating cleanup with redevelopment can save time and money. Lastly, our experience in communicating with multiple stakeholders can help you build cooperation and support for your project.

Depending on the role Barr would play on a brownfield project under this contract, our experience navigating the nuances of Part 201, Part 213, and Act 381 as well as working with brownfield redevelopment stakeholders means we have the expertise needed to support EGLE in these types of projects. For some public and private sector clients, Barr has even assisted with peer review of due diligence efforts completed by other parties. This has included reviews of Phase I and subsequent investigative work as well as developing inventories of properties to understand our clients' environmental liabilities at a large scale. This has helped them navigate changes to exposure pathway methodologies, cleanup criteria, and screening levels. Ultimately, these administrative tools have helped our clients understand how these changes may impact their historically closed sites and inform work on new brownfield developments.

Ecological Risk Assessment | Forestry and Land Management | Wetland Mitigation | Streams and Lakes Restoration

Barr has helped clients restore streams and rivers, preserve habitat, and control erosion for over three decades, understanding that successful restoration projects require good science and good process. With a diverse team dedicated to natural resources issues, we're a leader in evaluating and documenting the ecological characteristics of sites and developing strategies to meet our clients' goals. We regularly help clients develop and implement permitting strategies, design restoration programs for upland, wetland, stream, and lake ecosystems, and more. Our team has performed thousands of wetland delineations, completed hundreds of joint permit applications in Michigan, and conducted hundreds of stream assessments. We have also worked with public stakeholders to secure permits through EGLE, including Part 303 (Wetland Protection), Part 301 (Inland Lakes & Streams), and Part 31 (Floodplain Regulatory Authority) permits. Barr routinely conducts ecosystem biological surveys, ecosystem restoration, and analysis of habitat and endangered plant and animal species, as well as wildlife, wetland, forestry, and other biological surveys, mitigation, and management plans.

Environmental Investigation | Characterization | Pilot Tests | Feasibility Study

For the past 30 years, Barr has helped thousands of clients with a wide range of property issues, from straightforward site assessments to complex investigations. Barr's environmental experts have capabilities that extend beyond site assessments and investigations, and that technical knowledge helps focus our efforts, to provide efficient and cost-effective solutions. The optimal environmental site assessment collects the minimal amount of high-quality data necessary to meet project objectives. Barr can design and implement the most appropriate investigation for your site, whether you wish to redevelop a brownfield, satisfy the requirements of a regulatory program (such as RCRA, CERCLA, Part 201, or Part 213), or quickly assess and respond to a spill.

Environmental |Roto Sonic Drilling | Well Abandonment and Ground Penetrating Radar (GPR) | Laser-Induced Fluorescence (LIF) Field Screening

Barr's oversight of investigation methods has spanned the available options including groundwater and soil investigations using techniques such as roto sonic, hollow-stem-auger, and direct-push (Geoprobe) drilling; test trenching; in-situ sensing technologies such as cone-penetrometer, membrane interface probe (MIP), hydraulic profiling tooling (HPT), electrical conductivity probe (EC) and laser-induced fluorescence (LIF); monitoring-well installation; monitoring well abandonment and documentation, and soil vapor probes and wells. Barr has also subcontracted these investigation methods in the wet via pontoon or amphibious vehicle to characterize sediment impacts in rivers, lakes, and wastewater ponds, to name a few.

In addition to down-hole investigation methods, Barr has found success in using ground penetrating radar (GPR) and electromagnetic (EM) surveys to provide a broad understanding of potential

subsurface anomalies and features to target during investigations. Barr's broad bench of experienced professionals will provide a wealth of wisdom from which to discuss investigation options to arrive at a solution that is best for the subject site and target information.

Landfill Maintenance | Monitoring

Barr's landfill experience spans nearly 50 years, and we are proficient in all aspects of landfill projects—from investigation to monitoring and remedial system design, implementation, and optimization. Barr has been involved in project management, site selection, permit assistance, design, and construction services for industrial and CCR landfills. Our services for landfills include site characterization (geology, geotechnical, hydrology, and hydrogeology); groundwater, contaminant-transport, and stormwater flow modeling; environmental monitoring network design and operation; remediation planning and oversight; and operations and closure assistance.

Landfills face ongoing challenges related to emerging contaminants of concern such as PFAS and 1,4-dioxane. These contaminants can complicate leachate management, groundwater monitoring and remediation, and public outreach for landfill sites. Although these contaminants can be challenging to investigate and remediate, Barr's engineers and scientists have up-to-date project skills, including multi-media sampling and analysis, modeling, and water-treatment-system design experience.

Per-& Polyfluoroalkyl Substances (PFAS) Sampling | Mitigation | Remediation

Barr has worked with industry representatives to develop and implement sampling and analytical techniques for PFAS for all matrices (solids, liquids, air) since the early 2000s. We are currently working with our clients to develop appropriate remedial strategies to remove PFAS from drinking water and industrial discharges. For the past 15 years, Barr has helped clients assess the fate and transport of PFAS; sample and characterize wastes; identify and reduce sources; and evaluate, permit, and design PFAS treatment and disposal options.

Phase I | Phase II | Baseline Environmental Assessments

Barr has completed hundreds of Phase Is in Michigan ranging from single-parcel commercial facilities to large corridor tracts and multi-parcel industrial areas, in accordance with USEPA All Appropriate Inquiry, ASTM-1527-13, and the forestland or rural standard ASTM E2247-16, where appropriate. Additionally, Barr has performed numerous Phase II site assessments and subsurface investigations exploring the findings and recognized environmental conditions encountered in the Phase Is. We have also assisted clients in owner and operator continuing obligations including submitting baseline environmental assessments and developing due care plans and documentation of due care compliance.

Remediation Systems Design | Construction Oversight | O&M | Decommissioning

Remediation isn't a one-size-fits-all endeavor. A successful remedial design considers site-specific features, available technology, risk-management goals, and regulatory requirements. Whether it's an innovative or tried-and-true approach, Barr designs systems that fit each site and meet site-specific needs. Our remedial designs focus on cost-effective ways to meet remedial goals of your site. Barr's implementation teams are often involved early in the design process, allowing for continuity and effective implementation of the design solutions. We've designed award-winning remediation systems at sites with significant challenges, such as dense urban neighborhoods, protected waterways, and operating facilities.

We can use combinations of technologies to address multiple forms of contamination or conduct feasibility studies to identify an approach that provides the best remediation outcome for your project. We then develop the details of a remedial design based on those findings. Our post-design abilities go beyond simple construction documentation. We can provide multiple levels of implementation support—from construction observation to construction management. We'll make sure the remedy is installed and operating appropriately.

Specialty Sub-Surface | Utility Inspection | Sewer Camera | Cleaning

Barr routinely completes work at legacy industrial sites where the last utility drawings were updated before the advent of Xerox. We work with specialty subcontractors to locate, trace, and scope subsurface utilities and other sub-surface structures. Barr has provided oversight of a variety of nonintrusive methods like GPR and EM surveys to identify utilities. In addition, we have also found it helpful to evaluate sub-surface features using a vacuum truck equipped with compressed air (i.e., air knife) or high-pressure water (i.e., hydrovac) for some sites. Barr has also worked with sub-contractors to evaluate the condition of underground utilities using closed-circuit video; clean utilities using jetting or rinsing; and make repairs using slip-lining.

Underground | Aboveground Storage Tank (UST/AST) Removal | Demolition | Soil Excavation | Closure

Barr has assisted a wide variety of clients with UST and AST projects, from evaluating surprise orphan tanks to conducting site assessment and closure for a tank farm, and we can provide a suite of assessment and remediation services under Part 213. Our role in these projects typically involves assisting the client with project coordination, providing contractor oversight during the removal, conducting environmental assessment and documentation activities, regulatory reporting, and material management assistance. If contamination is encountered, Barr can provide site investigation and remediation support, including the development of conceptual site models and risk-based corrective action.

Vapor Intrusion Assessments | Risk Mitigation | Design | Installation | O&M Services

Barr has worked on vapor intrusion projects since it became a pathway of concern in the mid-to-late 1990s. To evaluate the potential for vapor intrusion, Barr evaluates site conditions and available data to recommend appropriate sampling and analytical methods when more information is needed. We can help define the extent of soil and groundwater source contamination and offer a full range of vapor intrusion sampling services (including soil gas, sub-slab vapor, indoor air, and outdoor air) to better understand potential vapor intrusion pathways and occupant exposure. Barr's data quality experts perform QA/QC reviews of analytical data to verify the data and methodologies are appropriate and accurate. .

Our multidisciplinary teams of engineers and scientists enable us to understand the physical, chemical, and biological processes at a site and identify the best options for mitigation or remediation. Barr recommends and designs mitigation systems to prevent vapors from entering buildings—often cost-effective sub-slab depressurization systems but also passive barriers and venting, building pressurization, indoor air treatment, HVAC adjustments, and building floor and foundation sealing.

For specific examples of our work in each of these service areas, please see page 32.

Personnel

A table of all personnel by classification that could be employed in a project under the contract is located in **Attachment A**. Below, we list key personnel, as defined in the "Guidelines for Position Classification," who would be essential for the successful completion of a project and authorized to make decisions affecting work at the sites under contract. Their resumes are included in **Attachment B.** In addition, we provide resumes for additional personnel we believe will play a significant role in projects under the contract in **Attachment C.** These additional significant personnel are also included on our organizational chart on page 13.

Key personnel biographies

Classification: Level 4 (P4)

Years of experience: 21

Tom Boom, PE | Vice President, Senior Environmental Engineer

Ann Arbor, Michigan | Direct employee of Barr

Roles and responsibilities: Tom specializes in managing complex projects related to contaminated sites, including those that fall within the regulatory framework of Michigan's Part 201, Part 213, and Part 115 rules. A trusted advisor to clients, Tom provides risk management, site assessment, feasibility studies, remedial design, permitting, construction oversight, and monitoring, all while engaging multiple stakeholders. He has served as principal in charge, project manager, and technical lead for a variety of projects that involve due diligence reviews, groundwater and sediment transport modeling, hydrodynamic and hydraulic modeling, geotechnical modeling, habitat and wetland restoration, and structural monitoring.

Classification: Level 4 (P4)

Years of experience: 34

Chris Miron, PE | Vice President, Senior Chemical Engineer

Grand Rapids, Michigan | Direct employee of Barr

Roles and responsibilities: Chris works on projects involving engineering design and the implementation of environmental remediation, brownfield redevelopment, decommissioning and demolition, and water treatment. He performs, coordinates, and is responsible for quality assurance and quality control for engineering design activities. In addition, he leads project teams in managing and administering the construction, operation, and maintenance of treatment systems. His experience also includes working with clients to implement the requirements of mining permits under Michigan's Part 632 program and related air- and surface-water-discharge permits.

Classification: Level 4 (P4)

Years of experience: 27

Jamie Edelyn, PE | Senior Environmental Engineer
Grand Rapids, Michigan | Direct employee of Barr

Roles and responsibilities: Jamie frequently performs the engineering aspects of environmental projects and coordinates those tasks with other team members. This typically involves developing design plans and specifications, coordination and contracting with implementing contractors, leading project kick-off and progress meetings, and direction of work activities including office support for field personal performing oversight. Jamie works primarily in the design, testing, evaluation and construction of soil and groundwater treatment systems. He has also been involved with restoration activities following soil excavation activities, including wetland restoration activities.

Jamie has been involved with the design of a hydraulic barrier system, sealed storm sewer systems, groundwater extraction and interceptor trench system, treatment system operation and maintenance, transmission and discharge piping, and discharge/outfall devices. He has also been involved with field oversight of construction activities, including management and certification of construction.

Classification: Level 3 (P3)

Years of experience: 11

Michael Ellis, PE | Senior Environmental Engineer
Ann Arbor, Michigan | Direct employee of Barr

Roles and responsibilities: Mike works on complex environmental remediation projects involving multidisciplinary teams. His work focuses on evaluating remediation options by conducting feasibility studies and coordinating stakeholder collaboration; developing remedial action work plans; permitting; and designing and implementing remedial actions. He manages multidisciplinary project teams, works with regulatory agencies on timely permit approvals, provides hands-on construction management, and collaborates with contractors to facilitate successful project implementation.

Classification: Level 4 (P4)

Years of experience: 28

Christene Jones | Senior Environmental Scientist
Ann Arbor, Michigan | Direct employee of Barr

Roles and responsibilities: Christene focuses on helping clients develop strategies to reach long-term goals, implementing these approaches, and facilitating negotiations to obtain consensus with regulatory agencies and other stakeholders. Christene's project work has included historical research, preparation of site-specific sampling plans, site assessment and investigation, and remediation planning and execution, primarily for sites in Michigan. She served on the Michigan Department of Environmental Quality's Part 201 Discussion Group (complexity subgroup, 2006–2007), facilitated the Effective Solubility work group (in 2008–2009), and served on Technical Advisory Group 2 to the Criteria Stakeholder Advisory group (2014). More recently, Christene participated in PFAS work group and industry meetings and provided guidance to Barr teams on Michigan PFAS regulations.

Classification: Level 3 (P3)

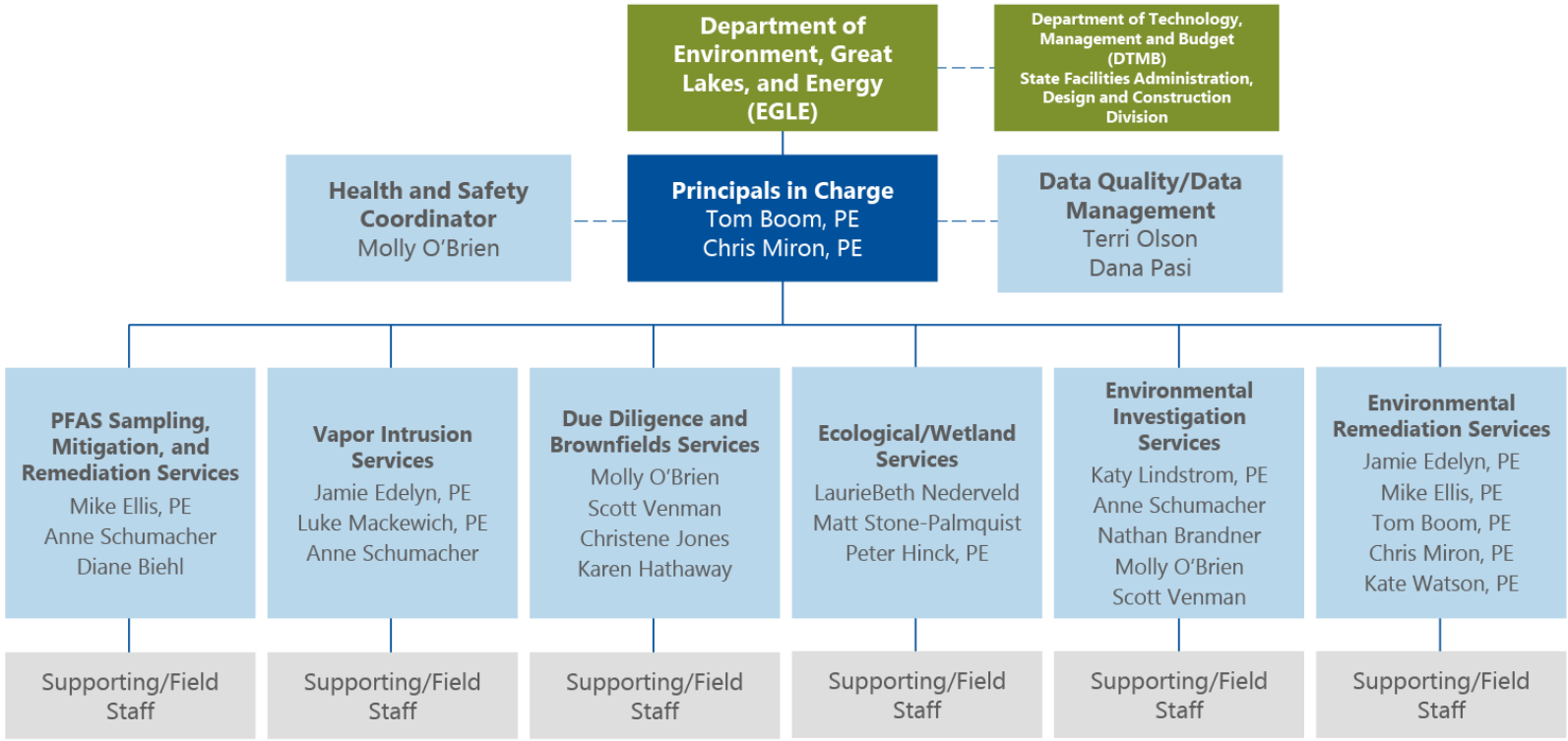
Years of experience: 12

Scott Venman | Senior Environmental Engineer
Ann Arbor, Michigan | Direct employee of Barr

Roles and responsibilities: Scott provides creative solutions to complex due diligence, environmental health and safety, and multimedia compliance and permitting services. His work to manage projects for a variety of clients includes planning, implementation, statistical data analysis, data interpretation, and reporting. He manages projects to achieve goals within schedule and budgetary constraints. Scott has investigative experience in a variety of media, such as groundwater, soil, sediment, soil gas, and indoor air. He has also performed permitting and reporting for a variety of state and federal programs. His varied skillset and experience provide him with an unusually broad perspective of compliance factors in evaluating client facilities and processes.

Detailed resumes for Barr's personnel are located in **Attachments B and C.**

Organizational chart



Questionnaire

Department of Technology, Management and Budget
2023 Indefinite-Scope Indefinite-Delivery – Request for Qualifications
Professional Environmental Consulting Services Questionnaire
Various Locations, Michigan

INSTRUCTIONS: Firms shall complete the following information in the form provided. A separate sheet may be used if additional space is needed; please key the continuation paragraphs to the questionnaire. Answer questions completely and concisely to streamline the review process. If you provide information in this questionnaire that is relevant to any other parts of the proposal, please reference the article numbers to avoid repetition.

ARTICLE 1: BUSINESS ORGANIZATION

1. Full Name: Barr Engineering Co.
   Address: 4300 MarketPointe Drive, Suite 200, Minneapolis, MN 55435
   Telephone and Fax: Phone: 734-922-4400 Fax: 734-922-4401
   Website: barr.com E-Mail: askbarr@barr.com
   SIGMA Vendor ID: VS0109084

   If applicable, state the branch office(s), partnering organization or other subordinate element(s) that will perform, or assist in performing, the work:
   The work will primarily be performed out of Barr's Ann Arbor (3005 Boardwalk Street, Suite 100, Ann Arbor, MI, 48108) and Grand Rapids (3033 Orchard Vista Drive SE, Suite 200, Grand Rapids, MI, 49546), Michigan, offices.

   If awarded a contract and / or subsequent assignment(s), state the specific SIGMA business address which you would like associated for all communication (Contracts, Contract Order, Contract Modifications and Payments)?
   3005 Boardwalk Street, Suite 100, Ann Arbor, MI, 48108

   Please list all person(s) authorized to receive and sign a resulting contract and / or subsequent assignment(s). Please include persons name, title, address, email and phone number.
   - **Tom Boom**, Vice President; 3005 Boardwalk Street, Suite 100, Ann Arbor, MI, 48108; tboom@barr.com; 616-970-6070
   - **Chris Miron**, Vice President; 3033 Orchard Vista Drive SE, Suite 200, Grand Rapids, MI, 49546; cmiron@barr.com; 616-293-2579

2. Check the appropriate status:

   ☐ Individual firm ☐ Association ☐ Partnership ☒ Corporation, or ☐ Combination –

Explain: N/A

If you operate as a corporation, include the state in which you are incorporated and the date of incorporation: Minnesota; May 26, 1966

Include a brief history of the Professional's firm: Please see page 3 of Barr's proposal, under the "General information and project team" heading.

3. Provide an organization chart depicting key personnel and their roles for a typical assigned project. Include generic supporting staff positions. Please see page 13.

4. Has there been a recent change in organizational structure (e.g., management team) or control (e.g. merger or acquisition) of your company? If the answer is yes: (a) explain why the change occurred and (b) how this change affected your company.

   Yes. In the past 12 months, Barr announced the transition of the role of Chief Operating Officer (COO) on its management team from Greg Keil to Nick Nelson. Greg Keil, who held the role of COO for 21 years, has been with Barr for 36 years and is transitioning to retirement. Nick Nelson has been with Barr for 12 years and formally assumed the role in January 2023. The COO is responsible for advising and supporting the chief executive officer (CEO), along with the management team, in executing the company's strategic plans and accomplishing our organizational objectives. The COO leads administrative staff members and ad- hoc team members responsible for the internal systems, day-to-day operations, and infrastructure that support Barr's business.We expect no other changes to the company structure.

5. Provide a four year rate schedule per position. Please see page 52.

ARTICLE 2: PROJECT TYPES AND SERVICES OFFERED

Identify the project types and professional services for which your firm is exceptionally qualified and experienced. Contractor should have the capability to form potential teams with adequate experience in environmental investigation and remediation services. Provide attachments illustrating a minimum of three examples, with references, of successful projects performed in the last five years for each item checked. Identification of specialties will assist the State project directors/managers in matching firms with projects.
Please see page 33 for examples of our work involving the project types and professional services selected below. References are located on page 26.

☐ Asbestos / Lead / Mold / Biohazard / Free Product / Regulated Waste Survey / Abatement

☒ Brownfield Development

☒ Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration

☒ Environmental Investigation / Characterization / Pilot Tests / Feasibility Study

☒ Environmental/ Roto Sonic Drilling / Well Abandonment

☒ Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field

Screening

☒ Landfill Maintenance / Monitoring

☐ Nuclear Waste Management / Disposal / Remediation

☒ Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation

☒ Phase I / Phase II / Baseline Environmental Assessments

☒ Remediation Systems Design / Construction Oversight / O&M / Decommissioning

☒ Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning

☒ Underground / Aboveground Storage Tank (UST/AST) Removal / Demolition / Soil Excavation / Closure

☒ Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O&M Services

ARTICLE 3: PROJECT LOCATION

Identify the regions where your firm can most efficiently provide services. Assignments may vary from the regions checked, depending on the specialties and services required.

☐ Western Upper Peninsula (west of Marquette)

☐ Eastern Upper Peninsula (east of Marquette)

☐ Northern Lower Peninsula (north of Grayling)

☒ Saginaw Bay area (east of 127, north of I-69 and M 57, south of Grayling)

☒ Western Lower Peninsula (west of 127, north of Muskegon, south of Grayling)

☒ Central Lower Peninsula (east of Battle Creek, west of Chelsea, south of M 46 and M 57)

☒ Southwestern Lower Peninsula (west of Battle Creek, south of Muskegon)

☒ Southeastern Lower Peninsula (east of Chelsea, south of I-69)

ARTICLE 4: CONTRACT UNDERSTANDING

The following items should be addressed on the assumption that your firm is awarded an Indefinite-Scope, Indefinite-Delivery contract. (See attached sample contract).

4.1 Is it understood that your firm is required to respond to small projects (less than $25,000) as well as larger projects?

Yes ☒ No ☐

4.2 Is it understood that there is no guarantee of any work under this contract?

Yes ☒ No ☐

4.3 Is it understood that your firm will be required to execute the attached standard State of Michigan contract language for professional services?

Yes ☒ No ☐

4.4 Is it clearly understood that professional liability insurance is required at the time of execution of the ISID contract? (See Article 5 of the attached Sample Contract.)

Yes ☒ No ☐

4.5 Is it understood that your firm must comply with State of Michigan law as it applies to your services?

Yes ☒ No ☐

4.6 Does your firm have prior experience working with the State of Michigan?

Yes ☒ No ☐

If yes, explain: Barr has worked directly for the State of Michigan under the PM/Technical leadership contract with the Michigan Deparment of Envrionmental Quality (MDEQ). We've also have extensive experience working with the State of Michigan on multiple projects as further described in the project examples located in Section 5.

ARTICLE 5: CAPACITY AND QUALITY

5.1 Briefly describe your firm's methods and procedures for quality control for your deliverables and services.

Barr's corporate structure and philosophy are consistent with many of the principles that have emerged from the quality movement. Self-managed teams, investments in training and education, a flat organizational structure, and employee trust have always been part of how we've done business for more than 50 years. These features allow us to meet client needs flexibly and dependably. Because our business philosophy emphasizes "doing whatever it takes" to meet our commitments to clients, our quality management program places more emphasis on achievement of the end result than on instructions for performing specific activities. Flexibility in our procedures is important because the details of how we deliver our services to our major clients may differ significantly. Our quality assurance program, therefore, includes a mixture of ongoing project oversight, quantitative and qualitative measures, and supporting activities that enhance our ability to consistently meet technical, cost, and scheduling requirements.

Barr has developed a prototype quality management plan (QMP) that has been used since 1996 to develop project-specific quality management plans for clients that request them. Barr's QMPs are based on the ISO 9001 international standard for quality systems. QMPs are prepared for specific contracts or projects based on a standard format and prototype that reflect company-wide quality systems and are tailored to the specific needs of the project work. Each plan provides a documented standard for project quality and a mechanism for evaluating it. Included in the QMP

are steps for planning, review, verification, and validation of performance on individual projects, as well as periodic evaluation of the overall quality system. The project quality system includes both routine inspection and checks of data and design, as well as project quality reviews at regular pre-determined intervals.

5.2 Has your firm been involved in claims or suits associated with professional services errors and / or omissions?

Yes ☒ No ☐

If yes, explain:
The following summarizes Barr's history of lawsuits associated with professional services errors and/or omissions for the last ten years (2013 to present):

- ***Closed Matter (circa 2013).*** Barr provided wind turbine foundation design to contractor as part of contractor's design-build contract with a developer of a wind farm. Following bankruptcy of the development entity, new ownership acquired the wind farm and undertook modifications of turbine foundations on advice of a third party. The new owner filed suit in New York and Texas state courts naming the contractor and Barr, alleging construction defects and warranty remedies were not provided. Barr asserted that there were no design defects and the issue was between contractor and owner. Owner subsequently dropped suits.
- ***Closed matter (circa 2015).*** The public owner of a hydroelectric dam hired Barr to design the refurbishment of two sluice gates that control water passage through the bottom of the dam. The owner hired a contractor to perform the gate refurbishment work. The owner hired the contractor to also perform other concrete remediation work in the vicinity of the gates without Barr involvement. The contractor changed the geometry of the concrete surrounding the gates without Barr knowledge or approval causing gate seals to contact concrete. The owner filed suit against Barr and the contractor in Minnesota State Court (Dakota County) claiming that a design flaw results in leaking gate seals and associated damages. Barr disputed the allegations. Matter has since been settled. Settlement is subject to confidentiality agreement.
- ***Closed matter (circa 2017).*** In 2002, Barr designed a single wind-turbine foundation for a turbine manufacturer that also acted as general contractor for a single turbine installation in Canada. The original project owner subsequently sold the project to a new owner. In 2016, the project owner at the time suddenly discovered that the tower was leaning and that it appeared to be loose in its concrete foundation. Barr was retained to design a repair, contracted to do so, and was paid. The turbine was placed back in service. The project owner sued the turbine manufacturer and its subcontractors that built the project and Barr in Canadian court, alleging issues with concrete quality and placement. Barr denies liability on grounds that it was not retained for and had no role in construction phase and that issues are related to improper maintenance over 14 years of operation. Plaintiff dismissed Barr from the suit with no contribution from Barr.

5.3 Will there be a key person who is assigned to a project for its duration?

Yes ☒ No ☐

5.4 Please present your understanding of the relationship between your firm, the DTMB Design and Construction Division, and the State Agency for whom a project will be completed.

Our understanding is that Barr will contract the work through the DTMB Design and Construction Division and provide primary environmental investigation/assessment/design/construction oversight services for the Department of Environment, Great Lakes, and Energy (EGLE) assigned projects as authorized by DTMB DCD.

We understand that Barr will be required to provide professional environmental services, technical staff, and support personnel for the indefinite scope, indefinite delivery projects on an as-needed basis for various state agencies.

5.5 Describe your approach if a bidder proposes a substitution of a specified material during bidding.

If a bidder requests a substitution during bidding, we would generally request that they provide costs for the base bid item, including a request, reason, and cost for the substitution. This allows for a base bid comparison of all bidders, but also allows contractors to propose creative alternatives as a cost savings or for procurement reasons based on their knowledge and experience. We would then communicate the proposed change to the client along with a recommendation for allowing or omitting the substitution, depending on if it met the intent of the project specifications or not.

5.6 Describe your approach if a contractor proposes a substitution of a specified material or detail with shop drawing submittals or in construction.

Specifications include a submittal requirement for proposed materials or detail to confirm that proposed construction conforms to the design concept and are in compliance with the drawings and specification. Items requiring submittal would be submitted on a standard “submittal form” and would need to include the information requested (i.e., drawings, certificaitons, results, etc.) for review by the design engineer. Based on the review, the submittal would be returned marked either 1 – Furnish as submitted, 2 – Furnish as corrected, 3 – Revise and resubmit, 4 – Rejected, or 5 – Submit specified item.

5.7 How will your firm provide consistent and continuous communication pertaining to project activities and project status to the State of Michigan during the progress of projects?

Every project has its share of normal changes; no project goes entirely as planned. Good communication between the project team and our client’s staff allows for good decision-making regarding changes. As our work with you transitions from project to project, we will continue to work with your staff to refine the preferred means of communicating and frequency of communication desired as established by previously developed client service plans. Another major help in problem solving is agreeing on the “rules of the road” for specific project changes regarding scope, schedule, and budget. We set this up at a kick-off meeting for each project. In addition, secure project management websites have become a standard, inexpensive communications tool for complex projects.

5.8 Does your company have an FTP or similar site for quick posting and distribution of information, drawings, field inspection reports, and other communications?
Yes ☒ No ☐

5.9 Describe your method of estimating construction costs and demonstrate the validity of that method.

Costs are based on anticipated unit quantities and anticipated activities. Unit costs are based on RS Means Data (current edition), literature, vendor and contractor quotes, and Barr's experience on similar projects.

5.10 Describe your approach to minimizing construction cost over-runs.

Construction over-runs will be minimized through the development of well defined scopes of work, use of project planning tools (i.e., Gantt charts) to track a project's shedule, and field oversight and frequent meetings, as appropriate, to maintain communications between stakeholders and prevent unexpected changes.

5.11 What percentage of the construction cost should be devoted to construction administration (office and field)?

This is largely dependent on the scope and complexity of the project, can genearlly be assumed to be 15– 20% for construction oversight and 5–15% for administration/office support.

5.12 What portion of the assigned work will be performed with your staff and what portion will be provided by sub-consultants?

We anticipate 100% of the engineering and consulting work will be performed by Barr staff. If needed, other related services, such as surveying, drilling, analytical testing, ground penetrating radar, etc., would be performed by others as Barr does not have these capabilities..

5.13 On a typical project, what would be your response time, from the time receive a project assignment to starting investigation and design work? A typical project might be one involving several disciplines and in the neighborhood of a $25,000 fee.)

We estimate this typical response time would be approximately 3 weeks. At Barr, we pride ourselves in providing a customized solution to clients that often involves a customized schedule, including rush or short turnaround responses to emergency requests. For a typical project, Barr anticipates mobilizing for investigation-type work in roughly three weeks after assignment. However, desktop review/investigation often begins within days of the assignment.

5.14 How do you assess whether a construction bidder is responsive and responsible?

A bid form will be used to obtain contractor bids and will require a signature by a person authorized to bind the proposer/corporation. In addition, a bid evaluation form will be used to confirm the the construction bidder has provided all the requested information.

5.15 Describe your experience with similar ISID contracts.

Barr has long-term experience working with numerous state and federal agencies on a variety of contracts involving environmental work, similar to this ISID contract. Our work has included projects with numerous state agencies in Minnesota, including a Remediation Master Contract for the Minnesota Pollution Control Agency's Closed Landfill Program (CLP), which oversees more than 100 closed landfills across Minnesota. Highlights of that work include:

- Directing investigations, groundwater modeling, preliminary design, and environmental permitting at four landfills in MPCA's CLP.
- Working with the CLP to study, plan, permit, design, bid, and reconstruct the Freeway Landfill located adjacent to the Minnesota River in Burnsville, Minnesota. Freeway Landfill and the nearby Freeway Dump are unlined facilities and contain approximately 6 million cubic yards of municipal solid waste and demolition materials. The project involves a complex group of stakeholders, including USEPA, MPCA, Cities of Burnsville and Bloomington, Dakota County, and private landowners. Barr has completed site investigations, groundwater modeling, and a feasibility study of closure alternatives. We also assist with permitting, stakeholder coordination, public relations, and finalizing the design for MPCA's selected on-site option. Additionally, Barr and the MCPA are planning to concurrently bid a second offsite alternate that would involve removing the waste from the site to existing landfills. The results from bidding the two alternatives will be presented to the Minnesota Legislature for stakeholder balancing, selection, and funding.
- Assisting with a statewide evaluation in Minnesota to assess the feasibility and ranking for potential solar power development at more than 100 closed landfills in the MPCA CLP.
- Directing a statewide study of existing public data from the Minnesota Pollution Control Agency to assess the range of emerging contaminants at more than 230 landfills (e.g., PFAS, 1.4-dioxane, etc.). The goal of the study is to better understand groundwater migration risks and to inform future landfill management decisions at landfill sites.

In additon, for more than five decades, Barr has worked with the U.S. Army Corps of Engineers (USACE) and the U.S. Fish and Wildlife Service (USFWS) as well as regional and local governments, and industrial clients on projects in the Upper Mississippi River and in the Great Lakes and Ohio River basins. Most recently, our federal IDIQ contracts include the following:

- Barr currently holds a multi-year, multi-region IDIQ through USFWS Region 3 awarded in 2018 and has to date been awarded eight task orders totaling more than $1.7M.
- Barr is the managing partner of the Barr-Bergmann Joint Venture (JV) that holds a multi-year, multi-discipline IDIQ contract with the Detroit District USACE awarded in 2021.
- Barr is a sub-consultant to Prairie-Hanson JV for a Chicago District USACE IDIQ, and has been awarded two task orders totaling more than $200,000.
- Barr was previously a JV partner for the Great Lakes and Rivers Solutions HNTB-Barr-Gerwick JV, which held a multi-year, multi-discipline IDIQ contract with the Detroit District USACE from 2015–2019, completing seven task orders totaling more than $1.4M under our IDIQ contract from 2015–2020.
- From 1999-2015, Barr held two USFWS IDIQ contracts, two Detroit District USACE IDIQ contracts, and a St. Paul District IDIQ Contract.

