INVITATION FOR BID #2015-01

DESCRIPTION

ENVIRONMENTAL REMEDIATION
(ASBESTOS CONTAINING MATERIALS ABATEMENT, PETROLEUM CONTAMINATED SOIL REMOVAL AND WASTE OIL REMOVAL) AT

4175 SHAW BLVD, ST. LOUIS, MO

See attached General Conditions, Specifications, and Bid Form for detailed information

The Tower Grove Neighborhoods Community Development Corporation (TGNDC) has received a grant funded by the Environmental Improvement and Energy Resources Authority (EIERA) Missouri Brownfield Revolving Loan Fund through the U.S. Environmental Protection Agency to conduct remedial activities at the 4175 Shaw Boulevard, St. Louis, Missouri, Site to address asbestos containing materials abatement and removal of contaminated soil and waste oil.

Date Issued: November 20, 2015
Owner: Tower Grove Neighborhoods Community Development Corporation
Owners Representative: Mr. Sean Spencer
Telephone Number: 314-865-5530, ext. 102
Mandatory Pre-Bid Conference and Site Walk: 11:00 a.m., Thursday, December 3, 2015

Submit Bids to:
Tower Grove Neighborhoods Community Development Corporation
Mr. Sean Spencer, Executive Director
4103 Shenandoah Ave.
St. Louis, MO 63110
SEALED BIDS MUST BE PHYSICALLY RECEIVED PRIOR TO 4:00 P.M. on Tuesday, December 22, 2015. Bids will be opened by the buyer at the location listed above.

- Bids shall be submitted on the Bid-Proposal Form provided and must be manually signed by the individual authorized to legally bind the company.
- Bids shall be submitted with the IFB number clearly indicated on the outside of the mailing envelope.
- Bids received after the opening date and time will be rejected.
- The attached Terms and Conditions shall become part of contract resulting from this solicitation.
- **FAXED/EMAILED BIDS WILL NOT BE ACCEPTED.**
INSTRUCTION TO BIDDERS

01. Opening Location
The Bids will be opened at Tower Grove Neighborhoods Community Development Corporation, 4103 Shenandoah Ave., St. Louis, MO 63110.

02. IFB Delivery Requirements
Any Bids received after the above stated time and date will not be considered. It shall be the sole responsibility of the bidder to have their Bid delivered before the due date and time indicated. If a Bid is sent by U.S. Mail, the bidder shall be responsible for its timely delivery. Bids delayed by mail shall not be considered, shall not be opened, and shall be rejected. Arrangements may be made for their return at the bidder’s request and expense. Bids may be mailed and accepted if the signed bid form and required information was mailed and received prior to the due date and time. Bids sent by fax or email will not be accepted.

03. Sealed and Marked
If sent by mail, one original signed Bid shall be submitted in one sealed package, clearly marked on the outside of the package with the Invitation for Bid number and addressed to:
Tower Grove Neighborhoods Community Development Corporation
Mr. Sean Spencer
4103 Shenandoah Ave.
St. Louis, MO 63110

04. Legal Name and Signature
Bids shall clearly indicate the legal name, address, and telephone number of the bidder (company, firm, corporation, partnership, or individual). Bids shall be manually signed above the printed name and title of signer on the Affidavit of Compliance page. The signer shall have the authority to bind the company to the submitted Bid. Failure to properly sign the Bid form shall invalidate same, and it shall not be considered for award.

05. Corrections
No erasures are permitted. If a correction is necessary, draw a single line through the entered figure and enter the corrected figure above it. Corrections must be initialed by the person signing the Bid.

06. Clarification and Addenda
Each bidder shall examine all Invitation for Bid documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries or suggestions, concerning interpretation, clarification, or additional information pertaining to the Invitation for Bid shall be made through the listed representative for the Tower Grove Neighborhoods Community Development Corporation (Owner) in writing or through email. The Tower Grove Neighborhoods Community Development Corporation shall not be responsible for oral interpretations given by any representative. The issuance of written addenda is the official method whereby interpretation, clarification, or additional information can be given.
It shall be the responsibility of each bidder, prior to submitting their Bid, to contact the Owner’s representative at phone number 314-865-5530, ext. 102, to determine if addenda were issued and to make such addenda a part of their Bid.

07. IFB Expenses
All expenses are borne by the bidder.

08. Irrevocable Offer
Any Bid may be withdrawn up until the due date and time set for opening of the IFB. Any Bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a minimum period of 90 days to sell to the Owner the goods or services set forth in the IFB, until one or more of the Bids have been duly accepted by the Owner.

09. Responsive and Responsible Bidder
To be responsive, a bidder shall submit a Bid which conforms in all material respects to the requirements set forth in the Invitation for Bid. To be a responsive bidder, the bidder shall have the capability in all respects to perform fully the contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment and credit which will ensure good faith performance. The lowest responsible bidder shall mean the bidder who makes the lowest Bid to sell goods or services of a quality which conforms closest to the quality of goods or services set forth in the specifications or otherwise required by the Owner and who is known to be fit and capable to perform the Bid as made.

10. Reserved Rights
The Owner reserves the right to make such investigations as it deems necessary to make the determination of the bidder’s responsiveness and responsibility. Such information may include, but shall not be limited to: current financial statement, verification of availability of equipment and personnel, and past performance records.

11. The Right to Audit
The bidder agrees to furnish supporting detail as may be required by the Owner to support charges or invoices, to make available for audit purposes all records covering charges pertinent to the purchase, and to make appropriate adjustments in the event discrepancies are found. The cost of any audit will be paid by the Owner. The Owner shall have the right to audit the bidder’s records pertaining to the work/product for a period of three (3) years after final payment.

12. Applicable Law
All applicable laws and regulations of the State of Missouri, will apply to any resulting agreement, contract, or purchase order.

13. Right to Protest
Protestors shall seek resolution of their complaints with the Owner’s representative. Any protest shall state the basis upon which the solicitation or award is contested and shall be submitted within ten (10) calendar days after such aggrieved person knew or could have reasonably been expected to know of the facts giving rise thereto.

14. Ethical Standards
With respect to this IFB, if any bidder violates or is a party to a violation of the general ethical standards of the State of Missouri Statutes, such bidder may be disqualified from furnishing the goods or services for which the Bid is submitted.

15. Collusion
By offering a submission to this Invitation for Bid, the bidder certifies the bidder has not divulged, discussed, or compared the Bid with other bidders and has not colluded with any other bidder or parties to this IFB whatsoever. Also, the bidder certifies, and in the case of a joint Bid, each party thereto certifies as to their own organization, that in connection with this IFB:

a. Any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other bidder or with any competitor.

b. Any prices and/or cost data for this Bid have not knowingly been disclosed by the bidder and will not knowingly be disclosed by the bidder prior to the scheduled opening directly or indirectly to any other bidder or to any competitor.

c. No attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a Bid for the purpose of restricting competition.

d. The only person or persons interested in this Bid, principal or principals are named therein and that no person other than therein mentioned has any interest in this Bid or in the contract to be entered into.

e. No person or agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee exempting bona fide employees or established commercial agencies maintained by the Purchaser for the purpose of doing business.

16. Contract Forms
Any agreement, contract, or purchase order resulting from the acceptance of a Bid shall be on forms either supplied by or approved by the Owner.

17. Liability and Indemnity
a. In no event shall the Owner be liable to the Contractor for special, indirect, or consequential damages, except those caused by the Owner’s gross negligence or willful or wanton misconduct arising out of or in any way connected with a breach of this contract. The maximum liability of the Owner shall be limited to the amount of money to be paid or received by the Owner under this contract.

b. The Contractor shall defend, indemnify and save harmless the Owner, its elected or appointed officials, agents and employees from and
against any and all liability, suits, damages, costs (including attorney fees), losses, outlays and expenses from claims in any manner caused by, or allegedly caused by, or arising out of, or connected with, this contract, or the work or any subcontract thereunder (the Contractor hereby assuming full responsibility for relations with subcontractors), including, but not limited to, claims for personal injuries, death, property damage, or for damages from the award of this contract to Contractor.

c. The Contractor shall indemnify and hold the Owner harmless from all wages or overtime compensation due any employees in rendering services pursuant to this agreement or any subcontract, including payment of reasonable attorneys’ fees and costs in the defense of any claim made under the Fair Labor Standards Act, the Missouri Prevailing Wage Law or any other federal or state law.

18. IFB Forms, Variances, Alternates

Bids must be submitted on attached IFB forms, although additional information may be attached. Bidders must indicate any variances from the Owner’s requested specifications and/or terms and conditions, on the IFB Affidavit of Compliance. Otherwise, bidders must fully comply with the Owner requested specifications and terms and conditions. Alternate Bids may or may not be considered at the sole discretion of the Owner.

19. Bid Form

All blank spaces must be completed with the appropriate response. The bidder must state the price, written in ink, for what is proposed to complete each item of the project. Bidders shall insert the words “no bid” in the space provided for an item for which no Bid is made. The bidder shall submit an executed Bid form, affidavit of compliance with other requested documents.

20. Modifications or Withdrawal of Bid

A modification for a Bid already received will be considered only if the modification is received prior to the time announced for opening of Bids. All modifications shall be made in writing, executed, and submitted on the same form and manner as the original Bid. Modifications submitted by telephone, fax, or email will not be considered.

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21. Errors in Bids

Bidders or their authorized representatives are expected to fully inform themselves as to the conditions, requirements, and specifications before submitting Bids. Failure to do so will be at the bidder’s own risk. Neither law nor regulations make allowance for errors either of omission or commission on the part of bidders. In case of error of extension of prices in the Bid, the unit price shall govern.

22. Prices Bid

Give both unit price and extended total. Price must be stated in units of quantity specified in the bidding specifications. In case of discrepancy in computing the amount of the Bid, the unit price of the Bid will govern. All prices shall be F.O.B. destination, freight prepaid (unless otherwise stated in special conditions). Each item must be bid separately and no attempt is to be made to tie any item or items in with any other item or items. If a bidder offers a discount on payment terms, the discount time will be computed from the date of satisfactory delivery at place of acceptance and receipt of correct invoice at the office specified. Payment terms shall be Net 30 if not otherwise specified. Pre-payment terms are not acceptable.

23. Discounts

Any and all discounts except cash discounts for prompt payments must be incorporated as a reduction in the Bid price and not shown separately. The price as shown on the Bid shall be the price used in determining award(s).

24. Descriptive Information

All equipment, materials, and articles incorporated in the product/work covered by this IFB are to be new and of suitable grade for the purpose intended. Brand or trade names referenced in specifications are for comparison purposes only. Bidders may submit Bids on items manufactured by other than the manufacturer specified when an “or equal” is stated.

25. Deviations to Specifications and Requirements

When bidding on an “or equal,” Bids must be accompanied with all descriptive information necessary for an evaluation of the proposed material or equipment such as the detailed drawings and specifications, certified operation and test data, and experience records. Failure of any bidder to furnish the data necessary to determine whether the product is equivalent, may be cause for rejection of the specific item(s) to which it pertains. All deviations from the specifications must be noted in detail by the bidder on the Affidavit of Compliance form, at the time of submittal of Bid. The absence of listed deviations at the time of submittal of the Bid will hold the bidder strictly accountable to the specifications as written. Any deviation from the specifications as written and accepted by the Owner may be grounds for rejection of the material and/or equipment when delivered.

26. Quality Guarantee

If any product delivered does not meet applicable specifications or if the product will not produce the effect that the bidder represents to the Owner, the bidder shall pick up the product from the Owner at no expense. Also, the bidder shall refund to the Owner any money which has been paid for same.

The bidder will be responsible for attorney fees in the event the bidder defaults and court action is required.

27. Quality Terms
The Owner reserves the right to reject any or all materials if, in its judgment, the item reflects unsatisfactory workmanship, manufacturing, or shipping damages.

28. Tax-Exempt
The Owner is exempt from sales taxes.

29. Awards
a. Unless otherwise stated in the Invitation for Bid, cash discounts for prompt payment of invoices will not be considered in the evaluation of prices. However, such discounts are encouraged to motivate prompt payment.

b. As the best interest of the Owner may require, the right is reserved to make awards by item, group of items, all or none, or a combination thereof, to reject any and all Bids or waive any minor irregularity or technicality in Bids received.

c. Awards will be made to the Bidder whose Bid (1) meets the specifications and all other requirements of the Invitation for Bid and (2) is the lowest and best Bid, considering price, delivery, responsibility of the bidder, and all other relevant factors.

30. Authorized Product Representation
The successful bidder(s) by virtue of submitting the name and specifications of a manufacturer’s product will be required to furnish the named manufacturer’s product. By virtue of submission of the stated documents, it will be presumed by the Owner that the bidder(s) is legally authorized to submit and the successful bidder(s) will be legally bound to perform according to the documents.

31. Regulations
It shall be the responsibility of each bidder to assure compliance with OSHA, EPA, Federal, and State of Missouri rules, regulations, or other requirements, as each may apply.

32. Termination of Award
Any failure of the bidder to satisfy the requirements of the Owner shall be reason for termination of the award. Any Bid may be rejected in whole or in part for good cause when in the best interest of the Owner.

33. Royalties and Patents
The successful bidder(s) shall pay all royalties and license fees for equipment or processes in conjunction with the equipment being furnished. Bidder shall defend all suits or claims for infringement of any patent right and shall hold the Owner harmless from loss on account or cost and attorney’s fees incurred.

34. Equal Employment Opportunity Clause
The Tower Grove Neighborhoods Community Development Corporation, in accordance with the provision of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Department of Commerce (15 CFR, Part 8) issued pursuant to such Act, hereby notifies all bidders that affirmatively ensure that in any contract entered into pursuant to this advertisement that minority businesses will be afforded full opportunity to submit Bids in response to this advertisement and will not be discriminated against on the grounds of race, color, or national origin in consideration for award.

35. Bid Tabulation
Bidders may request a copy of the bid tabulation of the Invitation for Bid.

36. Budgetary Constraints
The Owner reserves the right to reduce or increase the quantity, retract any item from the Bid, or upon notification, terminate entire agreement without any obligations or penalty based upon availability of funds.

37. Order of Precedence
Any and all Special/General Conditions and Specifications attached hereto, which varies from the instruction to bidders, shall take precedence.

38. Affidavit for Service Contracts
The Bidder represents, in accordance with RSMO 285.530.2 that they have not employed, or subcontracted with, unauthorized aliens in connection with the scope of work to be done under the IFB and agrees to provide an affidavit to the Owner affirming that they have not, and will not in connection with the IFB, knowingly employ, or subcontract with, any person who is an unauthorized alien.

39. Inspection and Acceptance
No item(s) received by the Owner pursuant to this contract shall be deemed accepted until the Owner has had reasonable opportunity to inspect the item(s). Any item(s) which are discovered to be defective or which do not conform to any warranty of the Seller upon inspection may be returned at the seller’s expense for full credit or replacement. If at a later time, the defects were not ascertainable upon the initial inspection may also be returned at the Seller's expense for full credit or replacement. The Owner’s return of defective items shall not exclude any other legal, equitable or contractual remedies the Owner may have.
1. **INTRODUCTION:** The Tower Grove Neighborhoods Community Development Corporation (Owner) plans to conduct remedial activities to address asbestos-containing material (ACM), petroleum contaminated soil, and waste oil at the 4175 Shaw Boulevard site located in St. Louis, Missouri. The Owner is utilizing the EIERA Missouri Brownfields Revolving Loan Fund Program to help facilitate the remedial activities. Currently, the project is enrolled in the Missouri Department of Natural Resources /Brownfields Voluntary Cleanup Program (MDNR/BVCP). This project is being conducted to remediate building materials containing ACM and to remove contaminated soil and waste oil. A Remedial Action Plan (RAP) describing the site and planned remedial activities has been completed by Seagull Environmental Technologies, Inc. (Seagull) and is provided as Attachment B.

The contractor shall provide all labor and materials to complete the scope as specified herein, and will be responsible for finalizing the RAP for approval by MDNR/BVCP. This will include providing all necessary documentation, reports, sampling, and other required items for participation in the MDNR/BVCP as well as following all BVCP requirements. These requirements include a Health and Safety Plan and a Quality Assurance Project Plan (QAPP). The applicable MDNR generic QAPP may be used, however if deviation from the generic QAPP is necessary, a Site-specific QAPP Addendum shall be prepared and submitted to the MDNR/BVCP. The selected contractor will be responsible for acquiring all permits required for the project. It will be the Certificate of Completion from the MDNR/BVCP.

**Term:** The selected contractor must be able to complete all remedial activities by March 31, 2016.

2. **PRE-BID SITE VISIT:** The contractor shall be presumed to have made a reasonable inspection of the premises prior to the time of bidding and shall be held responsible for all information available through such inspection.

The contractor shall immediately upon discovery, bring to the attention of the Owner any conflicts that may occur among the various provisions of the specifications. The Owner shall resolve such conflicts and shall be responsible for any costs reasonably incurred by the contractor due to such conflict. Failure of the contractor to bring conflicts or exceptions to the attention of the Owner shall allow the Owner to require any change deemed necessary before acceptance by the Owner.

A **mandatory pre-bid site visit** will be held for this bid on **December 3, 2015 at 11:00 a.m.** at 4175 Shaw Blvd., St. Louis, Missouri. At that time a site walk will be conducted to view the site building and lot.
3. **INVESTIGATION OF CONDITIONS**: Before submitting a bid, Bidders should carefully examine the specifications, visit the site of the work, and fully inform themselves as to all existing conditions and limitations including verification of measurements and quantities and shall include in the bid a sum to cover the cost of items of work to be performed and, if awarded the contract, shall not be allowed any extra compensation by reason of any matter or item concerning which such Bidder might have fully informed himself prior to the bidding, and the successful Contractor must employ, so far as possible such methods and means in carrying of his work as will not cause any interruption or interference with any other Contractor.

4. **BID SECURITY**. Each Bid must be accompanied by a Bid security made payable to the Owner in an amount of

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surety meeting the requirements in this IFB. The Bid security of the Successful Bidder will be retained until such Bidder has executed the agreement and furnished the required contract security. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within fifteen days after the Notice of Award, the Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited.