5.16 Describe your approach to a construction contractor's request for additional compensation for a change in the project scope.

We maintain open lines of communication with contractors to reduce the chance of surprises, such as compensation change orders. If one is requested, we would already be aware that it was going to be proposed and would have communicated with the client about it in advance. Order additions, deletions, or revisions in the work will be authorized by a Field Order or Change Order, and will be executed by both the contractor and the engineer, communicated with DTMB, and ultimately approved or disapproved by DTMB.

5.17 Is a sample of field activity logs detailing a 1-week period (from one of the three (3) prior experience sites) and a weekly report provided?

☒Yes ☐No Please see **Attachment D**, which includes field logs anonymized from one of the referenced prior experience sites. These logs were customized for implementation of sediment remediation at a former manufactured gas plant (information that has been changed is *italicized*), and field logs can be customized for any site.

ARTICLE 6: PERSONNEL STAFFING

6.1 Is an organizational chart that includes each person on your project team and their identified roles for a typical assigned project provided?

☒Yes ☐ No Please see page 13.

6.2 Please fill out the following information regarding the personnel your firm considers key to the successful completion of the study or project scope of work:

Key Personnel 1

Name: Thomas Boom, PE

Job Title: Vice President, Senior Environmental Engineer

Labor Classification: Level 4 (P4)

College Degree(s): BS, Civil and Environmental Engineering, Michigan State University, 2001

Has this individual successfully completed 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training with an up to date 8-hour HAZWOPER refresher training?

☒Yes ☐No

Key Personnel 2

Name: Chris Miron, PE

Job Title: Vice President, Senior Chemical Engineer

Labor Classification: Level 4 (P4)

College Degree(s): BS, Chemical Engineering, Michigan Technological University, 1988

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 3

Name: Jamie Edelyn, PE

Job Title: Senior Environmental Engineer

Labor Classification: Level 4 (P4)

College Degree(s): BS, Environmental Engineering, Michigan Technological University, 1994

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 4

Name: Michael Ellis, PE

Job Title: Senior Environmental Engineer

Labor Classification: Level 3 (P3)

College Degree(s): MS, Environmental Engineering, Michigan State University, 2011; BS, Civil Engineering (Environmental Concentration), Michigan State University, 2010

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 5

Name: Christene Jones

Job Title: Senior Environmental Scientist

Labor Classification: Level 4 (P4)

College Degree(s): BS, Resource Development, Michigan State University, 1993

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 6

Name: Scott Venman

Job Title: Senior Environmental Engineer

Labor Classification: Level 3 (P3)

College Degree(s): BSE, Chemical Engineering, University of Michigan, 2010

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

6.3 Does the Professional Project Manager (PM) have at least three years' experience as a PM? ☒Yes ☐No

6.4 Does the Professional PM have a minimum of 10 years' experience with similar projects?
☒Yes ☐No

6.5 Are the resumes for the key personnel provided?
☒Yes ☐No Please see **Attachment B**.

ARTICLE 7: SPECIAL FACTORS

Include a brief description of your firm's special qualifications such as awards, recognitions, innovations, etc. that would pertain to this RFP. (As examples: any awards or recognition received by the firm or individuals for similar work, special approaches or concepts developed by the firm appropriate to this project, financial capacity, etc. Respondents may say anything they wish in support of their qualifications).

We believe that Barr is well qualified to support the State of Michigan for the following reasons:

Our collaborative consulting model results in excellent client service. An important element of our client service program is our Client Account Relationship Evaluation (CARE) interviews. Feedback obtained during the CARE interviews is crucial to our continuous improvement, and the information received is shared with our project team for immediate action. Barr also regularly captures qualitative client feedback and testimonials. Here are a few representative statements of appreciation from our clients.

- "Usually, I rewrite the entire report we get from consultants. I only had a few comments and would normally have a lot on reports like this. Much better than the usual we get from consultants." — Comments from an industrial client on a report prepared by Barr
- "GREAT WORK, by the way, by you and your team. This really benefits our client because you bring credibility to the table. Feel free to use us as a reference if you end up proposing work of this nature in the future!" – Comments from a nationally known attorney on a confidential Barr project
- "Barr is a top-tier consultant and can provide a very high quality of work product. We go with Barr even when we don't need the highest quality because Barr is able to right size your level of effort based on project needs." – Industrial client for whom we work on multiple long-term environmental projects
- One client in the mining industry observed that our safety program is "top-notch" and asked "How can I get my other consultants to do the same thing?"

Our creative approaches and use of cutting-edge technology results in efficiency and cost savings.

- Our use of 3D geological and environmental impacts modeling software informs remedial investigations, supports feasibility studies, and supports communications with stakeholders.
- Barr has developed a core team of data experts to manage environmental data in a highly-customizable database allowing for accurate retention and dissemination of data in a multitude of formats and compared to applicable screening levels, criteria, or a variety of other comparisons.
- We have a team of chemists and analytical experts that have long-term experience in analytical testing, reporting, and quality control who review analytical reports, as appropriate, to understand potential concerns with the way analytical methods are chosen or completed and how reported data may need to be qualified. This team often works directly with the analytical laboratory to resolve concerns with the data.
- Barr's experience in conducting community-wide vapor intrusion screening, sampling, and mitigation has allowed us to develop innovative techniques to work with homeowners and other property stakeholders to minize intrusive sampling and contact with property owners while collecting the necessary data to inform project needs.
- Our long-term experience working with risk-based corrective action has provided a wealth of experience to creatively approach human health and ecological risks at sites to achieve cost effective solutions while remaining protective of future property users.

Broad participation at industry groups and conferences and with the EGLE means we're at the forefront of advancements in our professions.

- Our staff members have presented "Groundwater Modeling for Non-Modelers" as part of the EGLE's Remediation and Risk Management webinar series in 2022 and will again in 2023.
- Barr staff members have repeatedly served as EGLE trainers, including providing Groundwater Modeling Technical and Program Support Team training in 2014 and planned groundwater modeling training for 2023.
- Our staff members have presented at the Michigan Section of the American Institute of Professional Geologist's (AIPG's) annual environmental risk management workshops each year since 2013.
- Barr staff members have presented at numerous EGLE conference including the PFAS Summit, the Michigan Environmental Compliance Conference, and previous remediation conferences.
- Our staff members are members of the Interstate Technology Regulatory Council (ITRC) Sediment Capping team and Microplastics teams.
- A Barr employee is on the ASTM Phase 1 committee, meaning that Barr is in front of changes to the standard.

Lower turnover rate and deep bench means we have experienced staff available to complete projects efficiently.

- Barr has had exceptional staff retention, lower than the industry average, through the "Great Resignation." Because Barr's turnover rate is about four times lower than the industry average, we can offer our clients project teams that will start the project and finish it—providing stability, continuity, and the benefits of accrued knowledge.
- In addition to the staff in our Michigan offices, Barr has a deep bench of environmental experts located in our other offices available to the State of Michigan when needed.

- We have 117 Michigan-licensed professional engineers company-wide.
- Our key staff members included in this proposal have been working under Part 201 (and before that Act 307) for the majority of their careers.

Excellent safety record demonstrates that our employees are trained, prepared, equipped, and supported to meet and exceed our clients' health and safety objectives.

- Barr achieved zero OSHA-recordable injuries in 2022.
- Our safety record has been recognized multiple times for its safety excellence by the Minnesota Safety Council, the North Dakota Safety Council, and the Utah Safety Council.
- The following table includes our safety statistics for the past three years.

Year	Average number of employees	Exposure or employee hours*	Number of recordable cases	Incident rate of recordable cases	Number of lost workday cases	Incidence rate of lost workday cases	Number of lost workdays	Lost workday rate	EMR	Number of fatalities
2021	880	1,519,245	0	0.00	0	0	0	0.00	0.70	0
2020	852	1,469,185	1	0.14	0	0.00	0	0.00	0.72	0
2019	847	1,512,015	2	0.26	0	0	0	0	0.66	0

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of **at least three (3) projects in the last five years closely related to each of the project types** and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Our reference information is located below, please see page 33 for full descriptions of our work experience examples. Many of our projects encompass several of the project types and professional services requested in the RFP.

Project 1 Reference Information

Project Name: Investigation, feasibility study, remedial design, and implementation oversight at former a MGP site

Project Address: Confidential

Key Personnel: Tom Boom, Mike Ellis, Katy Lindstrom, Luke Mackewich, Terri Olson, Molly O'Brien, Peter Hinck, Chris Jones, Scott Venman, and Laurie Beth Nederveld

Project City / State / Zip: Flint, MI

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 34

Project 2 Reference Information

Project Name: PFAS treatment during power plant decomissioning

Project Address: Confidential

Key Personnel: Mike Ellis, Tom Boom

Project City / State / Zip: Confidential

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 36

Project 3 Reference Information

Project Name: Remedial action plan for a landfill

Project Address: 3200 Chamberlain Road

Key Personnel: Jamie Edelyn, Christene Jones

Project City / State / Zip: Niles, MI, 49107

Contact Name / Phone Number / Email Address: Tyler Ganus – General Manager; 269-695-2000; tganus@sebclandfill.com

Project Description: See page 37

Project 4 Reference Information

Project Name: Former landfill characterization

Project Address: Available on request

Key Personnel: Scott Venman, Christene Jones, Terri Olson, Diane Biehl, Jamie Edelyn, Katy Lindstrom, Mike Ellis, Jackie Plowman

Project City / State / Zip: Lansing, MI 48906

Contact Name / Phone Number / Email Address: Available on request

Project Description: See page 38

Project 5 Reference Information

Project Name: Environmental services for former manufactured gas plant in Michigan

Project Address: Confidential

Key Personnel: Scott Venman, Tom Boom, Anne Schumacher, Terri Olson

Project City / State / Zip: Confidential

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 39

Project 6 Reference Information

Project Name: Investigation and remediation of jet-fuel release

Project Address: Confidential

Key Personnel: Luke Mackewich, Tom Boom, Scott Venman

Project City / State / Zip: Confidential

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 39

Project 7 Reference Information

Project Name: Remedial action planning at two CCR landfills

Project Address: Confidetial

Key Personnel: Katy Lindstrom, Tom Boom, Anne Schumacher, Chris Miron, Dana Pasi, Mike Elliss, Jamie Edelyn

Project City / State / Zip: Confidential

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 40

Project 8 Reference Information

Project Name: Vapor intrusion pathway (VI) investigation of former MGP site (under MI Part 201)

Project Address: Confidential

Key Personnel: Nathan Brandner, Christene Jones, Chris Miron, Jamie Edelyn, Katy Lindstrom

Project City / State / Zip: Confidential

Contact Name / Phone Number / Email Address: Mike Brennan, Project Manager, Environmental Management and Safety; (734) 560-9271; michael.brennan@dteenergy.com

Project Description: See page 41

Project 9 Reference Information

Project Name: Ongoing environmental services for a public university in Michigan

Project Address: Confidential

Key Personnel: Nathan Brandner, Karen Hathaway, Molly O'Brien

Project City / State / Zip: Confidential

Contact Name / Phone Number / Email Address: Karen Ingle, VP of Facilities Mgt.; (616) 331-3853; inglek@gvsu.edu

Project Description: See page 42

Project 10 Reference Information

Project Name: Environmental assessments, response actions, and PFAS, VOC, and VI investigations for a manufacturing client

Project Address: 210 N. Industrial Park Drive

Key Personnel: Anne Schumacher, Christene Jones, Chris Miron, Jamie Edelyn, Karen Hathaway, Terri Olson, Molly O'Brien

Project City / State / Zip: Hastings, Michigan, 49058

Contact Name / Phone Number / Email Address: Stan St. John, (860) 983-8967, sstjohn@vikingcorp.com

Project Description: See page 42

Project 11 Reference Information

Project Name: Site assessment and brownfield redevelopment support

Project Address: 3300, 3450, and 3590 East Beltline Avenue

Key Personnel: Molly O'Brien, Anne Schumacher, Jamie Edelyn, Karen Hathaway, Lauire Beth Nederveld, Nathan Brandner Alan Braspenninx

Project City / State / Zip: Grand Rapids Township, Kent County, Michigan, 49525

Contact Name / Phone Number / Email Address: Gary Tamminga; 616-826-2201; gary@franklinpartners.net

Project Description: See page 44

Project 12 Reference Information

Project Name: Environmental assessment services for multi-property site

Project Address: Confidential

Key Personnel: Molly O'Brien, Luke Mackewich

Project City / State / Zip: Mackinac County, Michigan

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 45

Project 13 Reference Information

Project Name: Sherman Street Due Diligence environmental assessment

Project Address: 1367 West Sherman Blvd

Key Personnel: Molly O'Brien, Diane Biehl

Project City / State / Zip: Roosevelt Park, Michigan, 49441

Contact Name / Phone Number / Email Address: Jared Olson; 231-755-3721; jolson@rooseveltpark.org

Project Description: See page 45

Project 14 Reference Information

Project Name: South Branch River aquatic organism passage design

Project Address: South Branch River crossing at Rollway Road, Hale, MI

Key Personnel: Peter Hinck, Laurie Beth Nederveld

Project City / State / Zip: Plainfield Township, MI 48739

Contact Name / Phone Number / Email Address: Josh Leisen, (989) 448-2293 ext. 16, josh@huronpines.org

Project Description: See page 46

Project 15 Reference Information

Project Name: Brose stream and wetland mitigation

Project Address: 23400 Bell Road

Key Personnel: Matt Stone-Palmquist

Project City / State / Zip: New Boston, MI, 48164

Contact Name / Phone Number / Email Address: Steve Haws, 734-551-9571, stevehaws@brose.com

Project Description: See page 46

Project 16 Reference Information

Project Name: Ford Marsh Restoration Feasibility Study (Phase I)

Project Address: 3200 E Elm Avenue, Monroe, MI

Key Personnel: Matt Stone-Palmquist, Peter Hinck, Laurie Beth Nederveld

Project City / State / Zip: Monroe, MI 48162

Contact Name / Phone Number / Email Address: Jessie Fletcher, 734-362-3729, jessica_fletcher@fws.gov

Project Description: See page 47

Project 17 Reference Information

Project Name: Site closure, investigation, risk assessment, and remedial action, former leather tannery

Project Address: 900 South Lake Street

Key Personnel: Jamie Edelyn, Karen Hathaway, Chris Miron

Project City / State / Zip: Whitehall, MI, 49461

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 48

Project 18 Reference Information

Project Name: Risk-based remedial actions at McCoy Creek Industrial Park

Project Address: Third Street

Key Personnel: Jamie Edelyn, Karen Hathaway, Chris Miron

Project City / State / Zip: Buchanan, MI, 49107

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 48

Project 19 Reference Information

Project Name: CERCLA removal action, investigation, and remediation

Project Address: Confidential

Key Personnel: Katy Lindstrom

Project City / State / Zip: Confidential

Contact Name / Phone Number / Email Address: Provided on request due to client confidentiality

Project Description: See page 49

References

Examples of Barr's experience with the project types and services requested in the RFP are presented in the matrix on the following page. This experience matrix demonstrates we are well versed in the work and skills needed for projects that might fall under this contract for the State of Michigan. Summaries of the projects follow; reference information is provided in Article 8 of the Questionnaire section.

Project example number and name:	Brownfield Development	Ecological Risk Assessment | Forestry and Land Management | Wetland Mitigation | Streams and Lakes Restoration	Environmental Investigation | Characterization | Pilot Tests | Feasibility Study	Environmental | Roto Sonic Drilling | Well Abandonment	Ground Penetrating Radar (GPR) | Laser-Induced Fluorescence (LIF) Field Screening	Landfill Maintenance |Monitoring	Per-& Polyfluoroalkyl Substances (PFAS) Sampling | Mitigation | Remediation	Phase I | Phase II |Baseline Environmental Assessments	Remediation Systems Design | Construction Oversight | O&M | Decommissioning	Specialty Sub-Surface | Utility Inspection | Sewer Camera | Cleaning	Underground | Aboveground Storage Tank (UST/AST) Removal | Demolition | Soil Excavation | Closure	Vapor Intrusion Assessments |Risk Mitigation | Design | Installation | O&M Services
1. Investigation, feasibility study, remedial design, and implementation oversight at former a MGP site		●	●	●	●				●	●		
2. PFAS treatment during power plant decommissioning			●				●		●			
3. Remedial action plan for a landfill						●	●		●			
4. Characterizing landfill impacts			●	●	●	●						
5. Environmental services for former manufactured gas plant in Michigan			●	●	●					●	●	
6. Investigation and remediation of jet-fuel release			●	●					●	●		●
7. Remedial action planning at two CCR landfills		●	●	●	●	●	●		●			
8. Vapor intrusion pathway (VI) investigation of former MGP site (under MI Part 201)			●	●								●
9. Ongoing environmental services for a public university in Michigan	●		●	●	●			●	●		●	●
10. Environmental assessments, response actions, and PFAS, VOC, and VI investigations for a manufacturing client		●	●	●			●					●
11. Site assessment and brownfield redevelopment support	●		●					●	●		●	
12. Environmental assessment services for multi-property site								●		●		●
13. Sherman Street Due Diligence environmental assessment			●	●				●				
14. South Branch River aquatic organism passage design		●										
15. Brose Stream and Wetland Mitigation		●										
16. Ford Marsh restoration feasibility study (Phase I)		●										
17. Site closure, investigation, risk assessment, and remedial action, former leather tannery	●	●	●	●					●			
18. Risk-based remedial actions at McCoy Creek Industrial Park			●	●					●		●	
19. CERCLA removal action, investigation, and remediation	●		●	●					●	●		

1. Investigation, feasibility study, remedial design, and implementation oversight at former a MGP site

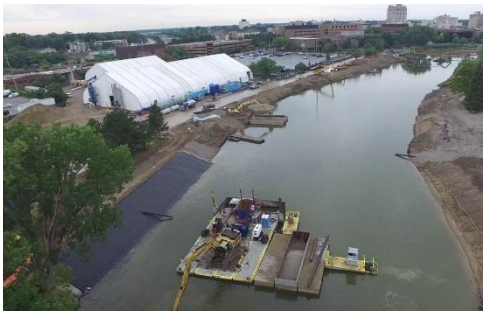
Confidential power client • Michigan

Located in Flint, Michigan, a large former manufactured gas plant (MGP) site, **regulated under Part 201**, covers approximately eight acres and is owned by the client and other public entities. Parking lots, streets, sidewalks, parkland, large utilities, and structures including a pedestrian bridge, a 52-inch sanitary sewer, a river wall, and a dam—scheduled for removal by others—occupy the site.

Barr has been assisting this client since 1998 with **remedial investigation activities, feasibility studies, designs**, permitting, and remedial actions to mitigate risks and address exposure pathways at the site. One major aspect of the project recently completed by Barr was the remediation of river sediments adjacent to the site, which is the focus of this project summary.

Remedial investigations

Barr completed **investigations** in the upland areas and sediment to assess the nature and extent of MGP impacts and to evaluate the potential risk to human health and the environment. We used many investigative techniques to better understand the site, including **roto sonic drilling**, geophysical logging**, laser-induced fluorescence (LIF) screening** using TarGOST, cone penetrometer testing, nonaqueous-phase liquid mobility testing, aquifer testing, and bulk sediment and porewater sampling. Analytical sampling results were incorporated into a site-wide database, and Barr completed quality assurance/quality control (QA/QC) reviews to assess the validity of the analytical results. Barr used the investigation results to develop a 3D conceptual model of geology and MGP impacts as well as refine the groundwater-flow and contaminant-transport models that had previously been developed for the site. Refined modeling results identified impacts in the river sediment and groundwater venting to the river as exposure pathways that needed to be addressed.



Feasibility study

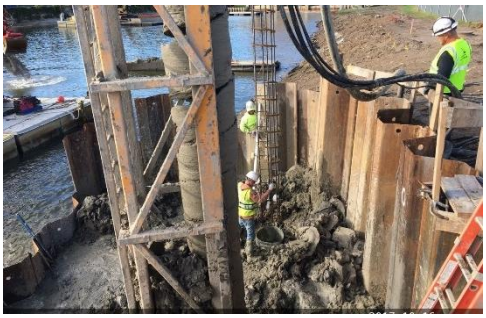
When the conceptual model suggested that MGP residuals could affect the river, Barr completed a **detailed evaluation of potential remedial approaches** for our client. Using the models, Barr evaluated the potential effectiveness of different remedies and estimated potential material quantities and remediation costs. Based on the results of these modeling efforts, including quantitative analysis of uncertainty, a combination of sediment removal (dredging) with a multilayered sediment cap (capping) was the selected remedial option to mitigate current and potential future impacts to the river.

Stakeholder collaboration

The design, permitting, and implementation of the dredging and capping project had a high level of public scrutiny that required Barr, on behalf of our client, to facilitate monthly meetings and collaborate with multiple stakeholders, including federal and state regulatory agencies, the governor's office, the local municipality, and the university that owned portions of the property. Project design and implementation accounted for the multiple structures within the project area and multiple concepts being considered by others for dam removal. These variables required significant

stakeholder coordination and communications and an iterative design approach. The proposed project design impacted a wetland present within the remediation area, so Barr worked with stakeholders to identify the most suitable method for **wetland mitigation**. Ultimately, wetland bank credits were purchased and a bankfull bench was incorporated into the river restoration design to **mitigate wetland impacts** that would occur during construction.

Protecting existing utilities



Multiple **utilities** exist in the project area, and their protection was critical to remedy success. Specifically, careful planning and controlled cap construction near the high-hazard dam and adjoining river wall were required. Barr reviewed previous dredging plans to understand sediment conditions in the vicinity and provided a safe offset and designed a staged dredge and cap approach to maintain stability of the dam and wall, which required that adequate embedment be maintained. An active 52-inch sanitary sewer along the riverbank could have been compromised by the work. Barr coordinated a **closed-circuit television (CCTV) inspection of the sewer** during the investigation phase to evaluate the current condition. We assessed potential ground disturbance impacts and modified the dredge plan in some locations to accommodate the utility and designed a contingency plan for a bypass should unforeseen conditions arise. To protect utilities during construction, Barr coordinated installation of structural monitoring points throughout the project area that were surveyed by an automated total station daily to assess potential movement of critical utilities. The automated total station was set up to automatically communicate results and send alarms to the project team should unacceptable movement be detected. Additionally, existing storm sewer outfalls in the project area were modified to function with the restored riverbank and a section of storm sewer was lined to mitigate groundwater infiltration into the sewer that was observed during investigation activities.

Hydraulic engineering and **river restoration**

Detailed hydraulic modeling of the river was performed to evaluate design flow velocities, sediment transport, and flood levels using Delft3D and HEC-RAS modeling software. The modeling was used to inform the design of the restored channel, including channel geometry, necessary armoring, and vegetation. The restored channel bed is designed to prevent potential downcutting into deeper sediments and to resist lateral movement into adjacent urban development. In spite of these constraints, habitat features were incorporated to improve floodplain connectivity, sediment transport, and habitat with the inclusion of Newberry riffles composed of cobble-sized rock, and bankfull bench with an elevation designed to provide floodplain connectivity for future conditions. Although portions of the riverbank were armored, native vegetation was planted on the upper riverbanks and, following dam removal, the floodplain bench.

Permitting

The **remedial action** required multiple permits, and Barr worked with various federal (USEPA Region 5, USACE), state (Michigan's governor's office, MDEQ, and Michigan Department of Natural Resources), and local agencies (city and county) to obtain the applicable permits for the work. Throughout the design process, Barr conducted update meetings with regulatory agencies and

stakeholders to provide design updates and receive direct feedback that allowed for an efficient permitting approval process. All permits were obtained in a timely manner that allowed work to proceed as planned. Barr also completed required applicable evaluations such as a threatened and endangered species review, a wetland delineation, a waiver to dredge during fish spawning, and air permitting.

Odors and emissions

Odors and emissions were identified as a potential concern given the close proximity of the public to the remedial action. Barr performed air modeling with existing data to evaluate the potential for air emissions and odors during remedial activities. Modeling estimated that emission levels were not a concern, but odor levels could result in complaints. To reduce the potential for odors, Barr specified multiple mitigation measures including a fabric tension structure under negative pressure with air treatment over the sediment dewatering pad. Barr also developed a contingency plan for unexpected emission events. Additionally, Barr created and staffed a complaint hotline during implementation to communicate complaints among applicable stakeholders within minutes of receipt, evaluate site data to assess if the complaint was related to site activities, and determine if operational or monitoring adjustments were necessary.

*Contractor selection and **construction oversight***

When the **remedial design** and permitting were approved by all stakeholders, Barr facilitated contractor procurement by developing specifications, soliciting bids, reviewing bids, and recommending a contractor to the client. During construction, Barr provided **on-site construction quality assurance**.

Sediment removal and capping activities were successfully completed within the projected budget and no stability issues have been identified in subsequent inspections.

2. PFAS treatment during power plant decommissioning

Confidential power client ● **Midwestern United States**

A confidential power client began decommissioning a former power plant in 2019. The decommissioning activities required the dewatering of the facility's basement, but water generated from the process was found to be **impacted with PFAS**. After discovering the PFAS, **the client turned to Barr to characterize the impacts and develop a treatment system** that would allow decommissioning activities to continue.

Because Barr has a large bench of field staff with **PFAS sampling** experience, we were able to quickly mobilize to the site to **collect samples to characterize impacts**. We evaluated the sampling results, including **quality assurance/quality control (QA/QC)** reviews, to assess the potential sources of PFAS as well as treatment methods. During sampling, it was observed that water generated during dewatering had a pH higher than applicable discharge criteria, meaning that the pH would need to be mitigated before discharge. Barr completed an initial **feasibility-level assessment** of treatment methods for PFAS and pH, recommending that PFAS treatment use

granular activated carbon and pH levels be mitigated using aeration. We then worked with a remediation contractor to complete **bench and pilot-scale testing** before providing turnkey design to allow for the timely employment of the treatment system. Barr led the implementation effort for the treatment system and collected samples to verify that the effluent water quality met project objectives.

Barr oversaw the operation of the treatment system during decommissioning activities. This included conducting routine sampling at various points in the treatment system, completing QA/QC reviews of each lab report, and evaluating the sample results to assess the remaining absorptive capacity of media and potential changes to the treatment system operations. Changes to the influent water quality during the project required modifying and supplementing the treatment processes that were initially prescribed, including implementing a carbon dioxide aeration system to mitigate an increase in the pH observed in the influent water. Barr also coordinated and oversaw the implementation of measures for the treatment system to operate through inclement weather and run for approximately 16 months when initial indications were that the system would only be needed for two to three months.

Approximately 26.5 million gallons of PFAS-impacted and high-pH water were treated by the treatment system. Throughout the duration of the project, monitoring results indicated that effluent water quality met the project objectives. Continual treatment of water generated from the dewatering activities allowed the decommissioning process to continue uninterrupted and the project was successfully completed in 2020.

3. Remedial action plan for a landfill

Southeast Berrien County Landfill ● Niles, Michigan

On behalf of a county landfill operator, Barr's Grand Rapids office developed a **remedial action plan (RAP) under Michigan Part 115 and Part 201** to address the presence of volatile organic compounds and metals in off-site monitoring wells in a residential area. The RAP documented the measures to be taken in fulfillment of the landfill's obligations specified in a consent order with the Michigan Department of Environmental Quality (MDEQ).

In developing the RAP, we completed certain elements of the **remedial investigation, risk assessment, and assessment of corrective measures** that the MDEQ did not accept from a previous consultant. We conducted a study to establish site-specific background criteria for metals and an **investigation** to complete the delineation of off-site contaminants in two aquifers underlying the residential area.

The landfill had been attempting to control off-site migration of contaminants in the uppermost aquifer for a number of years using an extensive system of groundwater purge wells located along the landfill property perimeter. However, the MDEQ was not satisfied that the system could achieve sufficient capture due to its design and the landfill's operation and maintenance program.

Barr's staff evaluated the system's ability to achieve capture in a thin aquifer along more than 3,000 feet of perimeter and determined where additional or replacement wells were required. We also determined that groundwater capture was required in a portion of a deeper aquifer. We designed and installed the deep system and the shallow system upgrades and developed a monitoring and operation plan to confirm and document that the systems are achieving complete capture as required under the RAP.

Barr staff worked with the landfill representatives to improve communication with MDEQ staff and the public, including numerous adjacent property owners. We also assisted the landfill in fulfilling the final RAP requirements through negotiations for a combination of individual restrictive covenants and notices of aesthetic impact with adjacent property owners to address the residual off-site contamination. Barr staff also developed an MDEQ-approved monitoring plan for land and resource use restrictions.

Barr now provides **oversight of the landfill's monitoring program** for groundwater and land and resource use restrictions. We have developed a relational database to manage the associated data, including previous data that have been collected over more than 20 years**. We review quarterly and annual monitoring information and data** and provide technical summaries and evaluations for each of the monitoring reports that are submitted by landfill representatives. Most recently, Barr assisted the landfill in responding to detections of high concentrations of methane in the neighboring residential area and completing a study to demonstrate that the landfill was not the source of that methane.

4. Former landfill characterization

City of Lansing ● Lansing, Michigan

In 2018, Barr began assisting the City of Lansing by conducting historical data compilation and review at a **former municipal and solid waste landfill** located in Lansing, Michigan. Barr **compiled decades of investigation** that had been completed at the site under Michigan's **Part 201 program** and developed a scope of work to further **characterize groundwater impacts** at the site. This characterization is made more complicated due to the surrounding sites likely contributing similar contaminants to the plume.

To further characterize site contaminants, Barr assisted the city by advancing **Membrane Interface and Hydraulic Profiling Tooling (MIHPT)** to depths up to 100 feet below ground surface to better define geologic and hydrogeologic factors at the site and to provide data to target **proposed monitoring well locations** and screened intervals for long-term contaminant plume monitoring.

Using the historical and newly collected data, Barr developed a 3D geologic model as part of an overall conceptual site model for the site. Barr is also assisting the city in developing a **feasibility study for potential mitigation or remediation options** to address the contaminate plume and source at the site.

5. Environmental services for former manufactured gas plant in Michigan

Confidential power client ● Michigan

A former MGP in Michigan operated from the early 1900s until the mid-1940s. The property owner currently uses the site as a service center and began investigations for residual MGP impacts at the site in the 1990s.

Source areas were previously identified by other consultants working with the property owner and Barr has continued assessing impacts to characterize the extent and magnitude of potentially remaining source material at the site. This has included Geoprobe borings to evaluate soil impacts and **installing monitoring wells** to monitor the contaminate plume at the site.

Barr has provided ongoing groundwater monitoring assistance at the site including review of historical groundwater results and plume stability evaluations to understand the interaction between potentially remaining source material, the onsite contaminate plume, and offsite groundwater impacts.

Barr has also assisted in evaluating the **vapor intrusion pathway** and developing draft site-specific screening levels for remaining soil and groundwater impacts related to historical operations.

The client would like to reduce uncertainty with long-term liability at the site and Barr has continued the previous consultant's efforts in developing reports for no further action for portions of the facility and is currently evaluating long-term options for site closure and monitoring including discussion and negotiation with state agency personnel.

6. Investigation and remediation of jet-fuel release

Confidential client ● United States

In 2014, jet fuel was identified in an airport's stormwater-sewer pump house, leading to the identification of a release from the airport's hydrant line. Due to Barr's experience successfully investigating and remediating releases for the airline in multiple geographies, we were hired to **immediately mobilize a team** to **identify the extent of impacts and potential exposure risks and guide an investigation and remediation strategy**. Throughout the project, our activities were coordinated with the airport to minimize impact to routine operations.

Preliminary **investigation activities included excavation screening and sampling during hydrant-line inspection** and repairs, reviewing infrastructure details to assess potential contaminant migration pathways, evaluating jet fuel in an airport dewatering sump and infiltrating in a nearby elevator shaft, conducting an indoor-air screening and human health risk assessment, and a **utility inspection of the integrity of adjacent sewers via video camera**. Based on the preliminary findings, a **phased environmental investigation** approach included sump sampling, the installation of soil borings and groundwater monitoring wells to assess the extent of impacts, **a**

soil-vapor-extraction pilot test, and a **vapor-intrusion and indoor-air investigation** upon the completion of response activities.

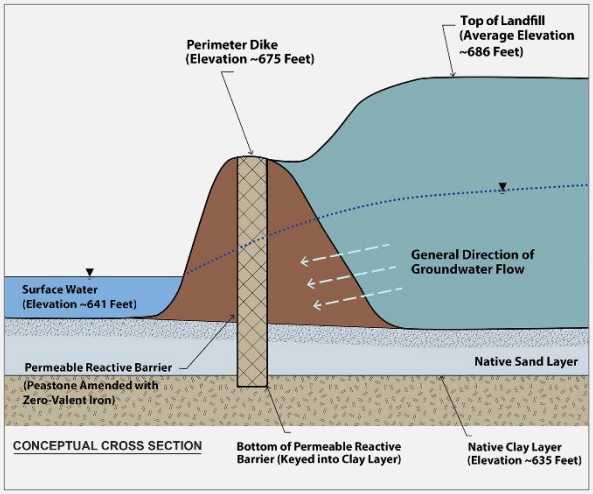
Response actions included installation of horizontal and vertical product recovery wells, pressure grouting and sealing of exterior walls where infiltration was observed, remediation system, design, permitting associated with sump pump modifications and re-routing of discharge from storm to sanitary sewers following treatment, and **construction oversight**.

The site received a certificate of completion of remedial activities from state regulators in 2021. Barr **assisted with monitoring well abandonment** and continues to assist the client with **ongoing operations-and-maintenance activities with the remediation system**.

7. Remedial action planning at two CCR landfills

Confidential energy client ● eastern United States

Barr is assisting an energy client with **remedial action planning** for two CCR landfills constructed decades ago near bodies of water and involving elevated metal concentrations in groundwater. At the first site, a closed, unlined landfill is associated with elevated arsenic in groundwater, creating concern about water quality in the adjacent water body, and an existing pump-and-treat system has not been performing as planned. The second site is conceptually similar. The main differences are that the substance of concern is selenium, which behaves differently than arsenic in groundwater, and the status of the landfill (a portion of which is still operational).