The Bid security of other Bidders whom the Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earlier of the seventh day after the Effective Date of the Agreement or the ninety-first day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

Bid security with Bids which are not competitive will be returned within seven days after the Bid opening. The corporate surety on any bid bond must be licensed by the State of Missouri and if the required bond exceeds $25,000 must be listed in United States Treasury Circular 570. The bond form itself shall have the following

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  R   IMPORTANT   Surety companies executing
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BONDS must appear on the Treasury

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D   C   M
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5. **PERFORMANCE BOND AND A LABOR, AND MATERIALS PAYMENT BOND**: The Contractor shall furnish a
Performance Bond and a Labor and Materials Payment Bond with surety approved by the Owner and on the forms approved by the Owner (provided in this bid document as Attachment C), each bond shall be in the full amount of the contract conditioned upon the full and faithful performance of all major terms and conditions of this contract and payment of all labor and material suppliers. It is further mutually agreed between the parties hereto that if at any time after the execution of this agreement and the surety bond(s) hereto attached for its faithful performance and payment of labor and material suppliers, the Owner shall deem the surety or sureties upon such bond(s) to be unsatisfactory, or if, for any reason, such bond(s) ceases to be adequate to cover the performance of the work, the Contractor shall, at its expense, within five (5) days after the receipt of notice from the Owner to do so, furnish an additional bond or bonds, in such form and amount, and with such surety or sureties as shall be satisfactory to the Owner. In such event no further payment to the Contractor shall be deemed to be due under this contract until such new or additional security for the faithful performance of the work and the payment of labor and material suppliers shall be furnished in a manner and form satisfactory to the Owner. The corporate surety on any performance or payment bond must be licensed by the State of Missouri and if the required bond exceeds $25,000 must be listed in United States Treasury Circular 570.

6. **PREVAILING WAGE REQUIREMENT**: The work performed under this Agreement is subject to the prevailing wage law. It is agreed that all workman employed by the Contractor, and any subcontractor employed under him, will be paid not less than the prevailing wage as determined by appropriate governmental authority and the Annual Wage Order attached hereto and made a part hereof. It is agreed that the contract or sums payable to the Contractor for the performance of this agreement are not subject to increase as a result of any change in the amount of such wage determined pursuant to Section 290.210 et. seq. R.S.Mo. The Federal Prevailing Wage rates are provided as Attachment G. The Contractor shall be required to complete an affidavit stating that he or she has complied with the prevailing wage law prior to final payment by the Owner.

7. **QUANTITIES**: The quantities listed herein are estimates. The Owner will not guarantee any amount of work related to the contract. The contractor will be paid for quantities actually constructed or performed as
8. **FUNDING:** The funding for this project is through the EIERA Missouri Brownfields Revolving Loan Fund from the U.S. Environmental Protection Agency (EPA); therefore, the contractor shall be responsible for necessary reports to satisfy the requirements of the granting agencies. The following requirements shall be applied to the current requirements of the RFP, and shall be followed as applicable.

(A) **Nondiscrimination in Employment** - Bidders on this work will be required to comply with the President's Executive Order Number 11246. Requirements for bidders and contractors under this order are explained in the specifications.

(B) **Davis-Bacon** - The sub-recipient assures that it, as well as its sub-recipients if required by future OMB guidance, shall comply with said section in that all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the federal government shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code (Davis-Bacon Act). It is understood that the Secretary of Labor has the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 (64 Stat. 1267; 5 U.S.C. App.) and section 3145 of title 40, United States Code, if applicable.

(C) **Non-segregated Facilities** - The successful bidder will be required to submit a certification of Non-segregated Facilities and to notify prospective subcontractors of the requirement for such a certification where the subcontract exceeds $10,000.


(E) **Debarment and Suspension** - Executive Order 12549 - Debarment and Suspension establishes procedures which require EPA to deny any individual, organization, or unit of government the opportunity to participate in federally assisted programs because of misconduct or poor performance. The General Services Administration (GSA) publication entitled "Lists of Parties Excluded from Federal Procurement or Non-procurement Programs" will identify those who are prohibited from the bidding process. Bidders are required to submit the certification included as Attachment F with their bid proposal.

(F) **Project Sign** - A project sign must be prominently displayed at the construction site. This sign will be provided by the Owner.

(G) **Access to Construction Site and Contract Records** - The contractor shall provide access to the project site and project records by the Environmental Improvement and Energy Resources Authority, Missouri Department of Natural Resources, the EPA, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions.

(H) **Historical or Archaeological** - Required by P.L. 93-291, if applicable. If during the course of construction evidence of deposits of historical or archaeological interest is found, the contractor shall cease operations affecting the find and shall notify the owner who shall notify the Missouri Department of Natural Resources and the Director, Division of Parks, P.O. Box 176, Jefferson City, MO 65102, telephone 573-751-2479. No further disturbances of the deposits shall ensue until the contractor has been notified by the owner to proceed. The
The owner will issue a notice to proceed only after the state official has surveyed the find and made a determination to the Missouri Department of Natural Resources and the owner. Compensation to the contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or change order provisions of the specifications.

(I) Late Payment Clause - If the Owner fails to make payment thirty (30) days after receipt of the CONTRACTORS application for payment, in addition to other remedies available to the CONTRACTOR, then interest shall be added to each such payment in accordance with section 34.057 RSMo. (Supp. 1991).

(J) Clean Air Act - The contractor shall comply with the Clean Air Act (42 U.S.C. 7506(C)), if applicable.

(K) Clean Water Act - The contractor shall comply with the Clean Water Act (33 U.S.C. 1368), if applicable.

(L) Contract Work Hours and Safety Standards Act - The contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR part 5), if applicable.

(M) Energy Efficiency Requirements - The contractor shall comply with the mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (P.L. 94-163, 89 Stat. 871). CFR 31.36(i)(13), if applicable.

(N) False Claims Act -- The contractor, as well as its subcontractors, if required by future OMB guidance, shall promptly refer to the State of Missouri or other appropriate Inspector General any credible evidence that a principal, employee, agent, contractor, sub-grantee, subcontractor or other person has submitted a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict or interest, bribery, gratuity or similar misconduct involving those funds.

(O) Recycled Materials - In accordance with Section 6002 of the Resource Conservation and Recovery Act (RCRA) (U.S.C. 6962), preference shall be given to the procurement of specific products containing recycled materials identified in guidelines developed by the Environmental Protection Agency. Current guidelines are contained in 40 CFR 247-254.

(P) Small Business Act - Prior to awarding contracts, the loan recipient and any contractor awarding subcontracts must take the following affirmative steps in accordance with Section 129 of Public Law 100-590, Small Business Administration Reauthorization and Amendment Act of 1988, if applicable:
   a. Placing Small Business in Rural Areas (SBRA) on solicitation lists;
   b. Ensuring that SBRA is solicited whenever they are potential sources;
   c. Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation by SBRA;
   d. Establishing delivery schedules, where the requirements of work will permit which would encourage participation by SBRA;
   e. Utilizing the services of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce, as appropriate.

(Q) Storm Water Permit - In accordance with 10 CSR 20-6.200(1)(A) and (1)(B)(7), if the proposed project disturbs one (1) contiguous surface acre or more of land, then a land disturbance permit to discharge storm water is required. If the owner’s population is greater than ten thousand (10,000) or is located within an urbanized area and/or the design flow of the wastewater treatment plant is greater than or equal to 1 MGD, then storm water discharges should be included in the existing NPDES permit. In the first case, the owner must ensure that the storm
water discharges are covered by their municipal separate storm sewer system (MS4) permit. In
the second case, the owner should check with the appropriate Missouri Department of Natural
Resources regional office to ensure that storm water discharges are covered in the existing
permit for the wastewater treatment plant. For further information, contact the Missouri
Department of Natural Resources, Water Protection Program, Permits Section, P.O. Box 176,
(R) Employment of Unauthorized Aliens Prohibited - The contractor must comply with section 285.530
RSMo. and, if required, future OMB guidance regarding employment of unauthorized aliens
Prohibited. (See Attached Affidavit in Attachment D).
Pursuant to §285.530.1, RSMo, the subrecipient assures that it, as well as its subrecipients if
required by future OMB guidance, do not knowingly employ, hire for employment, or continue to
employ an unauthorized alien to perform work within the State of Missouri, and shall affirm, by
sworn affidavit and provision of documentation, its enrollment and participation in a federal work
authorization program with respect to the employees working in connection with the contracted
services. Further, the subrecipient assures that it, as well as its subrecipients if required by future
OMB guidance, shall sign an affidavit affirming that it does not knowingly employ any person who
is an unauthorized alien in connection with the contracted services.
In accordance with sections 285.525 to 285.550, RSMo a general contractor or subcontractor of
any tier shall not be liable when such contractor or subcontractor contracts with its direct
subcontractor who violates subsection 1 of section 285.530, RSMo if the contract binding the
contractor and subcontractor affirmatively states that the direct subcontractor is not knowingly
in violation of subsection 1 of section 285.530, RSMo and shall not henceforth be in such violation
and the contractor or subcontractor receives a sworn affidavit under the penalty of perjury
attesting to the fact that the direct subcontractor's employees are lawfully present in the United
States.
(S) Privity of Contract - Neither the Environmental Improvement and Energy Resources Authority
nor its employees are or will be a party to the contract(s) at any tier.
(T) Geographical Preference Prohibited - 40 CFR 31.36 (c)(2) prohibits the use of geographical
preferences, if applicable.
(U) Records Retention The contractor and all sub-contractors shall retain all project related records for
three years after final payment(s) and all other pending matters are closed.
(V) MBE/WBE The following documents will need to be completed if applicable: Missouri State Revolving

Enterprise Utilization Worksheet. The contractor shall make and document a good faith effort to use
MBE WBE
The goals are 10% MBE and 5% WBE.
8. CENTRAL CONTRACTOR REGISTRATION: In accordance with the Federal Funding
Accountability Act of 2006, the
contractor assures that it, as well as its subcontractor(s), shall register in the Central Contractor
Registration (CCR) database at https://www.sam.gov/portal/public/SAM/, and maintain current registration at all
times
during the pendency of this contract. In order to register in CCR, a valid Dun and Bradstreet Data Universal Numbering System (DUNS) Number is required. See www.dnb.com

9. INSURANCE REQUIREMENTS: Without limiting any of the other obligations or liabilities of the Contractor, the Contractor shall secure and maintain at its own cost and expense, throughout the duration of this Contract and until the work is completed and accepted by the Owner, insurance of such types and in such amounts as may be necessary to protect it and the interests of the Owner against all hazards or risks of loss as hereunder specified or which may arise out of the performance of the Contract Documents. The form and limits of such insurance, together with the underwriter thereof in each case, are subject to approval by the Owner. Regardless of such approval, it shall be the responsibility of the contractor to maintain adequate insurance coverage at all times during the term of the Contract. Failure of the Contractor to maintain coverage shall not relieve it of any contractual responsibility or obligation or liability under the Contract Documents. The minimum coverage for the insurance referred to herein shall be in accordance with the requirements established below:

A. **Statutory**
   - Bodily Injury by Accident $100,000 Each Accident
   - Bodily Injury by Disease $500,000 Policy Limit
   - Bodily Injury by Disease $100,000 Each Employee

B. **Commercial General Liability Limits: Bodily Injury and Property Damage**
   - Each Occurrence, including Products: $1,000,000
   - Personal & Advertising Injury $1,000,000
   - General Aggregate: $2,000,000

C. **Automobile Liability Insurance:** Policy shall protect the Contractor against claims for bodily injury and/or property damage arising out of the ownership or use of any owned, hired, and/or non-owned vehicle:
   - Bodily Injury Limits: $1,000,000 for each person and $1,000,000 for each accident
   - Property Damage Limits: $1,000,000 for each accident
   - OR $1,000,000 Combined Single Limits, including bodily injury and property damage

D. **Subcontracts:** In case any or all of this work is sublet, the Contractor shall require the subcontractor to procure and maintain all insurance required in subparagraphs (A), (B) and (C) hereof and in like amounts. Contractor shall require any and all subcontractors with whom it enters into a contract to perform work on this project to protect the Owner through insurance against applicable hazards or risks and shall provide evidence of such insurance.

E. **Notice:** The Contractor and/or subcontractor shall furnish the Owner prior to beginning the work,
satisfactory proof of carriage of all the insurance required by this contract, with the provision that policies shall not be canceled, modified or non-renewed without thirty (30) days written notice to the Owner.

10. REPAIR OF DAMAGES: It is the responsibility of the Contractor to repair any damages incurred in the area that is directly related to the project. When damages occur, the Owner is to be notified and shall inspect the repairs upon completion.

11. SAFETY: Contractor shall comply with all applicable OSHA, State of Missouri Safety Regulations and comply with all construction safety requirements of local authorities having jurisdiction. Contractor shall exercise all due caution to exclude the public from the work area and especially from contact with any hazardous materials.

12. TRAINING AND CERTIFICATION REQUIREMENTS: The Contractor must meet specific training requirements specified by State and Federal laws and regulations. The Contractor shall remain responsible for compliance with these requirements through completion of the project. The Site Safety Officer and field personnel must have appropriate health and safety training as specified in OSHA, 29 CFR 1910.120 (HAZWOPER). Specific safety measures shall be clearly outlined in the project Health and Safety Plan. Abatement procedures will require specific safety and air monitoring provisions to maintain worker safety and ensure public exposure risks are not introduced. Abatement contractors should clearly demonstrate the ability to maintain a safe work environment prior to the selection process. These provisions will be detailed in the -specific Health and Safety Plan; however, submitted bid documents should clearly

Abatement activities shall be managed in the field by properly trained personnel, as required under governing federal NESHAP and State of Missouri licensing, training, and accreditation programs. These include specific requirements for project design, abatement, and verification inspections and sampling. Regulatory references
and links to specific regulations and requirement are provided below:


**Missouri State Regulations 10 CSR 10-6.241 Asbestos Projects-Registration, Notification and Performance Requirements, and 10 CSR 10-6.250 Asbestos Abatement Projects - Certification, Accreditation and Business Exemption Requirements**

**Specific training and licensing requirements are outlined below.** These requirements are not all inclusive. It is the responsibility of the bidding Contractor to fully understand and maintain compliance with all training and licensing requirements throughout the duration of the project.

- Missouri licensed asbestos abatement contractor (abatement/removal activities)
- Missouri-certified asbestos inspector (additional characterization & clearance sampling)
- Missouri-certified air sampling professionals
- Missouri-certified asbestos project designer (as required for planning, RAP & design)

Additional training and certifications will apply for LBP removals if performed. These include specific State of Missouri requirements for project design, abatement, and verification inspections and sampling [19 CSR 30-70].

This information is available for download at the following Missouri Department of Health and Senior Services link.

**13. SITE CLEANLINESS:** The Contractor shall give special attention to keeping the work site clean and free from trash and debris.

**14. PERMITS:** All permits necessary to complete the project shall be secured and paid for by the Contractor. The Contractor shall give all notices and comply with all laws, ordinances and regulations bearing on the conduct of the work (as specified).

**15. SANITARY PROVISIONS:** The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as may be necessary to comply with the regulations of the State Board of Health and any sanitary regulations of the community in which work is being performed. Temporary toilets shall be provided as required.

**16. OTHER DELAYS:** If the Contractor or his subcontractor experiences documented hindrances or delays which, in his opinion, are not usually to be expected in the performance of the work, and which affect the performance of the work, he may request a change in the agreement. The Contractor shall be entitled to an extension of the
time for contract completion, but such contract time of completion shall be extended no more than one day for each day of delay. Any such agreement to modify or extend the time of contract completion shall be made in writing by formal addendum to the contract. The time of application of liquidated damages shall not begin until after the amended date for contract/phase completion. Such hindrances and delays may include, but not be limited to, acts or failures to act by other contractors employed by the Owner, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

17. PUNCH LIST: 

All punch list items shall be completed within thirty (30) days of Final Acceptance by the Owner and prior to final payment.

18. CHANGES IN WORK: The Owner, without giving notice to the surety and without invalidating this contract may make changes by altering, adding or deducting from the work with the contract sum being adjusted accordingly. All such work and any approved time extensions shall be added to the contract by Contract addendum. Each contract change shall include all cost required to perform the work including all labor, material, equipment, overhead, profit, delays, disruptions or other miscellaneous expenses. The Contractor shall provide a detailed cost breakdown for all changes in work to the Owner. The percentage of overhead and profit shall not increase as a result of any change in work.

19. PROTECTION OF WORK: The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect from injury or loss arising in connection with the contract. He shall make good any such damage, injury, or loss, except as such may be directly due to error in Contract documents.

20. BASIS FOR AWARD: Other factors that will be considered besides the lowest price are:
A. Quality of workmanship as represented by references;
B. Capabilities to do required work; and
C. Completion Date.
The contract resulting from this solicitation will be awarded to that responsible offerer whose offer, conforming to the invitation is determined most advantageous to the Owner, price and other factors considered. The offerer's proposal shall be in the form prescribed by this invitation and shall contain a response to each of the areas identified which affects the evaluation factors for an award. Exceptions to the bid may be considered if determined minor in nature and accepta application. All exceptions shall be noted on the attached "Affidavit of Compliance" form included as Attachment D.

21. PAYMENT TERMS: The Bidder shall clearly state their prompt payment discount and net payment terms in the section is not completed, the Owner will assume terms are net 30 days.

22. PAYMENTS: Progress payments will be made each month in the amount of 90 percent of the estimated value of the services provided at the job site during the previous calendar month, providing the work is reasonably complete. The Owner will withhold 10 percent of the amount of each progress payment. The last payment due for each contract will be paid by the Owner to the Contractor only after the project has received a Certificate of Completion from the MDNR/BVCP and the Contractor has furnished the Owner with an affidavit stating that all persons, firms, or corporations who have furnished labor or materials, employed directly or indirectly in the work, have been paid in full. The Owner shall rely on said affidavit at face value. The Owner shall have the right to demand and receive from the Contractor an affidavit stating that payment in full has been made for all labor, services, and materials incorporated into the work, for the period of time for which the progress payment is due. The Contractor does hereby release, remise, and quit claim any and all rights he may enjoy to perfect any lien or any other type of statutory common law or equitable lien against this project.

23. PAYMENTS WITHHELD: The Owner may withhold or nullify in whole or part any payment to the Contractor to such extent as may be necessary to protect the Owner from loss on account of:
A. Defective work not remedied. When a notice of noncompliance is issued on an item or items, corrective action shall be undertaken immediately. Until corrective action is completed, no monies will be paid and no additional time will be allowed for correction of the item or items. The cost of corrective action(s) shall be
solely borne by the Contractor.
B. A reasonable doubt that the contract can be completed for the balance then unpaid.
B. Failure of the Contractor to maintain satisfactory progress in accordance with the Contractors progress schedule.
C. When the Owner is satisfied the Contractor has remedied the above ground(s) for withholding payment, payment shall be made for the amounts withheld.