Remedial options assessment

Starting with **options assessments**, Barr has evaluated air sparging, pumping and treating, installing reactive barriers, source removal, low-permeability landfill covers, and constructed treatment wetlands. Based on the options assessments, three remedial options for each landfill were further evaluated in a **detailed feasibility study** prior to selecting a **remedial plan** at each facility.

Detailed feasibility studies

Detailed feasibility studies were completed for both sites using data evaluation, **groundwater flow and contaminant transport modeling**, **geochemical modeling, bench-scale and pilot-scale testing**, and **cost estimating**.

For the first site, existing information was used to evaluate **groundwater extraction and treatment** and **air sparging** as potential remedial options. **Bench-scale and accelerated column testing** was completed to evaluate the treatability potential of zero-valent iron (ZVI), including the anticipated lifespan of a **permeable reactive barrier (PRB)**. Column testing results were combined with groundwater modeling to assess flow through a PRB with plugging and fouling of a permeable material as geochemical reactions progress.

For the second site, existing information and additional site investigation data was used to evaluate a **source removal** option. Additionally, the **feasibility study** incorporated **treatability testing** of

ion exchange resins for an ex-situ pump-and-treat system, groundwater flow modeling, and geochemical modeling to evaluate **groundwater extraction and treatment** and **PRB** options.

Remedial action plan

Following the detailed feasibility studies, a PRB amended with zero-valent iron (ZVI) and source removal and beneficial reuse of CCR materials were selected as long-term approaches to reducing arsenic and selenium concentrations in groundwater at the first and second sites, respectively. Barr is also evaluating an **interim constructed treatment wetland** to reduce selenium concentrations in groundwater while the CCR at the second site is being removed over years. **Pilot-scale testing** with site groundwater is underway to evaluate the treatment efficiencies of constructed treatment wetlands and provide input data for **constructed treatment wetland design**.

The proposed remedies were submitted to the state regulatory agency for review following close stakeholder engagement on these innovative remediation approaches.

8. Vapor intrusion pathway (VI) investigation of former MGP site (under MI Part 201)

Confidential client • Michigan

Barr provided environmental consulting services to a confidential client for the assessment of the **vapor intrusion pathway (VI) pathway** at a former MGP site in Michigan. The property was impacted by residual MGP waste, composed primarily of aromatic volatile organic constituents (VOCs) and polynuclear aromatic hydrocarbons (PNAs), cyanide, metals, and ammonia.

Our work focused on achieving **Part 201** no-further-action (NFA) status from EGLE for multiple pathways, including on-and off-site properties. During Barr's **investigation**, we assessed the nature and extent of a non-aqueous phase liquid (NAPL) and dissolved-phase contaminant plume through a series of **monitoring well installations, soil borings, vertical-aquifer sample points, and multiple types of analytical testing**. Using multiple lines of evidence (investigation data), a VI conceptual site model (VI CSM) was developed with Interstate Technology & Regulatory Council (ITRC) horizontal and vertical screening distances for petroleum sites to screen out properties from further assessment due to biodegradation of petroleum compounds and established investigation extents.

Barr then worked with the client to develop a comprehensive **VI work plan** comprising several on- and off-site properties and stakeholders. The work plan included narrowing the list of VI constituents of concern (COCs) as well as developing site-specific VI cleanup criteria and ultimately a clearer path for demonstration of VI pathway compliance. Barr provided technical support and assisted the client during meetings with EGLE, resulting in an approved work plan for implementation in early 2020.

The EGLE-approved VI investigation work plan included several rounds of sub-slab soil gas **sampling** for multiple VI COCs from beneath several on-site buildings. It also included the collection of dissolved phase samples, from the upper-most lens of groundwater, to rule out the potential off-site receptors (occupied buildings). As part of the work plan implementation, Barr has also assisted the client with the development of contingency plans to assess and potentially **mitigate risk** if the sub-slab soil gas sample results are above the site-specific cleanup criteria.

9. Ongoing environmental services for a public university in Michigan

A Michigan public university ● **West Michigan**

A public university in Michigan has retained Barr for **environmental consulting and brownfields** services at many sites throughout West Michigan as it looks to facilitate significant local campus growth. In the mid-1990s, Barr began by assisting the university with the expansion of its downtown Grand Rapids, Michigan, campus which included several properties with a long history of industrial use and environmental impacts. Most recently, we have provided **environmental investigation and ongoing project support** during a more than $100 million health professions campus expansion project at a **brownfield site** in the heart of downtown Grand Rapids' medical mile.

Barr's main focus in supporting the university over the past 25 years has been mitigating potential environmental liability associated with impacted properties during the property pre-acquisition process, based on federal All Appropriate Inquiry (AAI) standards (i.e., innocent landowner defense) and addressing potential state environmental liability implications and ongoing due care obligations associated with **Michigan Part 201** (Environmental Remediation). Other services to the university have included securing project funding grants and loans, TIF, and other redevelopment work in coordination with the State of Michigan.

Other valued services have included the **development and ongoing maintenance of a Part 201 facilities database** as the university has acquired multiple properties with pre-existing environmental impacts for which they are non-liable property owner. This living database is used to assess due care obligations as owner and to facilitate proper due care planning as property uses and **Part 201** cleanup criteria change over time.

Our ongoing assistance has included multiple **Phase I environmental site assessments (ESAs), Phase II investigations, remedial excavation, baseline environmental assistance,** due care planning**, environmental field screening, sample collection**, and technical assistance.

10. Environmental assessments, response actions, and PFAS, VOC, and VI investigations for a manufacturing client

The Viking Corporation ● **Michigan**

Barr has provided various environmental investigation and characterization activities and response actions for more than 15 years for a client southeast of Grand Rapids, Michigan, that manufactures fire protection systems and operated a brass foundry in the 1960s and 1970s.

Previously implemented **environmental response activities** by Barr focused on the historical placement of foundry-related residuals as fill material and the former operation of a dry well system for certain process waste disposal. Foundry fill areas were addressed with the removal and off-site disposal of fill material identified in wetland areas and **restoration of the wetland environment** pursuant to an EGLE-approved cleanup plan. Containment of upland foundry-related fill materials was achieved through stabilization of a slope bordering the wetland

area and capping of the bank area with a geosynthetic clay liner and clean imported soils. A groundwater monitoring network was designed and installed to demonstrate that venting groundwater emanating from the fill area was not adversely impacting the wetland environment.

The former dry well area was addressed through mass removal and off-site disposal of vadose zone soil, impacted saturated soils, and remaining below-grade piping. Resultant post-remediation soil and groundwater quality conditions in the immediate area of the former dry well were compliant with relevant cleanup goals established by EGLE. Barr compiled the site investigative data and reports from the interim response actions into the form of a **no further action (NFA) report** and submitted the document to the MDEQ in 2011. The NFA report addressed the site and two adjoining properties for which Barr assisted with the negotiation of site access and restrictive covenants.

Ongoing environmental activities to achieve **Part 201 closure** for all identified site conditions fall under the general categories of: 1) assessment and monitoring activities to evaluate the nature and extent of **PFAS** in groundwater; 2) **response activities to address PFAS in soil and groundwater**; 3) **response activities to address the VI pathway**; 4) assessment of the plume of volatile organic compounds (VOCs) in groundwater south of the site due to the former dry well and establishment of institutional controls to prevent future exposures as necessary and appropriate; and 5) NFA preparation and engagement with EGLE.

The client asked Barr to sample groundwater at the site in 2018 from existing monitoring wells as a result of the state-wide initiative for target industries and known aqueous film forming foam (AFFF) testing areas. The results identified the presence of PFAS, and Barr subsequently installed a groundwater monitoring well network and collected groundwater samples in an attempt to define the extent of the groundwater plume and identify potential exposure pathways (i.e., groundwater venting to surface water). Barr is currently designing and planning for implementation of an engineering source control measure (i.e., soil-bentonite cutoff wall and low-permeability cap) to reduce the expansion of the downgradient groundwater plume and prevent further infiltration of PFAS from soil to groundwater at the site.

Based on the proximity of the former dry well to the manufacturing building at the site, Barr completed a **VI assessment** to evaluate the concentrations of VOCs in soil vapor beneath the building floor. Analysis of soil vapor samples showed the presence of VOCs, primarily trichloroethylene (TCE), at concentrations above EGLE-established screening levels for the VI pathway. Barr completed a VI pilot test and used that data for the development of a basis of design document with the layout for a sub-slab depressurization system (SSDS). To achieve an approved site closure with EGLE, the client employed the recommended presumptive remedy (i.e., SSDS) in 2022 and is Barr is completing routine post-installation monitoring to assess system effectiveness prior to submitting an NFA for the VI pathway.

Additional activities at the site include environmental assessment and delineation of VOCs in groundwater south of the manufacturing building onto adjacent undeveloped land and developed private property. Environmental drilling, groundwater monitoring well installations, and soil and groundwater sampling have been completed to assess the extent of off-site impacts. As part of the

planned closure process, Barr will assist with the coordination and negotiation of restrictive covenants to prevent installation of potable wells for the provision of drinking water to limit risk to that exposure pathway.

11. Site assessment and brownfield redevelopment support

Franklin Partners ● **Michigan**

Barr completed a **Phase I and Limited Phase II** soil investigation for the developers of a 72-acre, church-owned property that had operated as an apple orchard for more than 50 years. Phase II results indicated levels of lead and arsenic in the soil at concentrations exceeding regional background levels as well as criteria established based on potential risks associated with soil direct contact and leaching to groundwater.

The property was purchased with the intention of redevelopment into mixed-use commercial and residential uses. Barr worked with the client, the client's legal counsel, the local unit of government, and EGLE to characterize the site and **develop remedial options** and costs to facilitate reimbursement through **Michigan Brownfield** incentive financing programs. Barr incorporated the use of Incremental Sampling Method (ISM) for site characterization based on decision units that correspond to historical orchard boundaries.

Barr prepared a **brownfield plan and Act 381 work plan** prior to the initiation of demolition and remediation. We developed detailed design documents for remedial excavation response activity and provided oversite of the removal of 5,200 cubic yards of impacted soils. Barr identified the extent of excavation area, assured contractor compliance with engineering plans for response activities, monitored the effectiveness of trackout prevention and soil erosion and sedimentation control measures, and completed verification of soil remediation sampling.

Barr prepared a No Further Action (NFA) Report for soil impacts after the completion of the soil remediation. The NFA Report was approved by EGLE, and the property is now in mixed multi-family residential and commercial use.

12. Environmental assessment services for multi-property site

Confidential client ● Michigan

At a multiple-property site in Mackinac County, Michigan, Barr completed a **Phase II environmental investigation and vapor assessment investigation** in support of a property transaction that involved a new owner unfamiliar with Michigan regulatory guidance. The results of the investigation were helpful in establishing an environmental baseline, identifying improper waste management practices, and identifying environmental issues that may inhibit future use of the property for recreational purposes.

A **Baseline Environmental Assessment** was submitted, and Barr conducted a supplemental **Phase II investigation** to further delineate the extent of subsurface impacts. Impacts associated with multiple maintenance garage discharge locations were identified and a **sewer camera was used for utility inspection**. Sewer integrity and discharge location were determined, and the discharge systems were abandoned.

Barr identified subsurface soil gas impacts related to previous dry-cleaning operations in a resort basement. We oversaw the application of Land Science's Retro-Coat **vapor mitigation coating system** following renovations. To evaluate the effect of the floor sealing, Barr completed the three quarterly seasonal indoor air sampling events.

Barr completed a due care evaluation that established the property owner's ongoing due care compliance responsibilities including, but not limited to **maintenance of the vapor mitigation coating system** and soil management requirements.

13. Sherman Street Due Diligence environmental assessment

City of Roosevelt Park ● **Roosevelt Park, Michigan**

Barr performed a **Phase I environmental assessment** for the City of Roosevelt Park at a property located at Sherman. The property is located in a long-time commercial/industrial area of Roosevelt Park that includes several nearby fuel service stations with known leaking underground storage tanks, an oil bulk terminal, former industrial operations, dry cleaners, railroads, and a non-permitted former dump. Notable historical operators on the property included a foundry, a bottling company, and a camshaft manufacturer. Barr performed the **Phase I assessment** in conformance with American Society for Testing and Materials Practice E 1527-00. Because of the long-time industrial nature of the site and adjacent properties, the assessment involved the review of a significant number of complex environmental issues.

Barr then conducted the **Phase II investigation** to determine if contaminants or pollutants were present in the soil and groundwater. The fieldwork included the collection of soil and groundwater samples via **direct-push-drilling technology**, measurement of groundwater elevations in

temporary piezometers, and a site inspection. Soil and groundwater samples collected at the property were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds, and polychlorinated biphenyls. Concentration of metals and VOCs in soil and groundwater exceeded **Part 201** generic residential criteria and establish that the Property is a Facility as defined in Michigan Part 201 of Public Act 451 of 1994, as amended.

The results of the investigation were used to support a **baseline environmental assessment**, which was subsequently submitted to EGLE.

14. South Branch River aquatic organism passage design

Huron Pines ● Roosevelt Park, Michigan

A trout stream and minor tributary of the Au Sable River, the South Branch River is located within the Huron National Forest in Michigan's northeastern Lower Peninsula. Although the South Branch River and its watershed are largely undeveloped, a single road crossing at Rollway Road was preventing upstream aquatic organism passage (AOP) from the Au Sable River during most flow conditions due to the shallow and high-velocity flow exiting the arch culvert structure. During fall brook trout spawning periods, the flows at the culvert outlet were typically less than four inches deep, with velocities up to 5 feet per second. Because of the size of the existing culvert and the depth of fill over the structure, culvert removal or replacement with a larger structure was not economically feasible.

Huron Pines partnered with the U.S. Forest Service and the Iosco County Road Commission to implement a project to **restore AOP and reconnect approximately 6 miles of river habitat upstream**. Huron Pines hired Barr to design measures to improve AOP using elements without requiring modifications to the culvert structure.

The design objectives were to provide suitable AOP conditions through the structure for flows up to half of the estimated bankfull discharge while maintaining no increase in flood elevations to upstream parcels. Innovative design features included arched boulder vanes downstream of the culvert to increase water depth and decrease flow velocity in the culvert while allowing for AOP through diverse flow conditions. Additional boulder clusters were installed within the culvert to provide low-velocity resting areas within the culvert. Barr prepared a detailed hydraulic report for EGLE permitting to demonstrate that the impact on flood elevations was extended less than 2,000 feet upstream and to not affect adjacent parcels. The project was constructed in summer 2019.

15. Brose Stream and Wetland Mitigation

Brose New Boston ● New Boston, Michigan

As part of a manufacturing plant expansion, Brose received permits from the State of Michigan to impact approximately 6 acres of **regulated wetlands** and relocate approximately 400 linear feet of Regan Drain in Huron Township, Wayne County. Barr staff members (formerly of King & MacGregor Environmental, Inc.) assisted Brose in obtaining a permit from

MDEQ (now EGLE) to authorize the impacts and then were contracted to **design 425 linear feet of new stream channel using natural stream channel design methods and a 9.5-acre off-site wetland mitigation area**. For **stream relocation**, we worked with the project engineer to prepare hydraulic modeling and grading plans for the new stream channel, and also prepared planting plans, specifications, details and written descriptions, assisted with project bidding, provided construction observation services. For **wetland mitigation**, we identified a suitable off-site property to be acquired for this purpose, prepared wetland mitigation grading and planting plans, specifications, details and written descriptions, assisted with project bidding, and provided construction observation services. Our involvement continues as Barr to provide **post-construction stream relocation and wetland mitigation monitoring** and assist with the **long-term management** of the mitigation projects as required by the EGLE permit.

16. Ford Marsh Restoration Feasibility Study (Phase I)

U.S. Fish and **Wildlife Service (USFWS) • Monroe, Michigan**

The Ford Marsh Unit of the Detroit River International Wildlife Refuge (DRIWR) is situated adjacent to the River Raisin along the shore of Lake Erie in Monroe County, Michigan. The unit abuts the River Raisin Area of Concern (AOC) as designated by the Environmental Protection Agency under the 1987 Great Lakes Water Quality Agreement.

At the time of USFWS acquisition, Ford Marsh was protected from Lake Erie by a natural lakefront beach ridge that had been reinforced as a rock protection dike. Additionally, earthen dikes existed on the north and south sides, and industrial development was established on the western side. However, multiple years of high Lake Erie water levels (2017 – 2021), coupled with seiches and large storm events, resulted in the beach ridge, rock protection dike, and adjacent earthen dikes being severely damaged and breached in several locations. As a result of the damage, the ability to manage water levels within Ford Marsh was lost and the marsh's productivity, diversity, and function were greatly compromised.

As a result, the USFWS asked Barr to evaluate the current conditions of Ford Marsh, develop preliminary options to address the observed deficiencies, and **provide recommendations to restore the desired wetland functionality to Ford Marsh**. This project was intended to **investigate the feasibility of a coastal restoration** effort based on a holistic approach that attempted to address not just one or two symptoms that led to the degradation of this **coastal wetland**, but rather the root causes of the marsh's current lack of resiliency.

To begin, Barr evaluated the existing condition of Ford Marsh by **evaluating wetland hydrology and vegetation; nearshore currents, sediment transport, and deposition; bathymetry and topography; and dike stability.** Using these findings, Barr **developed restoration concepts** and provided an evaluation of those concepts. Each potential design solution was then evaluated for feasibility using the variables of solution effectiveness, constructability, embrace by stakeholders, and anticipated cost for review by the USFWS.

In addition, throughout the duration of this feasibility study, the project team hosted a series of stakeholder engagement sessions to help inform restoration goals of the project and advise on

potential restoration strategies. Stakeholder input became an important part of the iterative nature of this study and the contributions of the participating stakeholders were embedded in the feasibility report.

17. Site closure, investigation, risk assessment, and remedial action, former leather tannery

Confidential client **and City of Whitehall • Whitehall, Michigan**

Barr staff assisted the responsible party in developing a response plan and negotiating a consent judgment with the MDEQ in 2010 for the remediation and closure of a former tannery site to satisfy the requirements of **Part 201**.

Barr has performed several Interim Response Activities including design of a shoreline stabilization remedy for a portion of the property, design, **installation and operation of an air sparging system** along the shoreline to intercept contaminants in site groundwater, which previously vented to the lake, risk-based mixing-zone evaluation, excavation of waste materials from a **small shoreline wetland and restoration of the wetland**, location of buried drum debris using geophysical methods and excavation of those materials, **investigation of utility and sub-slab conditions** in conjunction with demolition of the tannery facility and removal of subsurface waste materials including tannery materials and metals impacted soils.

Barr assisted with the **development and implementation of an alternative excavation-based remedy** to remove tannery-related materials from former wastewater lagoons, wetlands, and upland areas to facilitate residential redevelopment of the site which is located on a popular recreational lake. Activities included the removal of approximately 200,000 tons of material from the site, and design and **restoration of a 5.37-acre wetland** including 0.33 acres of new wetland as an emergent/open water wetland using a series of low-profile wetland berms to improve habitat diversity.

In 2017, Barr conducted **porewater sampling** to characterize baseline groundwater discharge during operation of the sparge system prior to shutting the system down which was designed to reduce concentrations in groundwater to levels below the final acute value (FAV). Current activities include quarterly groundwater sampling and periodic requests for updates to the mixing zone-based groundwater/surface water interface criteria.

In addition, Barr is also helping the City of Whitehall support residential redevelopment of the waterfront property. We assisted with **securing and managing brownfield funds**, provided demolition specifications and oversight, and provided sitewide assessment of soil gas and field screening of lake sediments.

18. Risk-based remedial actions at McCoy Creek Industrial Park

Confidential client • Buchanan, Michigan

Barr staff designed and implemented an agency-approved **remedial action** for a 110-acre industrial site along both sides of a scenic and recreational stream. The site's industrial history dated to the early 1900s. Environmental impacts on the property included foundry sand fill, oily discharges, process water discharges, an unlined caustic settling pond, and numerous pits, vaults, and storage

tanks. Releases of chlorinated hydrocarbons, petroleum hydrocarbons, PCBs, semi-volatiles, and metals occurred over many decades of industrial use.

Barr staff **characterized environmental impacts** at the site, identified potential risks to current and future human and ecological receptors, and **designed focused remedial actions** to mitigate the identified risks. Assessment activities included a risk assessment, risk-based mixing-zone evaluation (including a stream study to evaluate background loading conditions that supported more favorable compliance criteria), and technical support for a variance from the water quality standard for mercury.

Response actions included removal of waste material from the former settling pond, the stream and its banks, focused groundwater extraction and treatment systems to mitigate venting of contaminated groundwater to the recreational stream, exposure barriers to prevent direct contact to contaminants along the stream, and focused excavations and legal restrictions to address vapor intrusion risks. Barr staff **designed, constructed, and operated source-control measures** to address oily and caustic waste materials that were in and near the stream. Barr staff also **designed, constructed, and operated three area-specific groundwater treatment systems** consisting of interceptor trenches constructed using single-pass trenching methods to mitigate contaminated groundwater venting into the stream.

CERCLA removal action, investigation, and remediation

Confidential client • **Midwestern United States**

A confidential client with a **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site** in the Midwest hired Barr for time-critical activities at this existing **brownfield redevelopment** for residential and commercial land use. Our work has included implementation of a removal action; conducting geophysical, geological, hydrologic, and hydrogeological **investigations and turn-key remediation** at a former cement-kiln-dust (CKD) site. The site is located in an area with fractured limestone bedrock. While concurrently investigating the site, Barr installed a **removal-action system** consisting of interim groundwater collection, treatment, and off-site disposal.

Barr helped with the **fast-track evaluation and remedial investigation/feasibility study (RI/FS)** of a 12-acre portion of the site due to public pressure to get this portion completed early. Evaluating the data as it was collected, we built our understanding of the site conditions, refined the conceptual model, built a groundwater model, and augmented the investigation to fill data gaps.

Barr also evaluated water treatment options for pH neutralization and mercury removal. We designed and executed bench-scale studies that evaluated the effectiveness of neutralizing the pH with carbon dioxide and removing mercury from the leachate using calcium polysulfide to achieve the stringent Great Lakes Initiative standard (1.3 ng/L) for mercury. Barr also evaluated the fate and transport of mercury at the site.

One month after **sampling** began at this location, Barr presented preliminary investigation findings and remedial approaches to the USEPA and state regulators. Two months after this initial

presentation, we submitted the RI/FS report for this portion of the site, and we responded to USEPA comments on the RI/FS while working on additional interim removal actions.

Remedial approaches were developed during the investigation with the final remedy consisting of collection trenches and geomembrane capping system for the 12-acre portion of the site. For the balance of site, hydrologic and hydrogeologic drainage and flow patterns were assessed, and remedies were implemented reducing all water flows to the soil-covered disposal area that encompassed several hundred acres. Remedies in both areas consisted of surveying existing local surface drainage features and developing a comprehensive local hydrology management plan. Barr subcontracted remediation contractors for the client and provided **construction oversight** as well.

Part II – Cost Proposal

resourceful. naturally.

Billable rates

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION
PROFESSIONAL SERVICES – 2023 ENVIRONMENTAL ISID

Firm Name: **Barr Engineering Co.**
Yearly Percentage Billing Rate Increase: **approximately 4%**

Name	Position[2]	Location	Classification[2]	Level	Billing Rate[1] (dollars)				
					2023	2024	2025	2026	2027
Jessica Abraham	Environmental Scientist	Grand Rapids	Engineer / Scientist / Specialist I	L1 (P1)	95	99	103	108	113
Thomas Barfuss	Environmental Scientist	Grand Rapids	Engineer / Scientist / Specialist I	L1 (P1)	90	94	98	102	107
Shaughn Barnett	Ecologist	Ann Arbor	Engineer / Scientist / Specialist I	L2 (P2)	105	110	115	120	125
Diane Biehl	Environmental Scientist	Grand Rapids	Engineer / Scientist / Specialist II	L2 (P2)	120	125	130	136	142
Thomas Boom**	Vice President, Senior Environmental Engineer	Ann Arbor	Vice President	L4 (P4)	210	219	228	238	248
Nathan Brandner	Senior Geologist	Grand Rapids	Engineer / Scientist / Specialist III	L4 (P4)	165	172	179	187	195
Alan Braspenninx	Senior Geoscientist	Grand Rapids	Engineer / Scientist / Specialist II	L3 (T3)	115	120	125	130	136
William Brodovich	Senior Ecologist	Ann Arbor	Engineer / Scientist / Specialist II	L3 (P3)	135	141	147	153	160
Matthew Comben	Senior GIS Specialist	Ann Arbor	Engineer / Scientist / Specialist II	L2 (P2)	130	136	142	148	154
William Davidson	Senior Geoscientist	Grand Rapids	Engineer / Scientist / Specialist IV	L4 (P4)	175	182	190	198	206
Andrew Dykstra	Environmental Engineer	Ann Arbor	Engineer / Scientist / Specialist II	L2 (P2)	120	125	130	136	142

Name	Position[2]	Location	Classification[2]	Level	Billing Rate[1] (dollars)				
					2023	2024	2025	2026	2027
Jamie Edelyn**	Senior Environmental Engineer	Grand Rapids	Engineer / Scientist / Specialist III	L4 (P4)	165	172	179	187	195
Michael Ellis**	Senior Environmental Engineer	Ann Arbor	Engineer / Scientist / Specialist III	L3 (P3)	150	156	163	170	177
Kate Fiore	Environmental Engineer	Grand Rapids	Engineer / Scientist / Specialist I	L1 (P1)	110	115	120	125	130
Karen Hathaway	Senior Toxicologist	Grand Rapids	Engineer / Scientist / Specialist IV	L3 (P3)	175	182	190	198	206
Craig Held	Senior Environmental Consultant	Ann Arbor	Consultant / Advisor	L4 (P4)	215	224	233	243	253
David Hibbs	Senior Civil Engineer	Ann Arbor	Engineer / Scientist / Specialist IV	L4 (P4)	190	198	206	215	224
Peter Hinck	Senior Water Resources Engineer	Grand Rapids	Engineer / Scientist / Specialist III	L3 (P3)	165	172	179	187	195
Christene Jones**	Senior Environmental Scientist	Ann Arbor	Engineer / Scientist / Specialist IV	L4 (P4)	190	198	206	215	224
Jeffery King	Senior Consultant	Grand Rapids	Consultant / Advisor	L4 (P4)	275	286	298	310	323
Brian Kwiatkoski	Senior Environmental Data Management Technician	Ann Arbor	Technician II	L1 (T2)	110	115	120	125	130
Kathleen Lindstrom	Senior Environmental Engineer	Ann Arbor	Engineer / Scientist / Specialist IV	L4 (P4)	175	182	190	198	206
Colleen Long	Senior GIS Specialist	Grand Rapids	Engineer / Scientist / Specialist I	L2 (P2)	115	120	125	130	136
Matthew MacGregor	Senior Environmental Consultant	Grand Rapids	Consultant / Advisor	L4 (P4)	225	234	244	254	265
Luke Mackewich	Senior Environmental Engineer	Ann Arbor	Engineer / Scientist / Specialist II	L3 (P3)	140	146	152	159	166
Alison McClear	Environmental Scientist	Ann Arbor	Engineer / Scientist / Specialist I	L1 (P1)	95	99	103	108	113
Charlene McGue	Vice President, Senior Environmental Consultant	Grand Rapids	Vice President	L4 (P4)	200	208	217	226	236
Christopher Miron**	Vice President, Senior Chemical Engineer	Grand Rapids	Vice President	L4 (P4)	210	219	228	238	248

Name	Position[2]	Location	Classification[2]	Level	Billing Rate[1] (dollars)				
					2023	2024	2025	2026	2027
Ethan Morris	Environmental Scientist	Grand Rapids	Engineer / Scientist / Specialist I	L1 (P1)	100	104	109	114	119
Laurie Beth Nederveld	Senior Ecologist	Ann Arbor	Engineer / Scientist / Specialist III	L3 (P3)	155	162	169	176	184
Molly O'Brien	Senior Environmental Consultant	Grand Rapids	Engineer / Scientist / Specialist III	L3 (P3)	155	162	169	176	184
Terri Olson	Senior Data Quality Specialist	Minneapolis	Engineer / Scientist / Specialist III	L3 (P3)	160	167	174	181	189
Wei-Shyuan Peng	Senior Groundwater Hydrologist	Grand Rapids	Engineer / Scientist / Specialist I	L2 (P2)	110	115	120	125	130
Dana Pasi	Senior Environmental Scientist	Minneapolis	Engineer / Scientist / Specialist III	L3 (P3)	145	151	158	165	172
Virginia Pennala	Senior Ecologist	Grand Rapids	Engineer / Scientist / Specialist III	L3 (P3)	145	151	158	165	172
Richard Phelps	Senior Environmental Data Management Specialist	Grand Rapids	Engineer / Scientist / Specialist II	L2 (P2)	120	125	130	136	142
Randall Phillips	Senior Ecologist	Grand Rapids	Engineer / Scientist / Specialist III	L3 (P3)	170	177	185	193	201
Jacquelyn Plowman	Geologist	Ann Arbor	Engineer / Scientist / Specialist I	L1 (P1)	105	110	115	120	125
Michael Potter	Senior Geoscientist	Grand Rapids	Engineer / Scientist / Specialist II	L3 (T3)	125	130	136	142	148
Allen Prince	Environmental Engineer	Grand Rapids	Engineer / Scientist / Specialist II	L2 (P2)	125	130	136	142	148
Jose Ramirez	Field Technician	Grand Rapids	Technician I	L1 (T1)	50	52	55	58	61
Allen Reilly	Senior Environmental Scientist	Grand Rapids	Consultant / Advisor	L4 (P4)	240	250	260	271	282
Tiffany Roy	Geologist	Grand Rapids	Engineer / Scientist / Specialist I	L2 (P2)	115	120	125	130	136
Amir Safi	Water Resources Engineer	Ann Arbor	Engineer / Scientist / Specialist III	L3 (P3)	155	162	169	176	184
James Sallee	Senior Regulatory Specialist	Ann Arbor	Engineer / Scientist / Specialist III	L3 (P3)	160	167	174	181	189

Name	Position[2]	Location	Classification[2]	Level	Billing Rate[1] (dollars)				
					2023	2024	2025	2026	2027
Sierra Samie	Environmental Engineer	Ann Arbor	Engineer / Scientist / Specialist I	L1 (P1)	110	115	120	125	130
Anne Schumacher	Senior Geologist	Grand Rapids	Engineer / Scientist / Specialist II	L3 (P3)	130	136	142	148	154
Matthew Stone-Palmquist	Senior Landscape Architect/Senior Ecologist	Ann Arbor	Engineer / Scientist / Specialist IV	L4 (P4)	180	188	196	204	213
Fran Thompson	Ecologist	Ann Arbor	Engineer / Scientist / Specialist II	L2 (P2)	120	125	130	136	142
Scott Venman**	Environmental Engineer	Ann Arbor	Engineer / Scientist / Specialist III	L3 (P3)	145	151	158	165	172
John Vigna	Senior Environmental Scientist	Grand Rapids	Engineer / Scientist / Specialist IV	L4 (P4)	180	188	196	204	213
Kate Watson	Senior Environmental Engineer	Grand Rapids	Engineer / Scientist / Specialist III	L3 (P3)	155	162	169	176	184

** Key Project Personnel

1. Litigation support services rates will include a 20% surcharge.
2. The employee's Position and Classification are based on current 2023 staff experience and skillsets. If staff are promoted over the course of this contract, their Position and Classification will change with an accompanying increase in their billing rate.

CLASSIFICATION, LEVEL AND BILLING RATE RANGE INFORMATION FOR NEW EMPLOYEES
PROFESSIONAL SERVICES – 2023 ENVIRONMENTAL ISID

Firm Name: **Barr Engineering Co.**

Barr has many open positions for new hires. We anticipate hiring new staff in 2023 and beyond. For new employees, their Classification and Level will dictate their billing rate range. We anticipate an approximate 4% increase to the billing rate ranges in years subsequent to 2023.