24. SUPERINTENDENT: The Contractor shall keep on site, during progress of the work, a competent Superintendent satisfactory to the Owner. The Superintendent shall represent the contractor in his absence and all direction given to him shall be as if given to the Contractor. He shall carefully study and compare all drawings, specifications and other instruction and shall, at once, report to the Owner and its representatives any errors, inconsistency or omission which he may discover. The Superintendent shall not be changed except for good cause, and with the consent of the Owner. Within ten (10) calendar days of the Notice of Award, the contractor shall provide the name and qualifications of the Superintendent to the Owner.

25. DAILY CONSTRUCTION REPORTS: The Contractor shall maintain a daily construction report recording the following information concerning events at the site; and submit a duplicate copy to the Owner at a weekly interval:
1. List of Subcontractors at the site
2. Approximate count of personnel at the site
3. Accident and unusual events
4. Meetings and significant decisions
5. Stoppages, delays, shortages or losses
6. Orders and requests of governing authorities
7. Change Orders received, implemented
8. Services connected, disconnected

26. PROGRESS SCHEDULE: Within ten (10) calendar days after receipt of Notice of Award, the Contractor shall submit to the Owner for approval, a progress schedule in reproducible form utilizing a critical path method or other similar schedule, showing the rate of progress he agrees to maintain and the order in which he proposes to carry out various phases of work in order to attain the completion date as required by the Contract. Particular attention shall be devoted to those elements to be performed in the early stages of the effort to preclude overstatement that would result in an imbalance in payments and exceed the value of work performed. Work elements shall be limited to those tasks, which will indicate the progress of the work and
the percentage factors of each work element should be related to the total value of the contract. No work shall begin without the Owner.

27. MISUNDERSTANDINGS: No consideration will be granted for any alleged misunderstanding of the material to be furnished or work to be done, it being understood that the submission of a proposal and the entering into a contract is an agreement with all the items and conditions referred to herein.

28. ASSIGNED WORK AREAS: The Contractor shall be responsible to work in only the assigned work areas and only park at the designated areas.

29. SPECIFICATION AND PLAN VARIANCE: If the Contractor observes that the specifications and plans are at a variance therewith, he shall promptly notify the Owner in writing and any necessary changes shall be adjusted.
If the Contractor performs any work contrary to such law, ordinance, rules and regulations, and does not comply with the aforesaid procedure, he shall bear all cost incident to such violation.

30. COORDINATION AND PRECONSTRUCTION MEETING: Representatives of the Contractor shall attend a coordination meeting at a time and date decided by the Owner to discuss matters relative to the execution of this project. The Contractor’s representative shall attend additional meetings thereafter as required by the Owner in order to expedite the work. These meetings shall be held at a place designated by the Owner.

INVITATION FOR BID SPECIFICATIONS
SCOPE OF PROJECT: Contractor shall provide all labor, materials, equipment, supplies, taxes, insurance, fuels, permits, and any and all other items necessary to complete the work, the removal of materials, and disposal of materials and related work, as specified herein. Contractor shall complete all work.

1. SCHEDULE: The Contractor will be required to commence work under this contract within ten (10) calendar days after receipt of the Notice to Proceed. Work will be required to be completed by March 31, 2016. The Contractor is required to provide a sufficient work force and construction management so that no time extension will be granted for delay of contract award, weather conditions, utility conflicts, or Contractor scheduling of equipment or construction progress.

2. SPECIFICATIONS: All work shall be accomplished in accordance with this Scope of Work and the Specifications contained or referenced herein and in accordance with all local, state, and federal rules, laws, and regulations.
As mentioned, the 4175 Shaw Blvd, St. Louis, Missouri, property is enrolled in the Missouri Department of Natural Resources Brownfields/Voluntary Cleanup Program (MDNR/BVCP). The MDNR/BVCP Project Manager is Mr. Brian McCurren. The site cleanup goal under the MDNR/BVCP is for unrestricted use; therefore, cleanup activities have been planned to accomplish that goal.
The selected contractor must be currently licensed in Missouri as an Asbestos Abatement Contractor. Additionally, on site workers must be currently licensed by the State of Missouri as Asbestos Workers. A copy of the contractor Asbestos Contractor certification must be submitted with the bid. Additionally, prior to commencing any site work, the remedial contractor must submit copies of their Asbestos Contractor Certifications to the MDNR/BVCP Project Manager. Contractor must acquire all permits and submit all notifications necessary to complete this project. Contractor must submit Asbestos Project Notifications to the State of Missouri and must also complete and submit Asbestos Project Post-Abatement Reports. Following completion of cleanup activities, in areas of the building where cleanup activities have resulted in building openings, the contractor will be responsible for securing the building and sealing it to the outside environment. This should be accomplished by using hard/rigid materials (plywood or equivalent). The manner in which the building is secured must be approved by the Owner. Copies of all permits, notification documents, sampling and analysis results, and disposal documents must be provided to the Owner. All of these documents are required to be submitted as part of the Remedial Action Final Cleanup Report, which the contractor must prepare.

3. REMEDIAL ACTION PLAN: The Remedial Action Plan (RAP) written for the site cleanup is included as Attachment B, and is considered part of the bid document. The RAP shall be used for the basis of the bid and the required clean up protocol. Specific to this bid, is the abatement of asbestos containing materials and removal of petroleum contaminated soil and waste oil at the site. The bid form with this bid document contains the estimated quantities of materials to be addressed during the cleanup activities. The quantities listed are estimates. The Owner will not guarantee any amount of work related to the contract. The contractor will be paid for quantities actually
constructed or performed as determined by field measurement agreed upon by the Contractor and the
Owner (or

the cleanup activities. Additionally, the RAP details confirmation sampling associated with the cleanup. The remedial contractor will be responsible for all of the required confirmation sampling associated with the cleanup. Cost associated with the confirmation sampling should be incorporated into costs for the cleanup. Any changes to the RAP and cleanup protocol must be approved by the Owner, Environmental Improvement and Energy Resources Authority (EIERA), and MDNR/BVCP Project Manager, prior to commencing site work.

4. HEALTH AND SAFETY PLAN: The remedial contractor must prepare and submit a project-specific Health and Safety Plan to the Owner and MDNR/BVCP for approval prior to commencing any site work.

5. QAPP: The remedial contractor must prepare and submit a site specific Quality Assurance Project Plan (QAPP) to the Owner and to MDNR/BVCP for approval prior to commencing any site work.

6. REMEDIAL ACTION FINAL REPORT: The selected remedial contractor will be required to prepare and submit a Remedial Action Final Report to the MDNR/BVCP for approval. The Remedial Action Final Report will document all site cleanup activities, disposal quantities, and sample results. This task will not be considered complete until MDNR/BVCP has no further technical comments concerning the report. Upon completion, the contractor shall provide two copies of the report to MDNR and three copies to the Owner.

7. DISCOVERY OF HAZARDOUS MATERIALS: In the event previously unknown hazardous materials are discovered by the Contractor, the Contractor shall immediately suspend work in the specific location of the hazardous material and immediately notify the Owner.

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4175 SHAW BLVD, ST. LOUIS, MO SITE ENVIRONMENTAL REMEDIATION BID FORM – PROPOSAL

SUBMITTED BY____________________

Company Name
Pursuant to and in accordance with the above stated Invitation for Bid, the undersigned hereby declares that they have examined the bid documents and specifications for the item(s) listed below. The undersigned proposes and agrees, if their Bid is accepted to furnish the item(s) submitted below, including delivery to the Owner in accordance with the delivery
schedule indicated below and according to the prices products/services information submitted.

<table>
<thead>
<tr>
<th>Item</th>
<th>Number Description</th>
<th>Unit</th>
<th>Estimated Quantity</th>
<th>Unit Price</th>
<th>Extended Amount (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE BID ITEMS</td>
<td>ASBESTOS-CONTAINING MATERIALS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>12” x 12” Green Floor Tile - Office (over 9” x 9” Green Floor Tile)</td>
<td>Sq. Ft.</td>
<td>350</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9” x 9” Brown Floor Tile and Black Mastic - Office</td>
<td>Cu. Yd.</td>
<td>281</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9” x 9” Red Floor Tile and Black Mastic - Office (beneath 12” x 12” Green Floor Tile)</td>
<td>Cu. Yd.</td>
<td>281</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>12” x 12” Brown Floor Tile and Yellow and Black Mastic - Office</td>
<td>Cu. Yd.</td>
<td>281</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Roof Flashing</td>
<td>Sq. Ft.</td>
<td>18</td>
<td>$</td>
<td></td>
</tr>
</tbody>
</table>

PETROLEUM CONTAMINATED SOIL AND WASTE OIL REMOVAL

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Extended Amount (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Excavation/Disposal of Petroleum Contaminated Soil</td>
<td>Cu. Yd.</td>
<td>281</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Site Restoration (backfilling activities)</td>
<td>Cu. Yd.</td>
<td>281</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Remove/Dispose of Waste Oil in Oil/Water Separator in northwest portion of building</td>
<td>Gal.</td>
<td>300</td>
<td>$</td>
<td></td>
</tr>
</tbody>
</table>

REMEDIAL ACTION FINAL REPORT

Project Health & Safety Plan, QAPP and any other items necessary to finalize plan per MDNR/BVCP Unit 1
Field Mobilization/Demobilization, Regulatory Notifications & Permitting Unit 1
Preparation of the Remedial Action Final Report Unit 1

Base Bid Item Total

Please note that the site’s Remedial Action Plan further details the materials/items to be addressed during the cleanup activities. Additionally, the Remedial Action Plan details confirmation sampling associated with the cleanup. Cost associated with the confirmation sampling should be incorporated into the rates/costs listed in the table above.

STATEMENT OF BIDDER’S QUALIFICATIONS

For the Environmental Remediation at the 4175 Shaw Blvd., St. Louis, MO
*(This form shall be completed and submitted with the project bid)*

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached
sheets. The bidder may submit any additional information he so desires.

1. Name of bidder___________________________________________________________

2. Permanent main office address____________________________________________

3. When organized__________________________________________________________

4. If a corporation, where incorporated __________________________________________

5. How many years have you been engaged in construction under your present firm name or trade name? __________________________________________________________

6. Experience and Qualifications. Summarize experience with similar petroleum and asbestos abatement projects over the last year or four projects, whichever is less. Include specific details regarding previous work performed under EPA Brownfields and the Missouri B/VCP Programs. Attach abbreviated resumes for the proposed Contract Manager and Superintendent on site.

7. List the more important contracts recently completed by you, stating approximate gross cost for each, and the month and year completed. __________________________________________________________________________

8. Contracts on hand: (Schedule these, showing gross amount of each contract and the respective anticipated dates of completion.) __________________________________________________________

9. Have you ever failed to complete any work awarded to you? If so, where and why? __________________________________________________________________________

10. Have you in the last five years ever been required to pay liquidated damages on any contract awarded to you? If so, where and why? __________________________________________________________________________

11. Have you ever defaulted on a contract? If so, where and why? __________________________________________________________________________

12. Has your firm ever engaged in litigation for the settlement of claims or disputes arising out of a construction contract? If so, give particulars. __________________________________________________________________________

13. List your major equipment available for this Public Works Project. __________________

14. To what extent would you expect to employ subcontractors? (Subcontractor Form Required) __________________________________________________________

15. Give bank reference.______________________________________________________

18. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Tower Grove Neighborhoods Community Development Corporation?

19. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Tower Grove Neighborhoods Community Development Corporation, in verification of the recitals comprising this Statement of Bidder’s Qualifications.

Dated at ________________________ this _____________ day of ________________, 20____.

Name of Bidder ________________________________

By __________________________________________
Seagull Environmental Technologies, Inc.

121 NE 72nd Street
Gladstone, Missouri 64118
www.seagullenvirotech.com
October 14, 2015
Ms. Kristin Allan Tipton
Development Director
Environmental Improvement and Energy Resources Authority
P.O. Box 744
Jefferson City, Missouri 65102

Subject: Analysis of Brownfields Cleanup Alternatives
4175 Shaw Boulevard Site, Saint Louis, Missouri
Missouri Brownfields Revolving Loan Fund Support Contract

Dear Ms. Tipton:

Seagull Environmental Technologies, Inc. (Seagull) is submitting the attached Analysis of
Brownfields Cleanup Alternatives (ABCA) report for the 4175 Shaw Boulevard site in Saint Louis, Missouri. If
you
have any questions or comments, please contact the project manager at (913) 220-5887.

Sincerely,

Jeff Pritchard, CHMM
Senior Environmental Scientist

Enclosures

ATTACHMENT A

EIERA0008TA
ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES
4175 SHAW BOULEVARD SITE, SAINT LOUIS, MISSOURI
Missouri Brownfields Revolving Loan Fund Support Contract
Prepared For:
Environmental Improvement and Energy Resources Authority
P.O. Box 744
Jefferson City, Missouri 65102
October 14, 2015
Prepared By:
Seagull Environmental Technologies, Inc.
121 NE 72nd Street
1.0 INTRODUCTION

Seagull Environmental Technologies, Inc. (Seagull) was tasked by the Environmental Improvement and Energy Resources Authority (EIERA), under the Missouri Brownfields Revolving Loan Support Contract, to complete an Analysis of Brownfields Cleanup Alternatives (ABCA) report for the 4175 Shaw Boulevard site in St. Louis, Missouri. This ABCA examines cleanup alternatives for petroleum-contaminated
soil, asbestos-containing materials (ACM), lead-based paint (LBP), and waste oil remaining in an oil/water separator, including preliminary cost estimates.

2.0 SITE LOCATION AND DESCRIPTION

The site is located at 4175 Shaw Boulevard in St. Louis, Missouri (see Appendix A, Figure 1). Coordinates for the approximate center of the site are 37.208714 degrees north latitude and 93.279164 degrees west longitude (see Appendix A, Figures 1 and 2). The site contains a 1,670 square foot (ft²) building that is vacant and in a dilapidated condition. The site building was constructed in the 1920s and has historically been operated as a filling station and auto repair shop. The site is in a mixed-use area of St. Louis. Adjacent to the north and east of the site are residential properties. The site is bounded to the south by Shaw Boulevard with residential structures beyond. Klemm Street bounds the site to the west with Mullanphy Elementary School beyond.

3.0 POTENTIAL CLEANUP ALTERNATIVES

The overall goal of any Brownfields cleanup action is to address any environmental conditions preventing or impeding the preferred type of site redevelopment, and to do so in a manner protective of human health and the environment. Current plans include complete renovation of the site building and redevelopment of the property for mix-use purposes. Planned renovations include removal of all finishings and replacement of the roof.

Brownfields cleanup alternatives were evaluated for the site to address the petroleum-contaminated soil, ACM, LBP, and waste oil remaining in an oil/water separator identified during previous investigations at the site. Those previous investigations included a Phase I Environmental Site Assessment (ESA) and three subsequent Phase II ESAs, which involved collection of subsurface soil samples, removal of four underground storage tanks (UST), excavation and proper disposal of approximately 45 cubic yards (yd³) of petroleum-contaminated soil, and inspections for ACM and LBP. The findings from those previous investigations are summarized below in Sections 3.1.1 through 3.1.4.

In October 2013, SCI Engineering, Inc (SCI) completed a Phase I ESA for the site. The Phase I ESA noted the presence of fill ports and vent lines, indicators of USTs. The report also noted the presence of an oil/water separator inside the site building (SCI 2013). The Phase I ESA concluded that a Phase II ESA was warranted to further investigate the Phase I ESA findings.

In February 2014, Terracon Consultants, Inc. (Terracon) completed a Phase II ESA of the site, as well as
asbestos and LBP inspections of the site building. The Phase II ESA involved the collection of subsurface soil samples and completion of a ground penetrating radar (GPR) survey. Of the soil samples collected, only sample B-1, collected at the western portion of the site, contained total petroleum hydrocarbons - gasoline range organics (TPH-GRO) and naphthalene at concentrations that exceeded their respective Missouri Risk-Based Corrective Action (MRBCA) Tier 1 Risk-Based Target Levels (RBTL) for residential land use - indoor inhalation of vapor emissions. Additionally, the GPR survey identified anomalies suspected to be USTs and associated piping at the site (Terracon 2014a). In December 2014, a Phase II ESA Addendum was completed by Terracon and involved the removal of four USTs from the site (Terracon 2014b). As part of the UST removal, approximately 45 yd$^3$ of petroleum-contaminated soil was transported off site for proper disposal. Closure sampling conducted from the UST excavation pits determined petroleum-related contaminants of concern were present at concentrations above their respective MRBCA standards. Specifically, the following contaminants were detected above their MRBCA Tier 1 RBTLs established for residential land use - indoor inhalation of vapor emissions: benzene, ethylbenzene, toluene, xylenes, naphthalene (BTEXN), and TPH-GRO. Figure 2 in Appendix A shows soil sampling locations from the previous investigations. Appendix B includes a table of soil sample results from the previous investigations. In April 2015, a Final Phase II ESA Addendum was completed by Tetra Tech and included the collection of 14 soil samples from 12 borings at the site (Tetra Tech 2015). Of the 14 samples collected, two samples (from locations SB4 and SB8) contained TPHGRO, naphthalene, and benzene at concentrations above their respective MRBCA Tier 1 RBTLs established for residential land use - indoor inhalation of vapor emissions. SB4 was at the southern portion of the site, and SB8 was at the western portion of the site, beneath the former location of UST-1 (see Appendix A, Figure 2). In general (excluding the samples collected from SB4 and SB8), soil sample results from the previous investigations delineated the vertical and horizontal extent of petroleum-related contamination above MRBCA Tier 1 RBTLs established for residential land use. The purpose of the ABCA is to present viable cleanup alternatives based on site-specific conditions, technical feasibility, and preliminary cost evaluations. The following sections describe Brownfields
cleanup alternatives for addressing the environmental concerns, including a “No Action” alternative.

Following the description, each alternative is evaluated in terms of its effectiveness, implementability, and cost.

The effectiveness of an alternative refers to its ability to meet the objectives of the Brownfields cleanup.

Specific criteria used to assess the effectiveness of an alternative include the following:

- Overall protection of public health and the environment;
- Compliance with applicable or relevant and appropriate requirements (ARAR) and other criteria, advisories, and guidance;
- Long-term effectiveness (includes resilience to impacts associated with natural disasters, climate change, etc.); specific effects of climate change evaluated for the site were for increased/decreased temperatures and precipitation, as well as extreme weather events (e.g., storms of unusual intensity, increased frequency and intensity of localized flooding events);
- Reduction of toxicity, mobility, or volume through treatment/removal;
- Short-term effectiveness.

The implementability criteria address the technical and administrative feasibility of implementing an alternative, and the availability of various services and materials required during its implementation.

Specific criteria used to assess implementability of an alternative include:

- Technical feasibility;
- Administrative feasibility;
- Availability of services and materials;
- State acceptance;
- Community acceptance.

Each alternative is evaluated to determine its estimated cost. The evaluations compare each alternative’s direct capital costs, which include equipment, services, and contingency allowances. The purpose of evaluating each alternative is to determine its advantages and disadvantages relative to the other alternatives in order to identify key tradeoffs that would affect selection of the preferred alternative.

3.1 EVALUATED CONTAMINATION

Contaminants and environmental issues evaluated as part of this ABCA include petroleum-contaminated soil, ACM, LBP, and waste oil in an oil/water separator. The sections below discuss contaminants/materials identified during the previous investigations, including the ACM and LBP inspections completed for the site. Site photographs are included as Appendix C.

3.1.1 Petroleum-Contaminated Soil

Previous investigations have identified two areas of petroleum-contaminated soil at the site (Tetra Tech
Those areas are west and south of the building and are associated with the former locations of USTs (see Appendix A, Figure 3). Soil samples collected from those areas determined the following contaminants are present at concentrations above their MRBCA Tier 1 RBTLs established for residential land use - indoor inhalation of vapor emissions: BTEXN and TPH-GRO. In general (excluding the samples collected from SB4 and SB8), soil sample results from the previous investigations delineated the vertical and horizontal extent of petroleum-related contamination above MRBCA Tier 1 RBTLs established for residential land use (see Appendix B). Table 1 summarizes soil sample results that exceeded MRBCA standards.

**TABLE 1**  
**SOIL SAMPLE RESULTS**  
**4175 SHAW BOULEVARD SITE**  
**ST. LOUIS, MISSOURI**

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Depth Interval (feet bgs)</th>
<th>TPHGRO</th>
<th>TPHDRO</th>
<th>Benzene</th>
<th>Ethylbenzene</th>
<th>Naphthalene</th>
<th>Xylenes</th>
<th>Toluene</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ranges</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>January 2014-Phase II ESA</strong></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-1 4-6</td>
<td>1,000</td>
<td>66</td>
<td>0.34</td>
<td>0.42</td>
<td>U</td>
<td>NA</td>
<td></td>
<td></td>
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<tr>
<td><strong>August 2014-Phase II ESA Addendum</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bott-2N 7</td>
<td>196,000 189</td>
<td>38.9</td>
<td>1,890</td>
<td>7,020</td>
<td>179</td>
<td>57.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bott-2S 7</td>
<td>3,380</td>
<td>U</td>
<td>0.0124</td>
<td>0.0112</td>
<td>0.0338</td>
<td>0.003</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Bott-N Not Identified</td>
<td>6,130</td>
<td>34.1</td>
<td>U 17.6</td>
<td>79.7</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Bott-S Not Identified</td>
<td>15,800</td>
<td>U</td>
<td>0.0154</td>
<td>0.142</td>
<td>0.127</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bott-4E 5</td>
<td>3,570 47.4</td>
<td>2.44</td>
<td>56.2</td>
<td>43.3</td>
<td>11.4</td>
<td>1.34</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>TL-2 2</td>
<td>2,050</td>
<td>27.8</td>
<td>0.0338</td>
<td>19.6</td>
<td>11.1</td>
<td>0.527</td>
<td>0.0387</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Bott-N 8</td>
<td>1,140</td>
<td>U</td>
<td>U 5.22</td>
<td>U</td>
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<td></td>
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</tr>
<tr>
<td><strong>March 2015-Final Phase II ESA Addendum</strong></td>
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<tr>
<td>SB4 10-12</td>
<td>760 NA</td>
<td>0.83</td>
<td>1.0</td>
<td>2.0</td>
<td>0.12</td>
<td>J</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB8 10-12</td>
<td>890 NA</td>
<td>U 1.8</td>
<td>3.3</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MRBCA DTL</strong></td>
<td><strong>(All Soil Types)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>385</td>
<td>4,150 0.0561 39.9 0.325</td>
<td>24.7</td>
<td>29.8</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>MRBCA Tier 1 RBTL</strong> - Residential Indoor Inhalation of Vapors (Soil Type 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>720</td>
<td>7,910 0.808 376 49.6 48.0</td>
<td>992</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Notes:**  
All results are reported in milligrams per kilogram.  
B - Bold results exceed an established MRBCA standard.  
bgs - Below ground surface  
J - Estimated result  
DRO - Diesel range organics  
MRBCA - Missouri Risk-Based Corrective Action  
DTL - Default Target Level  
NA - Not analyzed
3.1.2 Asbestos-Containing Materials

In February 2014, an asbestos inspection was completed and included the collection of 44 samples of structural materials. In all, two materials associated with the site have been determined to contain asbestos. Those materials are vinyl floor tile (two sizes: 9-inch by 9-inch and 12-inch by 12-inch) and vinyl floor tile mastic. The materials determined to contain asbestos are in the office area of the site building. In some areas, there are two layers of ACM flooring/mastic. Those materials contained asbestos (chrysotile) at concentrations ranging from 5 to 10 percent (%) (Terracon 2014c). The U.S. Environmental Protection Agency (EPA) defines ACM as any material containing asbestos at a concentration above 1%. Seagull conducted a site visit on September 11, 2015, to confirm quantities of ACM. On September 25, 2015, Seagull completed an inspection of the building’s roof, which had not been previously completed. That inspection included the collection of 12 samples. Sample results determined that roof flashing (at the roof penetrations) contained chrysotile asbestos at 10%. Based on Seagull’s site visit and the roof inspection, some of the quantities of ACM were revised from totals listed in Terracon's asbestos inspection report.

Table 2 summarizes the ACM associated with the site building.

<table>
<thead>
<tr>
<th>Material</th>
<th>Location</th>
<th>Asbestos Result (%)</th>
<th>Estimated Quantity (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot; x12&quot; green floor tile</td>
<td>Office</td>
<td>5% Chrysotile</td>
<td>350</td>
</tr>
<tr>
<td>9&quot; x 9&quot; brown floor tile</td>
<td>and black mastic</td>
<td>Office</td>
<td>5% Chrysotile</td>
</tr>
<tr>
<td>9&quot; x 9&quot; brown floor tile and black mastic</td>
<td></td>
<td>Office</td>
<td>5% Chrysotile</td>
</tr>
<tr>
<td>9&quot; x 9&quot; red floor tile and black mastic</td>
<td></td>
<td>Office-beneath 12&quot; x 12&quot; green floor tile</td>
<td>10% Chrysotile</td>
</tr>
<tr>
<td>Black Mastic-5% Chrysotile</td>
<td></td>
<td></td>
<td>Black Mastic-5% Chrysotile</td>
</tr>
</tbody>
</table>
12” x 12” brown floor tile
and yellow and black
mastice
Office
5 % Chrysotile
Black Mastic-5 % Chrysotile
Roof flashing Roof penetrations 10 % - Chrysotile 18
Notes:
" Inch
% Percent
ft² Square feet

3.1.3 Lead-Based Paint
In February 2014, an LBP inspection was completed with an x-ray fluorescence spectrometer (XRF).
Paint-covered surfaces indicated by the XRF to contain lead at a concentration equal to or greater than (>)
1 milligram per square centimeter (mg/cm²) were considered LBP. The inspection identified LBP on
interior and exterior components associated with the site building. Lead concentrations on those
components ranged from 1.0 to 8.4 mg/cm² (Terracon 2014d). Interior components associated
with the site
building determined to contain LBP were concrete block and plaster walls, wood trim, wood
window
frames, wood doors and associated frames, and wood framed garage (overhead) doors. The
north and
south exterior walls of the site building were also determined to contain LBP. The south exterior
contains
a plaster/stucco finish, while the north exterior is concrete block. Table 3 summarizes the
materials
containing LBP, including quantities.

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TABLE 3
MATERIALS CONTAINING LEAD-BASED PAINT
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI
Location Substrate Paint Color Estimated Quantity (ft²)

Building Interior
Office - east window frame Wood White 20
Office - east wall Plaster Blue 60
Garage - north block wall Concrete Block Gray-Green 598
Garage - east block wall Concrete Block Blue 100
Garage - east block wall Concrete Block White 100
Garage - south block wall Concrete Block Blue 20
Garage - south block wall Concrete Block White 150
Garage - west overhead door wood frame Wood White-Blue 40
Garage - east overhead door wood frame Wood White 40
Garage - walk-in door Wood White 25
Garage - walk-in-door frame Wood Blue 20
Garage - window frame to office Wood White 20
Garage - window sill (window to office) Wood White 3
Garage - west block wall (adjoining office) Concrete Block White 150
Garage - west block wall (adjoining office) Concrete Block Blue 156
Garage - east overhead door Wood Blue 96
Garage - west overhead door Wood Blue 96
Garage - overhead door on west wall Wood Gray 96

**Building Exterior**
Exterior - south plaster wall Plaster White 644
Exterior - north plaster wall Concrete Block White 644

Notes:

- **Square feet**

### 3.1.4 Waste Oil in Oil/Water Separator
The Phase I ESA identified an oil/water separator in the northwest portion of the building. No sampling or characterization of materials inside the separator have occurred. Seagull completed a visual inspection of the separator during the September 11, 2015, site visit. That inspection determined the separator contains about 3 feet of waste oil. The total volume of waste oil is not known, because the size of the separator could not be determined.

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### 3.2 EVALUATION OF CLEANUP ALTERNATIVES
Evaluations have been developed with specific consideration to the Missouri Department of Natural Resources (MDNR) Brownfields/Voluntary Cleanup Program (BVCP) procedural requirements and MRBCA technical guidance. This consideration was made because cleanup projects implemented with EPA Brownfields Cleanup funding generally require participation in a state voluntary cleanup program (or equivalent). For reference, fees associated with enrollment into the MDNR BVCP include a $200 application fee and refundable oversight deposit of $5,000. The evaluation of cleanup alternatives for the 4175 Shaw Boulevard site includes: three options for the petroleum-contaminated soil, two options for ACM, four options for LBP, and two options for removal of waste oil in the oil/water separator.

#### 3.2.1 Petroleum-Contaminated Soil
Based on previous sampling events completed at the site, two areas of petroleum-contaminated soil have been identified. Area #1 is west of the site building, and Area #2 is south of the building (see Appendix A, Figure 3). Previous investigations have determined that subsurface soil in those two areas contains BTEXN and TPH-GRO above MRBCA Tier 1 RBTLs established for residential use. For the areas of petroleum-contaminated soil, three options were evaluated: (1) no action; (2) excavation/disposal; and (3) bio-remediation. Since mixed use is the planned future use of the property, then unrestricted (residential) use is the goal.

**Alternative 1: No Action**
Alternative 1 (no action) would consist of leaving the soil in place at the site.

Effectiveness
This alternative would not be effective regarding redevelopment of the site. This alternative would also be ineffective in achieving the goal of reduction of health risks.

Implementation
Implementation of this alternative is uncontrollable petroleum-contaminated soil is left in place.

Redevelopment would have to consider the location of the identified petroleum-contaminated soil to ensure exposure to the soil and potential for vapors emanating from the soil and accumulating in overlying structures is limited.

Cost
This alternative would not involve any direct costs.

**Alternative 2: Excavation/Disposal**

Alternative 2 includes the excavation and proper disposal of the petroleum-contaminated subsurface soil.

Subsurface soil containing BTEXN and TPH-GRO above their respective MRBCA RBTLs established for residential land use would be excavated and transported off site for proper disposal. In addition, successful completion would require the collection of post-excavation soil samples to ensure concentrations of contaminants of concern are below their respective MRBCA Tier 1 RBTLs established for residential land use.

Effectiveness
The petroleum-contaminated soil would be permanently removed. This alternative would allow for redevelopment of the site without restrictions.

Implementation
This is a direct approach, because the soil is removed and controls are not required to address contamination left in place. Cleanup activities would be conducted in accordance with applicable state and federal regulations. For this alternative, the petroleum-contaminated soil would be excavated and properly disposed of. For the purposes of this ABCA, the total area of petroleum-contaminated soil is 860 ft². Area #1, west of the site building, is approximately 350 ft² and Area #2, south of the building is 510 ft². The average depth of excavation from Area #1 would be 10 feet bgs, and the average depth of excavation from Area #2 would be 8 feet bgs. Total volume of soil removed from the two areas is anticipated to be 281 yd³.

It is not anticipated that any overburden soil will be segregated and returned to the excavation as backfill.

At each excavation area, two confirmation samples from the excavation floor and one confirmation sample
from each wall would be collected. Overall, a total of 12 confirmation samples would be collected from the two excavation areas. Lastly, the excavated area would be restored to pre-cleanup conditions (backfilled with clean fill). Cost Estimated labor, equipment, and disposal costs were gathered from local vendors. Estimated costs are based on the soil being disposed of as special waste at an approved landfill. Table 4 below summarizes the remediation costs to excavate and properly dispose of the petroleum-contaminated soil, and backfill the excavation areas.

TABLE 4
REMEDIATION COSTS FOR PETROLEUM-CONTAMINATED SOIL
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI

Activity | Total Cost |
--- | --- |
Excavation/Disposal of Petroleum-Contaminated Soil - 281 Cubic Yards of Soil ($105/cubic yard) | $29,505 |
Site Restoration (backfilling activities) - 281 Cubic Yards of Soil ($70/cubic yard) | $19,670 |
**Total Estimated Remediation Costs** | **$49,175** |

Total remediation cost to excavate and properly disposed of the petroleum-contaminated soil, and to backfill the excavated areas is $49,175. Additional costs to be considered include technical plans/reports (RAP and Remedial Action Completion Report) and the collection of cleanup-related soil samples. Estimated costs for technical plans/reports are $4,250 for the RAP and $4,500 for the Final Cleanup Plan (cost of RAP and Final Report includes consideration of all environmental issues to be addressed by cleanup activities), and $4,000 for soil sampling activities. Sampling includes disposal profile sampling, backfill sampling, and post-excavation sampling.

Alternative 3: In Situ Treatment
Alternative 3 is In Situ Treatment (enhanced bioremediation). The main advantage of in situ treatment is that it allows soil to be treated without being excavated and transported. Enhanced bioremediation is a process in which indigenous or inoculated micro-organisms (e.g., fungi, bacteria, and other microbes) degrade (metabolize) organic contaminants found in soil and/or groundwater, converting them to innocuous end products (U.S. Army Environmental Center [U.S. Army] 2015).

Effectiveness This alternative would not be effective regarding redevelopment of the site. Bioremediation is a long-term
technology that can take several years to achieve cleanup goals. Proposed redevelopment would be restricted (i.e., timeframe) until it could be ensured the enhanced bioremediation was effectively treating the contaminated soil.

Implementation
For this alternative, the petroleum-contaminated soil would be injected with groundwater or uncontaminated water mixed with nutrients and saturated with dissolved oxygen. Prior to enhanced bioremediation treatment, the collection of samples to determine the soil classification, moisture content, and permeability of soils across the site is required. Long-term management of the site would also be required during the ongoing remediation to ensure its integrity is not compromised. Additionally, periodic confirmation soil samples would be collected until contaminants of concern in the soils are determined to be below applicable MRBCA standards.

Cost
Estimated labor, equipment, and long-term management costs were gathered from the Remediation Technologies Screening Matrix and Reference Guide, 4th Edition prepared by the U.S. Army Environmental Center (U.S. Army 2015). Based on the reference guide, it is estimated that enhanced bioremediation would be $100 per cubic yard. Table 5 below summarizes the costs for bioremediation treatment.

<table>
<thead>
<tr>
<th>TABLE 5</th>
<th>ENHANCED BIOREMEDIATION COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4175 SHAW BOULEVARD SITE</td>
<td>ST. LOUIS, MISSOURI</td>
</tr>
<tr>
<td><strong>Activity</strong></td>
<td><strong>Total Cost</strong></td>
</tr>
<tr>
<td>Bioremediation Plans (assessment of on-site soil for enhance bioremediation treatment)</td>
<td>$10,000</td>
</tr>
<tr>
<td>Site Preparation (i.e., erosion control measures, removal of concrete)</td>
<td>$10,000</td>
</tr>
<tr>
<td>Enhanced Bioremediation (treatment for 281 cubic yards)</td>
<td>$28,100</td>
</tr>
<tr>
<td>Long-term Management (includes sampling and site maintenance)</td>
<td>$25,000</td>
</tr>
<tr>
<td><strong>Total Estimated Remediation Costs</strong></td>
<td><strong>$73,100</strong></td>
</tr>
</tbody>
</table>

Total remediation cost for enhanced bioremediation is $88,900. Additional costs to be considered include technical plans/reports (RAP and Final Cleanup Report). Estimated costs for technical plans/reports are $4,250 for the RAP and $4,500 for the Remedial Action Completion Report.

3.2.2 Asbestos-Containing Materials
For ACM, two options were evaluated: (1) no action, and (2) proper abatement.

**Alternative 1: No Action**
Alternative 1 (no action) would consist of leaving ACM in place at the site.
This alternative would not be effective because the site building contains ACM and redevelopment is planned for mixed use. This alternative would also be ineffective in achieving the goal of reduction of health risks.

Implementation

Implementation of this alternative is straightforward.

Cost

This alternative would not involve any direct costs.

**Alternative 2: Abatement of Asbestos-Containing Material**

Alternative 2 would involve proper abatement of the ACM identified at the site, which includes vinyl floor tile (two sizes: 9-inch by 9-inch, and 12-inch by 12-inch), vinyl floor tile mastic, and roof flashing. Abatement would be conducted in accordance with applicable local, state, and federal regulations by a registered asbestos abatement contractor. Regulatory clearance would be obtained through a postabatement inspection. Because the ACM is non-friable, the collection of clearance air samples is not required.

Effectiveness

If all of the identified ACM was removed, then Alternative 2 would be most effective in removing the risk to human health posed by the ACM. In addition, full abatement would allow for redevelopment of the site without restrictions concerning disturbance of ACM.

Implementation

Abatement would be conducted in accordance with applicable local, state, and federal regulations by a registered asbestos abatement contractor. ACM identified at the site includes approximately 350 ft² of vinyl floor tile/mastic in the office of the building. Full abatement would include complete removal of those materials.