Classification	Level	Billing Rate Range – 2023
Vice President	L4 (P4)	$170–315
Consultant/Advisor	L4 (P4)	$205–300
Engineer/Scientist/Specialist IV	L4 (P4)	$175–200
Engineer/Scientist/Specialist III	L3 (P3)	$145–170
Engineer/Scientist/Specialist II	L2 (P2)	$120–140
Engineer/Scientist/Specialist I	L1 (P1)	$80–115
Technician IV	L3 (T3)	$155–200
Technician III	L3 (T3)	$125–150
Technician II	L2 (T2)	$95–120
Technician I	L1 (T1)	$70–90

Attachment A: Personnel List

Name	Title	Location	Classification
Jessica Abraham	Environmental Scientist	Grand Rapids	L1 (P1)
Thomas Barfuss	Environmental Scientist	Grand Rapids	L1 (P1)
Shaughn Barnett	Ecologist	Ann Arbor	L2 (P2)
Diane Biehl	Environmental Scientist	Grand Rapids	L2 (P2)
Thomas Boom**	Vice President, Senior Environmental Engineer	Ann Arbor	L4 (P4)
Nathan Brandner	Senior Geologist	Grand Rapids	L4 (P4)
Alan Braspenninx	Senior Geoscientist	Grand Rapids	L3 (T3)
William Brodovich	Senior Ecologist	Ann Arbor	L3 (P3)
Matthew Comben	Senior GIS Specialist	Ann Arbor	L2 (P2)
William Davidson	Senior Geoscientist	Grand Rapids	L4 (P4)
Andrew Dykstra	Environmental Engineer	Ann Arbor	L2 (P2)
Jamie Edelyn**	Senior Environmental Engineer	Grand Rapids	L4 (P4)
Michael Ellis**	Senior Environmental Engineer	Ann Arbor	L3 (P3)
Kate Fiore	Environmental Engineer	Grand Rapids	L1 (P1)
Karen Hathaway	Senior Toxicologist	Grand Rapids	L3 (P3)
Craig Held	Senior Environmental Consultant	Ann Arbor	L4 (P4)
David Hibbs	Senior Civil Engineer	Ann Arbor	L4 (P4)
Peter Hinck	Senior Water Resources Engineer	Grand Rapids	L3 (P3)
Christene Jones**	Senior Environmental Scientist	Ann Arbor	L4 (P4)
Jeffery King	Senior Consultant	Grand Rapids	L4 (P4)
Brian Kwiatkoski	Senior Environmental Data Management Technician	Ann Arbor	L1 (T2)
Kathleen Lindstrom	Senior Environmental Engineer	Ann Arbor	L4 (P4)
Colleen Long	Senior GIS Specialist	Grand Rapids	L2 (P2)
Matthew MacGregor	Senior Environmental Consultant	Grand Rapids	L4 (P4)
Luke Mackewich	Senior Environmental Engineer	Ann Arbor	L3 (P3)
Alison McClear	Environmental Scientist	Ann Arbor	L1 (P1)
Charlene McGue	Vice President, Senior Environmental Consultant	Grand Rapids	L4 (P4)
Christopher Miron**	Vice President, Senior Chemical Engineer	Grand Rapids	L4 (P4)
Ethan Morris	Environmental Scientist	Grand Rapids	L1 (P1)
Laurie Beth Nederveld	Senior Ecologist	Ann Arbor	L3 (P3)
Molly O'Brien	Senior Environmental Consultant	Grand Rapids	L3 (P3)
Terri Olson	Senior Data Quality Specialist	Minneapolis	L3 (P3)
Wei-Shyuan Peng	Senior Groundwater Hydrologist	Grand Rapids	L2 (P2)

Dana Pasi	Senior Environmental Scientist	Minneapolis	L3 (P3)
Virginia Pennala	Senior Ecologist	Grand Rapids	L3 (P3)
Richard Phelps	Senior Environmental Data Management Specialist	Grand Rapids	L2 (P2)
Randall Phillips	Senior Ecologist	Grand Rapids	L3 (P3)
Jacquelyn Plowman	Geologist	Ann Arbor	L1 (P1)
Michael Potter	Senior Geoscientist	Grand Rapids	L3 (T3)
Allen Prince	Environmental Engineer	Grand Rapids	L2 (P2)
Jose Ramirez	Field Technician	Grand Rapids	L1 (T1)
Allen Reilly	Senior Environmental Scientist	Grand Rapids	L4 (P4)
Tiffany Roy	Geologist	Grand Rapids	L2 (P2)
Amir Safi	Water Resources Engineer	Ann Arbor	L3 (P3)
James Sallee	Senior Regulatory Specialist	Ann Arbor	L3 (P3)
Sierra Samie	Environmental Engineer	Ann Arbor	L1 (P1)
Anne Schumacher	Senior Geologist	Grand Rapids	L3 (P3)
Matthew Stone-Palmquist	Senior Landscape Architect/Senior Ecologist	Ann Arbor	L4 (P4)
Fran Thompson	Ecologist	Ann Arbor	L2 (P2)
Scott Venman**	Environmental Engineer	Ann Arbor	L3 (P3)
John Vigna	Senior Environmental Scientist	Grand Rapids	L4 (P4)
Kate Watson	Senior Environmental Engineer	Grand Rapids	L3 (P3)

** Key Project Personnel

Attachment B: Key Personnel Resumes

Education

BS, Civil and Environmental Engineering, Michigan State University, 2001

Training/Certification

40-hour OSHA HAZWOPER

ASTM Risk-Based Corrective Action Applied at Petroleum Release Sites Course (2006)

Registration

Professional Engineer: Michigan, Wisconsin

THOMAS BOOM, PE

Vice President, Senior Environmental Engineer

Tom has over 21 years of experience investigating, designing, and implementing solutions for environmental engineering projects, ranging from simple to complex. He specializes in managing complex projects related to contaminated sites, including those that fall within the regulatory framework of Michigan's Part 201, Part 213, and Part 115 rules. A trusted advisor to clients, Tom provides risk management, site assessment, feasibility studies, remedial design, permitting, construction oversight, and monitoring, all while engaging multiple stakeholders. He has served as principal in charge, project manager, and technical lead for a variety of projects that involve due diligence reviews, groundwater and sediment transport modeling, hydrodynamic and hydraulic modeling, geotechnical modeling, habitat and wetland restoration, and structural monitoring.

Project Experience

- Serving as the principal in charge for remediation of a Part 201 site along the St. Clair River to facilitate redevelopment of the property. The redevelopment efforts required obtaining a Joint Permit from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the United States Army Corps of Engineers (USACE) which was facilitated by Barr. Barr designed mitigation measures required by the permit based on site plans to construct a seawall that would occupy a portion of the St. Clair River and developed a plan for remediating historical impacts as part of redevelopment activities. Both plans were submitted to EGLE and USACE with permit application documents, and a draft permit was obtained. Pre-construction sampling was completed by Barr which included soil, groundwater, and sediment sampling and results were summarized in a report submitted to EGLE. Ongoing work includes coordination with EGLE and USACE to obtain a final permit, construction implementation oversight, verification sampling, and developing a documentation report. (2022–present)
- Serving as principal in charge for evaluating temporary water storage options for a food processing facility in mid-Michigan in accordance with EGLE Part 22 Groundwater Quality rules. Options evaluated included temporary above-ground storage tanks and ponds with engineered liners. Additionally provided environmental consulting regarding land application of wastewater as a treatment and disposal method. (2021–present)
- Serving as principal in charge of a project to treat groundwater impacted with per- and polyfluoroalkyl substances (PFAS) and high pH levels during the decommissioning of a former power plant in Michigan. Groundwater infiltrating the basement of the power plant needed to be removed on a near-continuous basis, but PFAS and high pH levels were discovered during decommissioning. Barr characterized the impacts and developed a treatment system that allowed decommissioning activities to continue. The recommended PFAS treatment was granular-activated carbon, and carbon-dioxide aeration was recommended for the high pH levels. Barr

and a remediation contractor completed bench- and pilot-scale testing before providing turnkey design to allow for the timely employment of the treatment system. Barr led the implementation of the treatment system and collected samples to verify that the effluent water quality met project objectives. Approximately 26.5 million gallons of PFAS-impacted and high-pH water were treated by the treatment system over 18 months. (2019–2021)

- Serving as principal in charge of remedial action evaluations at two coal combustion residual (CCR) landfills in Michigan. The landfills were constructed decades ago near large bodies of water and involve elevated metals concentrations. Work at both sites included investigation, bench testing, options analyses, focused feasibility studies, and remedial action plans. At the first site, a closed, unlined landfill is associated with elevated arsenic in groundwater, creating concern about water quality in the adjacent water body. An existing pump-and-treatment system installed by others was not functioning optimally. The second site is an unlined, partially active landfill with elevated selenium in groundwater. The corrective actions Barr evaluated include monitored natural attenuation, air sparging, pumping and treating, installing reactive barriers, constructed wetland treatment, and source reduction related to the beneficial reuse of CCR. Ongoing work includes finalizing the remedial action plans, conducting detailed design, and construction. (2019–present)
- Serving as principal in charge of a due diligence project for a confidential wind farm partnership to evaluate potential environmental risks within an approximately 20,000-acre project area. The project began with the review of a Phase I prepared by others and coordination with the project stakeholders to pare down a list of parcels with potential environmental concerns from over 200 to about 25. The project continued with the development and execution of a Phase II investigation at eight of the parcels. The project was under a strict deadline and was completed in about a month. (2021)
- Serving as principal in charge and engineer of record (EOR) for the design and construction oversight of a large, combined industrial process water and stormwater ditch. The liner design for the ditch included a geomembrane liner covered with sand and rip-rap armor layers for protection and a high-visibility fabric to act as a warning layer to equipment operators, should it be exposed during routine maintenance of the ditch. Barr also designed an underflow weir and electrical lighting along a portion of the ditch. The project was successfully constructed while allowing for continuous operation of plant discharge during construction. (2020)
- Serving as principal in charge to support abatement, dismantling, and decommissioning activities at five combustion turbine plants around Michigan. The work involved preparing a bidding package with specifications and construction drawings, assisting the client with bid evaluation, and providing construction support including quick-turnaround environmental sampling when potentially impacted materials were encountered during demolition. At each of the five sites, Barr

completed a Phase I environmental site assessment (ESA) and subcontracted regulated material surveys. Based on the findings of the Phase Is, Barr completed Phase II investigations at two of the sites. This information was used to help the client identify risks and to develop construction specifications for worker safety. (2019–2020)

- Serving as project manager and EOR for the investigation, evaluation, design, permitting, and remediation of impacted river sediments adjacent to a former manufactured gas plant (MGP) site on the Flint River in Michigan. This complicated dredging, capping, and habitat restoration project occurred during the Flint water crisis. The project had significant schedule constraints and multiple stakeholders (including the University of Michigan, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Michigan Department of Environmental Quality (MDEQ, now Michigan Department of Environment, Great Lakes, and Energy, EGLE), Michigan Department of Natural Resources, state, county, city, and the river association) involved for most facets of the project. Tom served as primary contact for the client and stakeholders.

  He oversaw the multidisciplinary project team that included more than 200 Barr scientists and engineers performing sediment investigations; geological and groundwater modeling; hydraulic, geotechnical, structural, and civil engineering; odor- and emissions-mitigation design; permitting; and approximately nine months of construction oversight. Barr designed the remedial actions to be protective of human health and the river environment. The work included the removal and capping of impacted sediments while minimizing disruptions to the surrounding neighborhood. The project was successfully completed in 2018. Ongoing work includes groundwater monitoring, river elevation monitoring, and collaborating with the Flint River Restoration team lead by Genesee County. (2012–present)

- Serving as the EOR for the investigation, alternatives analyses, design, and remediation of impacted river sediments adjacent to a historical MGP site in mid-Michigan along the Kalamazoo River. The site was located in an urban setting with significant infrastructure considerations such as submerged and overhead utilities, river walls of varying construction and states of repair, and bridge structures. The sediment remedy consisted of temporary utility relocation, mechanical and hydraulic dredging, river wall replacement, dewatering, and placement of a sediment cover. No post-remedy sediment analytical sampling was required as a result of Barr's negotiations with regulatory agencies. The site received a "no further action" designation from the MDEQ. (2013–2015)

- Serving as project manager for the investigation, design, and specification development for the remediation of impacted sediments within an industrial pond. The site was an operating production facility that included multiple hazards, large structures and buildings, and safety concerns. This was a fast-turn project due to a release at the pond, which was the main effluent discharge location for the plant, which could not operate with the pond out of service. The remedy included dredging the pond and an impermeable barrier. (2014)

- Serving as project manager for a jet-fuel-release response and remediation at a major international airport. The release shut down portions of the airport during the holidays, so immediate action was required to develop a conceptual site model for remediating potential acute hazards resulting from the release to reopen the airport. Barr led the environmental portion of the cleanup and worked with multiple contractors and stakeholders to assess, investigate, and remediate the release. Barr provided additional value by designing a water remediation system that primarily uses existing infrastructure and negotiating wastewater-discharge standards with the local municipality. The airport reopened and Barr continues to operate and maintain the treatment system. (2014–present)
- Serving as project manager and technical adviser for dredging and dewatering operations during a remedial action in response to a petroleum release on a river. Was on site the next day to provide immediate assistance to the client. Issues with the dredged-sediment material-handling process were slowing production. Potential remedies were communicated to the client that day, leading to follow-up work to evaluate dredging, dewatering, and material-handling alternatives by developing options tables and associated costs on an accelerated schedule. (2015)
- Serving as project manager from 2006–2011 for several large-scale, technically complex sites contaminated with petroleum hydrocarbons. Collectively, the projects have an approximate lifecycle cost greater than $8,000,000. Responsibilities included budget forecasting and management, database management, remedial alternatives evaluations, groundwater monitoring oversight, writing and reviewing a proposal and reports, and providing clients with strategic planning recommendations. Examples of this work include:
  - Designing an upgrade for an existing air sparge/soil vapor extraction (AS/SVE) system to increase source area mass removal at a site in Michigan. A separate bio-sparge system was designed to minimize groundwater impact to an on-site wetland. Upgrading the AS/SVE system included adding two SVE wells and 60 AS points in addition to replacing the treatment-system trailer with upgraded operational equipment. The bio-sparge system included 40 bio-sparge points. Cost savings were realized during the project by developing a groundwater-sampling program to evaluate mass-flux discharge prior to installing the bio-sparge system. Petroleum-hydrocarbon discharge to the wetland has been minimized.
  - Recommending shut off of an AS/SVE system at a site near Sears, Michigan, after monitoring results indicated that the system had reached a point of diminishing returns and it was no longer cost-effective to continue operating it. Performed a remedial alternatives evaluation that indicated that a source-area soil excavation and off-site disposal combined with mixing a chemical oxidant into the saturated soil was the preferred solution to remediate the site. Obtained an MDEQ Part 22 groundwater-discharge permit exemption to mix the

chemical oxidant into saturated soil. Provided oversight of construction specifications and work plan.

- Serving as technical lead for the design of an innovative leachate-treatment system designed to treat leachate at a municipal landfill. The leachate-treatment system included two incised lagoons constructed with a double geosynthetic-liner system that were each designed to contain approximately 2,000,000 gallons of leachate and treat 36,000 gallons of leachate per day. The lagoons were designed to reduce biochemical and chemical oxygen demand and promote denitrification under anoxic conditions. Completed construction design drawings and construction specifications and oversaw the bid process. Lagoons were constructed and are operational. (2009–2010)
- Serving as project manager and technical lead for an MDEQ Part 213 site where the responsibilities included interaction with the client and state regulatory agency. Responsible for the design and installation of a source-area AS/SVE system after conducting a remedial alternatives analysis that included cost, system effectiveness, and limitations, and feasibility of implementation. Provided direct oversight and coordination of the remedial system design, construction specifications, procurement of subcontractor agreements, obtainment of an air-discharge permit, installation of the AS/SVE system, and reimbursement from the state agency. Air- and groundwater-sampling results indicated that the remaining mass at the site was reduced by approximately 90 percent since the system was implemented. (2006–2011)

Publications

Boom, T., M. Ellis and D. Richard. "Designing and implementing an urban river remediation." Remediation. Volume 29, Issue 4, Autumn 2019: 93–105.

Education

BS, Chemical Engineering, Michigan Technological University, 1988

Training/Certification

40-Hour HAZWOPER Training and 8-Hour Annual Refresher Courses (29 CFR 1910)

24-Hour MSHA Surface Miner Training, Experienced Miner Training and 8-Hour Annual Refresher Courses (30 CFR Part 48)

Certified Storm Water Operator, Construction Sites, Michigan

Registration

Professional Engineer: Michigan, Ohio, Kentucky

Affiliations

American Institute of Chemical Engineers, Environmental Division

CHRISTOPHER A. MIRON, PE

Vice President, Senior Environmental Engineer

Chris has over 30 years of experience completing projects involving engineering design and the implementation of environmental remediation, brownfield redevelopment, decommissioning and demolition, and water treatment. Chris performs, coordinates, and is responsible for quality assurance and quality control for engineering design activities. In addition, he leads project teams in managing and administering the construction, operation, and maintenance of treatment systems.

Chris' primary expertise is in the design, testing, evaluation, and construction of soil, groundwater, air, and wastewater treatment systems. He also has experience with design and construction of passive and traditional barrier systems to prevent migration of impacted groundwater. Chris is regularly involved in initial evaluations of remedial options for sites with environmental contamination, bench- and pilot-scale testing of treatment technologies, and design and construction of treatment or remediation processes. He has worked as lead engineer in obtaining surface water, groundwater, and air discharge permits and has prepared feasibility studies, permit applications, and detailed design documents for several sites under the jurisdiction of the U.S. EPA Superfund program. Chris has also managed design and construction of environmental controls at sites in accordance with Michigan's Parts 201 and 213 and administrative agreements and covenants not to sue (CNTS) under Part 201.

He has led project teams in designing and constructing full-scale soil and groundwater treatment systems that employ technologies such as air stripping with and without air emission controls, steam stripping, adsorption, groundwater sparging, soil vapor extraction (SVE), soil flushing, in-situ biological degradation, and in-situ chemical oxidation. Chris has also designed and implemented engineering controls to support brownfield redevelopment projects, including soil-bentonite and grouted sheet pile groundwater flow barriers, vapor barriers and sub-slab depressurization systems to mitigate intrusion of volatile organic compounds (VOCs) to indoor airspace, and sealed stormwater conveyances to prevent infiltration of contaminated groundwater to storm sewer systems. Chris has also developed protocols for and implemented bench- and/or pilot-scale testing of air and steam stripping, vacuum-enhanced steam stripping, adsorption, soil flushing, SVE, groundwater sparging, metals precipitation, chemical oxidation, and oil separation.

Project Experience

- *Owosso Inn & Conference Center, Owosso, MI (1996-97):* Leading a team of design engineers in the development and implementation of environmental controls to facilitate redevelopment of a former industrial property in Owosso, Michigan, to construct a new hotel and conference center facility. Engineering activities at the site included development of detailed design documents and construction of a polymeric vapor barrier underlying the building to mitigate intrusion of volatile organic

constituents to indoor airspace, a soil-bentonite slurry wall at the perimeter of the property to prevent migration of impacted groundwater, and a groundwater collection and treatment system to augment the slurry wall by creating an inward hydraulic gradient. He also participated in negotiations and communications with EGLE (at that time MDEQ) regarding investigation results, conceptual designs, detailed designs, estimated costs, and construction of the environmental controls.

- *Grand Rapids Community College, Tassell M-TEC Facility, Grand Rapids, MI (2001-2004):* Leading a project team to complete environmental engineering and construction activities to support redevelopment of a former manufactured gas plant (MGP) disposal facility to construct a new vocational training center for a community college in Grand Rapids, Michigan. Chris' activities in relation to this project included developing and implementing cost allocation and tracking scenarios in support of state grant funds obtained by the community college in support of the property redevelopment and obtaining EGLE (then MDEQ) affirmation of a baseline environmental assessment (BEA) for the property, and assisting in implementation of the necessary environmental controls to redevelop the property in a manner compliant with the requirements of Michigan's Part 201. Engineering controls employed during construction included sealed storm sewer systems, a polymeric vapor barrier underlying the building footprint to mitigate intrusion of volatile organic contaminants to indoor airspace, and a site-perimeter ambient-air monitoring program to control exposure to workers and residents of adjacent residential properties. Chris was responsible for interacting with the community college's design team to relate environmental requirements and make sure these requirements were implemented during construction. He also led a design and construction team to accomplish "turn-key" installation of the vapor barrier and certification of vapor barrier construction.
- *W.K. Kellogg Institute for Cereal Research, Battle Creek, MI (1995-2014):* Leading a project team in the implementation of requirements of a CNTS to facilitate redevelopment of a 15-acre site of environmental contamination in Battle Creek, Michigan. Also led a project team in concurrently implementing a separate administrative agreement for a corrective action to facilitate site redevelopment on the same property in response to a release from an underground storage tank (UST). Fulfillment of the requirements of these agreements included design and construction of a groundwater extraction and treatment system to preclude migration of impacted groundwater, development of a comprehensive residuals management plan and site health and safety plan for the redevelopment construction activities, and oversight of implementation of these plans at the site. We also worked with the MDEQ and the responsible party to ultimately achieve a monitored natural attenuation closure of the UST release under Michigan's Part 213.
- *CHEMCENTRAL NPL Site, Wyoming, MI (1991-1994):* Leading a team of engineers and environmental professionals in implementing engineering aspects of a remedial design and remedial action (RD/RA) work plan at a Superfund site. Consistent with the requirements of the work plan,

engineering activities at the site have involved pilot-scale testing of SVE, designing a full-scale system, and expanding an existing groundwater collection and treatment system. In addition, detailed performance modeling of an existing on-site regenerable vapor-phase activated-carbon adsorption system was performed. This modeling was based on ideal adsorbed solution theory and Polanyi theory and was used to demonstrate the effectiveness of the emission control device in treatment of off-gases from the SVE system. Also assisted with negotiations with U.S. EPA regarding various aspects of the engineering design and implementation.

Education

BS, Environmental Engineering, Michigan Technological University, 1994

Training/Certification

Risk-Based Corrective Action Applied at Petroleum Release Sites (ASTM Standard ES 1739)

40-hour HAZWOPER Training (EPA 29 CFR 1910) and Annual 8-Hour Refresher Courses

Registration

Professional Engineer: Michigan

State of Michigan Certified Operator (A-2d – Air Stripper and B-3b – Carbon Adsorption)

JAMES N. EDELYN, PE

Senior Environmental Engineer

Jamie has 25 years of experience in a variety of environmental and engineering projects. He frequently performs the engineering aspects of environmental projects and coordinates those tasks with other team members. This typically involves developing design plans and specifications, coordinating and contracting with implementing contractors, leading project kick-off and progress meetings, and directing work activities including office support for field personnel performing oversight.

Jamie works primarily in the design, testing, evaluation, and construction of soil and groundwater treatment systems that typically employ physical and chemical separation processes. He has also been involved with restoration activities following soil excavation activities, including wetland restoration.

Jamie has been involved with the design of a hydraulic barrier system, sealed storm sewer systems, groundwater extraction and interceptor trench system, treatment system operation and maintenance, transmission and discharge piping, and discharge/outfall devices. He has also been involved with field oversight of construction activities, including management and certification of construction.

Project Experience

- Preparing a response activity plan (ReAP) outlining a scope of work for additional remedial investigation activities in a former fill area at a former industrial park in Buchanan, Michigan. Investigation activities included an evaluation of surface features to evaluate localized drainage and groundwater seeps to a nearby surface water body, passive soil gas sampling to identify potential "hot spots," follow up soil borings to evaluate "hot spot" areas, and groundwater investigation to evaluate groundwater/ surface water interface pathway. On completion of the additional investigation activities, assisted with the completion of a remedial investigation, conceptual site model, and risk evaluation report outlining proposed next steps to be implemented, documented, and submitted as a No Further Action (NFA) report for EGLE approval. (2020–present)
- Assisting with the development and implementation of excavation-based remedy to remove tannery-related materials from former wastewater lagoons, wetlands, and upland areas at a former leather tannery site in Michigan. Activities included the removal of approximately 200,000 tons of material from the site. Assisted with design and restoration of a 5.37-acre wetland and 0.33 acres of new wetland as an emergent/open water wetland using a series of low-profile wetland berms to improve habitat diversity. Current activities include quarterly groundwater sampling and periodic requests for updates to the mixing zone-based groundwater/surface water interface criteria. (2009–present)
- Assisting with development and implementation of excavation-based remedy of PCB-impacted soils within an expedited timeframe to facilitate

redevelopment of an abandoned industrial site into a retail complex. Assisted in preparation of a self-implementing PCB cleanup work plan that was submitted to U.S. EPA Region 5. PCB remediation activities were completed within a few months to facilitate construction of the retail complex. (2008–2010)

- Preparing an assessment of corrective measures (ACM) for a county-owned landfill operator in Michigan. As part of the ACM, the on-site extraction and treatment system was evaluated based on the ability to achieve capture along more than 3,000 feet of the site perimeter. Work included the design and installation of system upgrades and development of monitoring and operating plans. Assisted in the development of a RAP for the site. Ongoing support of monitoring program (2007–present)
- Completing a groundwater extraction, treatment, and re-injection system at a former industrial park in Buchanan, Michigan. Work included the preparation of design and bid specifications and procurement of system components for three separate groundwater extraction trenches installed to a depth of twenty-five feet. Provided oversight of construction activities to assure compliance with the specifications. The objective of the system was to mitigate venting of groundwater with an elevated pH as well as groundwater containing barium, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) to a nearby surface-water body. Extracted groundwater from each of the trenches was routed to a treatment building and returned to injection wells located hydraulically upgradient of the extraction devices. Groundwater treatment was accomplished using several treatment technologies, depending on the specific constituents that were removed from the extracted groundwater. Extracted groundwater from the area of barium impact was treated using a specialty ion exchange resin to remove barium and subsequently treated utilizing granular activated carbon ("GAC") adsorption to remove SVOCs. Groundwater extracted from the elevated pH area was treated via sulfuric acid addition to reduce the pH and subsequently treated via GAC adsorption to remove SVOCs. Extracted groundwater from the VOC-impacted area was treated via GAC adsorption to remove VOCs. Oversaw operation and maintenance of the system to ensure performance objectives and standards were met and subsequently oversaw system decommissioning after operation was no longer required. (2004 –2021)
- Preparing an excavation-based remedial action plan for PCB-contaminated soils for a pharmaceutical manufacturer in Michigan. Assisted in the preparation of design and bid specifications for the implementation of an excavation-based remedial action plan (RAP) involving the excavation and disposal of in excess of 13,000 tons of PCB-impacted soil. The RAP was designed to mitigate potential human health and environmental risks associated with PCB-impacted soils to levels satisfying the requirements for a generic residential closure of the site in accordance with Part 201 of Michigan's Natural Resource and Environmental Protection Act. (2003)

Education

MS, Environmental Engineering, Michigan State University, 2011

BS, Civil Engineering (Environmental Concentration), Michigan State University, 2010

Registration

Professional Engineer: Michigan

Training/Certification

OSHA 40-hour HAZWOPER certification, including annual eight-hour refreshers

Certified EGLE Construction Stormwater Operator/Soil Erosion Inspector

MICHAEL J. ELLIS, PE

Senior Environmental Engineer

Mike has more than 11 years of experience working on complex environmental remediation projects involving multidisciplinary teams. His work focuses on evaluating remediation options by conducting feasibility studies and coordinating stakeholder collaboration; developing remedial action work plans; permitting; and designing and implementing remedial actions. He manages multidisciplinary project teams, works with regulatory agencies on timely permit approvals, provides hands-on construction management, and collaborates with contractors to facilitate successful project implementation.

Project Experience

- Serving as the project manager in the evaluation of remedial alternatives and design of a remedial action to control an ongoing source of per- and polyfluoroalkyl substances (PFAS) to groundwater from a former fire-fighting foam testing area at a Part 201 site. Remedial alternatives evaluated included assessing cutoff wall options around the source area and low-permeability cap options that would limit infiltration within the source area. Results of the evaluation indicated a soil/bentonite wall with a geomembrane cap would control the ongoing source of PFAS to groundwater at the site. Design data collection activities were completed to gather additional information needed in the design, and ongoing work includes remediation design, a remediation work plan, and construction. (2022–present)
- Serving as the project manager for remediation of Part 201 site along the St. Clair River to facilitate redevelopment of the property. The redevelopment efforts required obtaining a Joint Permit from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the United States Army Corps of Engineers (USACE) which was facilitated by Barr. Barr designed mitigation measures required by the permit based on site plans to construct a seawall that would occupy a portion of the St. Clair River and developed a plan for remediating historical impacts as part of redevelopment activities. Both plans were submitted to EGLE and USACE with permit application documents, and a draft permit was obtained. Pre-construction sampling was completed by Barr which included soil, groundwater, and sediment sampling and results were summarized in a report submitted to EGLE. Ongoing work includes coordination with EGLE and USACE to obtain a final permit, construction implementation oversight, verification sampling, and developing a documentation report. (2022–present)
- Serving as a senior technical advisor in the closure of test basins used in a previous pilot-study to mitigate per- and polyfluoroalkyl substances (PFAS) impacts in groundwater at a former paper mill and Part 201 site. Work included development of a work plan for review and approval by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), coordinating with contractors to assess constructability of closure actions, and development of technical specifications and a bid package for the

work. Ongoing work includes background sampling, construction implementation oversight, and verification sampling. (2022–present)

- Serving as the project manager in the evaluation and source removal design of per- and polyfluoroalkyl substances (PFAS) at a manufacturing facility in Michigan. The industrial discharge from the manufacturing facility was identified as a source of PFAS to the receiving municipal wastewater treatment plant through a state-led sampling initiative, and the facility was requested to further evaluate and reduce its loading of PFAS to the receiving municipal wastewater treatment plant. Barr's role included reviewing current and historical processes at the facility, along with historical sampling results, to develop a targeted evaluation of the source of PFAS. Through targeted sampling and implementation of temporary flow monitoring devices, a primary source of PFAS, estimated to contribute approximately 95 percent of the PFAS mass loading in the effluent, was identified. Barr worked with the facility to develop a source removal scope that would remove a significant mass of PFAS while minimizing downtime for the facility. Ongoing work includes supporting contractor implementation of source reduction measures, verification sampling, and evaluating the effectiveness of source removal activities. (2021–present)
- Evaluating alternative vapor intrusion (VI) mitigation efforts for multiple buildings at a Part 201 site where groundwater is impacted with volatile organic compounds. Due to site-specific constraints, traditional VI mitigation efforts (e.g., sub-slab depressurization) were not appropriate for multiple buildings at the site. Alternative VI mitigation measures were evaluated and a work plan for implementing alternative VI mitigation measures for select buildings on-site was submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Barr coordinated with EGLE to achieve approval of the work plan, and ongoing work includes procuring contractors to implement the prescribed measures, construction implementation oversight, verification sampling, and developing a documentation report. (2022–present)
- Leading multidisciplinary teams, and serving as the project manager of select projects, in the evaluation of alternatives to address impacted groundwater from coal combustion residual (CRR) landfills. Work included investigation, bench testing, options analyses, focused feasibility studies, and remedial action plans. Corrective actions Barr evaluated include monitored natural attenuation, air sparging, pumping and treating, installing reactive barriers, constructed wetland treatment, and source reduction related to the beneficial reuse of CCR. Ongoing work includes finalizing the remedial action plans, conducting detailed design, and construction. (2019–present)
- Leading a multidisciplinary team in the evaluation of remedial alternatives to mitigate oil sheens and polychlorinated biphenyls (PCBs) in sediments in a former cargo ship slip on the Great Lakes. Investigations were conducted to assess the magnitude and extent of impacted sediments, including a study to evaluate the generation of oil sheens from ebullition throughout the slip. Information from investigation activities was used to

develop a conceptual site model and establish remediation objectives based on state and federal guidelines. A feasibility study was conducted, following Interstate Technology Regulatory Council guidelines, to assess a remediation method best suited for accomplishing the remediation objectives. Ongoing work includes design data collection, remediation design, a remediation work plan, and construction. (2021–present)

- Serving as the primary field engineer for a large-scale earthwork project that entailed making improvements to a former quarry so it could accept coal combustion residual (CRR) waste. Mike's role on the project included reviewing contractor submittals; serving as the primary construction quality inspector; detailed review of as-built drawings and survey data; reviewing and tracking construction quality assurance testing; coordinating with the implementing contractor when testing results did not align with project requirements; conducting on-site inspections of the work to assess potential deficiencies; and resolving construction issues with the owner and implementing contractor. (2020–present)
- Serving as a project engineer and primary field engineer for the design and construction oversight of a large, combined industrial process water and stormwater ditch. The liner design for the ditch included a geomembrane liner covered with sand and rip-rap armor layers for protection and a high-visibility fabric to act as a warning layer to equipment operators, should it be exposed during routine maintenance of the ditch. The design also included an underflow weir and electrical lighting along a portion of the ditch. Mike's role included development of technical specifications; serving as the primary construction quality inspector; reviewing and tracking construction quality assurance testing; conducting on-site inspections; and resolving construction issues with the owner and implementing contractor. The project was successfully constructed while allowing for continuous operation of plant discharge during construction. (2020)
- Serving as the project manager in the evaluation, design, and implementation of a water treatment system that was used to treat per- and polyfluoroalkyl substances (PFAS) and high pH levels during decommissioning of a former power plant in Michigan. Groundwater infiltrating the basement of the power plant needed to be removed on a near-continuous basis, but PFAS and high pH levels were discovered during decommissioning. Barr characterized the impacts and developed a treatment system that allowed decommissioning activities to continue. The recommended PFAS treatment was granular-activated carbon, and carbon-dioxide aeration was recommended for the high pH levels. Barr and a remediation contractor completed bench- and pilot-scale testing before providing turnkey design to allow for the timely employment of the treatment system. Barr led the implementation of the treatment system and collected samples to verify that the effluent water quality met project objectives. Approximately 26.5 million gallons of PFAS-impacted and high-pH water was treated by the treatment system over 18 months. (2019–2021)

- Evaluating solid-phase per- and polyfluoroalkyl substances (PFAS) impacts from a former manufacturing process and designing a remediation method to facilitate redevelopment of the building. Historical operations at the site resulted in residual, solid-phase PFAS impacts on interior building components such as the concrete floor, steel beams, walls, and ceilings. Impacts were evaluated collection of wipe and solid-phase samples and results were used to develop potential remediation approaches to mitigating impacts in the interior of the building. Mike led a bench-scale testing effort at the facility to evaluate the proposed remediation approaches, including detailed documentation of methods and results. Results from the study identified a suitable remediation approach for mitigating solid-phase impacts in the building that was approved by the regulatory agency. Ongoing work includes the development of technical specifications for construction and implementation. (2019–present)
- Leading a multidisciplinary team in the evaluation, design, permitting, and implementation of a sediments remediation project adjacent to a former manufactured gas plant (MGP) and Part 201 site on the Flint River in Michigan. The design included a wetland mitigation strategy; hydraulic, geotechnical, and groundwater modeling; water treatment; structural engineering and development of a structural monitoring plan; riverbank armoring and stabilization; restoration of greenspace and park infrastructure; and an odor- and emissions-mitigation plan. Mike participated in collaboration efforts with project stakeholders, including the U.S. Environmental Protection Agency; U.S. Army Corps of Engineers; Michigan Department of Environment, Great Lakes, and Energy (EGLE); Michigan Department of Natural Resources (MDNR); and state, county, and city officials. Through collaborative efforts, he led the design team in developing a design for the Joint Permit Application that was agreeable to the applicable regulatory agencies, which facilitated a timely permit approval process.

  Mike served as owner's engineer during the project's construction and as the main point of contact with the primary contractor. He facilitated collaboration with the contractor, allowing for successful implementation of the project. In 2019, EGLE issued a certificate of project completion for the project. (sediments remediation project: primarily 2016–2018; other aspects of the project: 2011–present)
- Leading a multidisciplinary team in the evaluation, design, and remediation of impacted river sediments adjacent to a historical MGP and Part 201 site along the Kalamazoo River in mid-Michigan. He participated in collaboration efforts between project stakeholders, including U.S. Environmental Protection Agency; U.S. Army Corps of Engineers; EGLE; MDNR; and state, county, and city officials, which resulted in a timely permit approval process.

  Mike served as owner's engineer during construction of the project and the main point of contact with the primary contractor. Collaboration with the contractor allowed for successful implementation of the project. The site received a No Further Action designation from EGLE, due in part to

this remediation effort. (sediments remediation project: primarily 2014–2015; other aspects of the project: 2011–2016)

- Mike's other work at Barr has included:
  - Coordinating wetland delineation and threatened and endangered species reviews for proposed construction projects.
  - Leading Joint Permit and Soil Erosion and Sedimentation Control permit applications.
  - Collaborating with project stakeholders to secure required permits and approvals.
  - Reviewing contractor submittals during remedial actions.
  - Coordinating with contractors to make field adjustments to designs based on site conditions.
  - Developing cost estimates for remedial actions and life cycle costs for long-term remediation projects.
  - Assisting with the development of feasibility studies to evaluate remedial alternatives.
  - Supporting the development of remedial action work plans sent to EGLE.
  - Developing technical specifications and construction plans.

Publications

Boom, T., Ellis, M., and Richard, D. "Designing and implementing an urban river remediation." *Remediation*. Volume 29, Issue 4, Autumn 2019: 93–105.

Kostić, T., Ellis, M., Williams, M., Stedtfeld, T., Kaneene, J., Stedtfeld, R., and Hashsham, S. "Thirty-minute screening of antibiotic resistance genes in bacterial isolates with minimal sample preparation in self-dispensing 64 and 384 assay cards." *Applied Microbiology and Biotechnol*ogy. 99, 7711–7722 (2015).

Presentations

Ellis, M., BinAhmed-Menzies, S., Boom, T., and Carney, L., 2023. "An Evaluation of Microplastics as Vectors for Contaminants in Sediments" Presentation at the 2023 Battelle Sediments Conference.

Ellis, M., Vermace, B., Lund, E., McCabe, A., and Wolohan, K., 2023. "PFAS-Impacted Solids: How Lessons Learned from the Wastewater Industry Can Apply to Sediments Projects" Poster at the 2023 Battelle Sediments Conference.

Ellis, M., Helminski, T., 2022. "The Integrated Toolbox Needed to Respond to PFAS Investigation Requests" Webinar presentation for the Michigan Chemistry Council.

Ellis, M., 2022. "Characterizing and Mitigating PFAS at Manufacturing Facilities" Presentation at the 2022 Michigan Water Environment Association Annual Conference.

Ellis, M., 2022. "Characterizing and Mitigating PFAS at Manufacturing Facilities" Presentation at the 2022 Michigan Environmental Compliance Conference.

Ellis, M., Boom, T., and Santini, D., 2019. "Sediment Cap Design, Modeling, and Construction at a Former MGP Site" Presentation at the 2019 Great Lakes Remediation and Redevelopment Conference.

Ellis, M., Boom, T., and Santini, A., 2019. "Construction Quality Assurance during Environmental Dredging and Capping Projects" Poster at the 2019 Battelle Sediments Conference.

Kolstad, D., Ellis, M., Boom, T., Collins, J., and Welch, M., 2019. "Sediment Cap Design, Modeling, and Construction" Presentation at the 2019 Battelle Sediments Conference.

Ellis, M., Partch, G., Boom, T., and Jones, C., 2015. "Designing Dredge Prisms to Remove Impacted Sediments While Protecting Infrastructure" Presentation at the 2015 Midwest Chapter Western Dredging Association Conference.

Education

BS, Resource Development, Michigan State University, 1993

Training/Certification

40-hour HAZWOPER certification (1995), 8-hour annual updates

CHRISTENE JONES

Senior Environmental Scientist

Christene has nearly 30 years of experience in the areas of site assessment, investigation, remediation, risk assessment, and Michigan regulations. She focuses on helping clients develop strategies to reach long-term goals, implementing these approaches, and facilitating negotiations to obtain consensus from regulatory agencies. Christene's project work has included historical research, preparation of site-specific sampling plans, site assessment and investigation, and remediation planning and execution, primarily for sites in Michigan. She served on the Michigan Department of Environmental Quality's Part 201 Discussion Group (complexity subgroup, 2006–2007), facilitated the Effective Solubility work group (in 2008–2009), and served on Technical Advisory Group 2 to the Criteria Stakeholder Advisory group (2014). More recently, Christene participated in per- and polyfluoroalkyl substances (PFAS) work group and industry meetings and provided guidance to Barr teams on Michigan PFAS regulations.

Project Experience

- Overseeing and conducting tasks for enhanced Phase I ESAs for two industrial properties for a confidential client. In addition to meeting the ASTM standard, the scope of work included evaluating information obtained from the client's in-house chemical use, spill, and waste databases. (2022–present)
- Developing a strategy for approaching a client's role as a potentially responsible party in a Great Lakes Legacy Act sediment remediation project. Led a team to evaluate data and multiple lines of evidence, recommended a path forward, developed a suggested allocation method, and prepared an allocation position to communicate to the third-party allocator. (2015–present)
- Preparing an approach to evaluating chlorinated solvent groundwater contamination at a municipal landfill site with co-mingled plumes, with the objective of moving to a remedial design. Providing senior-level guidance through site investigation and preparation of a focused feasibility study evaluation. (2018–present)
- Identifying publicly available information sources in several states, leading a team, and identifying potential sources of PFAS impacts by accessing and evaluating publicly available information. Summarized findings to support legal team needs in preparing for litigation and identified the status of PFAS regulations to support project work. (2021–2022)
- For multiple known or suspected PFAS sites, reviewing publicly available information to identify known and potential PFAS sources, release and transport mechanisms, exposure pathways, and available analytical data. Preparing simplified conceptual site models, including tabulated data, reference links, and figures, to support the client and its attorneys in preparing for litigation. (2018–present)

- Providing regulatory guidance for an aqueous film-forming foam (AFFF) release site adjacent to a Great Lake and evaluating potentially applicable Rule 57 Water Quality Values and Part 201 criteria for this PFAS-impacted site at which potential perfluorooctanesulfonic acid (PFOS) impacts to surface water were the primary concern. (2018)
- Leading an effort to assess air permitting requirements and build consensus on a monitoring program for a sediment remedial action at a high-profile site in Flint, Michigan. Tasks included leading discussions among our client, the primary property owner, and MDEQ representatives; assisting in public and stakeholder outreach meetings; and providing oversight to the team developing and implementing the construction noise, odor, and air monitoring plan. (2016–2017)
- Providing project and task management services and application of Part 201 and associated rules to various sites, including former manufactured gas plant (MGP) sites, petroleum release sites, solvent release sites, and sites impacted by coal and/or metals. Tasks included data evaluation, project planning, work plan preparation, investigation, remediation, verification sampling, hazardous materials abatement and building demolition coordination, reporting (monitoring reports through remedial action plans and closure reports), statistical sampling planning and implementation, site-specific criteria calculations, due care evaluation, risk assessment, mitigation (including mitigation of acute conditions at the groundwater–surface-water interface), and negotiations with regulators. (multiple projects, multiple years)
- Serving as project manager or principal in charge for several former manufactured gas plant (MGP) sites regulated under Part 201 in Michigan. (multiple projects, multiple years) Project work included:
    - Outlining an approach to meet a client's long-term goal of reaching "no further action" status at its sites, including identification of interim objectives, phased tasks, a timeline, and anticipated costs.
    - Directing implementation of site investigation and remediation tasks based on anticipated impact of remedial effort, budget allowances, schedule drivers, and stakeholder priorities.
    - Planning and directing river investigation tasks and facilitating subsequent negotiations with MDEQ to build consensus on a limited sediment remediation with no post-dredge sampling.
    - Preparing a multiple-lines-of-evidence approach to defining the boundaries of a Part 201 facility in a historically industrial area. MDEQ's agreement to the proposed boundaries was instrumental in mitigating exposure pathways, negotiating deed restrictions, and moving the site toward an end point.
    - Planning and directing activities to address specific site issues, including documenting the absence of evidence of dense, nonaqueous-phase liquid, preparing a mixing-zone determination request, obtaining joint permits for conducting work within and along rivers, obtaining groundwater-discharge permit exemptions to support

injection of remedial-excavation dewatering liquids, and preparing restrictive covenants.

- Conducting peer review of environmental due diligence for a paper mill site that operated for more than 100 years and where the buyer intended to continue its use in paper mill operations. The property is located on a section of the Kalamazoo River that is a Superfund site due to PCB contamination resulting from other historic paper mills in the area. Served as the primary peer reviewer for all appropriate inquiry, Phase II site assessment, and two baseline environmental assessments (category N and category S). The MDEQ approved both BEAs, and the property transaction took place as scheduled. (2006–2007)
- Completing or reviewing more than 50 baseline environmental assessments (BEAs), in accordance with Part 201 and associated rules and guidelines, including multiple Section 7a compliance analyses. Completion of the BEAs included interpretation and evaluation of analytical data, evaluating proposed property uses, determining methods for distinguishing potential future contamination from existing contamination, working with interested parties (property owners, operators, developers, bank loan officers, and attorneys) to meet BEA requirements, communications with regulatory agency representatives, and generation of reports and associated forms for MDEQ-submittal. (multiple projects, multiple years)
- Completing or overseeing over 50 Phase I environmental site assessments in accordance with ASTM practices (and more recently All Appropriate Inquiry), including site walkthroughs, interviews, historical research, evaluation of site conditions, report generation, and discussion of data interpretation with clients. (multiple projects, multiple years)
- Managing Phase II environmental site assessments for approximately 50 properties, including sites impacted by petroleum products, metals, solvents, fertilizers, and pesticides. Responsibilities typically include evaluating recognized environmental conditions or other concerns, preparing a site-specific sampling plan, coordination and oversight of field activities, evaluation of analytical data, and completion of associated reporting. (multiple projects, multiple years)
- Managing remedial investigation at a 40-acre former industrial dump site in western Michigan. This solvent-impacted site is on a peninsula created by a meandering river, and site cleanup was driven by the groundwater–surface-water interface pathway. Responsibilities involved monitoring groundwater, data evaluation and reporting, historical research (interviews, aerial photograph review, and agency- and client-file review) to document soil cleanup conducted 20 years prior, preparation of a verification soil sampling plan, identifying and evaluating long-term options for the site, working with state regulators to obtain approval to shut down the groundwater remediation system, strategy discussions with client's team, working with the local municipality and attorneys to mitigate exposures through activity, and use limitations to allow the property to be used as a community park and trail. (2003–2007)

- Completing tasks related to a due diligence evaluation of an 80-acre property with 100 years of industrial history. Tasks included completion of an expedited Phase I site assessment, additional research, Phase II investigation and risk assessment discussions with the purchaser, financing entity, various attorneys and environmental consultants. (2006)
- Assessing risk at a property historically used as an unlicensed landfill. Work included drafting a combination due care/asbestos operations and maintenance plan in coordination with a firm specializing in asbestos issues. (2003–2004)
- Conducting an environmental assessment of an airport fueling facility, including site walkthrough, interviews, evaluation of reported releases, subsurface investigation of areas of suspected impact, vapor survey of subsurface structures, and findings/recommendations reporting. (2004)
- Preparing a flow chart outlining investigation and remediation activities, research and decision-making tasks, points at which MDEQ approval is needed, significant deliverables, and monitoring events. The project plan covered tasks for a five-year period for a petroleum-impacted site. This approach kept the project efforts focused on reaching long-term goals, improved communications with MDEQ, and allowed more budget control. (2003)
- Assessing risk at numerous former MGP sites. Activities included evaluating data, completing Section 20107a compliance analyses, evaluating data in relation to proposed site activities and applicable exposure pathways, and completing reporting. (multiple projects, multiple years)
- Working on a team conducting expedited Phase I assessments of more than 200 lease properties along a railway corridor. Developed a simple form to simplify site reconnaissance activities and allow identified issues to be prioritized across the group of sites. (2002)
- Providing on-site oversight services during hazardous materials removal and building demolition activities at a site in Flint, Michigan. Hazardous materials removed from the building included various asbestos-containing materials, paint with PCBs, presumed PCB-containing light ballasts, and various other materials requiring special handling. (2002)
- Preparing site-specific spill prevention, control and countermeasure (SPCC) plans, and pollution incident prevention (PIP) plans for properties using, handling, and/or storing petroleum products or other polluting materials. Included direction of site evaluation, evaluation of existing spill prevention and response mechanisms, identification of areas in which improvements are needed, and working with client to establish a plan that was feasible to implement. (multiple projects, multiple years)
- Evaluating due care obligations for a combined Part 201/213 site, including filing notices, preparing a due care plan, calculating site-specific criteria, completing a soil gas investigation of the indoor air pathway, and statistical sampling and associated evaluation. (multiple projects, multiple years)

- Completing a fast-track baseline environmental assessment on behalf of the purchaser of a known Part 201 site impacted with solvent and petroleum contamination, including two phases of free product. Worked with the purchaser, lessee, loan officer, and attorney to meet tight reporting deadlines and to deliver a report outlining feasible, site-specific approaches. (2000)
- Managing approximately 75 leaking underground storage tank (LUST) sites in accordance with Part 213 (of Act 451 of 1994, as amended) and the MDEQ's Risk-Based Corrective Action guidelines. Responsibilities included creating and implementing site-specific sampling plans, coordinating and supervising field activities, evaluating laboratory data, conducting risk assessments, coordinating and supervising remediation activities (remedial excavation, bioaugmentation, biostimulation, natural attenuation), developing property restrictions, and performing Tier II analysis and/or monitoring activities. (multiple projects, multiple years)
- Preparing Environmental Impact Statements for two properties in Michigan, including research, conducting interviews, and report preparation. One property is located in a small community and was agricultural land proposed for use as a gasoline station and car wash operation. The other property, located in the metro-Detroit area, was a gasoline station being proposed for expansion. (1999)

Education

BSE, Chemical Engineering, University of Michigan, 2010

Training/Certification

Engineer in Training: Michigan

40-hour HAZWOPER training

SCOTT VENMAN

Senior Environmental Engineer

Scott has over 12 years of environmental consulting experience providing due diligence, environmental health and safety, and multimedia compliance and permitting services. His work includes planning, implementation, statistical data analysis, data interpretation, and reporting. Scott has investigative experience in a variety of media, such as groundwater, soil, sediment, soil gas, and indoor air. He has also performed permitting and reporting for a variety of state and federal programs. In addition, Scott manages projects to achieve goals within schedule and budgetary constraints. His varied skillset and experience provide him with an unusually broad perspective of compliance factors in evaluating client facilities and processes.

Project Experience

- Managing a due diligence project for a client's wind farm partnership to evaluate potential environmental risks within a 20,000-acre project area. The project began with a review of a Phase I prepared by others and coordinating with the project stakeholders to pare down the list of parcels with potential environmental concerns from over 200 to approximately 25. The project continued with development and execution of a Phase II investigation at eight of the parcels. The project was under a strict deadline and was completed in about a month. (2020)
- Managing a project completing periodic sampling, historical data organization, and additional investigation to pursue a no further action (NFA) status for a client's former manufactured gas plant site. The project included review and compilation of over two decades of investigation and remedial activities as well as coordination and communication with Michigan Department of Environment, Great Lakes, and Energy (EGLE) personnel to develop a path toward NFA at the site. (2017– present)
- Managing a project in developing lines of evidence for a client involved in a confidential mediation process to allocate the cost of a remedy for a Great Lakes Area of Concern project. The project involved negotiation and coordination with the client, municipal representatives, client counsel, the mediation consultant, and Environmental Protection Agency (EPA) project administrators. (2015– present)
- Performing operational site evaluations at two facilities for a client's management team to develop reports to aid in long-term management of the facilities and historical contamination liability. The evaluations consisted of reviewing dozens of reports for each facility; compiling historical information; reviewing historical photography and maps; performing site reconnaissance; interviewing long-time employees; and preparing reports for each facility to concisely present the gathered information. (2016)
- Managing tasks for a multiple line of evidence evaluation of evaluate contaminant liability from a client's former manufactured gas plant and a collocated gasoline station. Tasks included research to determine location

of contaminant plumes relative to current and former site features, an evaluation of over 20 years of analytical results to distinguish trends in contaminant degradation, and key distinguishing parameters (2015–2017)

- Serving as the designer and task manager for a client's statewide underground storage tank (UST) removal and aboveground storage tank (AST) replacement program. Work included (2013–2014):
  - Developing initial scope, proposal, and budgets for the program.
  - Creating a client-standard design and 12 initial site-specific designs.
  - Performing fuel-use analysis and tracking to determine optimal AST replacement sizing.
  - Facilitating communication between site users, the client project team, and contractors.
  - Coordinating and performing construction and demolition oversight.
- Conducting Phase I and Phase II ESAs for clients throughout Michigan, Kentucky, Missouri, and Ohio. Tasks included writing reports and compiling due diligence research; developing sampling and investigation plans; and creating reporting tables comparing analytical results to Part 201 cleanup criteria and Part 213 risk-based screening levels, vapor-intrusion screening levels, and waste characterization values. (2010–present)
- Completing baseline environmental assessments and due care plans to mitigate client risks and aid in maintaining liability protection for clients whose properties are contaminated with hazardous materials. (2010–present)
- Performing screening and sampling of surface and subsurface soil, water, sediment, indoor air, and soil gas including (2010–present):
  - Soil identification, sampling, and field screening for impacted materials.
  - Oversight of monitoring well installation and decommissioning.
  - Groundwater sampling, including low-flow methods.
  - Soil-gas sampling including onsite leak detection methods.
  - Remediation oversight, documentation, and verification sampling.
- Assisting with the verification and design of direct contact barriers including randomized sample plan design and execution, statistical analysis of existing soil contaminate levels for barrier suitability, and engineered barrier construction oversight. (2010–present)

Attachment C: Additional Resumes

Education

MS, Biology (environmental remediation focus), Michigan Technological University, 2016

BS, Biochemistry and Molecular Biology (microbiology minor), Michigan Technological University, 2011

Training/Certification

40 Hour OSHA HAZWOPER and Annual 8-Hour Refresher Courses

ASTM E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

DIANE BIEHL

Environmental Scientist

Diane has over six years of experience as an environmental scientist, working on environmental assessment and remediation projects throughout the Midwest. Diane has experience with assessments, investigations, and compliance activities related to per- and polyfluoroalkyl substances (PFAS), chlorinated solvents, heavy metals, and volatile organic compounds (VOCs). Her work experience includes, groundwater, soil, soil vapor, and sediment investigations, remedial due diligence investigations, various compliance-related reporting, remedial system maintenance, remedial design implementation, and construction oversite.

Project Experience

- Serving as the project manager in the closure of test basins used in a previous pilot study to mitigate PFAS impacts in groundwater at a former paper mill and Part 201 site. Work included development of a work plan for review and approval by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), coordinating with contractors to assess constructability of closure actions, and development of technical specifications and a bid package for the work. Ongoing work includes background sampling, construction implementation oversight, and verification sampling. (2022–present)
- Serving as project manager for the development of a Remedial Action Plan (RAP)/Corrective Measures Implementation Plan (CMIP) for a manufacturing facility. Ongoing work includes the implementation of semi-annual groundwater monitoring events and associated reports, delineation of groundwater PFAS impacts on the property, and communication and coordination with the EGLE Materials Management Division (MMD). (2022–present)
- Serving as the project manager for a PFAS delineation investigation at a manufacturing facility. Work included development of multiple work plans, collection and analysis of soil samples, coordination with EGLE Remediation Redevelopment Division (RRD), and development of a report. (2022–present)
- Serving as task manager for volatilization to indoor air pathway evaluations at industrial sites across Michigan. Tasks included proposing sampling locations, assisting with contracting, coordinating sampling events, reviewing analytical data and comparing results to applicable criteria, and writing quarterly monitoring reports. (2022–present)
- Serving as task manager for multiple PFAS investigation activities requested by manufacturing client with several properties throughout the United States. Tasks included preparation of sampling plans, coordination with facility contacts, coordination with laboratories, soil and groundwater sampling, and preparation of summary reports. (2022–present)
- Serving as task manager for continued groundwater delineation efforts at a coal combustion residual (CCR) facility. Tasks included coordination with

subcontractors (including drillers and surveyors), well construction, field effort planning and coordination, and reporting. (2022–present)

- Serving as primary author, field technician, and task manager on multiple Phase I and Phase II environmental site assessments (ESAs) for clients throughout Michigan. Work included writing reports and compiling due diligence research, developing sampling and investigation plans, and creating reporting tables comparing analytical results to Part 201 cleanup criteria and Part 213 risk-based screening levels, vapor-intrusion screening levels, and waste characterization values. (2022–present)

Before joining Barr, Diane worked for several environmental consulting firms (2017–2021). Examples of her previous project work include:

- Conducting PFAS preliminary assessments for the U.S. Coast Guard involving records reviews, interviews, site visits, and report preparation for over 55 U.S. Coast Guard units throughout Alaska. Work also included communication with unit commands, data management, and historical record collection.
- Performing facility closure activities for IAC facilities throughout the Midwest, including the closure of environmental permits (air, stormwater, and wastewater), the termination of hazardous waste ID numbers, and emergency response reporting. Responsibilities also included helping ensure that closure activities complied with state and federal regulations and facilitating communications between the client and agencies.
- Conducting PFAS and vapor intrusion investigations at IAC Mendon, including Part 201 facility delineation for PFAS in groundwater and a vapor intrusion investigation required by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Duties included communication with EGLE, historical research review, and field investigations.
- Providing PFAS technical support for the Air National Guard, including reviewing PFAS preliminary assessments and site inspections to assist with future remedial action efforts. Responsibilities involved document review and the application of PFAS knowledge to make recommendations.
- Performing remedial action operations for the Air National Guard. Field activities included enhanced in-situ bioremediation, soil sampling, groundwater sampling, air sparge operation and maintenance, vapor intrusion mitigation, soil gas sampling, and well abandonment. Project activities included work plan development and planning, subcontractor procurement, semi-annual reporting, and project completion reporting.
- Conducting contamination characterization on the Detroit River, including ponar and core sediment sample collection, sediment logging, and sample tracking. The project also involved fieldwork preparation and government reporting.
- Providing construction oversight for wetland remediation and restoration, including oversight of habitat restoration, emergent marsh creation, vegetation installation, and monthly vegetation assessment. Project activities also included communication with clients and oversite reports.

- Performing landfill baseline groundwater assessments involving quarterly and semi-annual groundwater sampling, hydraulic monitoring, and reporting for various clients.
- Performing methane emission mitigation system monitoring, including installation oversite, system monitoring and maintenance, emission monitoring, emission sampling, and reporting.
- Performing asbestos and regulated materials surveys for the City of Flint, Michigan. Activities included sampling of suspect asbestos-containing materials, identification of regulated materials, and reporting.
- Conducting Phase I and Phase II environmental site investigations for private and municipal clients. The work involved Phase I document consolidation and reporting, Phase I site walks, Phase II exploratory soil borings, and Phase II reporting.

Publications

"Heavy Metal Accumulation in Urban Soil: A Phytoextraction Method Review." Master's Report, Michigan Technological University, 2016.

Education

MS, Geology, Western Michigan University, 2006 (Geophysics and Hydrogeology specialization)

BS, Geology, Central Michigan University, 2003 (Environmental and Hydrogeology specialization)

Training/Certification

OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training, Michigan State Police, 2003

OSHA and 8-hour HAZWOPER Refresher, March 2022

ASTM Technical and Professional Training: Environmental Site Assessments for Commercial Real Estate, March 2013

Annual Phase I Refresher provided by Barr, March 2022

Registration

Professional Geologist (PG): Minnesota, United States of America (active license)

Professional Geoscientist (P.Geo): Saskatchewan, Canada (active license)

NATHAN J. BRANDNER, PG

Senior Geologist

Nathan is a geologist with over 16 years of experience and a master's degree in geology from Western Michigan University. His experience includes environmental site investigation and characterization, specializing in the development of complex and dynamic conceptual site models for advancing impacted sites toward closure. He manages a wide variety of projects and has experience with multiple sampling techniques, including soil, soil vapor, groundwater, geochemical, and geophysical investigation techniques. Over the past seven years, Nathan has also managed hydrogeological investigations throughout Saskatchewan, Canada to support underground potash mines with the management of their surface mine tailings and regulatory obligations. He also assists clients with stakeholder collaboration, including interactions and negotiations with attorneys and regulators.

Project Experience

Environmental Site Assessment

- Providing project management for several Part 201 former manufactured gas plant (MGP) sites throughout southern and western Michigan. Work has included planning and completing several site investigations (source area characterization); plume stability analyses; groundwater and surface water characterization; remedial excavation; building demolition; soil, soil gas, groundwater, and porewater sampling; subcontractor procurement and management; conceptual site model development; mixing zones; and no further action submittals. (2007–present)
- Providing Phase I environmental assessment services for multiple properties in Missouri, Kansas, Indiana, Michigan, Ohio, and Wisconsin. Work included completing property research and summarizing the results and reporting results per ASTM E1527-05, ES1527-13, E2600-10, and E 2247-08. (2008–present)
- Providing Phase II environmental site assessment services for contaminated sites in Michigan, Indiana, Minnesota, Ohio, and North Dakota. Work included project management, completing work plans, completing subcontractor contract documents, collecting soil and groundwater samples, field investigation documentation, development of conceptual site models, and Phase II investigation documentation and submission. (2007–present)
- Providing environmental site assistance at several underground mining facilities in central Saskatchewan, Canada. Work has included assessing the extent of brine impacts in surrounding groundwater and surface water, including the completion of geophysical surveying with electromagnetic survey equipment (Geophex GEM2), sample collection, identification of preferential flow paths, and the development of a conceptual site model. Work also included identification of background/ambient conditions versus brine-impacted soil groundwater through geochemical data plots (Piper/Stiff diagrams). Work has also included assisting Barr's civil and geotechnical engineering teams with

design basis investigations for tailings management expansion projects, including hydrogeological field investigations and groundwater modeling to inform feasibility and final design recommendations. (2017–present)

Geophysical Investigation

- Providing electromagnetic surveys (Geonics EM-31, EM-34, and magnetic susceptibility) surveys at a Fortune 500 manufacturing facility in Iowa in 2017. Work included assessing a legacy industrial landfill and ancillary structures suspected for buried metallic waste and potential groundwater leachate. (2017)
- Providing electromagnetic survey (Geonics EM-31 and EM-38) services for oilfield brine-plume delineation at a brine disposal well site in North Dakota. Planned and conducted field survey (data collection), post-processing of the investigation data, data interpretations, and reporting. (2015)
- Providing geophysics and groundwater sampling assistance for investigation of a contaminated waste site in Michigan. Assisted with underwater-electrical-resistivity survey (Supersting) and an over-water electromagnetic (Geophex GEM2) survey. Assisted with electromagnetic survey (NanoTEM), seismic refraction, multi-channel analysis of surface waves (MASW), and random energy micro tremor (REMI) surveys. (2006–2008)
- Providing geophysical survey assistance for a heavy-metal-contaminated (sediment) site near St. Paul, Minnesota. Assisted with over-water GPR and electromagnetic (Geophex GEM2) surveys. Also assisted with logistics of over-water survey, run-off point source (storm sewer) surveys, and reviewing and providing feedback for final report. (2006)

Publications

Brandner, N.J. 2006. Field studies of hydrophobic filter pack performance in free product monitoring and recovery. Master's thesis. Western Michigan University.

Brandner, et. al. Tailings Management Handbook-A Life Cycle Approach, Society for Mining, Metallurgy & Exploration (SME), Edited by Kimberly Finke Morrison, 2022 ISBN 978-0-87335-490-5.

Education

MS, Environmental Toxicology, University of Wisconsin–Madison, 1990

BA, Biology, Kalamazoo College, 1988

KAREN M. HATHAWAY

Senior Toxicologist

Karen has more than 30 years of experience with risk assessment, risk management, and environmental compliance. She develops site-specific cleanup criteria and assesses liability, vapor intrusion, and human health risks. She also prepares risk management, no further action (NFA), and closure plans and performs due diligence.

Karen has experience with many environmental remediation programs, including the Comprehensive Environmental Response, Compensation & Liability Act (CERCLA, or Superfund), Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), and Part 201 of Michigan's National Resource and Environmental Protection Act (Act 451).

Project Experience

- Preparing a site-specific risk assessment to assess potential trespasser exposures to cover soils at a closed landfill. The assessment included the derivation of site-specific trespasser soil values following state-specified methods, a comparison of analytical results for individual soil samples to the site-specific trespasser soil values, and an evaluation of cumulative risks. The results of the site-specific risk assessment were used to evaluate the need for remedial actions at the site and the extent of those remedial actions. Contaminants included dioxins, furans, and carcinogenic polycyclic aromatic hydrocarbons. (2022)
- Preparing risk evaluations, baseline environmental assessments, and risk management (due care) plans for residential and nonresidential sites to identify remedial needs and ongoing obligations for owners of environmentally impaired properties. These projects range in size and scope from small property transactions to large, industrial remediations. When insufficient data is available to make a risk determination, she makes specific recommendations to collect the necessary data. (2018–2022)
- Conducting vapor intrusion assessments for manufacturing buildings on sites contaminated with chlorinated volatile organic compounds, including trichloroethylene and tetrachloroethylene. The assessments include evaluating existing soil, groundwater, soil gas, and indoor air data relative to agency screening levels, identifying data gaps, and developing closure strategies. (2018–2022)
- Preparing an investigative strategy utilizing incremental sampling methodology (ISM) to characterize a former orchard property contaminated with arsenic and lead from pesticide use. The ISM sampling results substantially reduced the area requiring remediation and demonstrated that the 70-acre property was suitable for residential development following focused remediation. (2018–2019)
- Preparing a risk management plan for the residential development of a property that operated as a leather tannery for more than 130 years. The plan included an evaluation of known environmental impairments to the

property and exposure pathways of concern for the intended residential use. The plan also described the response activities, notifications, precautions, and land use restrictions needed to protect construction workers and future residents. (2017)

- Preparing a baseline screening level risk assessment of soil conditions at a large manufacturing facility being redeveloped for residential use. The risk assessment included a screening level human health risk assessment of 10 sites of concern and a screening level ecological risk assessment for one area of concern. The human health and ecological assessments followed USEPA and state risk-based guidance. (2015–2017)
- Preparing risk management plans for seven natural gas facilities including former oil fields converted to natural gas storage fields. The plans addressed historical environmental impact (e.g., elevated chemical concentrations and visible evidence of oil residuals, staining, stressed vegetation) identified at the former oil fields and active oil and gas production plants. Karen developed criteria based on site-specific exposures to document that there were no unacceptable health risks to the public and workers. The plans also documented the steps the client should take to prevent exacerbation of the existing environmental impacts. (2015)
- Conducting an environmental risk evaluation for a large chemical manufacturing facility pursuant to the Resource Conservation and Recovery Act (RCRA) corrective action program. This work included assessing human health risks resulting from exposures to impacted soil, groundwater, and air, as well as aquatic risks in an adjacent river. The risk assessment identified the media requiring remediation to be protective of human health and the environment. The risk assessment also satisfied the requirements of both the RCRA corrective action program and Part 201. (2014)
- Assessing environmental conditions for recreational uses of a 1,500-acre urban park through a cooperative agreement with the U.S. Environmental Protection Agency (USEPA). A large portion of the park coincided with an oilfield, and certain areas of the park property had been used for dumping. Karen established baseline conditions in planned recreational areas (such as playgrounds) and used the results to characterize risk management (due care) obligations. (2006–2007)

Education

MS, Biosystems and Agricultural Engineering, University of Minnesota, 2008

Graduate certificate in Stream Restoration Science and Engineering, University of Minnesota, 2007

BS, Civil Engineering, Valparaiso University, 2004

Registration

Professional Engineer: Michigan, Minnesota

Training/Certification

Culvert Design for Stream Connectivity and Aquatic Organism Passage, University of Minnesota, 2021

Stream Functions Pyramid and Stream Quantification Toolbox Workshop, Stream Mechanics, 2020

Wildland Hydrology (Rosgen) Training: River Restoration and Natural Channel Design (Level IV, 2016); River Assessment and Monitoring (Level III, 2015); River Morphology and Applications (Level II, 2014); Applied Fluvial Geomorphology (Level I, 2014)

Fundamentals of Stream Restoration: Applied Geomorphology and Ecology, Minnesota DNR, 2011

PETER J. HINCK, PE

Senior Water Resources Engineer

Peter has 14 years of experience providing a variety of water resources-related services, including assessment and design for stream restoration and stabilization projects; hydraulic structure analysis and design; one- and two-dimensional hydrologic and hydraulic modeling; and probabilistic flow and water quality modeling. He has been trained in natural channel design, stream geomorphic assessment, and sediment transport modeling.