Cost

Total abatement cost for all of the ACM is estimated at $3,000. This is for abatement of 350 ft² of vinyl floor tile and mastic at 6 per ft². Abatement of roof flashing (18 ft²) is estimated at $50 per ft². Additional costs to be considered include technical plans/reports (RAP and Remedial Action Completion Report). Estimated costs for technical plans/reports are $4,250 for the RAP and $4,500 for the Final Cleanup Plan (cost of RAP and Final Report includes consideration of all environmental issues to be addressed by cleanup activities).

### 3.2.3 Lead-Based Paint

Four cleanup alternatives were evaluated to address LBP found on interior and exterior components associated with the site building. These options include: (1) no action, (2) removal by stripping, (3)
removal by demolition, and (4) stabilization and encapsulation. Each approach (excluding no action) is capable of achieving clearance or restricted clearance criteria under the MDNR BVCP.

**Alternative 1: No Action**

Alternative 1 (no action) would consist of leaving LBP in place at the site.

**Effectiveness**

This alternative would not be effective regarding redevelopment of the property. The areas containing LBP would be restricted to ensure those materials were not disturbed. This alternative would be ineffective in achieving the goal of reduction of health risks.

**Implementation**

Implementation of this alternative is uvtckijvqhtyctf” “v.jg LBP is left in place. Redevelopment would have to consider the location and condition of the LBP and ensure those materials were not disturbed.

**Cost**

This alternative would not involve any direct costs.

**Alternative 2: Lead-Based Paint Removal-Stripping**

Alternative 2 includes removal of LBP using wet stripping and/or chemical stripping techniques. This is the most direct approach, because LBP is removed, and controls are not required to manage LBP left in place. LBP would be removed and disposed of off site as special or hazardous waste. Disposal characterization testing would be required prior to disposal. In addition, successful completion would require the collection of dust-wipe samples in accordance with MDNR clearance regulations. This alternative is most applicable to address the LBP on the exterior/interior walls where removal by demolition is not a viable option. Demolition (Alternative 3) of interior wood trim and window/door components and encapsulation (Alternative 4) of interior concrete/plaster walls are discussed below.

**Effectiveness**

The LBP is permanently removed. This alternative would allow for redevelopment of the site without restrictions concerning disturbance and management of LBP.

**Implementation**

Abatement would be conducted in accordance with applicable state and federal regulations by registered LBP contractors. Approximately 1,288 ft² of LBP is located on the south and north exterior concrete walls, and approximately 1,334 ft² of LBP is located on interior concrete and plaster walls; therefore, the total area of LBP to be removed is 2,622 ft². The complete removal of all LBP can be difficult, dependent on substrate conditions. In addition, this technique can generate a hazardous waste stream and requires careful consideration and precautions concerning worker health and safety.

**Cost**
The costs summarized below are only for removal of LBP on exterior/interior walls. Estimated stripping costs were gathered from local vendors. The cost per ft² includes removal and disposal costs. The estimated removal cost using wet and/or chemical stripping is $25 per ft². Based on that estimated cost, removal of LBP from the interior and exterior walls (2,622 ft²) would be $65,550. Additional costs to be considered include technical plans/reports (RAP and Remedial Action Completion Report) and the collection of clearance samples. Estimated costs for technical plans/reports are $4,250 for the RAP and $4,500 for the Final Cleanup Plan (cost of RAP and Final Report includes consideration of all environmental issues to be addressed by cleanup activities). Cost for clearance sampling is estimated at $1,000.

**Alternative 3: Lead-Based Paint Removal by Demolition**

Alternative 3 includes stabilization of LBP in poor condition (chipping, flaking, etc.) and removal (by demolition) for proper disposal. In accordance with state regulations, the condition of LBP-containing surfaces should be inspected, and loose (chipped, flaking, etc.) LBP is required to be removed. The removed LBP residue should be segregated for proper disposal. All surfaces/components that contain LBP determined to be in good condition can be removed/demolished and disposed of as demolition waste. Removal/demolition techniques are required to be conducted in a manner that does not chip, shred, mulch, or mill the LBP. Based on discussed future use of the site, which includes complete renovation, this alternative is likely the most appropriate and economically feasible for the interior wood components (trim, window and door frames, doors/overhead doors, etc.). For this alternative, materials containing LBP would be removed and disposed of off site as special (demolition) waste. This alternative is a direct approach, because LBP is removed, and controls are not required to manage LBP left in place when redevelopment occurs. LBP residue removed during stabilization would be disposed of as hazardous waste (if required). Disposal characterization testing would be required prior to disposal. In addition, successful completion would require the collection of dust-wipe samples in accordance with MDNR clearance regulations. Effectiveness The LBP is permanently removed. This alternative would allow for redevelopment of the site without restrictions concerning disturbance and management of LBP.

**Implementation**
Removal would be conducted in accordance with applicable state and federal regulations. The identified LBP-covered components would be properly removed and disposed of. Removal/demolition is required to be conducted in a manner that does not chip, shred, mulch, or mill the LBP.

Cost
Estimated removal by demolition costs were gathered from local vendors. Total cost to remove the LBP-containing components and properly dispose of them as special waste is estimated at $4,000. Additional costs to be considered include technical reports (RAP and Remedial Action Completion Report), the collection of clearance samples, and the installation of window and door coverings (plywood) to secure the building. Estimated costs for technical plans/reports are $4,250 for the RAP and $4,500 for the Final Cleanup Plan (cost of RAP and Final Report includes consideration of all environmental issues to be addressed by cleanup activities). Costs for clearance sampling is estimated at $1,000. Installation of window and door coverings for building security is estimated at $2,000.

**Alternative 4: Lead-Based Paint Encapsulation**

Alternative 4 includes encapsulation of LBP surfaces with a 20-year, durable, air- and dust-tight surface coating material. The encapsulating material would require approval by MDNR BVCP prior to use. Encapsulation of LBP would be conducted on surfaces following proper preparation. Surface preparation would include proper removal of loose, flaking, and peeling paint and other surface contaminants so the proposed encapsulant would adhere properly. Encapsulation is conducted using standard paint application techniques (brush, roller, spraying, etc.). Encapsulation would stabilize the remaining leaded paint. After the surfaces are encapsulated, the paint would not likely be subject to future deterioration. Minimization of dust/debris generated during this technique is required. After encapsulation and all other abatement activities conducted at the site are complete, the regulated area would be vacuumed with a high-efficiency particulate air (HEPA) filter-equipped vacuum, wiped with a cleaning solution, rinsed, and re-HEPA vacuumed.

For this site, encapsulation is a viable option for the interior concrete and plaster walls, where removal by stripping may not be economically feasible. Compared to Alternatives 2 and 3, waste generation and disposal costs would be reduced. Regulatory clearance would be obtained through a post-encapsulation
inspection and the collection of dust-wipe samples in accordance with MDNR clearance regulations.

Effectiveness
Encapsulation is a relatively simple process that does not significantly alter structural conditions. This alternative would allow for redevelopment of the site; however, restrictions (institutional controls) would apply concerning future disturbance of LBP. For sites enrolled in the MDNR BVCP, MDNR requires that an Operation and Maintenance (O&M) Plan be created to document the existence, location, and future maintenance procedures regarding the LBP. In addition, the O&M Plan is required to be filed on the property's chain of title as an institutional control. The site would also be required to be entered into the MDNR Long-Term Stewardship Program, which includes a $15,000 fee for long-term MDNR oversight.

Implementation
Encapsulation would be conducted in accordance with applicable state and federal regulations by a registered LBP contractor on approximately 1,334 ft² of interior wall surfaces covered in LBP. Encapsulation is not a viable alternative for surfaces that are subject to impact or friction. Encapsulation requires follow-up inspections, maintenance, and potential building restrictions.

Cost
Estimated encapsulation costs were gathered from local vendors. Cost per ft² is provided and includes labor and materials. Estimated encapsulation cost is $8 per ft². Based on that estimated cost, encapsulation of LBP on the previously identified components would be $10,672. Additional costs to be considered include technical reports (RAP, Remedial Action Completion Report, and O&M Plan) and the collection of clearance samples. Estimated costs for technical plans/reports are $4,250 for the RAP, $4,500 for the Final Cleanup Plan, and $2,000 for the O&M Plan (cost of RAP and Final Report includes consideration of all environmental issues to be addressed by cleanup activities). Long-Term Stewardship costs are $15,000. Cost for clearance sampling is estimated at $1,000.

3.2.4 Waste Oil in Oil/Water Separator
For the oil and water separator, two options were evaluated: (1) no action, and (2) proper removal and disposal.

Alternative 1: No Action
Alternative 1 (no action) would consist of leaving the waste oil in place at the site.

Effectiveness
This alternative would not be effective regarding redevelopment of the property and could pose health risks to future occupants.

Implementation
the waste oil remains in the oil/water separator at the site. Cost This alternative would not involve any direct costs. **Alternative 2: Removal of Oil sand Water Separator** Alternative 2 would involve proper removal and disposal of the waste oil. This cleanup activity would also involve cleaning the separator to ensure no sludge remains. Removal and disposal would be handled by a qualified waste management company. Effectiveness Alternative 2 would be effective in removing the waste oil. Implementation Removal and disposal would be arranged by a qualified waste management company. Seagull completed a visual inspection of the separator during the September 11, 2015, site visit. That inspection determined the separator contains about 3 feet of waste oil. The total volume of waste oil is not known; however, for the purposes of this ABCA, the volume is estimated at 300 gallons. Cost Estimated removal/disposal costs were gathered from local vendors. The estimated removal/disposal cost for the waste oil is $5,000.

### 3.3 RECOMMENDED CLEANUP ALTERNATIVES

**Petroleum-Contaminated Soil**
Alternative 2 – excavation and disposal – is the recommended cleanup alternative for petroleum-contaminated soil identified at the site. Future plans at the site include renovation of the site building for mixed-use purposes. This alternative would most effective in removing the risk to human health posed by the contaminated soil.

**Asbestos-Containing Material**
Alternative 2 – abatement of ACM – is the recommended cleanup alternative for ACM identified at the site. Future plans are for redevelopment of the site building; therefore, removal of all of the identified ACM would be required for reuse of the site building.

**Lead-Based Paint**
Alternatives 2 and 3 – a combination of removal by stripping and demolition – are the recommended cleanup alternatives for LBP identified at the site. Removal by stripping is the recommended cleanup alternative for LBP on the exterior south and north walls, and the interior concrete and plaster walls. Removal by demolition is the recommended cleanup alternative for LBP on interior wood trim, door, window, and overhead door components. These are the most cost-effective alternatives assuming common
application procedures. These alternatives would allow for redevelopment of the site as planned.

**Oil and Water Separator**
Alternative 2 – removal and disposal – is the recommended cleanup alternative for the waste oil that remains in the oil/water separator.

### 3.3.1 Total Cleanup Cost
Based on the recommended cleanup alternatives for petroleum-contaminated soil, ACM, LBP, and oil waste in the oil/water separator, the estimated total cleanup cost is $147,675 which includes site enrollment in the MDNR BVCP, fees associated with preparation of required technical plans/reports, and all cleanup-related sampling. The removal and disposal of petroleum-contaminated soil is estimated at $53,175. Full abatement of the ACM is estimated at $3,000. The stripping of the LBP located on the interior and exterior plaster walls is estimated at $66,550 (includes $1,000 for clearance sampling). Removal by demolition of LBP on interior components is estimated at $4,000. Installation of window and door coverings for building security is estimated at $2,000. Proper removal and disposal of oil waste in the oil/water separator is estimated at $5,000. Site enrollment fees and refundable deposit into the MDNR BVCP program are $5,200, while fees associated with preparation of technical reports would be $8,750 ($4,250 for the RAP and $4,500 for the Final Cleanup Report). Additionally, cost for sampling activities associated with removal of petroleum-contaminated soil and abatement of the LBP are included in the removal/abatement costs discussed above. Table 6 summarizes the discussed costs.

**TABLE 6**
**SUMMARY OF COSTS**
**4175 SHAW BOULEVARD SITE**
**ST. LOUIS, MISSOURI**

<table>
<thead>
<tr>
<th>Hazardous Material</th>
<th>Recommended Alternative</th>
<th>Costs</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum-Contaminated Soil</td>
<td>Alternative 2 – Excavation/Disposal</td>
<td>$49,175</td>
<td>$147,675</td>
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<td>Excavation/Disposal of Soil</td>
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<td></td>
<td>Sampling - Confirmation, Backfill, and</td>
<td>$53,175</td>
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<td></td>
<td>Disposal Profile</td>
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<tr>
<td>ACM</td>
<td>Alternative 2 – Abatement</td>
<td>$3,000</td>
<td>$3,000</td>
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<td>LBP</td>
<td>Alternatives 2 and 3 – Removal by Stripping and Demolition</td>
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<td>$72,550</td>
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<td>Removal by Stripping</td>
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<td></td>
<td>Removal by Demolition</td>
<td>$4,000</td>
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</tbody>
</table>
Clearance Sampling - $1,000  
Installation of Window/Door Coverings -  
Building Security - $2,000  
Waste Oil in Oil/Water Separator  
Alternative 2 – Removal Removal/Disposal of Waste Oil- $5,000 $5,000  
MDNR Brownfields/Voluntary Cleanup Program Fees $5,200  
Technical Plans - Remedial Action Plan ($4,250) and Final Cleanup Plan ($4,500) $8,750  
**Total Cost - $ 147,675**

Notes:  
ACM Asbestos-containing materials  
LBP Lead-based paint  
MDNR Missouri Department of Natural Resources  
EIERA0008TA 20  

### 4.0 REFERENCES

SCI Engineering (SCI). 2013. Phase I Environmental Site Assessment of the 4175 Shaw Boulevard Site.  
October.  
February 11.  
Terracon. 2014b. Phase II Environmental Site Assessment Addendum of the 4175 Shaw Boulevard Site.  
December 11.  
February 5.  
Tetra Tech, Inc. (Tetra Tech). 2015. Final Phase II Environmental Site Assessment Addendum of the 4175 Shaw Boulevard Site.  
April.  

### APPENDIX A

**FIGURES**

![Site Location](copyright: © 2013 National Geographic Society, i-cubed)

**Figure 1**  
Site Location Map  
Date: October 2015 Project No: EIERA0008TA  
**4175 Shaw Boulevard Site**  
**St. Louis, Missouri**  
Source: USGS Webster Groves, MO 7.5 Minute Topo Quad, 1975
Figure 2
Previous Investigations Map
Date: October 2015 Project No: EI008TA
4175 Shaw Boulevard Site
St. Louis, Missouri
Source: Phase II ESA Addendum, Tetra Tech

Seagull Environmental Technologies, Inc.

Not to scale
"/

Area #1
(350 ft²)
Area #2
(510 ft²)

Figure 3
Areas of Petroleum-Contaminated Soil
Date: October 2015 Project No: EI008TA
4175 Shaw Boulevard Site
St. Louis, Missouri
Source: East West Gateway 6 inch Orthophotography, 2012
Excavation Area

### Excavation Area Depths
- 14 feet
- 13 feet
- 8 feet
- 7 feet

### APPENDIX B

## SOIL SAMPLE RESULTS TABLE

**Table 3**

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Soil Sample</th>
<th>Sampling Date</th>
<th>Sampling Depth (ft below surface)</th>
<th>Method</th>
<th>Detected Parameters</th>
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<tbody>
<tr>
<td>2</td>
<td>Soil Type 4</td>
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<td>2</td>
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</tbody>
</table>

**Notes:**
- U: not detected
- NA: not analyzed
- E: Greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
- C: Seagull Environmental Technologies, Inc.
- GIS_Workspace/Projects/EIERA0008TA/02014/EIERA0008TA01/0001/343/Figure3.mxd

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- GIS_Workspace/Projects/EIERA0008TA/02014/EIERA0008TA01/0001/343/Figure3.mxd
Table 3
Subsurface Soil Analytical Results - Detected Parameters
Shaw Boulevard Phase II ESA
St. Louis, MO
Residential Non-Residential Construction Worker
Indoor Inhalation of
Vapor
Ingestion, Inhalation, and Cutaneous
Soil Type 2 Soil Type 2 Soil Type 2

<table>
<thead>
<tr>
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<th>Soil Type 2</th>
<th>Soil Type 2</th>
<th>Soil Type 2</th>
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<td>66.0</td>
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<td>Notes:</td>
<td>Detected</td>
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Notes:
1. Not detected
2. U: Under calibration limit; Actual value is known to be less than the upper calibration range.
3. E: Greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
4. Volatile organics exceed the Residential Inhalation of Vapor Target Level for Soil Type 2.
5. Method:

APPENDIX B - SOIL SAMPLE RESULTS TABLE
### Table 3
#### Subsurface Soil Analytical Results - Detected Parameters

**Shaw Boulevard Phase II ESA**

**St Louis, MO**

**Residential Non-Residential Construction Worker**

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<th>Method METALS (mg/Kg)</th>
<th>Reading PID (mg/Kg)</th>
<th>Soil Type 2</th>
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<td>6010B</td>
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**Note:**

- U: not detected
- E: Greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
- J: Estimated value below the lowest calibration point. Confidence correlates with concentration.