Project Experience

- Serving in multiple capacities, including project manager, lead designer, and/or assistant designer, on a number of stream assessment and design projects, including:
  - Altona Dam removal and river restoration; Mecosta County, Michigan: Served as project manager and design lead for removal of a small dam and associated river restoration measures on the Little Muskegon River. The project will reestablish aquatic organism passage that is currently blocked and will enhance both in-stream habitat and public access to the river at a township park. (2022)
  - Shell Rock River stabilization; Albert Lea, Minnesota: Designed measures to improve habitat and sediment transport in two over-widened reaches of the Shell Rock River. Innovative design elements included the use of large tree revetments and permeable dikes to trap sediment and debris and gradually narrow the channel over time. (Construction was completed in 2022)
  - Rapidan Dam removal; Blue Earth County, Minnesota: Designed feasibility-level measures for removal of a 60-foot-high dam on the Blue Earth River and recreation of a natural river channel through the current impoundment. The project includes measures to remove more than 1 million cubic yards of impounded sediment and create a stable boulder rapids system through the current dam location. (2021)
  - Lower Riley Creek stabilization; Eden Prairie, Minnesota: Designed restoration and stabilization measures to reconnect 4,600 linear feet of stream with its narrow valley floodplain in order to decrease erosion and sediment loading for the Riley-Purgatory Bluff Creek Watershed District. The design included the use of on-site materials (logs and root wads) as well as imported rock to raise the stream bed 3 feet through a series of boulder vanes, rapids, and rock riffles, and to stabilize steep slopes with toe wood and soil lifts. (Construction was completed in 2020)
  - Bassett Creek stabilization; Minneapolis, Minnesota: Designed bank stabilization for two segments of Bassett Creek near downtown Minneapolis. The design included measures to address historic soil contamination and to preserve Works Progress Administration era retaining walls adjacent to the creek. (Construction was completed in 2020)

- Pipeline geohazards; Michigan: Served as design lead and engineer of record for stabilization of eight pipeline crossings of small- to medium-sized streams throughout northern Michigan. The project included hydrologic and hydraulic modeling of each stream, design of stabilization measures to prevent erosion and provide cover over the pipeline crossings, and preparation of information for permitting. The streams ranged from a county ditch to small natural trout streams, and design measures ranged from the use of hard armoring materials (articulated concrete block and riprap) to natural stream materials designed to provide passage for native aquatic organisms (logs and boulders). (Construction was completed in 2020)
- Rollway Road/South Branch River fish passage; Iosco County, Michigan: Serving as project manager and design lead for modifications to an existing culvert to provide brook trout passage. As part of permitting, the project included preparation of a hydraulic report to demonstrate that changes to flood elevations were limited to the project site. (Construction was completed in 2019)
- Lower Mound Lake basin restoration; Blue Mounds State Park, Minnesota: Served as design lead and geomorphologist. The project was designed to remove a dam, restore a natural prairie stream channel, and reconnect the floodplain through the former lake. Project elements included one- and two-dimensional hydraulic modeling, erosion control sequencing, natural stream construction and bank stabilization, pedestrian bridge and trail design, habitat and wetland restoration, and landscaping. (Construction was completed in 2019)
- Whitewater River restoration; Whitewater State Park, Minnesota: Served as geomorphic design lead for restoration and stabilization of an 1,800-foot reach that had been damaged by multiple flood events at one of Minnesota's premier state parks. The design included adjustments to a previously implemented restoration design to improve fish habitat, maintain sediment transport, and reduce erosion through the use of grading, rock riffles, and toe wood. (Construction was completed in 2019)
- Coffee Creek restoration; Duluth, Minnesota: Performed a field geomorphic assessment and completed restoration design and hydraulic modeling for a 1,200-foot stream reach within the City of Duluth's Enger Park Golf Course. The design involved daylighting a section of stream previously confined to a culver; constructing numerous boulder and log structures within the steep, cascading stream channel; and installing a box culvert with natural substrate to provide fish passage and protect golf course infrastructure. (Construction was completed in 2015)

▪ Analyzing basin-scale geomorphologic information and stream sediment transport data for projects, including:

- Upper Sheyenne River erosion and sedimentation risk assessment; North Dakota: Performed a geomorphic assessment along nearly 300 miles of the Upper Sheyenne River to categorize the erosion and

sedimentation risk from a number of factors. Performed field surveys and collected channel stability data at 15 locations along the river. The information from the risk assessment will be used to develop implementation plans for stabilization measures and land use changes along the river. (2019)

- Mouse River enhanced flood protection plan; Minot, North Dakota: Performed a geomorphic assessment on the entire U.S. Mouse River basin to categorize the erosion and sedimentation risk for distinct portions of the river and the potential for geomorphologic impacts from proposed flood control projects. (2013)

- Evaluating climate, water level, wave height, and sediment transport trends for the U.S. Fish and Wildlife Service Ford Marsh on Lake Erie near Monroe, Michigan. Work involved historic data analysis and three-dimensional coastal modeling to assess the causes of dike failure at the marsh and evaluate potential solutions. (2022)
- Evaluating climate, watershed, and surface water trends for the U.S. Fish and Wildlife Service Walden Wildlife Protection Area near Morris, Minnesota. Work involved historic data analysis and two-dimensional modeling to assess the potential impact of water level control structures on adjacent properties. (2020)

Presentations

Hinck, P. and J. Leisen. "Aquatic organism passage through culvert modifications – South Branch River, Michigan." Upper Midwest Stream Restoration Symposium, 2021.

Lee, J., P. Hinck, and C. Kleist. "Coffee Creek stream restoration." Rocky Mountain Stream Restoration Conference, Breckinridge, CO, 2016.

Education

MS, Hydrologic Science and Engineering, Colorado School of Mines, 2009

BS, Environmental Engineering, Michigan Technological University, 2006

Training/Certification

40-Hour HAZWOPER Training and 8-Hour Annual Refresher Courses

24-Hour MSHA Surface Miner Training, New Miner Training and

8-Hour Annual Refresher Courses

Registration

Environmental Engineer: Michigan

KATY LINDSTROM, PE

Senior Environmental Engineer

Katy has over 14 years of experience helping clients assess and remediate contaminated sites, achieve environmental compliance, and address groundwater management issues in Michigan and throughout North America. In particular, Katy has experience characterizing and mitigating risks at the groundwater/surface-water interface in accordance with the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 rules. She specializes in groundwater flow and contaminant fate and transport modeling and has experience designing and managing investigations to characterize geology and hydrogeology.

Project Experience

- Managing a Barr team and leading the design of a subsurface groundwater cutoff wall to limit the flow of groundwater to a proposed open-pit mining operation in northern Michigan and mitigate potential impacts to wetlands in accordance with EGLE Part 303 wetland regulations. (2022)
- For a confidential sand and gravel mining company in southeastern Michigan, currently managing a Barr team that is performing services to support expansion planning. Expansion planning includes both the expansion of existing mine facilities and new greenfield developments. Barr's work includes baseline characterization of environmental resources, impact assessments, hydrogeological evaluations (including numerical groundwater flow modeling), reporting, and permitting assistance. (2022)
- Managing a Barr team that is evaluating temporary water storage options for a food processing facility in mid-Michigan in accordance with EGLE Part 22 Groundwater Quality rules. Options evaluated included temporary above-ground storage tanks and ponds with engineered liners. Additionally provided environmental consulting regarding land application of wastewater as a treatment and disposal method. (2021–2022)
- Managing a Barr team and serving as the hydrogeology technical lead for two separate coal combustion residual (CCR) facilities that are undergoing remedial action planning to address groundwater impacts related to CCR disposal in historical, unlined ash ponds near surface water bodies. Provided technical and regulatory consulting for these complex projects, including communications with EGLE staff in three divisions (Material Management Division, Water Resources Division, and Remediation and Redevelopment Division), two district offices, three Technical and Program Support Teams, and the Remediation Advisory Team to build consensus as the projects advanced and streamline remedial action plan approval. Multiple remedial options were evaluated, and remedial action plans are currently under development for both facilities. Remedies are expected to include source removal, constructed treatment wetlands, and a permeable reactive barrier. (2019–present)

- Serving as project manager for evaluation of potential modifications to an existing irrigation system for a university campus in southeastern Michigan. Replacement of irrigation water was provided by a combination of municipal and well water with expansion of the use of well water, and options for irrigation demand reduction through sustainable landscape design were evaluated and preliminary cost estimates were developed. (2018–2019)
- Managing a Barr team for the investigation, design, and potential future remediation of a historical manufactured gas plant (MGP) site in mid-Michigan with an active gas station currently occupying the property. Katy's role on the project has included risk management, an evaluation of liability for the commingled MGP and gas station plumes, evaluating mobility of non-aqueous phase liquid, and assessing and mitigating vapor intrusion. Three-dimensional modeling was used as a tool for optimizing site characterization data to guide additional investigation activities, convey characterization results, and quantitatively evaluate remedial alternatives, which provided the client a method for guiding business decisions based on interpolated site data. (2017–present)
- Managing a Barr team and serving as the hydrogeology technical lead for an integrated groundwater/surface-water model of a subaqueous tailings disposal facility at a mining facility in Michigan. Conducted hydrogeologic evaluation, developed a conceptual site model, directed groundwater model and contaminant fate and transport model development, calibration, and uncertainty analysis, and conducted communication with the client and regulators. Provides ongoing support for operations, environmental compliance, and closure planning. (2017–present)
- Developing and calibrating a groundwater flow model using MODFLOW to simulate seepage and to predict potential impacts to groundwater and a nearby river from fly ash disposal basins at a coal-fired power plant in Minnesota. Model calibration was accomplished using the automated inverse-optimization program PEST. (2016)
- Assisting an industrial client with risk management evaluations related to various water withdrawals from both a shallow, unconsolidated aquifer and a deeper, semi-confined bedrock aquifer near a shallow groundwater contamination plume. Work included screening-level groundwater flow modeling, developing and implementing monitoring programs with in-well data-logging water-level sensors, well location siting, and water appropriations registration. (2016)
- Serving as a technical lead for the investigation, evaluation, design, permitting, and remediation of impacted river sediments adjacent to a former MGP site on the Flint River in Michigan. The project had significant schedule constraints and multiple stakeholders involved for most facets of the project. Served a key role in communicating with the client and stakeholders. Oversaw the technical teams for geological and groundwater modeling and design of an engineered sediment cap. The project was successfully substantially completed in 2017 with restoration work continuing in 2018. (2015–present)

- Performing analysis of steady-state and transient air pressure data collected during high-purge-volume sampling of sub-slab soil gas for evaluation of and mitigation system design for the vapor intrusion pathway for a large building on a former manufacturing facility. (2013, 2017)
- Designing a numerical model of variably saturated flow and reactive contaminant transport to assess migration of per- and polyfluoroalkyl substances (PFAS) through a thick vadose zone. (2011)
- Performing unsaturated flow modeling for wetting front analyses in collapsible soils at windpower sites, including coupled subsurface unsaturated-flow models and surface-hydrology models. (2009–2019)
- Performing hydrogeological fieldwork and designing numerical groundwater flow and contaminant fate and transport models in support of investigation and remediation of former manufactured-gas-plant sites in Michigan and Illinois. Modeling efforts included the screening of remedial options through predictive contaminant fate and transport simulations, assessment of impacts to a nearby water supply well, and predictions of mass flux to a surface water body in support of evaluation of the groundwater/surface-water interface pathway. (2009–2016)
- Groundwater-flow modeling to estimate potential water quality impacts for a proposed mining project in northern Minnesota. Modeling efforts included assisting with the development of a regional-scale groundwater flow model and calibration of two local-scale models focused on the mine pit and tailings disposal areas. Following calibration, predictive simulations were completed to estimate groundwater inflow rates to mine pits and seepage loss from a tailings basin over time. The model results were used to develop two integrated surface water/groundwater models for the proposed project area. (2009–2015)
- Conducting field aquifer tests including slug tests and multi- and single-well pumping tests and providing data analysis and reporting of aquifer test results. (2009–2010)
- Providing hydrogeological fieldwork for an investigation at a former cement-kiln-dust (CKD) site, including performing and analyzing slug and single-well pumping tests to characterize near-shore aquifer hydraulic properties in fractured limestone bedrock. (2009)
- Completing water-balance modeling for a proposed mining project in northern Minnesota using WATBUD, a water-balance model developed by the Minnesota Department of Natural Resources. (2009)
- Modeling unsaturated water flow beneath a tailings basin pond to estimate tailings saturation conditions and support assumptions for water-quality modeling to estimate constituent release from tailings material. (2009)
- Assisting clients with environmental compliance at the groundwater/surface-water interface in accordance with EGLE Part 201 rules. Through a combination of hydrogeologic data collection and groundwater-flow modeling to assess the groundwater/surface-water

interface, completed mixing-zone determination requests for three different sites in Michigan to establish site-specific criteria and one successful "de minimis" determination to demonstrate negligible water-quality impacts after groundwater mixing with surface water. (2008–present)

- Directing remedial investigation activities and remedial excavations at former manufactured-gas-plant sites in Michigan in accordance with EGLE Part 201 rules. Additionally, assessed the soil-vapor intrusion to indoor air pathways. (2008–2013)

Presentations

Lindstrom, K.A., and Christensen C., 2021. "Groundwater Modeling for Non-Modelers." Remediation and Risk Management Webinar Series hosted by EGLE in partnership with the American Institute of Professional Geologists (AIPG), and the Michigan Association of Environmental Professionals.

Lindstrom, K.A., Boom, T.R., Marini, K.A., Mohr, J.A., and Dahlstrom, D.J., 2019. "Modeling and Uncertainty Analysis for Remedy Selection and Design to Address Groundwater Discharging to Surface Water." Presentation at the Tenth International Conference on the Remediation and Management of Contaminated Sediments.

Lindstrom, K.A., Boom, T.R., Marini, K.A., Mohr, J.A., and Dahlstrom, D.J., 2019. "Modeling and Uncertainty Analysis for Remedy Selection and Design to Address Groundwater Discharging to Surface Water." Presentation at the 2019 National Groundwater Association Groundwater Summit.

Boom, T.R., Lindstrom, K.A., and Santini, A., 2017. "Considerations and Tools to Select and Design a Sediment Response Action at a Former Manufactured Gas Plant" Presentation at the 7th Annual AIPG Michigan Section Technical Workshop – Environmental Risk Management: Characterization's Role in Remedy Selection.

Marini, K.A., Lindstrom, K.A., Dahlstrom, D.J., and Mohr, J.A., 2017. "Using Uncertainty Analysis for Groundwater Flow and Transport Modeling to Inform Remedial Design and Monitoring." Poster presentation at MODFLOW & More 2017.

Lindstrom, K.A., Morris, M.A., Boom, T.R., and Jones, C.A. 2015. "Developing a quantitative decision-making tool with three-dimensional modeling of site investigation data." Presentation at the 5th Annual AIPG Michigan Section Technical Workshop – Site Characterization.

Mohr, J.A., Lindstrom, K.A., Dahlstrom, D.J., and Mechenich, M.F. 2012. "Using groundwater models to guide investigation and evaluation of remedial options at former manufactured gas plant sites." Poster presentation at The Fourth International Symposium and Exhibition on the Redevelopment of Manufactured Gas Plant Sites.

Education

MS, Civil Engineering, Wayne State University, 2011

BS, Civil Engineering, Wayne State University, 2010

Training/Certification

OSHA HAZWOPER 40-Hour Training

ASTM Phase I Environmental Site Assessments for Commercial Real Estate

Red Cross Adult First Aid/CPR/AED Training

Michigan Industrial/Commercial Waste Treatment Plant Operator (A-1a, A-1h)

Michigan Storm Water Management Operator – Construction Site (A-1j)

Registration

Professional Engineer: Michigan

LUKE A. MACKEWICH, PE

Senior Environmental Engineer

Luke has over 11 years of experience and a master's degree in civil engineering from Wayne State University. His work experience has included environmental due diligence, baseline environmental assessments (BEAs), due care plans, spill response, environmental sampling, odor and air quality monitoring, environmental permitting, field compliance inspections, and providing construction oversight for remediation and construction projects.

Project Experience

- Serving as a task manager for vapor intrusion investigation for chlorinated solvents under a residential building under an EGLE approved work plan and overseeing a vapor extraction pilot test to evaluate remedial options. (2022–present)
- Managing a team assisting a Class II landfill owner in Michigan with environmental compliance. Activities included evaluating available air monitoring systems, installation of real-time air quality monitors along the property boundary and in the community, source identification and back trajectory modeling, data quality assurance review of generated data, ongoing operations and maintenance, and regulatory reporting. (2021–present)
- Serving as project engineer for a utility replacement project along a public right of way and adjacent to known Part 201 sites. Tasks included performing environmental due diligence, updating the project due care plan, waste characterization sampling, developing a soil and groundwater management plan, and construction observation. (2021–2022)
- Assisting with developing a response activity plan (ResAp) to address remaining exposure pathways at a former MGP site in Michigan. Response included additional environmental investigation and the generation of a human health risk assessment (HHRA) to address site specific soil volatilization to ambient air. On approval of the work plan, Luke also managed the development of the remedial plans and specifications, contractor bid evaluation and selection and preparations for remedial implantation which is scheduled to begin in January 2023. (2019–present)
- Conducting and overseeing multiple Phase I environmental assessments for combustion turbine sites being decommissioned across Michigan. Planned follow-up Phase II investigation scopes, drafted work plans and cost estimates, subcontracted with drillers, and wrote investigation reports. Luke also performed regulated waste surveys of the properties in preparation of developing bid documents for demolition. (2019–2020)
- Performing multiple Phase I assessments for a parking structure expansion project in Grand Rapids, Michigan. The work involved planning the follow up Phase II investigation scope, drafting work plan and cost estimate, subcontracting with drillers, and writing the baseline environmental assessment (BEA) and due care plans based on findings. (2018–2019)

- Providing construction and environmental compliance observation and documentation of horizontal directional drilling (HDD) operations along multiple natural gas pipelines across Michigan and Ohio. (2017–2018)
- Serving as task lead and project manager for a team assisting a Class II landfill owner in Michigan with environmental compliance. Activities include on-site perimeter and community odor monitoring for nuisance and objectionable odors from site operations. (2016–2022)
- Assisting in site investigation and reporting of a Leaking Underground Storage Tank (LUST) site regulated under Michigan Part 213. Tasks included soil borings and sampling, monitoring well installation and sampling, soil-gas well installation and sampling, and assisting in drafting site restrictive covenant and closure reports. (2015–2017)
- Providing emergency spill response assistance to jet fuel releases at a major commercial airport in the Midwest. Activities included field screening of soils, excavation oversight, collecting soil and groundwater samples, overseeing installation of horizontal recovery wells, performing a vapor intrusion to indoor air investigation, performing a soil-vapor extraction pilot test, coordinating project team security clearance, construction oversight of the implementation of the remedial action plan, monitoring well abandonment, ongoing operations and maintenance and project reporting. The site received a certificate of completion from state regulators in 2021. (2014–present)
- Assisting with the Phase I site assessment of an animal feed manufacturing facility in Battle Creek, Michigan. Work included performing a site visit and helping prepare the report. After identifying potential recognized environmental conditions in the Phase I, he performed a limited Phase II site investigation that included soil and grab groundwater sampling as well as prepared a report on the findings. (2014)
- Assisting with the Phase I site assessment of saltwater disposal wells in North Dakota and Montana. Luke performed site visits and helped prepare the report. (2014)
- Serving as task manager and project manager for the vapor intrusion pathway to indoor air evaluations at three Part 201 MGP sites across Michigan. Tasks included assisting in creating on and off-site vapor intrusion (VI) conceptual models, drafting work plans for EGLE approval, obtaining site-specific VI criteria, proposing sampling locations, assisting in contracting, providing construction oversight of soil gas well and sub-slab vapor pin installation, performing building surveys, coordinating sampling events, performing soil gas and indoor air sampling, reviewing analytical data and comparing results to applicable criteria, writing quarterly monitoring reports, and writing pathway evaluations and No Further Action Reports (NFA). All three MGP sites have received the NFA designation from EGLE for the VI pathway. (2013–2022)
- Conducting a desktop environmental review along road right of ways for potential environmental impacts that could be encountered during future utility work. (multiple projects, 2013–2020)

- Assisting with river and sediment investigations at various MGP sites throughout Michigan. Tasks included visual riverbank inspections, poling of sediments, and the collection of samples via hand auger and vibracore units. (multiple projects, 2013–2016)
- Overseeing discharges of hydrotest water generated in newly constructed petroleum pipelines and storage tanks in Michigan as a Michigan-certified Industrial/Commercial Waste Treatment Plant Operator (A-1a). (2013–2016)
- Assisting with several Phase I site assessments of a lime manufacturing facility and its associated residual solid waste landfills in northern Ohio. He performed site visits, conducted interviews, and reviewed records and prepared reports. After identifying potential recognized environmental conditions in the Phase I, he helped prepare a Phase II work plan for the site. (2013)
- Drafting and submitting Soil Erosion and Sedimentation Control (SESC) permit applications for various clients across Michigan. Managing and performing SESC inspections and compliance of environmental permits. (Multiple projects, 2011–present)
- Performing site investigations at various MGP sites in Michigan. Tasks included low-flow groundwater sampling; performing free-product recovery at NAPL wells; and collecting soil samples through the use of Geoprobe, hollow-stem auger, hand auger, and roto sonic borings. (multiple projects, 2011–2019)
- Providing construction oversight for a large remediation project at a former manufactured gas plant (MGP) site. Tasks included overseeing excavation of MGP-impacted materials, collecting soil samples, overseeing construction of a water-tight storm-sewer-system, overseeing construction of a low-permeable clay barrier, and installing soil-erosion control measures. (2011-2012)

Presentations

Mackewich, L., and Brandner, N., 2022. “Successfully navigating the vapor intrusion pathway evaluation in Michigan.” Presentation at the Detroit Regional Chamber of Commerce – Environmental & Energy Session

Mackewich, L., 2021. “Combustion Turbine Plant Decommissioning” Presentation at the MEA Energy Association - Environmental Leadership Learning Conference

Education

MS, Biology (Emphasis: Natural Resources Management), Grand Valley State University, 2009

BS, Biology (Minor: Environmental Science), Hope College, 2002

Training

Hydric Soils. Sponsored by the Michigan Wetland Association (MWA). Hastings, Michigan, August 2015.

Spring Wetland Flora. Sponsored by the MWA. Lyndon Township, Michigan, May 2015.

Wetland Delineation, USACE 1987 Wetland Delineation Manual and the North Central and Northeast Supplement. Sponsored by the MWA. Lansing, Michigan, June 2012.

Affiliations

Michigan Wetlands Association

LAUIRE BETH NEDERVELD

Senior Ecologist/Regulatory Specialist

Laurie Beth has 20 years of experience with ecological risk assessments, wetland mitigation, and stream and lake restoration. Her work has included conducting environmental reviews, natural resource surveys, and environmental permitting. Laurie Beth's field assessment proficiencies are wetland delineations and mitigation monitoring, aquatic invertebrate and habitat surveys to assess stream condition, and water quality monitoring. Her broad terrestrial and aquatic interests include wetland and stream ecology, plant taxonomy and aquatic invertebrate, and soil science.

Project Experience

Ecological Risk Assessments

- Developed a work plan for collecting baseline information at 36 pipeline and waterbody crossings and 20 rare wetlands (25,265 acres) throughout Michigan. Coordinated with EGLE, MDNR, and the confidential pipeline client to help ensure survey goals were met. Prepared a request for bids, reviewed bid proposals, and selected a contractor for survey work. Managed surveyors, coordinated agency approvals and collection permits, conducted QA/QC of field data, and preformed site visits. Work was a part of a U.S. Department of Justice consent decree to resolve natural damage claims arising from a previous oil spill. (2017)
- Facilitating a protected species review at a former Manufactured Gas Plant site in Flint, Michigan, prior to stream remediation and dredging activities. Work included a protected-species desktop review, rare-species habitat surveys (e.g., protected migratory bird and bat species), agency coordination, a wetland mitigation strategy, and development of a summary memorandum for submittal to EGLE. (2016–2017)
- Surveying aquatic invertebrate communities inhabiting a stream system in the Platte Lake watershed in northwest Michigan annually over a four-year period as part of a groundwater investigation and remediation project following illegal waste disposal. Work included performing surveys according to the EGLE's Procedure 51, collecting invertebrates, and processing and analyzing data. Annual technical reports were prepared to characterize the aquatic invertebrate community and stream habitat conditions. (2008–2011)
- Surveying fish and aquatic invertebrate communities inhabiting five streams within the Copperwood project area, located in Michigan's Upper Peninsula. Work included collecting and identifying aquatic specimens, processing and analyzing data, and assisting in the preparation of a technical report summarizing ecological findings. Intent of the surveys was to establish baseline conditions prior to tailings placement within one or more of the five onsite streams. (2006)
- Conducting pre- and post-benthic macroinvertebrate assessments in Ruddiman and Ryerson Creeks in Muskegon County, Michigan to evaluate the impact of the remediation of contaminated sediment (e.g., heavy

metals, hydrocarbons) on benthic macroinvertebrate communities in stream and wetlands habitats. Assessed water quality conditions based on invertebrate community data using a family-level biotic index. Work also involved conducting surface water quality monitoring, evaluating habitat conditions, and conducting hydrologic assessments. A report was developed to evaluate the success of the sediment remediation in the study stream in comparison to a reference stream system. (2005–2006)

Wetland Mitigation

- Researched wetland mitigation options for a proposed solar power facility in Muskegon County, Michigan, for a utility client. Prepared a permitting summary document outlining local, state, and federal permits required for the project, including wetland mitigation requirements and compensation options. (2022)
- Coordinating with a Michigan wetland mitigation bank sponsor for a Michigan utility to purchase wetland mitigation bank credits to compensate for wetland impacts proposed for an embankment stabilization project at the Mio Dam in Mio, Michigan. (2021–2020)
- Preparing three annual wetland monitoring reports for three wetland mitigation sites located in northern Minnesota for a taconite-mining company and a pipeline company. Compiled and analyzed vegetation coverages and groundwater level data collected from sample plots and monitoring wells in comparison to the approved performance standards. (2015–2016)
- Conducting the final year of wetland mitigation monitoring at the Dafter Sanitary Landfill wetland mitigation area near Dafter, Michigan. Work included completing field data forms, a photograph log, and the final technical report. (2014)
- Conducting annual monitoring at the Cherokee Run Landfill wetland mitigation area over a one-year period in Ohio. Work included completing a topographic survey, surveying plant communities along transects through two wetland cells, completing field data forms, and preparing a technical report. (2014)
- Planting 150 trees at a wetland mitigation area at the Carleton Farm Landfill in Wayne County, Michigan, conducting a follow-up visit after initial planting to assess plant survival rates, and recording water gauge levels to document changes in water levels. (2013)
- Performing wetland monitoring at the 10-acre Tittabawassee watershed wetland mitigation bank resulting from the Rapanos v. United States decision. Work included monitoring the vegetation community, documenting wetland hydrology, and characterizing wetland soil in Midland, Michigan. A monitoring report was prepared to compare wetland conditions to performance criteria outlined in the wetland banking agreement. (2013)
- Completing annual mitigation monitoring of the Bear Swamp Wetland Mitigation Bank in Allegan County, Michigan, over a two-year period. Work included surveying scrub-shrub and emergent wetland areas;

collecting photographs; and characterizing hydrology, bank conditions, and wildlife use. (2010)

Streams and Lakes Restoration

- Facilitating stakeholder engagement sessions for the Ford Mash Feasibility Study to restore hemi-marsh conditions to the marsh, and repair the failed dikes, based on stakeholder input from neighboring properties, non-profits, and local/State agencies. (2022)
- Conducted a stream assessment of Lamka Drain, located in Huron County and extending into Sanilac County, Michigan. The drain assessment was conducted in a manner consistent with the Michigan Stream Quantification Tool Data Collection and Analysis Manual (MiSQT, Michigan Department of EGLE, 2020). Three reference sections were established along the study reach. Field data forms from the MiSQT were completed in the field to evaluate the hydrology, hydraulics, and geomorphology of the study reach. This assessment included evaluations of the catchment, reach runoff, floodplain connectivity, large woody debris, lateral migration, riparian vegetation, and bed form diversity. (2021)
- Conducting stream mitigation monitoring at the Cherokee Run Landfill in Bellefontaine, Ohio. Work included surveying the thalweg of the stream and four tributaries using an auto level, tripod, and survey rod; assessing stream erosion (e.g., entrenchment, stream bank erosion, and degradation); and surveying plant communities along transects through the riparian corridor. Work also included assessing aquatic habitat quality according to the Ohio EPA's Primary Headwater Habitat Evaluation form. (2013)
- Bear Creek/Lake watershed, Michigan—Developing a strategy to reduce external nutrient loadings to Bear Lake by 56 percent to meet water quality standards. Work included selecting critical sites for nutrient loading based on infrared aerial photography and site information, determining priority field locations for nutrient inputs, and assisting in the design of BMPs (i.e., wetland restoration, filter strip, and manure storage structure) at a horse farm property to reduce nutrient inputs to the headwaters of Bear Creek. (2012)
- Assisting in the development of bioengineering designs, specifications, and drawings for in-stream and bank improvements (e.g., cross-vanes, j-hooks, riprap, and live stake installations) and rain gardens within the Sand Creek corridor in Marne, Michigan. (2008–2009)
- Assisting in the implementation of a stream bank stabilization project along the St. Joseph River and installation of live stakes and geotextile fabric to control bank erosion for the city of Niles, Michigan. (2008)
- Ruddiman Creek watershed, Michigan—Utilizing an integrated assessment approach to study hydrology and sediment transport within the Ruddiman Creek watershed. Work included using stream flow, suspended sediment, bedload sediment, and other physical/chemical parameter data, collected over a 13-month period at six tributary sites and three storm sewer

locations, to identify necessary flow and pollutant targets, create a hydrologic model, and assess habitat quality. This information, along with stakeholder input, were used to select appropriate best management practices (BMPs) to reduce storm flow volume, velocity, and sediment loads in Ruddiman Creek. EGLE used this information to develop an implementation-ready TMDL for Ruddiman Creek. The ultimate goal of BMP implementation was the attainment of water quality standards and subsequent removal of Ruddiman Creek from the 303(d) list, and the delisting of the beneficial use impairment for degraded benthos in the Muskegon Lake Area of Concern. (2005–2006)

- Sand Creek watershed, Michigan—Developing a watershed management plan in coordination with the Friends of the Sand Creek Watershed to manage and reduce sources of excessive sediment and E.coli. Implementation work included assisting in the development of bioengineering designs, specifications, and drawings for in-stream improvements (e.g., cross-vanes, j-hooks), stream bank improvements (e.g., riprap and live stake installations), and rain gardens within the Sand Creek corridor. (2006–2007)
- Assisting in the development of bioengineering designs, specifications, and drawings for a slope stabilization project adjacent to Lake Ontario Hall on Grand Valley State University's main campus in Allendale, Michigan. (2006)

Phase I Environmental Site Assessments

- Performing approximately 10 environmental due diligence investigations in Lower Michigan, including Phase I environmental site assessments in accordance with ASTM standards, permitting, and reporting. Duties included conducting site investigations and performing desktop reviews to identify potential or existing environmental contamination liabilities. (multiple projects, 2009–2014)

Publications

Nederveld, LB. Sediment Remediation Impacts on Macroinvertebrate Community Structure: Assessing the Success of Urban Stream Restoration, MS thesis. 2009. Grand Valley State University, Allendale, Michigan.

Ogdahl, M.E., Steinman, A.D., Damm, S.J., Rediske, R.R., Schwartz, C.E., Nederveld, L.B., Hoeksema, R.J., and Fredricks, D.J. Studies to Support an Implementation-Ready TMDL for Ruddiman Creek, Final Report. 2013. Annis Water Resources Institute, Grand Valley State University, Muskegon, Michigan.

Education

BS, Geological Engineering, Michigan Technological University, 2000

Training/Certification

ASTM E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

National Groundwater Association: Groundwater/Surface Water Interactions

40-hour HAZWOPER Training (EPA 29 CFR 1910) and Annual 8-Hour Refresher Courses

8-Hour HAZWOPER Supervisor

10-Hour OSHA Construction Safety and Health

American Red Cross CPR/First Aid/AED

USDOT/IATA Shipping and/or Transportation of Hazardous Materials Training

Registration

Engineer in Training

MOLLY L. O'BRIEN

Senior Environmental Consultant

Molly has more than 20 years of experience providing environmental evaluation and design of remediation alternatives, geophysical and hydrogeological investigations and surveys, brownfield redevelopment, and assistance with state and federal regulations such as RCRA, Part 201, and Part 213 as applied to various commercial and industrial clients throughout Michigan. Molly provides site and facility investigations, risk assessments, feasibility studies, remedial alternatives evaluations of soil and groundwater, remedial design and implementation, groundwater flow and modeling, contaminant transport modeling, laboratory data evaluation and management, and health and safety management.

Molly's hydrogeological investigation skills and experience include soil sampling/logging using Geoprobe, hollow stem augers, mud/air rotary drilling, and sonic drilling methods; monitoring well installation and sampling; geophysical testing consisting of EM31, EM38, EM61, GPR, well logging, seismic and magnetometers; and underground storage tank (UST) removal and remediation oversight. She also has extensive experience with real-time field data collection and analysis of air and soil samples for mercury using the Lumex mercury vapor analyzer.

Her management skills and experience include design and implementation of large remediation projects for industrial clients as well as transactional and due diligence for large national commercial and industrial clients.

Project Experience

- Serving as project manager for a brownfield redevelopment in the City of Wyoming, Michigan, on behalf of the property owner and in coordination with the Brownfield Redevelopment Authority. The brownfield zone included a large razed industrial property. Responsible for preparation of a project scope and budget to support a plan that is administratively complete yet flexible enough to allow for the site-specific nuances that each brownfield project brings. Met with numerous investors, developers, and property owner to discuss how site conditions might impact their specific project. (2023–2021)
- Developing a long-term monitoring plan for per- and polyfluoroalkyl substances (PFAS) in groundwater in New England. Work included conducting historical area-wide analysis for potential PFAS sources. (2018–2019)
- Conducting and managing Phase I ESAs for forestland and rural properties upwards of 40,000 acres for uses such as wind and solar farms and agricultural property redevelopment. Implemented GIS-based data review to streamline field assessment and reporting. (2017–2023)
- Preparing and implementing project plans for a RCRA facility investigation (RFI) in Michigan. Work included evaluating the existing environmental

and site history information, overseeing field implementation of the RFI, and evaluating sample data. (2014–2013)

- Conducting and managing Phase I and Phase II environmental site assessments (ESAs) for clients throughout the United States. Tasks included writing reports and compiling due diligence research, developing sampling and investigation plans, and creating reporting tables comparing analytical results to Part 201 cleanup criteria and Part 213 risk-based screening levels, vapor-intrusion screening levels, and waste characterization values. Compiled real-time data using GIS-based collection systems. (2012–2023)
- Performing groundwater modeling for feasibility studies for the Montmorency-Oscoda-Alpena landfill in Atlanta, Michigan. Work included evaluating over fifteen years of site investigation data and developing hydrogeological models for predicting fate and transport of petroleum hydrocarbons and inorganic compounds. The predictive modeling results were used to evaluate the feasibility of proposed remedial activities. (2005–2006)
- Preparing plans and specifications for the removal of large, underground storage tanks (UST) for a large residential remodeling project in Grand Rapids, Michigan. Work included oversight of UST excavation, on-site safety management of tenants, soil excavation, and site restoration activities to assure compliance with specifications and documentation and reporting of all removal activities. (2005)
- Designing and implementing investigation and remediation of mercury-impacted soil and surfaces at over 30 natural gas compressor stations, dehydration plants, and metering facilities in Michigan. Using a combination of a Jerome and Lumex (portable gas chromatograph) mercury vapor analyzers (MVA), Molly completed field investigations of surface and subsurface soils and interior building surfaces. The Lumex MVA obtained laboratory-quality data and enabled field screening during remediation activities eliminating multiple mobilizations and laboratory analysis costs as well as reducing remediation time. (2002–2004)
- Preparing feasibility studies for several natural gas storage and processing facilities in Michigan. Work included compiling and evaluating historic site investigation data and developing hydrogeological models for predicting fate and transport of petroleum hydrocarbons, chlorinated volatiles, and inorganic compounds. The predictive modeling results were used to develop remedial action plans. (2002–2011)
- Serving as on-site geologist for several hydrogeologic investigations. Investigations for soil, groundwater, and surface water impact were completed utilizing various instruments. Work included overseeing drilling contractors; collecting soil, groundwater, and surface water samples; installing monitoring wells, and completing a report of all findings. (2001–2011)
- Managing large, soil and groundwater remediation projects (>5,000 CY) at active natural gas facilities and oil production fields in Michigan. Work

included designing soil excavation and dewatering systems, preparing safety plans for working around high-pressure natural gas pipelines, removing asbestos-containing pipeline and other utilities, and developing closure sampling strategy. As the site leader, Molly oversaw several contractors during biocell installation, biocell decommissioning, soil removal and disposal, and closure sampling. (2001–2011)

- Developing and performing the geophysical investigation in support of a remedial investigation/feasibility study of animal by-product rendering facility in Illinois. Surface electromagnetic (EM) and magnetics surveys were completed to identify the lateral extent of disposal areas and to screen for the potential presence of a groundwater contaminant plume. The resulting data were used to map the additional investigations at the location and test waste-disposal pits. (1999)
- Developing and performing geophysical investigations in support of remedial investigation and identification of abandoned underground storage tanks and underground utilities in Illinois. Surface electromagnetic (EM) and ground-penetrating radar (GPR) surveys were completed to identify the lateral extent of disturbed soil and abandoned utilities and tanks. The resulting data were used to place sample location for additional investigations and identify USTs for removal. (1999)

Education

BS, Microbiology (minor: Chemistry), University of Wisconsin – LaCrosse, 1984

Affiliations

Minnesota Laboratory Association (2001-2006); Secretary (December 2002-April 2005)

Minnesota Rules Advisory Committee (2001-2006)

MN-ELAP Advisory Committee (2012)

MPCA Laboratory Steering Committee (2012-present)

MN-ELAP Assessor Selection Committee (February 2013-December 2014)

TERRI A. OLSON

Senior Data Quality Specialist

Terri has more than 38 years of experience working with analytical laboratory data. She is currently a senior consultant whose responsibilities include performing periodic review and auditing of analytical facilities and their procedures; evaluating laboratory data; coordinating laboratory services; and reviewing and making improvements to Barr's quality management system. She has considerable experience with the wide variety of regulatory methods used for environmental analyses and has worked with many laboratories regarding per- and polyfluoroalkyl substances (PFAS) analysis (e.g., modified EPA 537 and Draft EPA 1633).