### Table 4
#### Subsurface Soil Analytical Results - Detected Parameters

**Shaw Boulevard Phase II ESA**

**St Louis, MO**

**Residential Non-Residential Construction Worker**

<table>
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<tr>
<th>Sample ID</th>
<th>Method METALS (mg/Kg)</th>
<th>Reading PID (mg/Kg)</th>
<th>Soil Type 2</th>
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**APPENDIX B - SOIL SAMPLE RESULTS TABLE**

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**St Louis, MO**

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<td>Naphthalene</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8270</td>
<td>TPH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8270</td>
<td>TPH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8270</td>
<td>Phenanthrene</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8270</td>
<td>Acetone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8270</td>
<td>Toluene</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8270</td>
<td>Naphthalene</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

- U: not detected
- E: Greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
- J: Estimated value below the lowest calibration point. Confidence correlates with concentration.
Ingestion, Inhalation, and dermal contact

Ingestion, Inhalation, and dermal contact

APPENDIX B - SOIL SAMPLE RESULTS TABLE

Table 3
Subsurface Soil Analytical Results - Detected Parameters

<table>
<thead>
<tr>
<th>Sample Site</th>
<th>Soil Type</th>
<th>Parameter</th>
<th>Concentration (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaw Boulevard Phase II ESA St. Louis, MO</td>
<td>Soil Type 2</td>
<td>Pentachlorophenol</td>
<td>-</td>
</tr>
<tr>
<td>Soil Type 2</td>
<td>Soil Type 2</td>
<td>Volatile Organic Compounds</td>
<td>-</td>
</tr>
<tr>
<td>Soil Type 2</td>
<td>Soil Type 2</td>
<td>Total Petroleum Hydrocarbons</td>
<td>-</td>
</tr>
<tr>
<td>Soil Type 2</td>
<td>Soil Type 2</td>
<td>Metals</td>
<td>-</td>
</tr>
<tr>
<td>Soil Type 2</td>
<td>Soil Type 2</td>
<td>Radionuclides</td>
<td>-</td>
</tr>
</tbody>
</table>

Soil Type 2

Detected Parameters

VAPOR ORGANICS/TPH (mg/Kg)

Sampling Depth (ft below surface):

Sampling Date:

Detected Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Concentration (mg/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6010B Carbon</td>
<td>-</td>
</tr>
<tr>
<td>6010B Chlorine</td>
<td>-</td>
</tr>
<tr>
<td>7471 Mercury</td>
<td>-</td>
</tr>
</tbody>
</table>

Method METALS (mg/Kg)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Concentration (mg/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8260B Methyl tert-Butyl ether</td>
<td>-</td>
</tr>
<tr>
<td>8260B Di-n-Butyl ether</td>
<td>-</td>
</tr>
<tr>
<td>8260B 1,2-Dichloroethane</td>
<td>-</td>
</tr>
<tr>
<td>8260B 1,2-Dichloroethene</td>
<td>-</td>
</tr>
<tr>
<td>8260B Di-Isopropyl ether</td>
<td>-</td>
</tr>
<tr>
<td>8260B Methylene chloride</td>
<td>-</td>
</tr>
<tr>
<td>8260B Chloroform</td>
<td>-</td>
</tr>
</tbody>
</table>

Soil Type 2

Residential Indoor Inhalation Target Level for Soil Type 2.

Highlighted = The concentration exceeds the Non-Residential Inhalation Target Level for Soil Type 2.

Italicized = The concentration exceeds the Residential Indoor Inhalation Target Level for Soil Type 2.

NA: not analyzed

E: Greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.

J: Estimated value below the lowest calibration point. Confidence correlates with concentration.

APPENDIX B - SOIL SAMPLE RESULTS TABLE

Table 4
Historical Surface Soil Analytical Results - Detected Parameters

St. Louis, MO

Residential Non-Residential Construction Worker B-3 B-4 TL-1 TL-2

Ingestion, inhalation and dermal contact

Ingestion, inhalation and dermal contact

Ingestion, inhalation, and dermal contact
### Soil Type 2 Soil Type 2 Soil Type 2

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sampling Date</th>
<th>Sampling Depth (ft below surface)</th>
<th>Method</th>
<th>VOLATILE ORGANICS/TPH (mg/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8260B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8270</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- NA: not analyzed
- U: not detected
- Bolded = The concentration exceeds the Residential Inhalation of Vapors Target Level for Soil Type 2.
- Italicized = The concentration exceeds the Non-Residential Indoor Inhalation Target Level for Soil Type 2.
- Highlighted = The concentration exceeds the Construction Worker Ingestion, Inhalation, and Dermal Contact Target Level for Soil Type 2.
- *For the parameters shown, the ingestion pathway has the lowest criteria for all applicable residential pathways.*

### APPENDIX B - SOIL SAMPLE RESULTS TABLE

#### APPENDIX C PHOTOGRAPHIC DOCUMENTATION

Client: Description: Photograph

Number:

Direction: Photographer: Date:

Client: Description: Photograph Number:

Direction: Photographer: Date:

EIERA

1

Jeff Pritchard

Photograph of the front of the 4175 Shaw Boulevard site building.

Northeast 9/11/2015

1

Jeff Pritchard

Photograph of the south portion of the site where underground storage tanks (UST) were previously removed.

West 9/11/2015

2

4175 Shaw Boulevard Site

St. Louis, Missouri

Seagull Project No. EIERA0008TA
Jeff Pritchard
Photograph of the west portion of the site where USTs were previously removed.
South 9/11/2015

3
Jeff Pritchard
Photograph of the back (north side) of the site building.
South 9/11/2015

4
4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA
Client: Description: Photograph
Number:
Direction: Photographer: Date:
Client: Description: Photograph
Number:
Direction: Photographer: Date:
EIERA
EIERA

3
Jeff Pritchard
Photograph of the floor drain to the oil/water separator inside the site building.
West 9/11/2015

5
Jeff Pritchard
Photograph of the floor drain to the oil/water separator inside the site building.
West 9/11/2015

6
4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA
Client: Description: Photograph
Number:
Direction: Photographer: Date:
Jeff Pritchard
Photograph of the interior of the site building.
West 9/11/2015

Jeff Pritchard
Photograph of asbestos-containing flooring (and associated mastic) in the office area of the site building.
North 9/11/2015

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA

Jeff Pritchard
Photograph of the office area that contains asbestos-containing vinyl flooring and mastic.
North 9/11/2015

Jeff Pritchard
Photograph of the interior of the site building.
East 9/11/2015

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA

5

6

7

8
Mr. Kristin Allan Tipton  
P.O. Box 744  
Jefferson City, Missouri 65102

Subject: Remedial Action Plan
4175 Shaw Boulevard Site, St. Louis, Missouri
Missouri Brownfields Revolving Loan Fund Support Contract

Dear Ms. Tipton:

Seagull Environmental Technologies, Inc. (Seagull) is submitting the attached Remedial Action Plan for the 4175 Shaw Boulevard site in St. Louis, Missouri. If you have any questions or comments, please contact the project manager at (913) 220-5887.

Sincerely,

Jeff Pritchard, CHMM
Project Manager

Enclosures

ATTACHMENT B

EIERA0008TA

REMEDIAL ACTION PLAN
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI

Prepared For:
Environmental Improvement and Energy Resources Authority
P.O. Box 744
Jefferson City, Missouri 65102
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1.0 INTRODUCTION
The Tower Grove Neighborhoods Community Development Corporation (TGNCDC) has been awarded a Brownfields Cleanup Grant through the United States Environmental Protection Agency (EPA) and the Environmental Improvement and Energy Resources Authority (EIERA) to address contamination at the 4175 Shaw Boulevard site in St. Louis, Missouri. Specifically, remedial activities will be conducted to address petroleum-contaminated soil, asbestos-containing materials (ACM), and waste oil remaining in an...
oil/water separator. The TGNCDC will use these grant funds to conduct remedial activities at the site as described in this Remedial Action Plan (RAP). Current plans include a complete renovation of the site building and redevelopment of the property for mixed-use purposes. The 4175 Shaw Boulevard site is enrolled in the Missouri Department of Natural Resources (MDNR) Brownfields/Voluntary Cleanup Program (BVCP). This RAP incorporates information specified in the MDNR BVCP Quality Assurance Project Plan (QAPP) to ensure compliance with all quality assurance/quality control (QA/QC) requirements. In accordance with EPA Brownfields Grant requirements, this RAP implements a process of QA/QC protocols consistent with *EPA Requirements for Quality Assurance Project Plans – EPA QA/R-5* (EPA 2001).

### 1.1 SITE LOCATION AND DESCRIPTION

The site is at 4175 Shaw Boulevard in St. Louis, Missouri (see Appendix A, Figure 1). Coordinates for the approximate center of the site are 37.208714 degrees north latitude and 93.279164 degrees west longitude (see Appendix A, Figures 1 and 2). The site contains a 1,670-square-foot (ft²) building that is vacant and in a dilapidated condition. The site building was constructed in the 1920s and has historically been operated as a filling station and auto repair shop. The site is in a mixed-use area of St. Louis. Adjacent to the north and east of the site are residential properties. The site is bounded to the south by Shaw Boulevard with residential structures beyond. Klemm Street bounds the site to the west with Mullanphy Elementary School beyond.

### 1.2 PREVIOUS ASSESSMENTS

Previous assessments completed for the site include a Phase I Environmental Site Assessment (ESA) and three subsequent Phase II ESAs. Reports for the previous assessments are listed below.

1. **EIERA008TA 2**
   - Phase I Environmental Site Assessment of the 4175 Shaw Boulevard Site. SCI Engineering (SCI). October 2013.
   - Phase II Environmental Site Assessment Addendum of the 4175 Shaw Boulevard Site. Terracon. December 11, 2014.
Findings from the previous assessments are summarized below. In October 2013, SCI completed a Phase I ESA for the site. The Phase I ESA noted the presence of fill ports and vent lines, indicators of underground storage tanks (UST). The report also noted the presence of an oil/water separator inside the site building (SCI 2013). The Phase I ESA concluded that a Phase II ESA was warranted to further investigate the Phase I ESA findings.

In February 2014, Terracon completed a Phase II ESA of the site, as well as asbestos and lead-based paint (LBP) inspections of the site building. The Phase II ESA involved the collection of subsurface soil samples and completion of a ground penetrating radar (GPR) survey. Of the soil samples collected, only sample B-1, collected at the western portion of the site, contained total petroleum hydrocarbons - gasoline range organics (TPH-GRO) and naphthalene at concentrations that exceeded their respective Missouri Risk-Based Corrective Action (MRBCA) Tier 1 Risk Based Target Levels (RBTL) established for residential land use - indoor inhalation of vapor emissions. Additionally, the GPR survey identified anomalies suspected to be USTs and associated piping at the site (Terracon 2014a). In December 2014, a Phase II ESA Addendum was completed by Terracon and involved the removal of four USTs from the site (Terracon 2014b). As part of the UST removal, approximately 45 cubic yards (yd³) of petroleum-contaminated soil was transported off site for proper disposal. Closure sampling conducted from the UST excavation pits determined petroleum-related contaminants of concern (COC) were present at concentrations above their respective MRBCA standards. Specifically, the following contaminants (the site COCs) were detected above their MRBCA Tier 1 RBTLs established for residential land use - indoor inhalation of vapor emissions: benzene, ethylbenzene, toluene, xylenes, naphthalene (BTEXN), and TPHGRO.

Figure 2 in Appendix A shows soil sampling locations from the previous investigations. Appendix EIERA008TA 3B includes a table of soil sample results from the previous investigations. In April 2015, a Final Phase II ESA Addendum was completed by Tetra Tech and included the collection of 14 soil samples from 12 borings at the site (Tetra Tech 2015). Of the 14 samples collected, two samples (from locations SB4 and SB8) contained TPH-GRO, naphthalene, and benzene at concentrations above their respective MRBCA Tier 1 RBTLs established for residential land use - indoor inhalation of vapor emissions. SB4 was at the
southern portion of the site, and SB8 was at the western portion of the site, beneath the former location of
UST-1 (see Appendix A, Figure 2).
The contaminants/materials identified as a result of the previous assessments, including petroleum-contaminated
soil, ACM, lead-based paint (LBP), and waste oil in the oil/water separator, are discussed below. As previously mentioned, LBP has been identified at the site; however, cleanup planning for LBP is not addressed in this RAP. The LBP will be addressed during commercial renovation of the building; therefore, those activities will not be conducted under the oversight of the MDNR VCP.

Petroleum-Contaminated Soil
Previous investigations have identified two areas of petroleum-contaminated soil at the site. Those areas are west and south of the building and are associated with USTs formerly located at the site (see Appendix A, Figure 3). Soil samples collected from those areas determined the following contaminants are present at concentrations above their MRBCA Tier 1 RBTLs established for residential land use - indoor inhalation of vapor emissions: BTEXN and TPH-GRO. In general, soil sample results (excluding results for samples from SB4 and SB8) delineated the vertical and horizontal extent of petroleum-related contamination above MRBCA Tier 1 RBTLs established for residential land use (see Appendix B). Table 1 summarizes soil sample results that exceeded MRBCA standards.

TABLE 1
SOIL SAMPLE RESULTS
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Depth Interval (feet bgs)</th>
<th>TPHGRO</th>
<th>TPHDRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bott-2N 7</td>
<td>196,000 189 38.9 1,890 7,020 179 57.3</td>
<td>U 0.124 0.0112 0.0338 0.003</td>
<td></td>
</tr>
<tr>
<td>Bott-2S 7</td>
<td>3,380 U U 0.0124 0.0112 0.0338 0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bott-N Unknown</td>
<td>6,130 34.1 U 17.6 79.7 U U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bott-S Unknown</td>
<td>15,800 U 0.0154 0.142 0.127 NA NA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Benzene Ethylbenzene Naphthalene Xylenes Toluene

January 2014-Phase II ESA
B-1 4-6 1,000 66 U 0.34 0.42 U NA

August 2014-Phase II ESA Addendum

Bott-2N 7 196,000 189 38.9 1,890 7,020 179 57.3
Bott-2S 7 3,380 U U 0.0124 0.0112 0.0338 0.003
Bott-N Unknown 6,130 34.1 U 17.6 79.7 U U
Bott-S Unknown 15,800 U 0.0154 0.142 0.127 NA NA

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Sample ID
Depth Interval (feet bgs)
TPHGRO
TPHDRO
Benzene Ethylbenzene Naphthalene Xylenes Toluene
March 2015-Final Phase II ESA Addendum

<table>
<thead>
<tr>
<th>Material</th>
<th>ID</th>
<th>Method</th>
<th>Concentration (mg/kg)</th>
<th>EPA Limit (mg/kg)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bott-4E</td>
<td>3E</td>
<td>TL-2</td>
<td>3.570</td>
<td>1.34</td>
<td></td>
</tr>
<tr>
<td>TL-2</td>
<td>2</td>
<td>Bott-N</td>
<td>2.050</td>
<td>0.527</td>
<td></td>
</tr>
<tr>
<td>Bott-4E</td>
<td>3E</td>
<td>TL-2</td>
<td>1.40</td>
<td>0.22</td>
<td></td>
</tr>
<tr>
<td>SB4</td>
<td>10</td>
<td>SB8</td>
<td>2,050</td>
<td>27.8</td>
<td>0.038</td>
</tr>
<tr>
<td>SB8</td>
<td>10</td>
<td>SB8</td>
<td>2,050</td>
<td>0.038</td>
<td></td>
</tr>
<tr>
<td>MRBCA DTL (All Soil Types)</td>
<td>385</td>
<td>4,150</td>
<td>0.0561</td>
<td>24.7</td>
<td>29.8</td>
</tr>
<tr>
<td>MRBCA Tier 1 RBTL – Residential Indoor Inhalation of Vapors (Soil Type 2)</td>
<td>720</td>
<td>7,910</td>
<td>0.808</td>
<td>49.6</td>
<td>48.0</td>
</tr>
</tbody>
</table>

Notes:
- All results are reported in milligrams per kilogram.
- Bold results exceed an established MRBCA standard.
- bgs Below ground surface
- J Estimated result
- DRO Diesel range organics
- MRBCA Missouri Risk-Based Corrective Action
- DTL Default Target Level
- NA Not analyzed
- ESA Environmental Site Assessment
- RBTL Risk-Based Target Level
- TPH Total petroleum hydrocarbons
- ID Identification
- U Analyte not detected

Asbestos-Containing Materials

In February 2014, an asbestos inspection was completed and included the collection of 44 samples of structural materials. In all, two materials associated with the site have been determined to contain asbestos. Those materials are vinyl floor tile (two sizes: 9-inch by 9-inch and 12-inch by 12-inch) and vinyl floor tile mastic. The materials determined to contain asbestos are in the office area of the site building. In some areas, there are two layers of ACM flooring/mastic. Those materials contained asbestos (chrysotile) at concentrations ranging from 5 to 10 percent (%) (Terracon 2014c). EPA defines ACM as any material containing asbestos at a concentration above 1%. Seagull conducted a site visit on September 11, 2015, to confirm quantities of ACM. On September 25, 2015, Seagull completed an inspection of the building's roof, which had not been previously completed. That inspection included the collection of 12 samples. Sample results determined that roof flashing (at the roof penetrations) contained chrysotile asbestos at 10%. Based on Seagull's site visit and the roof inspection, some of the quantities of ACM were revised from totals listed in Terracon's asbestos inspection report. Table 2 summarizes the ACM associated with the site building.

TABLE 2
ASBESTOS-CONTAINING MATERIALS
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI

Material Location Asbestos Result (%) Estimated Quantity (ft²)

12” x 12” green floor tile
Office-over 9"x 9"
brown floor tile
5 % Chrysotile
350
9” x 9” brown floor tile
and black mastic
Office
5 % Chrysotile
Black Mastic-5 % Chrysotile
9” x 9” red floor tile and
black mastic
Office-beneath 12” x
12” green floor tile
10 % Chrysotile
Black Mastic-5 % Chrysotile
12” x 12” brown floor tile
and yellow and black
mastic
Office
5 % Chrysotile
Black Mastic-5 % Chrysotile
Roof flashing Roof penetrations 10 % - Chrysotile 18

Notes:
" Inch
% Percent
ft² Square feet

Lead-Based Paint
As previously mentioned, LBP will not be addressed as part of the cleanup activities addressed
in this RAP. In February 2014, an LBP inspection was completed with an x-ray fluorescence
spectrometer (XRF). Paint-covered surfaces indicated by the XRF to contain lead at a concentration equal to
or greater than (> 1 milligram per square centimeter (mg/cm²) were considered LBP. The inspection
identified LBP on interior and exterior components associated with the site building. Lead concentrations on
those components ranged from 1.0 to 8.4 mg/cm² (Terracon 2014d). Interior components associated
with the site building determined to contain LBP were concrete block and plaster walls, wood trim, wood
window frames, wood doors and associated frames, and wood framed garage (overhead) doors. The
north and south exterior walls of the site building were also determined to contain LBP. The south exterior
contains a plaster/stucco finish, while the north exterior is concrete block. Table 3 summarizes the
materials
containing LBP, including quantities.