Project Experience

Terri's work at Barr has included projects for environmental investigation/characterization (2011–present), PFAS impacts assessment (2019–present), spill response assistance (2014–present), and vapor intrusion assessment (2020–present).

- Reviewing laboratory data, including per- and polyfluoroalkyl substances (PFAS), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), gasoline and diesel range organics, pesticides, general chemistry, and metals.
- Preparing analytical data evaluation reports.
- Reviewing analytical method options and providing feedback to the project team.
- Coordinating laboratory analysis and services for various sample matrices.
- Troubleshooting data issues for clients.
- Assisting with a laboratory's method development for the analysis of jet fuel at a spill response site.

Prior to working at Barr, Terri worked at two different environmental analytical laboratories (1984–2011) in various roles consisting of microbiologist, inorganic wet chemistry analyst, QA/QC coordinator, laboratory administrator, client manager, and LIMS administrator. Work included the following:

- Managing the quality management system.
- Implementing laboratory certifications/accreditations. and accreditations.
- Maintaining laboratory standard operating procedures (SOPs) and QA Manuals.
- Assisting in the startup of a laboratory information management system (LIMS) which included setting up analyses, clients, and report formats and training laboratory staff.
- Analysis of environmental samples and reporting of sample results.

- Coordinating client needs and requirements with laboratory capabilities.
- Setting up client projects with information specific to their needs to reduce potential issues when analyzing and reporting.
- Generating and reviewing laboratory reports and invoices.

Education

MLA, Landscape Architecture, University of Michigan, 2003

MA, Botany, University of Texas at Austin, 2000

BS, Biology, North Park University, 1998

Certification

Certified Landscape Architect, Council of Landscape Architectural Registration Boards, 2006.

Certified Arborist: #MI-3880-A, International Society of Arboriculture, 2006.

Software

AutoCAD, AutoCAD Civil 3D, RiverMorph

MATTHEW E. STONE-PALMQUIST, PLA

Senior Landscape Architect/Senior Ecologist

Matt is a licensed landscape architect and certified arborist and ecologist with more than two decades of experience. His primary roles are project manager and technical lead for projects involving stream relocation, restoration and stabilization, wetland creation and restoration, natural lakeshore stabilization, and development within Michigan-designated Critical Dunes. Additionally, Matt is well versed in Michigan's regulation of wetlands, lakes, and streams with a particular emphasis on the mitigation of permitted impacts to those regulated features. As a certified arborist, Matt assists clients in complying with municipal tree preservation ordinances. Prior to Barr, Matt was a project manager and landscape architect at King & MacGregor Environmental, Inc. Examples of his project work include:

Stream Restoration and Relocation

- Serving as project manager and/or design lead for stream restoration and relocation projects. Projects typically involve managing the design, completion of plans and permitting for EGLE review under Michigan Parts 31, 301 and 303, preparation of construction drawings and specifications, construction observation, and post-construction monitoring. Representative projects from 2018–2023 are as follows:

Project	County	Project Type	Role	Linear Feet (Approx.)	Project Years
Copperwood	Gogebic	Relocation	PM	12,500	2013–2023
FANUC	Oakland	Relocation	PM/DL	585	2022
Bluff Creek	Ontonagon	Restoration	PM/DL	1,400	2022–2023
Carmeuse	Schoolcraft	Restoration	PM/DL	250	2020
Walled Lake Branch Rouge River	Oakland	Restoration	PM	1,100	2019–2023
Stellar Traverse City	Grand Traverse	Relocation	PM/DL	900	2018–2023
Stillwater	Macomb	Relocation	PM/DL	1,600	2020–2023
Brose	Wayne	Relocation	DL	650	2020–2023
Guardian	Monroe	Relocation	PM/DL	720	2018–2023
Thornapple River at Ada	Kent	Restoration	PM/DL	150	2020
Four Winds South Bend	St. Joseph (IN)	Relocation	PM/DL	2,800	2017–2019

Ravina Park	St. Joseph (IN)	Restoration	PM/DL	100	2017–2019
Franklin Branch Rouge River	Oakland	Restoration	PM/DL	250	2015–2019
Assembly Park	Oakland	Relocation	PM/DL	675	2016–2019

Wetland Mitigation

- Serving as project manager and/or design lead for wetland mitigation projects. Projects typically involve managing the design, completion of plans and permitting for EGLE review under Michigan Part 303, preparation of construction drawings and specifications, construction observation, and post-construction monitoring. Representative projects from 2018–2023 are as follows:

Project	County	Role	Acres (approx.)	Project Years
Copperwood-Riparian Wetlands	Gogebic	PM/DL	5	2013–2023
Copperwood-Gipsy Creek Wetlands	Gogebic	PM/DL	15	2013–2023
USG Avery Quarry	Iosco	PM/DL	150	2020–2023
Henry Ford Behavioral Health	Oakland	DL	1	2021–2022
Salem Springs	Washtenaw	DL	3	2015–2022
Stellar Traverse City	Grand Traverse	PM/DL	1	2018–2023
Briar Hill Road Wetland Mitigation Bank	Monroe	PM/DL	20	2018–2023
Arbor Oaks	Washtenaw	DL	2	2010–2023
USG 1.3	Iosco	DL	1	2021–2023
Marion Oaks	Livingston	PM/DL	1	2021–2022
Waverly Woods	Livingston	PM/DL	1	2021–2022
Biewer Lumber	Missaukee	PM/DL	6	2020–2023
Detroit Catholic Central	Oakland	DL	1	2022
Boddy Port Huron	St Clair	DL	2	2019–2023

Auto–Owners Expansion	Eaton	PM/DL	2	2020–2023
Buck Creek Wetland Mitigation Bank	Kent	DL	28	2021
Carmeuse Port Inland 2	Schoolcraft	DL	1	2020–2023
Dunhill Park	Oakland	DL	1	2019–2023
Carmeuse Port Inland 1	Schoolcraft	DL	10	2019–2023
Brose New Boston	Wayne	DL	10	2019–2023
Costco	Ingham	DL	4	2018–2023
Deer Creek Wetland Mitigation Bank	Macomb	PM/DL	20	2016–2023
Henry Ford South Access	Oakland	DL	1	2018–2023
Genesys Health Care	Genesee	DL	2	2017–2023
Merrill Park	Oakland	DL	1	2017–2023
North Oaks	Washtenaw	DL	1	2017–2023
Triple A Road Expansion	Marquette	PM/DL	10	2016–2023
Guardian Ash Township Wetland	Monroe	Design	2	2014–2023
Sheldon Estates	Washtenaw	PM/DL	5	2018–2023
Quarterline Farms	Allegan	DL	41	2021–2022
Scioview	Washtenaw	PM/DL	2	2018–2022
Van Wagoner	Ottawa	DL	1	2018–2022
Adams	Oceana	PM/DL	35	2013–2022
Four Winds South Bend	Van Buren	PM/DL	40	2017–2021
ETO Magnetic	Kent	DL	1	2017–2021
Novi Grand Promenade	Oakland	PM/DL	2	2016–2021
Oak Forest Phase 2	Oakland	DL	4	2016–2021
Morton Taylor Estates	Washtenaw	PM/DL	3	2016–2021

Parkside Estates	Wayne	DL	1	2016–2021
CHS Wayland	Allegan	PM/DL	6	2015–2020
Wolverine Subdivision	Macomb	PM/DL	2	2015–2020
Montcaret	Washtenaw	DL	1	2014–2020
Arcadia Ridge	Washtenaw	DL	6	2014–2020
Wayne Road Extension	Wayne	DL	18	2015–2020
Berkshire Pointe	Oakland	DL	1	2015–2020
Inergy	Wayne	DL	3	2013–2020
Four Winds New Buffalo	Berrien	PM/DL	2	2014–2019
State & Ellsworth	Washtenaw	DL	2	2012–2019
Legacy Woods	Oakland	PM/DL	1	2017–2018
Carmeuse Remediation	Schoolcraft	DL	110	2016–2018
Wayne Disposal	Washtenaw	DL	33	2013–2018

Training

38-Hour Army Corps of Engineers Wetland Delineation Training Program, Richard Chinn Environmental Training, Inc., 2017

River Restoration & Natural Channel Design (Rosgen Level IV), Wildland Hydrology (Dave Rosgen), 2014

River Assessment & Monitoring (Rosgen Level III), Wildland Hydrology (Dave Rosgen), 2014

River Morphology & Application (Rosgen Level II), Wildland Hydrology (Dave Rosgen), 2013

Applied Fluvial Geomorphology (Rosgen Level I), Wildland Hydrology (Dave Rosgen), 2013

Stream Functions Pyramid Workshop, Stream Mechanics (Will Harman), 2013.

Certified Natural Shoreline Professional Training and Certification Program, Michigan Department of Environmental Quality, 2010.

Watershed & Stream Investigation, Stabilization & Restoration Training, U.S. Army Corps of Engineers, 2006.

Creation & Restoration of Wetlands Training, Ohio State University, 2005.

Education

BS, Biology, University of Minnesota, 2005

DANA BAKER PASI

Environmental Scientist

Dana has more than 10 years of experience providing technical support for data quality assurance and related services. She is currently the coordinator for Barr's data quality team. She often coordinates with field staff and laboratories to implement analysis for site-specific conditions. Prior to this, Dana had three years of experience as an environmental data management technician at Barr, which included assisting with data entry and verification of laboratory data into EQuIS databases; producing database documentation; and preparing and sending out monitoring reports for several remediation sites. Dana's work at Barr includes:

- Coordinating groundwater, surface water, soil, sediment, air, and pilot-testing sample events for a variety of environmental remediation and investigation sites, including railways, former manufactured gas plant (MGP) sites, mining sites, landfill sites, pipelines, and voluntary investigation and cleanup sites. Responsibilities include acting as lab liaison, performing laboratory sampling audits, and examining analytical data to data-quality-control measures.
- Preparing quality assurance project plans (QAPPs) and sampling and analysis plans (SAPs) for federal, tribal, and state agency approval; evaluating analytical data under both contract laboratory program (CLP) and non-CLP data management guidelines; coordinating laboratory analysis and services and reviewing invoices; and preparing analytical data validation reports.
- Assisting the data management team with internal database quality and training new staff on quality assurance/quality control (QA/QC) systems.
- Preparing analytical cost estimates and work orders.
- Providing guidance to client's regarding industrial stormwater compliance.
- Following method-specific quality assurance criteria.
- Following the USEPA's Contract Laboratory Program National Functional Guidelines for data validation.

Project Experience

- Serving as the data quality lead, as described above, for projects in Michigan such as:
  - A sediments remediation project adjacent to a former MGP. (2012–present)
  - Investigation and remediation at a former MGP site. (2012–present)
  - A vapor intrusion pathway (VI) investigation of a former MGP site under Part 201. (2016–present)
- Serving as project manager on several projects involving data review and validation and preparing data summary submittals per state specifications. (2020–present)

- Serving as data quality lead for a remedial investigation site in the state of Washington that included working with the Department of Ecology to prepare an approved QAPP; providing coordination with the field staff and laboratory regarding sampling and analysis, respectively; providing data review and guidance on data usability; reviewing and approving laboratory subcontractor invoices in excess of $250,000 since 2019; and preparing summary reports of the field and laboratory data review. (2016–present)
- Serving as quality assurance officer on a fast-track, complex vapor intrusion investigation and mitigation project in Minnesota for a confidential client. Since 2013, the project involved analyzing for the presence of trichloroethene (TCE) by collecting samples, including soil gas and groundwater samples from public rights-of-way using direct-push technology, sub-slab soil gas samples from beneath more than 300 homes and buildings, and outdoor air samples from certain buildings. Responsibilities included preparation of an MPCA-approved QAPP; data review and Level IV data validation on laboratory data; communication and technical assistance with the laboratory, field staff, and other project stakeholders regarding sampling and analysis; and reviewing invoices and tracking analytical costs. (2014–2017)

Training

Radiochemistry: Instrumentation and Methods in the Environmental Industry (2019)

Leading Effective Virtual Meetings (2019)

Environmental Forensics - Comprehensive Chemical Fingerprinting; Fingerprinting Methods Based on Stable Isotopes (2018)

Closing the PFAS Mass Balance: The Total Oxidizable Precursor (TOP) Assay (2017)

Optimizing Quality Assurance for Ambient Air Monitoring Programs (2017)

The Art of Project Management (2016)

The Analysis of Polyfluorinated Alkyl Substances (PFAS) Including PFOS and PFOA (2016)

National Environmental Monitoring Conference (NEMC), The NELAC Institute (TNI) (2015, 2016)

Data Evaluation for Vapor Intrusion Studies, Air & Waste Management Association (2014)

Introduction to Project Management (2012)

Introduction to Risk Assessment Guidance, United States Environmental Protection Agency (2011)

Minnesota Wastewater Operators Association Annual Laboratory Training, Minnesota Department of Health (2011)

Industrial Stormwater Sampling and Monitoring Training, Minnesota Pollution Control Agency (2011)

Introduction to Groundwater Investigations, United States Environmental Protection Agency (2010)

EQuIS Power User Training, EarthSoft (2009)

Education

MS, Geology, University of Kentucky, 2013

BA, Geology, Albion College, 2008

Training/Certification

40-Hour HAZWOPER Certification, including annual eight-hour refreshers

Registration

Professional Geologist: Kentucky

ANNE M. SCHUMACHER

Senior Geologist

Anne has 11 years of experience as a geologist, including six years of experience working on complex environmental assessment and remediation projects. Building on her extensive groundwater and soil sampling, construction oversight, and geotechnical and environmental drilling experience, her current work primarily focuses on successful project execution and management of a variety of environmental focus areas, including per- and polyfluoroalkyl substances (PFAS) and vapor intrusion (VI). She manages multidisciplinary project teams to collaborate with client partners to assess and remediate contaminated sites in accordance with Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 rules. Anne specializes in the management of environmental drilling investigations, including groundwater monitoring well construction and development, analysis of groundwater quality data, and source assessment and delineation.

Project Experience

- Serving as the project manager for the supplemental PFAS source and delineation investigation at a former paper mill operation. Work included development of an investigative work plan to further refine existing source knowledge by installation of a network of nested groundwater monitoring wells to assess PFAS distribution laterally and vertically, coordinating with a variety of project-related stakeholders and regulatory agencies, and developing a comprehensive investigative documentation report. (2022–present)
- Serving as the task manager and project manager for nature and extent delineation of PFAS in groundwater at a former fire-fighting foam testing area for a manufacturing facility and subsequent development of long-term groundwater monitoring and plume stability analysis. Work included installation of temporary and permanent monitoring wells through environmental drilling techniques, groundwater sampling plan development, and analysis of groundwater flow in relation to a nearby river. (2020–present)
- Developing geologic cross sections to assist with fate and transport analysis for PFAS in groundwater in New England. Work included geological interpretations and area-wide analysis for potential PFAS sources. (2020)
- Serving as the task manager and project manager in the evaluation of the volatilization to indoor air pathway (VIAP) and subsequent design, construction, and implementation of a VI mitigation system for a Part 201 large manufacturing facility. The VIAP evaluation included iterative sub-slab soil vapor sampling to identify the sub-slab source of volatile organic compounds (VOCs) and completion of a VI pilot test for collection of basis of design data to gather additional information needed for the design of the active VI mitigation system. Additional activities included management and oversight of the sub-slab depressurization system (SSDS) installation

and post-installation monitoring activities. Ongoing work includes VI sampling to ensure SSDS effectiveness and the future development and submission of a No Further Action (NFA) report to EGLE for review. (2018–present)

- Serving as the senior field technician, task manager, and project manager for a manufacturing client in Michigan. Completed work included environmental site assessments (ESAs) in the form of a Phase I and Phase II to assess environmental risks associated with a historical degreaser operation utilizing trichloroethylene (TCE). Ongoing work includes evaluation of the VIAP and subsequent design, construction, and implementation of a VI mitigation system. (2018–present)
- Serving as the senior field lead, task manager, and project manager for a three-parcel former aerospace instrumentation facility with multiple active pathway investigations. Previous work included low-flow sampling of groundwater for plume stability assessment for chlorinated solvents. Ongoing work includes implementation of iterative sub-slab soil vapor and indoor air sampling for multiple properties to delineate sub-slab soil vapor and indoor air exceedances to established VIAP criteria, preparation for and development of an active VI mitigation system for construction and implementation at up to two parcels with large-scale, active manufacturing facilities, and coordination with multiple stakeholders including operators, legal counsel, and the former owner/responsible party. (2016–present)
- Serving as the task manager and senior field technician for a Part 201 former manufactured gas plant in Michigan. Work has included oversight of sonic drilling to bedrock to delineate presence of dense non-aqueous-phase liquid (DNAPL), completion of annual plume stability analysis and evaluation, assisting with the completion of mixing-zone determination requests through a combination of hydrogeologic data collection and groundwater-flow modeling to assess the groundwater/surface-water interface (GSI) to establish site-specific criteria, oversight of direct push environmental sampling to delineate remaining DNAPL source material, and assisting with the development and submission of an on-site NFA report. (2016–present)
- Serving as the task manager and senior field technician for another Part 201 former manufactured gas plant in Michigan. Work included development of annual sampling plans, development of work plans, contractor bid evaluation for well network operations and maintenance, coordination with analytical laboratories, and groundwater sampling. (2016–2021)
- Anne's other work at Barr has included:
  - Performing soil logging and bulk sample collection for wind turbine foundation design, road testing, and construction. These investigations were completed using various drilling techniques including air and mud rotary, and hollow-stem and solid-stem auger.

- Providing environmental drilling and groundwater sampling support at former manufactured gas plants and other impacted sites. These activities include soil characterization and contamination delineation, low-flow groundwater sampling, and temporary and permanent monitoring well installations.
- Conducting groundwater contaminant migration analysis for light non-aqueous-phase liquid (LNAPL) and DNAPL.
- Performing environmental investigations for delineating contaminants of concern.
- Conducting surveying for monitoring well top of casing and ground surface elevations.
- Developing site characterizations, risk assessments, remedial strategies, and corrective action plans.
- Developing geologic cross-sections to visualize and interpret subsurface contamination and pathways.
- Performing environmental compliance activities and inspections for pipeline construction.

- Prior to joining Barr, Anne served as a geologist for Rhino Energy, LLC, a mining and metals company (2010–2015). Responsibilities included:
  - Logging core samples for stratigraphic correlation across properties and developing geologic maps for use during mining.
  - Directing three core-drilling crews for company-wide coal exploration.
  - Producing monthly and weekly technical reports summarizing exploration activities and deliverables.
  - Producing reserve reports at all surface and underground mines annually to comply with U.S. Securities and Exchange Commission (SEC) standards.
  - Analyzing problematic mining zones and making recommendations to improve safety and productivity.
  - Implementing a greenhouse gas monitoring program based on EPA regulations and managing quarterly sampling at active mines.
- Anne also previously served as a field hydrogeologist for the Bureau of Land Management (2008). Responsibilities included:
  - Collecting water samples and monitoring field equipment, managing databases with water quality measurements, and installation of piezometers.
  - Surveying quarry boundaries using mobile GPS and GIS mapping platforms.
  - Performing geologic reviews of oil and gas permit applications to make sure aquifers were protected during drilling.
  - Assisting with onsite environmental inspections of abandoned mines.

Education

BS, Chemical Engineering, Georgia Institute of Technology, 2002

Training/Certification

OSHA HAZWOPER 40-Hour

ASTM E1527-13 Standard Practice for Environmental Site Assessments: Phase I & Phase II Environmental Site Assessment Processes

Registration

Professional Engineer: Michigan

KATE WATSON, PE

Senior Environmental Engineer

Kate has more than 17 years of experience investigating, analyzing alternatives for, and implementing remedial action at contaminated sites. Her expertise spans multiple media including sediment, groundwater, and vapor in regulatory frameworks such as CERCLA, TSCA, RCRA, and Michigan Part 201. Before joining Barr, Kate worked at another consulting firm as a senior engineer and project manager and has also worked as a systems engineer for Lockheed Martin Aeronautics.

Project Experience

- Serving as a project engineer and later as the project manager for a CERCLA site in northeast Ohio undergoing a monitored natural attenuation demonstration for chlorinated ethenes and chlorobenzene in groundwater. (2005–2022)

  Her responsibilities included:

  - Leading a vapor intrusion risk investigation, including coordinating with property owners; leading the soil gas, sub-slab, and indoor air sampling team; evaluating the collected data; and reporting findings supporting the conceptual site model.
  - Preparing site strategies and communications with EPA to defer document update costs and avoid unnecessary well installation costs.
  - Developing annual scopes, budgets, and proposals as well as resourcing and leading the multidisciplinary project team including engineers, groundwater modelers, GIS specialists, and field staff.
  - Leading preparation of and reviewing annual monitoring and institutional controls verification reports.
  - Leading preparation of a CERCLA-focused feasibility study supporting MNA as the appropriate long-term remedy for the site.
  - Performing BIOCHLOR groundwater modeling to support that constituents would not migrate beyond site boundaries during the MNA demonstration.
  - Preparing and presenting site briefings to orient new EPA remedial project managers as they were assigned.

- Serving as assistant project manager and a senior engineer for remedial design and remedial action on a 22-mile reach of the Kalamazoo River with PCB-contaminated sediment and a CERCLA ROD-specified dredging remedy. (2020–2022)

  Her responsibilities included:

  - Developing proposals and cost estimates for remedial action implementation oversight and engineering support.
  - Tracking project progress and documenting out-of-scope tasks. Developing cost forecasts for longer-term project tasks.

- Resourcing and directing the project team including civil designers, environmental and geotechnical engineers, biologists, construction managers, and field staff.
- Coordinating and tracking subcontractor work orders and invoicing.
- Reviewing project billings for accuracy and preparing client invoices.
- Preparing cost projections for remedial action construction.
- Providing technical and editorial review on basis of design report and RFP for a $30M dredging remedial action under EPA and EGLE oversight.
- Preparing work plans for post-dredge sediment confirmation sample collection and processing and preparing and reviewing remedial action construction work plans. This included working cooperatively with EPA and EGLE through "workgroup" meetings to expedite preparation and agency approval of the work plans.
- Coordinating post-dredge confirmation sampling events.
- Preparing cost estimates and strategy to support agency negotiations for capping versus dredging remediation.

▪ Serving as a project engineer on the Spartan Chemical Superfund Site in Grand Rapids, Michigan, she performed soil vapor and indoor air sampling in accordance with the Michigan Department of Environment, Great Lakes, and Energy (EGLE) standard operating procedures. (2019)

▪ Serving as a project engineer on other areas of the Kalamazoo River Superfund Site, she screened technologies and evaluated and comparatively analyzed alternatives for a CERCLA feasibility study and prepared a technical memo for regulators comparing methods and conclusions from two hydrodynamic models (HEC-RAS and Delft3D). (2016–2018)

▪ Serving as a staff engineer for a confidential client's remediation of a former natural oxbow in the floodplain of a river with DDT-, DDE-, DDD-, hexachlorobenzene-, and mercury-contaminated sediment, she screened technologies, developed cost estimates, and prepared comparative analysis for a CERCLA feasibility study that resulted in a capping remedy selection, saving the client approximately $50 million compared to a dredging remedy. She wrote work plans for and performed long-tube sediment settling and flocculent evaluation testing to support enhanced sedimentation as part of the site remedy. She also developed a design for and coordinated with a subcontractor to build sediment pins that were installed at the site and used along with surveying equipment to measure sediment deposition over time. (2009–2012)

Presentations

With C. Draper, H. Fogell, and K. Roberts. "Long Tube Testing to Evaluate Settling for Enhanced Sedimentation Using Engineering Controls." Seventh International Conference on Remediation of Contaminated Sediments, February 2013, Dallas, Texas.

Attachment D: Field Activity Log and Weekly Report Example

Sediment Remediation – Daily Update

Project, Client: *Confidential, Confidential*

Date: 05/01/YYYY

Weather: High 40s to low 60s with periods of heavy rain

On Site Personnel

Barr: Mike Ellis and Mike Potter

***Subcontractor*:** Project Manager (1); Site Superintendent (3); QC Manager (1); Health and Safety Office (1); Laborers (2); Operators (3)

Subcontractors: None

Other Visitors: Property owner was on site to discuss location of the site perimeter fence between the Pedestrian Bridge and Dam.

Safety

Contractor went over a site overview and overall objectives of the project. They discussed the importance of communication, especially in the early stages of the project when employees that have not worked together are still learning each other's work styles and habits. They discussed that everyone has stop work authority and should use it if they see something unsafe or do not think they can complete their job safely. Contractor has a separate meeting with union laborers hired on for the project to complete paperwork and get them more familiar with Contractor's safety program.

Barr discussed what Barr's role will be on site and discussed that communication between Barr and Contractor's team will be needed for Barr to be able to complete observation and sampling activities safely. Barr discussed procedures for public inquiries and that all public inquiries should be directed to Barr. Barr went over the resources that are available for the public to get more information on the project and handed out a Fact Sheet to meeting attendees for reference.

General Site Work Completed

1. A pre-construction video survey of site conditions was completed.
2. Two office trailers were setup.

3. Fence posts were installed along most of the Work Area boundary on the east side of the river.
4. Existing drums on site were moved from near the shed in Owner's parking lot to southern edge of the lot.
5. A topographic survey of existing conditions in the upland areas was started.
6. Materials including AquaBlok, erosion control blanket, silt fence, geotextile fabric, Rusmar Foam, erosion control logs, and oil boom were delivered.
7. Equipment including a compressor, three connex storage containers, a foam machine for Rusmar Foam, skidsteer, trencher, generator, three portable toilets, and traffic control signage were delivered.
8. Subcontractor continued installation of air filters in surrounding buildings.
9. Barr completed an SESC inspection in response to receiving >0.5 inches of rain in a 24 hour period.

Samples Taken

1. None

Work Planned for Next Day

1. Continue to receive and stage equipment and materials.
2. Prepare subgrade for the dewatering pad.
3. Continue installation of air filters in surrounding buildings.
4. Install soil erosion and sedimentation control devices.
5. Initiate construction of waste water treatment plant.
6. Initiate construction of the unloading platform.
7. Install the dewatering pad liner.
8. Install sanitary sewer monitoring devices.

Deviations from Plans and/or Specifications

1. None

External Communications

1. Barr contacted Property Stakeholder to discuss the location of the temporary fence between the Pedestrian Bridge and Dam fence location in this area. Property Stakeholder agreed on the final alignment of the fence installation. The fence contractor, Subcontractor, asked Property Stakeholder about University-owned utilities in the area. He mentioned that Barr has detailed drawings of utilities in the area, but he would coordinate with someone from their facilities group to come out in the morning to discuss locations of University owned utility lines. Barr communicated utility locations shown on the Construction Drawings with the Contractor. Property Stakeholder also asked about update meetings and Barr informed him that Barr and Owner are still working on setting those up.

2. Barr talked with adjacent Property Stakeholder regarding who should be the primary contact if anything arises during construction and if the adjacent property stakeholder has complaints about odors. Adjacent property stakeholder provided contact information.

Additional Comments

1. Contractor communicated that they would like additional trees removed to facilitate construction activities. These trees include two pine trees and three saplings/shrubs on Property Owner property near the western extent of the Pedestrian Bridge, one tree on Property Owner property near the southwest corner of Parking Lot, three trees on City property in the northwest corner of the Work Area, and one tree on Owner's property (trimming only) on the southwest corner of Owner's parking lot. Barr is working with applicable landowners to discuss the additional removal, and, if applicable, will perform nest surveys and coordinate the additional removal with the U.S. Fish and Wildlife Services.

Photos [*redacted]*

Sediment Remediation – Daily Update

Project, Client: *Confidential, Confidential*

Date: 05/02/YYYY

Weather: High 40s to low 50s, mostly cloudy with light rain throughout the day

On Site Personnel

Barr: Mike Potter

***Contractor*:** Project Manager (1); Site Superintendent (2); QC Manager (1); Health and Safety Office (1); Laborers (2); Operators (3)

Subcontractors: Fence installer and surveyor.

Other Visitors: Property Owner on site to discuss additional trees to be removed for the haul road.

Safety

Contractor discussed hazards associated with setup and mobilization tasks during the morning safety meeting.

General Site Work Completed

1. Subcontractor continued installing fence posts and a temporary chain link fence along the Work Area boundary.
2. Subcontractor continued to make progress on the pre-work topographic/bathymetric survey of existing conditions.
3. Installation of erosion control devices continued.
4. A pre-construction video survey of the west side of the site was completed.
5. A third construction trailer was delivered and setup.
6. Received aggregate for the dewatering and material handling area and continued to grade the subgrade for the area.
7. Subcontractor performed site security duties during non-working hours.

8. Materials including AquaBlok and erosion control products were delivered.

Samples Taken

1. None

Work Planned for Next Day

1. Continue grading subgrade for the dewatering and material handling area.
2. Continue installation of soil erosion and sedimentation control devices.
3. Continue with installation of fence posts and chain link fence.
4. Construct temporary access point to the Recreation Center loading dock at the southwest corner of Parking Lot.

Deviations from Plans and/or Specifications

1. None

External Communications

1. Barr contacted Property Stakeholder to discuss the access point from Parking Lot A to the Building loading dock. Property Stakeholder asked for an existing tree, which is in the middle of the access road, to be moved. Barr communicated that this would need to be done after the nest survey is completed on Monday, 5/8.

Additional Comments

1. None

Photos [*redacted]*

Sediment Remediation – Daily Update

Project, Client: *Confidential, Confidential*

Date: 05/03/YYYY

Weather: 40s to low 60s, clear skies

On Site Personnel

Barr: Mike Ellis, Tom Boom

***Contractor*:** Project Manager (1); Site Superintendent (2); QC Manager (1); Health and Safety Office (1); Laborers (2); Operators (3)

Subcontractors: Fence installer and surveyor.

Other Visitors: Property Stakeholder with the University was on site to discuss the access ramp from Parking Lot to the Building loading dock.

Client contact (Owner) was on site for a weekly update meeting and site walk.

Safety

Contractor discussed the importance of signing in and out at the site and reporting any injuries or illness to their site safety officer so they can be addressed appropriately.

General Site Work Completed

1. Subcontractor continued installing fence posts and a temporary chain link fence along the Work Area boundary.
2. Subcontractor continued to make progress on the pre-work topographic/bathymetric survey of existing conditions.
3. Installation of erosion control devices continued.
4. Aggregate was imported for the dewatering and material handling area and the area was graded.
5. Contractor constructed a gravel access ramp in the southwest corner of Parking Lot to allow trucks to access the Building loading dock while Road is closed.

6. Contractor removed sections of curb from Owner's parking lot to prepare area for installation of a temporary fabric structure covering imported materials.

7. Subcontractor performed site security duties during non-working hours.

Samples Taken

1. None

Work Planned for Next Day

1. Continue grading subgrade for the dewatering and material handling area.

2. Continue installation of soil erosion and sedimentation control devices.

3. Continue with installation of fence posts and chain link fence.

4. Close Road off to public and setup vehicle and pedestrian detour signs.

Deviations from Plans and/or Specifications

1. Barr and Contractor discussed alternatives to placing a temporary sidewalk on the north side of Road because it would be difficult to install a temporary sidewalk there due to the existing slope. Barr will evaluate modifying the signage in the area to have pedestrians cross to the south side of Road and coordinate with the Property Owner to get approval.

External Communications

1. Barr contacted Property Stakeholder to notify him that Road would be closed starting the morning of 5/4. He said he is okay with that.

Additional Comments

1. Contractor discussed needing to move the shed in Owner's parking lot to erect the tension fabric structure for imported materials. Barr began cleaning out the shed and coordinating removal of additional materials from the shed.

2. A weekly meeting was conducted between Barr, Owner, and Contractor.

3. Barr and Contractor discussed potential methods to monitor the temporary structure for negative pressure. Contractor will do some additional research and communicate to Barr what methods they find.