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TABLE 3

MATERIALS CONTAINING LEAD-BASED PAINT

4175 SHAW BOULEVARD SITE

ST. LOUIS, MISSOURI

Location Substrate Paint Color Estimated Quantity (ft^2)

**Building Interior**

- Office - east window frame Wood White 20
- Office - east wall Plaster Blue 60
- Garage - north block wall Concrete Block Gray-Green 598
- Garage - east block wall Concrete Block Blue 100
- Garage - east block wall Concrete Block White 100
- Garage - south block wall Concrete Block Blue 20
- Garage - south block wall Concrete Block White 150
- Garage - west overhead door wood frame Wood White-Blue 40
- Garage - east overhead door wood frame Wood White 40
- Garage - walk-in door Wood White 25
- Garage - walk-in-door frame Wood Blue 20
- Garage - window frame to office Wood White 20
- Garage - window sill (window to office) Wood White 3
- Garage - west block wall (adjoining office) Concrete Block White 150
- Garage - west block wall (adjoining office) Concrete Block Blue 156
- Garage - east overhead door Wood Blue 96
- Garage - west overhead door Wood Blue 96
- Garage - overhead door on west wall Wood Gray 96

**Building Exterior**

- Exterior - south plaster wall Plaster White 644
- Exterior - north plaster wall Concrete Block White 644

Notes:

- ft^2: Square feet
- Waste Oil in Oil/Water Separator
  The Phase I ESA identified an oil/water separator in the northwest portion of the building. No sampling or characterization of materials inside the separator have occurred. Seagull completed a visual inspection of the separator during the September 11, 2015, site visit. That inspection determined the separator contains about 3 feet of waste oil. The total volume of waste oil is not known, because the size of the separator could not be determined.

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2.0 PROJECT ORGANIZATION

This section summarizes the project organization for the remedial action.

2.1 RESPONSIBLE AGENCY

The TGN CDC is a sub-grantee to EIERA for this project. MDNR is providing the primary technical review of this RAP, as the site is currently enrolled in the MDNR BVCP program.

2.2 PROJECT PERSONNEL AND SCHEDULE

Persons involved at this site and their roles and/or responsibilities are included in Table 4 below. Table 5
below outlines the tentative project schedule.

**TABLE 4**
**PROJECT PERSONNEL**
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI
**Title** **Name** **Responsibilities** **Phone Number**
EIERA Director of Development
Kristin Allan Tipton
Overall Brownfields project management
573-751-4919
EPA Project Officer Devin Pollock
General project coordination and programmatic oversight
913-551-7275
MDNR BVCP Project Manager
Brian McCurren
General project coordination and programmatic oversight, technical reviews, and approvals
573-522-9080
TGNCDC Sean Spencer
General project coordination and oversight
314-583-9436
Remediation Contractor To be determined
Conduct remedial activities, arrange disposal, document site activities, review and validate laboratory data, and complete Remedial Action Completion Report
To be determined

**TABLE 5**
**PROJECT SCHEDULE**
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI
**Task** **Anticipated Completion** **Timeline**
MDNR review, revision, and approval of Remedial Action Plan Determined by MDNR
EIERA008TA 8

**Task Anticipated Completion Timeline**
Field activities completed To be determined
Submission of draft Remedial Action Completion Report Within 45 days of completion of field activities
Review, revision, and submission of final Remedial Action Completion Report
Within 10 days of EIERA approval of draft report

Notes:
EIERA Environmental Improvement and Energy Resources Authority
Copies of the final RAP will be distributed as indicated below. Additionally, the remediation contractor will distribute the Remedial Action Completion Report to the same contacts.

Missouri Department of Natural Resources
Brownfields / Voluntary Cleanup Program
P.O. Box 176
1738 E. Elm Street
Jefferson City, Missouri 65102
Attn: Mr. Brian McCurren

Tower Grove Neighborhoods Community Development Corporation
4103 Shenandoah Avenue
St. Louis, Missouri 63110
Attn: Mr. Sean Spencer

Environmental Improvement and Energy Resources Authority
P.O. Box 744
Jefferson City, Missouri 65102
Attn: Ms. Kristin Allan Tipton

U.S. Environmental Protection Agency
Region 7 Brownfields Program
11201 Renner Boulevard
Lenexa, Kansas 66219
Attn: Mr. Devin Pollock

3.0 PROJECT OBJECTIVES AND CLEANUP RATIONALE
The purpose of this RAP is to outline the specific field procedures that will be applied to address remedial activities planned for the site and ensure generation of data usable for final determinations regarding postremediation site conditions. Through these specific efforts, BVCP cleanup requirements will also be addressed in a manner that allows for No Further Action consideration by MDNR, as addressed in the MRBCA Technical Guidance (MDNR 2006).

Specific activities conducted during the remedial action to ensure and document achievement of the project objectives include:
- Comprehensive oversight and documentation of remedial activities.
- Collection of post-cleanup clearance samples for laboratory analysis to ensure attainment of cleanup goals.
- Preparation of a Remedial Action Completion Report summarizing field and disposal activities.

The tasks referenced above will be supported through application of relevant Standard Operating Procedures (SOP), EPA technical guidance documents, and industry-accredited analytical methods.

3.1 PROBLEM DEFINITION AND SAMPLING OBJECTIVE
Previous assessments have determined that petroleum-contaminated soil, ACM, and waste oil in an oil/water separator are present at the site. For reference, Appendix D contains photographs that show the
site, as well the areas/building components that contain ACM and the oil/water separator. Future plans for the site involve renovation of the site building for mixed-use purposes. The primary objective of the remedial action is to remove and properly dispose of hazardous materials that pose a health threat to future occupants and could impede redevelopment. Achieving this project objective, while conducting the remedial action in accordance with BVCP cleanup requirements, should allow for unrestricted use of the property and No Further Action consideration by MDNR.

3.2 PROJECT DESCRIPTION
This remedial action will remove petroleum-contaminated soil, ACM, and waste oil. Confirmation sampling will be conducted to ensure site cleanup and regulatory clearance goals have been achieved.

4.0 PROJECT QUALITY OBJECTIVES
The following sections describe the project quality objectives for the remedial action.

4.1 REVIEW AND APPROVAL ASSISTANCE
The remedial action for this site is designed to be implemented under the MDNR BVCP. The site is enrolled in the MDNR BVCP.

4.2 ADOPTION OF STATE QUALITY ASSURANCE PROJECT PLAN
This RAP adopts the MDNR Quality Assurance Project Plan for Brownfields/Voluntary Cleanup Program Sites (see Appendix E), and incorporates a Site-Specific Quality Assurance Addendum (SSQA) to the QAPP (see Appendix F). This is allowed for environmental data collection for confirmatory sampling following remedial activities, as described in Section A.6.3 Remedial Action Plans/Risk Management Plans of the MDNR QAPP.

4.3 DATA QUALITY OBJECTIVES
The primary data quality objective (DQO) is to provide valid data of demonstrated and documented quality to accurately verify the effectiveness of remedial activities by the collection of confirmation samples and laboratory verification analyses. Quality objectives will be realized through field and laboratory methods consistent with standard industry practice, applicable EPA analytical requirements, and the specific procedures outlined herein. Data quality will be further demonstrated through laboratory quality control reviews with regard to specific data quality indicators as discussed in the following section. This approach will allow for defensible project decisions regarding the overall degree of environmental impact and associated risk. Standard industry QA/QC protocols will be followed to ensure generation of data usable for final determinations regarding post-abatement site conditions and subsequent response action, if
necessary. The MDNR QAPP and SSQA discuss QA/QC procedures in more detail. Additional details regarding specific quality control procedures are presented in Section 7.0.

5.0 REMEDIAL ACTION TASKS

The sections below discuss remedial action activities planned for the site concerning petroleum contaminated soil, ACM, and waste oil in the oil/water separator.

5.1 PETROLEUM-CONTAMINATED SOIL REMOVAL ACTIVITIES

At the time this RAP was developed, a remediation contractor had not been chosen for the removal of petroleum contaminated soil at the site. Once a remediation contractor is chosen, the TGNCDC will provide the name of that contractor to the MDNR BVCP Project Manager for this site. Specific plans for the petroleum contaminated soil will involve excavation and proper disposal. Removal activities will follow all applicable federal, state, and local regulations. The remediation contractor will be responsible for obtaining any applicable permits.

This section discusses the proposed excavation activities, based on findings from previous investigations.

Excavation is planned to remove and properly dispose of all soil containing COCs (BTEXN and TPHGRO) above their respective Tier 1 RBTLs established for residential land use. Removal of the petroleum contaminated soil will be achieved through excavation using heavy equipment. Overlying asphalt and concrete pavement will be removed and excavation of soil will be completed as described below. Figure 3 in Appendix A shows the proposed excavation areas (Areas #1 and #2) at the site. Area #1 is approximately 350 ft² in size and Area #2 is approximately 510 ft² in size; therefore, the total area planned for excavation encompasses approximately 860 ft².

Soil Management and Disposal Characterization

During the site cleanup, excavated soil will be loaded directly into dump trucks for off-site transport and disposal at the appropriate landfill. The remediation contractor will arrange for soil disposal prior to commencing excavation activities. Figure 3 in Appendix A shows the two areas of petroleum contaminated soil and the average depth of excavation that is anticipated to be required to remove soil with COCs above their respective Tier 1 RBTLs established for residential land use. Based on the total area of excavation (860 ft²) and the anticipated depths of excavation, approximately 281 yd³ of soil will be excavated for disposal.

To ensure that contaminated soil/dust is not allowed to migrate from the site by wind and rain, best management practices will be implemented. Disposal profile analyses (Toxicity Characteristic Leaching Procedure [TCLP] analysis, etc.) will be
conducted as requested by the landfill. It is anticipated that analysis for TCLP volatile organic compounds (VOC) and metals regulated under the Resource Conservation and Recovery Act (RCRA) would be required. If unexpected subsurface conditions are encountered during the cleanup, alternative sampling and disposal procedures will be discussed with TGN CDC and MDNR, and changes will be implemented accordingly.

Documentation of soil excavation activities, including locations and depths, will be critical for completion of the Remedial Action Completion Report and future understanding of site conditions. The remediation contractor will be responsible for documenting excavation activities.

**Air Monitoring**

During the removal activities, the remediation contractor will conduct real-time air monitoring for VOCs at the site and along the site perimeter to evaluate whether airborne concentrations may be at levels that pose a health threat to on-site workers and the surrounding population. Exact monitoring locations and time periods will be determined in the field, based on the judgment of the remediation contractor’s Project Manager. Real-time air monitoring for VOCs will be conducted with a photoionization detector (PID). Real-time air monitoring concentrations for VOCs will be compared to the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) for COCs. OSHA PELs are 8-hour exposure limits established for worker protection. If real-time air monitoring readings for COCs exceed their respective OSHA PEL, the remediation contractor Project Manager will make decisions/corrective actions to ensure the safety of site workers and nearby residents.

### 5.1.1 Post-Excavation Confirmation Sampling

Following the excavation of petroleum-contaminated soil, confirmation sampling will be conducted, involving the collection of 12 grab samples of soil. Confirmation sampling will be conducted to ensure remaining soil contains COCs at concentrations below applicable MRBCA Tier 1 RBTLS established for residential land use. Specifically, six samples will be collected from each of the areas of petroleum-related contamination (Areas #1 and #2). From each area, sampling will involve the collection of two samples from the floor of the excavation and one sample from each wall (four samples). The grab samples from the floor of each excavation will be collected at the excavation base. Samples from the excavation walls will
be collected from approximately 1 foot above the base of the excavation. Figure 4 in Appendix A shows
the proposed confirmation soil sample locations. Each sample will be collected using a stainless steel
trowel. Soil samples for analysis of VOCs (specifically BTEXN) and TPH-GRO will be collected
following EPA Method 5035, which will involve placing approximately 5 grams of soil into two
40-
milliliter (mL) volatile organic analysis (VOA) vials pre-preserved with trisodium phosphate and one 40-
mL VOA vial pre-preserved with methanol. The samples will be labeled immediately and stored in a
cooler at or below 4 degrees Celsius (°C) until being received by the analytical laboratory. Table 6 below
summarizes the anticipated confirmation soil sampling.

EIERA008TA 13

**TABLE 6**

<table>
<thead>
<tr>
<th>CONFIRMATION SOIL SAMPLING</th>
</tr>
</thead>
<tbody>
<tr>
<td>4175 SHAW BOULEVARD SITE</td>
</tr>
<tr>
<td>ST. LOUIS, MISSOURI</td>
</tr>
</tbody>
</table>

**Location**

<table>
<thead>
<tr>
<th>Description</th>
<th>Approximate Number of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation Floor</td>
<td></td>
</tr>
<tr>
<td>Floor of Excavation</td>
<td></td>
</tr>
<tr>
<td>Areas</td>
<td></td>
</tr>
<tr>
<td>2 per Excavation Area</td>
<td>(4 Total)</td>
</tr>
<tr>
<td>BTEXN and TPH-GRO</td>
<td></td>
</tr>
<tr>
<td>Excavation Walls</td>
<td></td>
</tr>
<tr>
<td>4 per Excavation Area</td>
<td>(12 Total)</td>
</tr>
<tr>
<td>BTEXN and TPH-GRO</td>
<td></td>
</tr>
<tr>
<td>Excavated Soil</td>
<td></td>
</tr>
<tr>
<td>Contaminated Soil</td>
<td></td>
</tr>
<tr>
<td>- Excavated for Disposal</td>
<td>1</td>
</tr>
<tr>
<td>TCLP VOCs and RCRA</td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

BTEXN Benzene, toluene, ethylbenzene, xylenes, and naphthalene TCLP Toxicity Characteristic Leaching Procedure
GRO Gasoline range organics TPH Total petroleum hydrocarbons
RCRA Resource Conservation and Recovery Act VOC Volatile organic compound

**5.1.2 Cleanup Criteria**

Confirmation sample results will be compared to MRBCA Tier 1 RBTLs for residential subsurface soil,
specific for Soil Type 2 (silty soil) (as determined by grain size analysis performed as part of previous
assessments). Subsurface soil comparison will be made because excavation in all areas will be deeper than
3 feet below ground surface (bgs). As previously mentioned, unrestricted use (residential land use) is the
cleanup goal; however, based on project budget and post-excavation sample results, it may be determined
that residential standards are not achievable. Therefore, the cleanup goal may be amended to nonresidential standards. Cleanup target levels for site soils (both residential and non-residential) are listed in Table 7 below.

**TABLE 7**

**SOIL CLEANUP TARGET LEVELS**

**4175 SHAW BOULEVARD SITE**

**ST. LOUIS, MISSOURI**

**Contaminant of Concern**

**Cleanup Target Levels (mg/kg)**

**Tier 1 RBTL - Residential Tier 1 RBTL – Non-Residential**

**Subsurface Soil Subsurface Soil**

<table>
<thead>
<tr>
<th>Contaminant of Concern</th>
<th>Tier 1 RBTL - Residential</th>
<th>Tier 1 RBTL – Non-Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>0.808</td>
<td>4.23</td>
</tr>
<tr>
<td>Toluene</td>
<td>992</td>
<td>7,980</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>376</td>
<td>3,020</td>
</tr>
<tr>
<td>Xylenes</td>
<td>48</td>
<td>386</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>49.6</td>
<td>260</td>
</tr>
<tr>
<td>TPH-GRO</td>
<td>720</td>
<td>5,790</td>
</tr>
</tbody>
</table>

**Notes:**

- EIERA008TA 14
- All RBTLs are for Soil Type 2 (silty soil) - indoor inhalation of vapor emissions.
- GRO Gasoline range organics
- mg/kg Milligrams per kilogram
- RBTL Risk-Based Target Level
- TPH Total petroleum hydrocarbons

**5.1.3 Site Restoration**

Site restoration related to soil excavation will be accomplished after confirmation sampling verifies the site has met the established cleanup goals as discussed in Section 5.1.2. The excavated area will be restored to pre-cleanup conditions (backfilled) to ensure proper drainage.

**5.2 ACM ABATEMENT ACTIVITIES**

At the time this RAP was developed, a contractor had not been chosen for the abatement of ACM at the site. The TGNCDC will ensure the abatement contractor is licensed in the State of Missouri, and meets all certification requirements. Prior to commencing any site activities, the remediation contractor will provide copies of all applicable licenses, certifications, and notifications to MDNR. General descriptions of abatement techniques to be used on ACM identified at the site are listed below. Abatement activities will follow all applicable federal, state, and local regulations. It should be noted that if additional ACM (or other contaminants) are discovered during the abatement, work will stop, and actions to address the newly identified contaminants/materials will be discussed with MDNR, EIERA, and TGNCDC.

**5.2.1 ACM Abatement Techniques**

As previously discussed, three materials associated with the site have been determined to contain asbestos.
Those materials are vinyl floor tile (two sizes: 9-inch by 9-inch and 12-inch by 12-inch) and vinyl floor tile mastic.

For this remedial action, all of the ACM will be removed and properly disposed of. Abatement of the vinyl floor tile/mastic and roof flashing is considered Class II removal. The general industry standard abatement techniques for removal of those materials are described below.

- A regulated area will be established. Because a negative exposure assessment has not been performed to address this activity, critical barriers will be established.
- Removal of floor tiles and associated mastic will proceed with attempts to remove individual tiles as complete units, thus limiting fiber release. Roof flashing will be cut out in sections. Misting of the work area with water will help prevent exposure to asbestos fibers released during removal.
- The removed materials will be placed (without additional breakage) in 6-mil poly bags for disposal, and properly labeled as contaminated waste.
- All other industry standards (for wet methods, high-efficiency particulate air [HEPA] vacuums, etc.) and OSHA, National Emissions Standards for Hazardous Air Pollutants (NESHAP), state, and local regulations will be followed during the abatement.

5.2.2 ACM Clearance Inspection
Following the completion of abatement activities, the remediation contractor and a representative from TGN CDC will conduct a visual survey to ensure no ACM remains. Because the ACM is non-friable, the collection of clearance air samples is not required. The remediation contractor will conduct personal air monitoring of abatement workers, as required by OSHA. This sampling is not addressed in this RAP.

5.2.3 ACM Abatement Clearance Criteria
The ACM abatement will not be deemed complete until the visual survey has been completed. Photographs of the abated areas will be collected for documentation purposes.

5.3 WASTE OIL IN OIL/WATER SEPARATOR
Remedial activities will involve proper removal/disposal of the waste oil in the oil/water separator. A qualified waste management company will pump the waste oil from the separator into a vacuum truck. Following removal of the waste oil, the separator will be cleaned as needed by the waste management company to ensure no waste oil/residue remains in the oil/water separator. Any disposal profiling required will be completed by the waste management company. Disposal documentation will be maintained by the remediation contractor and will be provided with the Remedial Action Completion Report.

5.3.1 Clearance Criteria for Waste Oil Removal
Following the removal of waste oil and cleaning of the oil/water separator, a visual survey will be conducted to ensure no oil remains in the oil/water separator. It is not anticipated that any sampling will be conducted related to removal/disposal of the waste oil.
5.4 QUALITY ASSURANCE/QUALITY CONTROL SAMPLING
To evaluate sample QC, one soil trip blank (laboratory prepared) and one soil field duplicate will be submitted for laboratory analysis during the project. The soil trip blank and field duplicate will be analyzed for BTEXN and TPH-GRO. Collection of the soil duplicate will be representative of approximately 10% of the total number of soil samples, which is in accordance with MDNR BVCP requirements.