4. Barr completed a drum count of existing drums on site.

Photos [*redacted*]

Sediment Remediation – Daily Update

Project, Client: *Confidential, Confidential*

Date: 05/04/YYYY

Weather: 40s, cloudy with light rain throughout the day

On Site Personnel

Barr: Mike Ellis, Mike Potter, Joey Barker

***Contractor*:** Project Manager (1); Site Superintendent (2); QC Manager (1); Health and Safety Office (1); Laborers (2); Operators (3)

Subcontractors: Fence installer, surveyor.

Other Visitors: None

Safety

Contractor discussed pinch points and being aware of putting yourself in a situation that would make you susceptible to getting stuck in a pinch point as they planned to unload a lot of equipment and materials throughout the day. Contractor also discussed the importance of operators maintaining three points of contact when getting into their machine.

General Site Work Completed

1. Subcontractor continued installing fence posts and a temporary chain link fence along the Work Area boundary. Fence gates were installed to close Road south of the Adjacent Property entrance and at Drive and Drive. Fence installation on the eastern side of the river was completed. Fence installation is not complete on the western riverbank but a temporary fence was placed at the western end of the Pedestrian Bridge to detour pedestrians around the bridge.
2. Subcontractor continued to make progress on the pre-work topographic/bathymetric survey of existing conditions.
3. Installation of erosion control devices continued.
4. Aggregate was imported for the dewatering and material handling area and the area was graded and compacted.

5. Contractor removed asphalt and began staging aggregate in the eastern extent of Owner parking lot to prepare for installation of the temporary structure housing imported materials.

6. Contractor received a loader; backhoe; two 2,000 gallon fuel cells; components for the air handling units; and counter weights for excavators.

7. Subcontractor performed site security duties during non-working hours.

8. Barr sorted through materials in the shed on Owner parking lot and separated material into what can be disposed of versus removed.

9. Subcontractor posts within Owner parking lot.

10. Subcontractor was on site to evaluate damage to vegetation caused by recent drilling activities. Subcontractor did not perform the restoration as planned due to the forecasted rains but will perform the restoration next week, likely on 5/9.

Samples Taken

1. Turbidity samples collected at four locations as described below (all samples were collected from the western riverbank using a grab sample pole, turbidity results shown in parenthesis):
    a. Location 1 – just downstream of the Bridge (12.8 NTU)
    b. Location 2 –downstream of the storm sewer channel adjacent to outfall #3 (17.7 NTU)

Work Planned for Next Day

1. Continue grading subgrade for the dewatering and material handling area.

2. Continue to grade material storage area.

3. Continue installation of soil erosion and sedimentation control devices.

4. Widen gravel access ramp in Parking Lot.

5. Continue pre-construction survey.

Deviations from Plans and/or Specifications

1. None

External Communications

1. Property Owner Stakeholder contacted Mike Potter to notify him that the bags of oil boom were blocking the access ramp in Parking Lot. This information was relayed to Contractor and the bags were moved.

Additional Comments

1. None

Photos [redacted]

Sediment Remediation – Daily Update

Project, Client: *Confidential, Confidential*

Date: 05/05/YYYY

Weather: 40s to low 50s, mostly cloudy

On Site Personnel

Barr: Mike Potter

***Contractor*:** Project Manager (1); Site Superintendent (3); QC Manager (1); Health and Safety Office (1); Laborers (2); Operators (3)

Subcontractors: *Surveyor, electrician.*

Other Visitors: None

Safety

Contractor conducted a daily safety meeting at the beginning of the day and discussed planned activities, potential hazards, and mitigation measures. The focus of the discussion was again on pinch points as Contractor continues to receive a lot of material and equipment.

General Site Work Completed

1. Installation of erosion control devices continued.
2. Aggregate was imported for the dewatering and material handling area and progress was made constructing a berm along the perimeter of the dewatering pad.
3. An excavator with breaker attachment was used to break up curbs and asphalt in the eastern area of Owner's parking lot.
4. Sheet piling, a 500 gallon fuel cell, generator, and welding supplies were delivered.
5. The tree adjacent to the gravel access ramp from Parking Lot was relocated north so that the gravel access ramp could be widened. Barr inspected the tree for nests prior to the relocation and no nests were observed. After the tree was moved Contractor widened the access ramp to facilitate deliveries to the Building loading dock.

6. Began work constructing the temporary sidewalk on the west side of the river.
7. Subcontractor completed the pre-construction bathymetric/topographic survey.
8. Subcontractor was on site to continue the hook up of power to the work trailer.
9. Subcontractor performed site security duties during non-working hours.

Samples Taken

1. None

Work Planned for Next Day

1. Continue grading subgrade for the dewatering and material handling area.
2. Continue removal of asphalt and concrete curb in the eastern area of Owner parking lot to prepare for material staging area.
3. Continue installation of soil erosion and sedimentation control devices.
4. Continue installation of air filters.

Deviations from Plans and/or Specifications

1. Owner made the decision to not restore the four light posts in Owner parking lot. Owner informed Barr that the lights were customer owned before Owner bought and demolished the Former building and no electric was supplied to the lights after service was disconnected to the building, so Owner decided to remove and dispose of the lights.

External Communications

1. None

Additional Comments

1. None

Photos [redacted]

resourceful. naturally.
engineering and environmental consultants

Meeting Notes

Weekly Construction Progress Meeting

5/10/YYYY
10:00 – 11:00 AM

Attendees: *[list attendees]*

A summary of the meeting discussion is below. Action items based on meeting discussions are noted in bold.

Safety

- A first aid station was recently set up at the site.
- Fire extinguishers, emergency contact lists, and hospital routes were installed inside each of the work trailers.
- *Contractor* will have a person staff the main entrance gate to regulate who enters the site per requirements of the Specifications.

Project Updates

- *Property Owner* gave *subcontractor* a list of buildings they would like to have additional filters installed in and that list was passed on to *Contractor*. ***Contractor* will share that list with *Owner* and Barr.**
- *Subcontractor* is working on a temporary re-route of the fiber optic line with the *Property Owner* and the proposed re-route over the river is to string the line across *Road* bridge using utility poles. ***Contractor* has a map of the proposed re-route and will share with *Owner* and Barr.**
- *Contractor* will place bin blocks around the perimeter of the dewatering pad, two high, to function as a containment berm.
- Installation of the Work Area security fence, including privacy screening, should be completed this week.
- Video survey of storm and sanitary sewers should begin this week.
- Barr is talking with the MDEQ about what an acceptable location of the upstream Work Area barrier will be and what permit is needed to install the barrier. **Barr will communicate the results of the discussion with *Contractor*.**

Permit Updates

- *Contractor* is working on getting a hydrant permit through the *City*.
- Barr expects to receive the Joint Permit this week.
- Barr is continuing to work on the permit to discharge treated water to the City's sanitary sewer system, and it's looking less likely that discharge to the river through a NPDES permit will be used as a disposal method.

Two Week Look Ahead Project Schedule

- Next week will include constructing temporary unloading platforms, asphalting dewatering and material handling areas, constructing the wastewater treatment plant, setup of structural monitoring equipment, and beginning erection of the temporary fabric structures.

Submittals

- Survey plan should be updated this week and revised plan will be sent to Barr for review.
- Quality control testing for the geomembrane liner installation will be submitted to Barr this week.
- *Contractor* will continue using NGVD29 datum consistent with Barr drawings.

Pedestrian Bridge

- *Contractor* is continuing to work on a budgetary cost estimate for bridge removal and statement of qualifications for bridge removal and construction work.

Requests for Information

- Barr and *Contractor* verified outfall dimensions in question for storm sewer outfalls within the Work Area.
- *Contractor* will complete installation of slope monitoring points this week.
- *Contractor* submitted an alternative design for the subdrainage system sump, and **Barr and *Contractor* will setup a separate meeting to discuss that design.**

Survey Updates

- *Contractor* will submit the pre-construction survey soon.
- ***Contractor* will send e-mail to Barr requesting a point file for the dredge surface.**

Additional Discussion

- **Barr will send *Contractor* an e-mail requesting a cost estimate for additional odor controls, plastic sheeting in front of loading dock bays and secondary vestibule, to install on the *Owner* Building.**
- *Contractor* has not contacted the City to discuss their methods of operating the *Dam*, but will include Barr on the discussions when they do.

Attachment E: Certification of a Michigan Based Business

R 08/20

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Certification of a Michigan Based Business

(Information Required Prior to Contract Award for Application of State Preference/Reciprocity Provisions)

To qualify as a Michigan business:

Vendor must have, during the 12 months immediately preceding this bid deadline:
or
If the business is newly established, for the period the business has been in existence, it has:

(Check all that apply):

- ☐ Filed a Michigan single business tax return showing a portion, or all the income tax base allocated or apportioned to the State of Michigan pursuant to the Michigan Single Business Tax Act, 1975 PA 228, MCL • ˜208.1 – 208.145: or
- ☒ Filed a Michigan income tax return showing income generated in or attributed to the State of Michigan; or
- ☒ Withheld Michigan income tax from compensation paid to the bidder's owners and remitted the tax to the Department of Treasury; or

I certify that **I have personal knowledge** of such filing or withholding, that it was more than a nominal filing for the purpose of gaining the status of a Michigan business, and that it indicates a significant business presence in the state, considering the size of the business and the nature of its activities.

I authorize the Michigan Department of Treasury to verify that the business has or has not met the criteria for a Michigan business indicated above and to disclose the verifying information to the procuring agency.

Bidder shall also indicate one of the following:

- ☐ Bidder qualifies as a Michigan business (provide zip code: _____)
- ☐ Bidder does not qualify as a Michigan business (provide name of State: _____).
- ☒ Principal place of business is outside the State of Michigan, however service/commodity provided by a location within the State of Michigan (provide zip code: 48108)

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Bidder: Barr Engineering Co.

Thomas Boom, Vice President
Authorized Agent Name (print or type)

12-29-2022
Authorized Agent Signature & Date

Fraudulent Certification as a Michigan business is prohibited by MCL 18.1268 § 268. A BUSINESS THAT PURPOSELY OR WILLFULLY SUBMITS A FALSE CERTIFICATION THAT IT IS A MICHIGAN BUSINESS OR FALSELY INDICATES THE STATE IN WHICH IT HAS ITS PRINCIPAL PLACE OF BUSINESS IS GUILTY OF A FELONY, PUNISHABLE BY A FINE OF NOT LESS THAN $25,000 and subject to debarment under MCL 18.264.

Attachment F: Responsibility Certification

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Responsibility Certification

The bidder certifies to the best of its knowledge and belief that, within the past three (3) years, the bidder, an officer of the bidder, or an owner of a 25% or greater interest in the bidder:

(a) Has not been convicted of a criminal offense incident to the application for or performance of a contract or subcontract with the State of Michigan or any of its agencies, authorities, boards, commissions, or departments.

(b) Has not had a felony conviction in any state (including the State of Michigan).

(c) Has not been convicted of a criminal offense which negatively reflects on the bidder's business integrity, including but not limited to, embezzlement, theft, forgery, bribery, falsification, or destruction of records, receiving stolen property, negligent misrepresentation, price-fixing, bid rigging, or a violation of state or federal anti-trust statutes.

(d) Has not had a loss or suspension of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question.

(e) Has not been terminated for cause by the Owner.

(f) Has not failed to pay any federal, state, or local taxes.

(g) Has not failed to comply with all requirements for foreign corporations.

(h) Has not been debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency.

(i) Has not been convicted of a criminal offense or other violation of other state or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, which in the opinion of DTMB indicates that the bidder is unable to perform responsibly or which reflects a lack of integrity that could negatively impact or reflect upon the State of Michigan, including but not limited to, any of the following offenses under or violations of:

   i. The Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.101 to 324.90106.
   ii. A persistent and knowing violation of the Michigan Consumer Protection Act, 1976 PA 331, MCL 445.901 to 445.922.

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

iii. 1965 PA 166, MCL 408.551 to 408.558 (law relating to prevailing wages on state projects) and a finding that the bidder failed to pay the wages and/or fringe benefits due within the period required.

iv. Repeated or flagrant violations of 1978 PA 390 MCL 408.471 to 408.490 (law relating to payment of wages and fringe benefits).

v. A willful or persistent violation of the Michigan Occupational Health and Safety Act, 1974, PA 154, MCL 408.10001 to 408.1094, including: a criminal conviction, repeated willful violations that are final orders, repeated violations that are final orders, and failure to abate notices that are final orders.

vi. A violation of federal or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.

vii. Been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U. s. C. 158 (1980 PA 278, as amended, MCL 423.321 et seq).

(j) Is NOT an Iran linked business as defined in MCL 129.312.

I understand that a false statement, misrepresentation, or concealment of material facts on this certification may be grounds for rejection of this proposal or termination of the award and may be grounds for debarment.

Bidder: Barr Engineering Co.

Thomas Boom, Vice President
Authorized Agent Name (print or type)

12-29-2022
Authorized Agent Signature & Date

☐ I am unable to certify to the above statements. My explanation is attached.

Attachment G: Acknowledgment of Addendums

ACKNOWLEDGMENT OF ADDENDUMS

PSC acknowledges receipt of Addenda: No. _1_ dated: 12/7/2022,

No. _2_ dated:12/21/2022 No. ___ dated: _____

APPENDIX 3

PROFESSIONAL CERTIFICATION

FORMS

(See pages 271 - 275)

APPENDIX 4

OVERHEAD ITEMS ALLOWED FOR THE PROFESSIONAL SERVICES CONTRACTOR FIRM'S HOURLY BILLING RATE CALCULATION

DEPARTMENT OF TECHNOLOGY, MANAGEMENT & BUDGET,
VEHICLE AND TRAVEL SERVICES
SCHEDULE OF TRAVEL RATES FOR CLASSIFIED AND UNCLASSIFIED EMPLOYEES
Effective January 1, 2023

MICHIGAN SELECT CITIES*

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	$85.00	
Breakfast	$11.75	$14.75
Lunch	$11.75	$14.75
Dinner	$28.00	$31.00

MICHIGAN IN-STATE ALL OTHER

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	$85.00	
Breakfast	$9.75	$12.75
Lunch	$9.75	$12.75
Dinner	$22.00	$25.00

Lodging	$51.00
Breakfast	$9.75
Lunch	$9.75
Dinner	$22.00
Per Diem Total	**$92.50**

OUT-OF-STATE SELECT CITIES*

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	Contact Conlin Travel	
Breakfast	$15.00	$18.00
Lunch	$15.00	$18.00
Dinner	$29.00	$32.00

OUT-OF-STATE ALL OTHER

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	Contact Conlin Travel	
Breakfast	$11.75	$14.75
Lunch	$11.75	$14.75
Dinner	$27.00	$30.00

Lodging	$51.00
Breakfast	$11.75
Lunch	$11.75
Dinner	$27.00
Per Diem Total	**$101.50**

Incidental Costs Per Day (with overnight stay) $5.00

Mileage Rates	**Current**
Premium Rate	$0.655 per mile
Standard Rate	$0.440 per mile

* See Select Cities Listing
** Lodging available at State rate, or call Conlin Travel at 877-654-2179 or www.somtravel.com

SELECT CITY LIST
SCHEDULE OF TRAVEL RATES FOR CLASSIFIED AND UNCLASSIFIED EMPLOYEES
Effective January 1, 2023

Michigan Select Cities/Counties		
	CITIES	**COUNTIES**
	Ann Arbor, Auburn Hills, Beaver Island, Detroit, Grand Rapids, Holland, Leland, Mackinac Island, Petoskey, Pontiac, South Haven, Traverse City	Grand Traverse, Oakland, Wayne
Out of State Select Cities/Counties		
STATE	**CITIES**	**COUNTIES**
Alaska	All locations	
Arizona	Phoenix, Scottsdale, Sedona	
California	Arcata, Edwards AFB, Eureka, Los Angeles, Mammoth Lakes, McKinleyville, Mill Valley, Monterey, Novato, Palm Springs, San Diego, San Francisco, San Rafael, Santa Barbara, Santa Monica, South Lake Tahoe, Truckee, Yosemite National Park	Los Angeles, Mendocino, Orange, Ventura
Colorado	Aspen, Breckenridge, Grand Lake, Silverthorne, Steamboat Springs, Telluride, Vail	
Connecticut	Bridgeport, Danbury	
District of Columbia	Washington DC (See also Maryland & Virginia)	
Florida	Boca Raton, Delray Beach, Fort Lauderdale, Jupiter, Key West, Miami	
Georgia	Brunswick, Jekyll Island	
Hawaii	All locations	
Idaho	Ketchum, Sun Valley	
Illinois	Chicago	Cook, Lake
Kentucky	Kenton	
Louisiana	New Orleans	
Maine	Bar Harbor, Kennebunk, Kittery, Rockport, Sandford	
Maryland	Baltimore City, Ocean City	Montgomery, Prince George
Massachusetts	Boston, Burlington, Cambridge, Martha's Vineyard, Woburn	Suffolk
Minnesota	Duluth, Minneapolis, St. Paul	Hennepin, Ramsey
Nevada	Las Vegas	
New Mexico	Santa Fe	
New York	Bronx, Brooklyn, Lake Placid, Manhattan, Melville, New Rochelle, Queens, Riverhead, Ronkonkoma, Staten Island, Tarrytown, White Plaines	Suffolk
Ohio	Cincinnati	
Pennsylvania	Pittsburgh	Bucks
Puerto Rico	All locations	
Rhode Island	Bristol, Jamestown, Middletown, Newport, Providence	Newport
Texas	Austin, Dallas, Houston, L.B. Johnson Space Center	
Utah	Park City	Summit
Vermont	Manchester, Montpelier, Stowe	Lamoille
Virginia	Alexandria, Fairfax, Falls Church	Arlington, Fairfax
Washington	Port Angeles, Port Townsend, Seattle	
Wyoming	Jackson, Pinedale	

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APPENDIX 5

CERTIFICATES OF INSURANCE

CERTIFICATE OF LIABILITY INSURANCE

1/1/2024

DATE (MM/DD/YYYY) 2/27/2023

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

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

PRODUCER Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000 kcasu@lockton.com	**CONTACT NAME:** **PHONE (A/C, No, Ext):** **FAX (A/C, No):** **E-MAIL ADDRESS:**
INSURED 1516042 BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS MN 55435	**INSURER(S) AFFORDING COVERAGE** — **NAIC #** **INSURER A :** American Casualty Company of Reading, PA — 20427 **INSURER B :** Transportation Insurance Company — 20494 **INSURER C :** The Continental Insurance Company — 35289 **INSURER D :** Continental Casualty Company — 20443 **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 19366776 **REVISION NUMBER:** XXXXXXX

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR X CONT. LIAB/XCU X ND/OH/WA/WY STOP GAP GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC OTHER:	Y	Y	7017884292	1/1/2023	1/1/2024	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG 	$ 1,000,000 $ 1,000,000 $ 15,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
B	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY	Y	Y	7017882395	1/1/2023	1/1/2024	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ 1,000,000 $ XXXXXXX $ XXXXXXX $ XXXXXXX $ XXXXXXX
C	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $ $0	Y	Y	7017886821	1/1/2023	1/1/2024	EACH OCCURRENCE AGGREGATE 	$ $10,000,000 $ $10,000,000 $ XXXXXXX
B B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	7017886706 (AOS) 7017890612 (CA)	1/1/2023 1/1/2023	1/1/2024 1/1/2024	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
D	PROFESSIONAL LIABILITY INCL.POLLUTION INCIDENT	N	Y	EEH008220528	11/1/2022	1/1/2024	CLAIMS MADE & REPORTED $5,000,000 PER CLAIM/AGG	

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

THIS CERTIFICATE SUPERSEDES ALL PREVIOUSLY ISSUED CERTIFICATES FOR THIS HOLDER, APPLICABLE TO THE CARRIERS LISTED AND THE POLICY TERM(S) REFERENCED.
RE: 2023 ENVIRONMENTAL ISID SERVICES CONTRACT NO. 00924. CERTIFICATE HOLDER AND OTHERS AS REQUIRED BY CONTRACT DOCUMENTS ARE ADDITIONAL INSURED ON A PRIMARY AND NON-CONTRIBUTORY BASIS AS RESPECTS GENERAL, AUTO & UMBRELLA LIABILITY IF REQUIRED BY WRITTEN CONTRACT. A WAIVER OF SUBROGATION APPLIES TO GENERAL, AUTO, UMBRELLA, & WORK COMP./EMPLOYER'S LIABILITY, WHERE ALLOWED BY STATE LAW & IF REQUIRED BY WRITTEN CONTRACT. 30 DAY NOTICE OF CANCELLATION (EXCLUDING NON-PAYMENT) APPLIES IN FAVOR OF CERTIFICATE HOLDER.

CERTIFICATE HOLDER

19366776
State of Michigan
3111 W. St. Joseph Street
Lansing MI 48917

CANCELLATION See Attachments

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

AUTHORIZED REPRESENTATIVE

CNA PARAMOUNT

Blanket Additional Insured - Owners, Lessees or Contractors - with Products-Completed Operations Coverage Endorsement

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

It is understood and agreed as follows:

I. **WHO IS AN INSURED** is amended to include as an **Insured** any person or organization whom you are required by **written contract** to add as an additional insured on this **coverage part**, but only with respect to liability for **bodily injury**, **property damage** or **personal and advertising injury** caused in whole or in part by your acts or omissions, or the acts or omissions of those acting on your behalf:

A. in the performance of your ongoing operations subject to such **written contract**; or

B. in the performance of **your work** subject to such **written contract**, but only with respect to **bodily injury** or **property damage** included in the **products-completed operations hazard**, and only if:

1. the **written contract** requires you to provide the additional insured such coverage; and

2. this **coverage part** provides such coverage.

II. But if the **written contract** requires:

A. additional insured coverage under the 11-85 edition, 10-93 edition, or 10-01 edition of CG2010, or under the 1001 edition of CG2037; or

B. additional insured coverage with "arising out of" language; or

C. additional insured coverage to the greatest extent permissible by law;

then paragraph **I.** above is deleted in its entirety and replaced by the following:

WHO IS AN INSURED is amended to include as an **Insured** any person or organization whom you are required by **written contract** to add as an additional insured on this **coverage part**, but only with respect to liability for **bodily injury**, **property damage** or **personal and advertising injury** arising out of **your work** that is subject to such **written contract**.

II. Subject always to the terms and conditions of this policy, including the limits of insurance, the Insurer will not provide such additional insured with:

A. coverage broader than required by the **written contract**; or

B. a higher limit of insurance than required by the **written contract**.

IV. The insurance granted by this endorsement to the additional insured does not apply to **bodily injury**, **property damage**, or **personal and advertising injury** arising out of:

A. the rendering of, or the failure to render, any professional architectural, engineering, or surveying services, including:

1. the preparing, approving, or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; and

2. supervisory, inspection, architectural or engineering activities; or

B. any premises or work for which the additional insured is specifically listed as an additional insured on another endorsement attached to this **coverage part**.

V. Under **COMMERCIAL GENERAL LIABILITY CONDITIONS,** the Condition entitled **Other Insurance** is amended to add the following, which supersedes any provision to the contrary in this Condition or elsewhere in this **coverage part**:

CNA PARAMOUNT

Blanket Additional Insured - Owners, Lessees or Contractors - with Products-Completed Operations Coverage Endorsement

Primary and Noncontributory Insurance

With respect to other insurance available to the additional insured under which the additional insured is a named insured, this insurance is primary to and will not seek contribution from such other insurance, provided that a **written contract** requires the insurance provided by this policy to be:

1. primary and non-contributing with other insurance available to the additional insured; or
2. primary and to not seek contribution from any other insurance available to the additional insured. But except as specified above, this insurance will be excess of all other insurance available to the additional insured.

VI. Solely with respect to the insurance granted by this endorsement, the section entitled **COMMERCIAL GENERAL LIABILITY CONDITIONS** is amended as follows:

The Condition entitled **Duties In The Event of Occurrence, Offense, Claim or Suit** is amended with the addition of the following:

Any additional insured pursuant to this endorsement will as soon as practicable:

1. give the Insurer written notice of any **claim**, or any **occurrence** or offense which may result in a **claim**;
2. send the Insurer copies of all legal papers received, and otherwise cooperate with the Insurer in the investigation, defense, or settlement of the **claim**; and
3. make available any other insurance, and tender the defense and indemnity of any **claim** to any other insurer or self-insurer, whose policy or program applies to a loss that the Insurer covers under this **coverage part**. However, if the **written contract** requires this insurance to be primary and non-contributory, this paragraph **3.** does not apply to insurance on which the additional insured is a named insured.

The Insurer has no duty to defend or indemnify an additional insured under this endorsement until the Insurer receives written notice of a **claim** from the additional insured.

VII. Solely with respect to the insurance granted by this endorsement, the section entitled **DEFINITIONS** is amended to add the following definition:

Written contract means a written contract or written agreement that requires you to make a person or organization an additional insured on this **coverage part**, provided the contract or agreement:

A. is currently in effect or becomes effective during the term of this policy; and

B. was executed prior to:

   1. the **bodily injury** or **property damage**; or

   2. the offense that caused the **personal and advertising injury**;

   for which the additional insured seeks coverage.

Any coverage granted by this endorsement shall apply solely to the extent permissible by law. All other terms and conditions of the Policy remain unchanged.

This endorsement, which forms a part of and is for attachment to the Policy issued by the designated Insurers, takes effect on the effective date of said Policy at the hour stated in said Policy, unless another effective date is shown below, and expires concurrently with said Policy.

CONTRACTORS EXTENDED COVERAGE ENDORSEMENT - BUSINESS AUTO PLUS
THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

I. LIABILITY COVERAGE

A. Who Is An Insured

The following is added to **Section II, Paragraph A.1., Who Is An Insured**:

1. a. Any incorporated entity of which the Named Insured owns a majority of the voting stock on the date of inception of this Coverage Form; provided that,

b. The insurance afforded by this provision **A.1.** does not apply to any such entity that is an **insured** under any other liability "policy" providing **auto** coverage.

2. Any organization you newly acquire or form, other than a limited liability company, partnership or joint venture, and over which you maintain majority ownership interest.

The insurance afforded by this provision **A.2.**:

a. Is effective on the acquisition or formation date, and is afforded only until the end of the policy period of this Coverage Form, or the next anniversary of its inception date, whichever is earlier.

b. Does not apply to:

1. **Bodily injury** or **property damage** caused by an **accident** that occurred before you acquired or formed the organization; or

2. Any such organization that is an **insured** under any other liability "policy" providing **auto** coverage.

3. Any person or organization that you are required by a written contract to name as an additional insured is an **insured** but only with respect to their legal liability for acts or omissions of a person, who qualifies as an **insured** under **SECTION II – WHO IS AN INSURED** and for whom Liability Coverage is afforded under this policy. If required by written contract, this insurance will be primary and non-contributory to insurance on which the additional insured is a Named Insured.

4. An **employee** of yours is an **insured** while operating an **auto** hired or rented under a contract or agreement in that **employee's** name, with your permission, while performing duties related to the conduct of your business.

"Policy", as used in this provision **A. Who Is An Insured,** includes those policies that were in force on the inception date of this Coverage Form but:

1. Which are no longer in force; or

2. Whose limits have been exhausted.

Form No: CNA63359XX (04-2012)	Policy No:7017882395
Endorsement Effective Date:	Policy Effective Date:1/1/2023

Business Auto Policy

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US (WAIVER OF SUBROGATION) – AUTOMATIC WHEN REQUIRED BY WRITTEN CONTRACT OR AGREEMENT

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

This endorsement modifies insurance provided under the following:

AUTO DEALERS COVERAGE FORM

BUSINESS AUTO COVERAGE FORM

MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

The **Transfer Of Rights Of Recovery Against Others To Us** Condition does not apply to any person(s) or organization(s) for whom you are required to waive subrogation with respect to the coverage provided under this Coverage Form, but only to the extent that subrogation is waived:

A. Under a written contact or agreement with such person(s) or organization(s); and

B. Prior to the **"accident"** or the **"loss."**

by the indemnitee at the Insurer's request will be paid as **defense costs**. Such payments will not be deemed to be **damages** for **personal and advertising injury** and will not reduce the limits of insurance.

C. This **PERSONAL AND ADVERTISING INJURY - LIMITED CONTRACTUAL LIABILITY** Provision does not apply if **Coverage B –Personal and Advertising Injury Liability** is excluded by another endorsement attached to this **Coverage Part.**

This **PERSONAL AND ADVERTISING INJURY - CONTRACTUAL LIABILITY** Provision does not apply to any person or organization who otherwise qualifies as an additional insured on this **Coverage Part.**

22. PROPERTY DAMAGE – ELEVATORS

A. Under **COVERAGES**, **Coverage A – Bodily Injury and Property Damage Liability**, the paragraph entitled **Exclusions** is amended such that the **Damage to Your Product** Exclusion and subparagraphs **(3)**, **(4)** and **(6)** of the **Damage to Property** Exclusion do not apply to **property damage** that results from the use of elevators.

B. Solely for the purpose of the coverage provided by this **PROPERTY DAMAGE – ELEVATORS** Provision, the **Other Insurance** conditions is amended to add the following paragraph:

This insurance is excess over any of the other insurance, whether primary, excess, contingent or on any other basis that is Property insurance covering property of others damaged from the use of elevators.

23. RETIRED PARTNERS, MEMBERS, DIRECTORS AND EMPLOYEES

WHO IS INSURED is amended to include as **Insureds** natural persons who are retired partners, members, directors or employees, but only for **bodily injury**, **property damage** or **personal and advertising injury** that results from services performed for the **Named Insured** under the **Named Insured's** direct supervision. All limitations that apply to **employees** and **volunteer workers** also apply to anyone qualifying as an **Insured** under this Provision.

24. SUPPLEMENTARY PAYMENTS

The section entitled **SUPPLEMENTARY PAYMENTS – COVERAGES A AND B** is amended as follows:

A. Paragraph **1.b.** is amended to delete the $250 limit shown for the cost of bail bonds and replace it with a $5,000. limit; and

B. Paragraph **1.d.** is amended to delete the limit of $250 shown for daily loss of earnings and replace it with a $1,000. limit.

25. UNINTENTIONAL FAILURE TO DISCLOSE HAZARDS

If the **Named Insured** unintentionally fails to disclose all existing hazards at the inception date of the **Named Insured's Coverage Part**, the Insurer will not deny coverage under this **Coverage Part** because of such failure.

26. WAIVER OF SUBROGATION - BLANKET

Under **CONDITIONS**, the condition entitled **Transfer Of Rights Of Recovery Against Others To Us** is amended to add the following:

The Insurer waives any right of recovery the Insurer may have against any person or organization because of payments the Insurer makes for injury or damage arising out of:

1. the **Named Insured's** ongoing operations; or

2. **your work** included in the **products-completed operations hazard.**

However, this waiver applies only when the **Named Insured** has agreed in writing to waive such rights of recovery in a written contract or written agreement, and only if such contract or agreement:

1. is in effect or becomes effective during the term of this **Coverage Part**; and

2. was executed prior to the **bodily injury**, **property damage** or **personal and advertising injury** giving rise to the **claim**.

27. WRAP-UP EXTENSION: OCIP, CCIP, OR CONSOLIDATED (WRAP-UP) INSURANCE PROGRAMS

Note: The following provision does not apply to any public construction project in the state of Oklahoma, nor to any construction project in the state of Alaska, that is not permitted to be insured under a **consolidated (wrap-up) insurance program** by applicable state statute or regulation.

If the endorsement **EXCLUSION – CONSTRUCTION WRAP-UP** is attached to this policy, or another exclusionary endorsement pertaining to Owner Controlled Insurance Programs (O.C.I.P.) or Contractor Controlled Insurance Programs (C.C.I.P.) is attached, then the following changes apply:

A. The following wording is added to the above-referenced endorsement:

With respect to a **consolidated (wrap-up) insurance program** project in which the **Named Insured** is or was involved, this exclusion does not apply to those sums the **Named Insured** become legally obligated to pay as **damages** because of:

1. **Bodily injury**, **property damage**, or **personal or advertising injury** that occurs during the **Named Insured's** ongoing operations at the project, or during such operations of anyone acting on the **Named Insured's** behalf; nor

2. **Bodily injury** or **property damage** included within the **products-completed operations hazard** that arises out of those portions of the project that are not **residential structures**.

B. Condition **4. Other Insurance** is amended to add the following subparagraph **4.b.(1)(c)**: This insurance is excess over:

(c) Any of the other insurance whether primary, excess, contingent or any other basis that is insurance available to the **Named Insured** as a result of the **Named Insured** being a participant in a **consolidated (wrap-up) insurance program**, but only as respects the **Named Insured's** involvement in that **consolidated (wrap-up) insurance program**.

C. DEFINITIONS is amended to add the following definitions:

Consolidated (wrap-up) insurance program means a construction, erection or demolition project for which the prime contractor/project manager or owner of the construction project has secured general liability insurance covering some or all of the contractors or subcontractors involved in the project, such as an Owner Controlled Insurance Program (O.C.I.P.) or Contractor Controlled Insurance Program (C.C.I.P.).

Residential structure means any structure where 30% or more of the square foot area is used or is intended to be used for human residency, including but not limited to:

1. single or multifamily housing, apartments, condominiums, townhouses, co-operatives or planned unit developments; and

2. the common areas and structures appurtenant to the structures in paragraph **1.** (including pools, hot tubs, detached garages, guest houses or any similar structures).

However, when there is no individual ownership of units, **residential structure** does not include military housing, college/university housing or dormitories, long term care facilities, hotels or motels. **Residential structure** also does not include hospitals or prisons.

Workers Compensation And Employers Liability Insurance
Policy Endorsement

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Any person or organization for which the employer has agreed by written contract, executed prior to loss, may execute a waiver of subrogation. However, for purposes of work performed by the employer in Missouri, this waiver of subrogation does not apply to any construction group of classifications as designated by the waiver of right to recover from others (subrogation) rule in our manual.

Schedule

Any Person or Organization on whose behalf you are required to obtain this waiver of our right to recover from under a written contract or agreement.
The premium charge for the endorsement is reflected in the Schedule of Operations.

All other terms and conditions of the policy remain unchanged.

This endorsement, which forms a part of and is for attachment to the policy issued by the designated Insurers, takes effect on the Policy Effective Date of said policy at the hour stated in said policy, unless another effective date (the Endorsement Effective Date) is shown below, and expires concurrently with said policy unless another expiration date is shown below.