5.5 LABORATORY METHODS AND SAMPLE HANDLING
Soil samples collected during the cleanup activities will be submitted to a MDNR-approved laboratory. The COCs associated with the soil are BTEXN and TPH-GRO. Table 8 below summarizes the analytical methods.

**TABLE 8**
LABORATORY METHODS AND SAMPLE CONTAINER SUMMARY
4175 SHAW BOULEVARD SITE
ST. LOUIS, MISSOURI

<table>
<thead>
<tr>
<th>Laboratory Analysis</th>
<th>Analytical Method</th>
<th>Container Holding Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEXN and TPH-GRO</td>
<td>8260B</td>
<td>40-milliliter glass vials with TSP (2) and 40-milliliter glass vial with methanol (1); cool to 4 °C 14 days</td>
</tr>
<tr>
<td>TCLP VOCs</td>
<td>1311 (for extraction); 8260B (for analysis)</td>
<td></td>
</tr>
<tr>
<td>8-ounce glass jar with zero headspace; cool to 4 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 days to extract; 14 days to analyze after extraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCLP RCRA Metals</td>
<td>1311 (for extraction); 6010D (for analysis)</td>
<td></td>
</tr>
<tr>
<td>8-ounce glass jar; cool to 4 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>180 days to extract; 180 days to analyze after extraction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
° Degrees TCLP Toxicity Characteristic Leaching Procedure
BTEXN Benzene, toluene, ethylbenzene, xylenes, and naphthalene TSP Trisodium phosphate
C Celsius TPH Total petroleum hydrocarbons
GRO Gasoline range organics VOC Volatile organic compounds
RCRA Resource Conservation and Recovery Act
Standard detection limits will be adequate for this project. Appropriate containers and physical/chemical preservation techniques will be employed during the field activities to help verify that representative
analytical results are obtained. During the cleanup activities, a 24-hour turnaround time (TAT) for analysis may be requested to ensure project progress is not impeded while awaiting laboratory results.

5.6 WASTE CHARACTERIZATION AND DISPOSAL
The remediation contractor will be responsible for properly disposing of wastes generated during cleanup activities. Excavated soil will be disposed of as Special Waste at the nearest available landfill that is approved to accept the removed materials. The removed ACM will be disposed of at an approved landfill as non-friable asbestos-containing waste. The waste oil will be transported off site by the waste management company for proper disposal or recycling. During transport, removed waste will be covered. Total volume of waste disposed of at the landfill/disposal facility will be documented on weight tickets or on waste manifests. If different site conditions are encountered during the cleanup, work will stop and alternative sampling and disposal procedures will be discussed with MDNR and changes will be implemented accordingly.

5.7 DECONTAMINATION AND INVESTIGATIVE WASTES
Sampling equipment will be cleaned and decontaminated consistently to maintain sample quality. Specifically, non-dedicated equipment that comes in contact with potentially contaminated media will not be reused prior to decontamination, which will consist of a wash with Alconox solution using a stainless steel or nylon brush, followed by a tap water rinse. Field personnel will wear disposable gloves during the decontamination process for personal protection and to prevent cross-contamination. In general, field activities will be conducted to minimize investigation-derived wastes (IDW) to the extent possible without compromising project objectives. Based on the proposed scope of work, most IDW is expected to consist of disposable sampling supplies (gloves, paper towels, etc.) that will be disposed of off site as uncontaminated solid waste. The remediation contractor will be responsible for properly disposing of IDW generated during cleanup activities.

6.0 FIELD DOCUMENTATION
This section discusses field documentation that will be maintained and recorded during project activities.

6.1 PROJECT REMEDIAL ACTION PLAN
A copy of the RAP will be maintained by the remediation contractor at all times. Prior to field mobilization, the remediation contractor will hold a meeting to review field procedures with the project staff.

6.2 FIELD LOGBOOK
A logbook will be used by the remediation contractor to document field activities. Field logs will be
documented in ink, with any corrections crossed out and initialed. The logbook will document daily field activities in chronological order with regard to the following general procedures:

- Observed site conditions
- Sample collection information
- Problems encountered and sampling plan deviations (if any)
- Photographic descriptions
- Other information related to field procedures.

6.3 PHOTO-DOCUMENTATION
Photographs of the site activities and general field procedures will be taken to further document the remedial efforts. These records will serve to support information entered in the field logbook and visually document the remedial activities. The following information will be recorded in the field logbook with regard to each photograph:

- Time, date, and direction
- Subject description
- Photographer.

6.4 SOIL SAMPLING LOCATIONS AND MEASUREMENTS
The excavation areas will be measured from at least two reference point identifiers (streets, buildings, etc.). Location measurements will be recorded and sketched in the field logbook and on scaled maps. Sample points will be recorded by both field measurements and global positioning system (GPS) coordinates.

7.0 QUALITY CONTROL
Cleanup activities will be performed consistent with the QA/QC requirements outlined in this RAP, SSQA and MDNR BVCP QAPP. EPA Region 7 and Environmental Response Team (ERT) SOPs will serve as additional guidance documents for certain field and laboratory procedures. Specific quality control measures will include the collection of blank/duplicate samples, implementation of standard chain-of-custody protocols, and adherence to standardized field and laboratory methods per this RAP and the SSQA/QAPP. Sample data will be systematically reviewed and validated consistent with the SSQA and MDNR BVCP QAPP to further document data quality and usability. Data validation will consist of a complete review of field and laboratory methods and associated documentation relative to the approved RAP and MRBCA Technical Guidance. This process will be initiated immediately upon completion of field activities and will be completed prior to development of the final report. At a minimum, the data validation process will address the following:
Quality objectives and data measurement criteria
Sampling process design
Sampling methods
Sample handling and custody requirements
Quality control requirements.

8.0 PROJECT SAFETY AND TRAINING
This section discusses project safety and training requirements.

8.1 SPECIAL TRAINING REQUIREMENTS/CERTIFICATION
Field personnel and others directly involved in this project will be required to read and remain familiar with this RAP. It will be the responsibility of the remediation contractor to ensure that all necessary personnel have reviewed and understand the RAP and proposed field activities. Field staff and the selected remediation contractor will possess the appropriate OSHA training certificates, as well as state-required asbestos certifications.

8.2 HEALTH AND SAFETY PLAN
A site-specific Health and Safety Plan (HASP) will be prepared by the remediation contractor. The HASP will be submitted to the MDNR BVCP Project Manager for review prior to commencing any site activities. Field procedures will be performed consistent with the HASP to promote field safety throughout the duration of the project. Field personnel will be required to read and sign the HASP prior to performing any activities at the site. In addition, daily safety meetings will be performed every morning prior to the start of activities by the remediation contractor.

8.3 UTILITY CLEARANCE
The remediation contractor will request marking of underground utility lines by contacting the Missouri One-Call system no less than 72 business hours prior to initiating field activities. Utility clearance documentation will be kept on site throughout the duration of field activities. Additional safety precautions will address the presence of overhead utilities. Proper management and safety around overhead utilities is the responsibility of the excavation contractor.

8.4 EXCAVATION AREAS
The soil excavation areas will be clearly marked, taped off, or temporarily fenced following completion of each day’s field activities. The specific security measures applied will be based, in part, on the depth of the soil excavation. In addition, excavation sidewalls will be sloped to prevent generation of confined spaces and to limit potential falls for those entering the excavation areas. If necessary, dust generation will be minimized through water application to excavated soils and/or the excavation areas.

9.0 PROJECT REPORTING
The remediation contractor will complete a draft Remedial Action Completion Report for review by MDNR, TGNCDC, and EIERA upon completion of the field, laboratory, and data validation activities. Copies of the Remedial Action Completion Report will be distributed in accordance with Section 2.2. The Remedial Action Completion Report will include the following:

- General site description and photographic documentation
- Discussion of field and laboratory methods
- Site and sample location diagrams
- Analytical data summary tables
- Complete laboratory data report, including field sheets and chain-of-custody records
- Cleanup target level comparison
- General excavation documentation
- Remedial action conclusions and recommendations.

10.0 ASSUMPTIONS AND WORK PLAN DEVIATIONS

This RAP assumes that site conditions will allow the proposed site activities to occur in a timely and safe manner. If site conditions will not allow activities to occur safely and as planned, or if site conditions, field observations, or field data suggest that modified strategies are warranted to achieve project goals, minor modifications may be applied at the direction of EIERA/TGNCDC and/or the remediation contractor. Field notes and report discussions will document any modifications to this plan. Alternative methods beyond the specified scope and intent of this RAP will not be applied prior to approval by EIERA and MDNR.

11.0 REFERENCES


Terracon. 2014b. Phase II Environmental Site Assessment Addendum of the 4175 Shaw Boulevard Site. December 11.


APPENDIX A
FIGURES

^ Site Location
Copyright © 2013 National Geographic Society, i-cubed

Figure 1
Site Location Map
Date: October 2015 Project No: EIERA0008TA
4175 Shaw Boulevard Site
St. Louis, Missouri
Source: USGS Webster Groves, MO 7.5 Minute Topo Quad, 1975

0 1,000 2,000 3,000 4,000 Feet
Seagull Environmental Technologies, Inc.
St. Louis City

Figure 2
Previous Investigations Map
Date: October 2015 Project No: EIERA0008TA
4175 Shaw Boulevard Site
St. Louis, Missouri
Source: Phase II ESA Addendum, Tetra Tech

Not to scale
"/

Area #1
Figure 3
Areas of Petroleum-Contaminated Soil
Date: October 2015 Project No: EIERA0008TA
4175 Shaw Boulevard Site
St. Louis, Missouri
Source: East West Gateway 6 inch Orthophotography, 2012

Legend
"/ Oil/Water Separator
Excavation Area
Excavation Area Depths
14 feet
13 feet
8 feet
7 feet
"/

Area #1
(350 ft²)
Area #2
(510 ft²)
Figure 4
Proposed Confirmation Soil Sample Locations
Date: October 2015 Project No: EIERA0008TA
4175 Shaw Boulevard Site
St. Louis, Missouri
Source: East West Gateway 6 inch Orthophotography, 2012

![Figure 4](image)

Legend

/ Proposed Confirmation Soil Sample Locations
" Oil/Water Separator

Excavation Area

APPENDIX B
SOIL SAMPLE RESULTS TABLE

<table>
<thead>
<tr>
<th>Table 3 Subsurface Soil Analytical Results - Detected Parameters</th>
</tr>
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<tbody>
<tr>
<td>Shaw Boulevard Phase II ESA</td>
</tr>
<tr>
<td>St Louis, MD</td>
</tr>
<tr>
<td>Residential Non-Residential Construction Worker</td>
</tr>
<tr>
<td>Indoor Inhalation of Vapor</td>
</tr>
<tr>
<td>Indoor Inhalation of Vapor</td>
</tr>
<tr>
<td>Ingestion, Inhalation and Dermal Contact</td>
</tr>
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<td>Soil Type 2 Soil Type 2 Soil Type 2</td>
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<table>
<thead>
<tr>
<th>Method</th>
<th>METALS (mg/Kg)</th>
<th>VOLATILE ORGANICS (mg/Kg)</th>
<th>Organics (ppm)</th>
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<tbody>
<tr>
<td>TPH-GRO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TPH-DRO</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>8260B Benzene</td>
<td>0.808</td>
<td>0.62</td>
<td>1.820</td>
</tr>
<tr>
<td>8260B Ethylbenzene</td>
<td>376</td>
<td>3.02</td>
<td>58.100</td>
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<tr>
<td>8260B Naphthalene</td>
<td>49.6</td>
<td>2.66</td>
<td>215</td>
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<td>8260B Toluene</td>
<td>992</td>
<td>7.98</td>
<td>138,000</td>
</tr>
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<td>8260B Xylenes, Total</td>
<td>48.0</td>
<td>3.86</td>
<td>7,210</td>
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<td>8260B Acetone</td>
<td>7,060</td>
<td>56.70</td>
<td>208,000</td>
</tr>
<tr>
<td>8260B Chrysene</td>
<td>361,000</td>
<td>1,890,000</td>
<td>74,800</td>
</tr>
<tr>
<td>8260B Flouranthene</td>
<td>16,100,000</td>
<td>13,000,000</td>
<td>45,100</td>
</tr>
<tr>
<td>8260B Phenanthrene</td>
<td>188,000</td>
<td>1,510,000</td>
<td>30,100</td>
</tr>
<tr>
<td>8260B Pyrene</td>
<td>18,300,000</td>
<td>147,000,000</td>
<td>34,400</td>
</tr>
<tr>
<td>8260B 1,2-Dibromoethane</td>
<td>0.188</td>
<td>0.988</td>
<td>77.4</td>
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<td>8260B 1,2-Dichloroethane</td>
<td>0.340</td>
<td>1.78</td>
<td>351</td>
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<td>Di-Isopropyl ether</td>
<td>70.3</td>
<td>565</td>
<td>25,200</td>
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<td>Methyl tert-Butyl ether</td>
<td>60.5</td>
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<td>165,000</td>
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<tr>
<td>Arsenic</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Barium</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Cadmium</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Chromium (total)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
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<td>4.17</td>
<td>33.5</td>
<td>21.6</td>
</tr>
<tr>
<td>Selenium</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Lead</td>
<td>260</td>
<td>660</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Notes:

U: not detected
NA: not analyzed

Bolded = The concentration exceeds the Residential Inhalation of Vapors Target Level for Soil Type 2.

Italicized = The concentration exceeds the Non-Residential Indoor Inhalation Target Level for Soil Type 2.

Highlighted = The concentration exceeds the Construction Worker Ingestion, Inhalation, and Dermal Contact Target Level for Soil Type 2.

Shaw Boulevard 1 of 6 Tetra Tech, Inc.

APPENDIX B - SOIL SAMPLE RESULTS TABLE

1

Table 3 Subsurface Soil Analytical Results - Detected Parameters
Shaw Boulevard Phase II ESA
St Louis, MD
Residential Non-Residential Construction Worker

<table>
<thead>
<tr>
<th>Indoor Inhalation of Vapor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Inhalation of Vapor</td>
</tr>
<tr>
<td>Ingestion, Inhalation, and Dermal Contact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Type 2 Soil Type 2 Soil Type 2</th>
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</thead>
<tbody>
<tr>
<td>PID</td>
</tr>
</tbody>
</table>
### Table 2

#### Subsurface Soil Sample Results Table

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Readings (ppm) (mg/Kg) (mg/l) (mg/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium (total)</td>
<td></td>
<td>6.22 8.9 0.39</td>
</tr>
<tr>
<td>Cadmium</td>
<td></td>
<td>0.143</td>
</tr>
<tr>
<td>Arsenic</td>
<td></td>
<td>6.22 8.9 0.39</td>
</tr>
<tr>
<td>Barium</td>
<td></td>
<td>0.0338</td>
</tr>
<tr>
<td>Lead</td>
<td></td>
<td>34.1 21 22.2</td>
</tr>
<tr>
<td>Volatile Organics/TPH</td>
<td></td>
<td>0.00736</td>
</tr>
<tr>
<td>Methanol</td>
<td></td>
<td>7,060</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td></td>
<td>376</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>301</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td></td>
<td>147,000,000</td>
</tr>
<tr>
<td>Benzene</td>
<td></td>
<td>147,000,000</td>
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<td>TPH</td>
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<td>147,000,000</td>
</tr>
<tr>
<td>Lead</td>
<td></td>
<td>2,810</td>
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<tr>
<td>Barium</td>
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<td>188,000</td>
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<tr>
<td>Chlorinated</td>
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<td>70.3</td>
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<td>Toluene</td>
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<td>Non-Detected Parameters</td>
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<td>0.808</td>
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</tbody>
</table>

Notes:
- **NA**: not analyzed
- **U**: not detected
- **E**: greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
- **GRO**: Soil Type 2.
- **DVP**: Soil Type 2

**Table 3**

#### Subsurface Soil Analytical Results - Detected Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Readings (ppm) (mg/Kg) (mg/l) (mg/Kg)</th>
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</thead>
<tbody>
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<tr>
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<td></td>
<td>0.143</td>
</tr>
<tr>
<td>Arsenic</td>
<td></td>
<td>6.22 8.9 0.39</td>
</tr>
<tr>
<td>Barium</td>
<td></td>
<td>0.0338</td>
</tr>
<tr>
<td>Lead</td>
<td></td>
<td>34.1 21 22.2</td>
</tr>
<tr>
<td>Volatile Organics/TPH</td>
<td></td>
<td>0.00736</td>
</tr>
<tr>
<td>Methanol</td>
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<td>7,060</td>
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<tr>
<td>Ethylbenzene</td>
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<td>376</td>
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<tr>
<td>Toluene</td>
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<tr>
<td>Ethylbenzene</td>
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<td>147,000,000</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>147,000,000</td>
</tr>
<tr>
<td>Non-Detected Parameters</td>
<td></td>
<td>0.808</td>
</tr>
</tbody>
</table>

Notes:
- **NA**: not analyzed
- **U**: not detected
- **E**: greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
- **GRO**: Soil Type 2
- **DVP**: Soil Type 2

**Appendix B - Soil Sample Results Table**

#### Table 2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Readings (ppm) (mg/Kg) (mg/l) (mg/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium (total)</td>
<td></td>
<td>6.22 8.9 0.39</td>
</tr>
<tr>
<td>Cadmium</td>
<td></td>
<td>0.143</td>
</tr>
<tr>
<td>Arsenic</td>
<td></td>
<td>6.22 8.9 0.39</td>
</tr>
<tr>
<td>Barium</td>
<td></td>
<td>0.0338</td>
</tr>
<tr>
<td>Lead</td>
<td></td>
<td>34.1 21 22.2</td>
</tr>
<tr>
<td>Volatile Organics/TPH</td>
<td></td>
<td>0.00736</td>
</tr>
<tr>
<td>Methanol</td>
<td></td>
<td>7,060</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td></td>
<td>376</td>
</tr>
<tr>
<td>Toluene</td>
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<tr>
<td>Ethylbenzene</td>
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<td>147,000,000</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>147,000,000</td>
</tr>
<tr>
<td>Non-Detected Parameters</td>
<td></td>
<td>0.808</td>
</tr>
</tbody>
</table>

Notes:
- **NA**: not analyzed
- **U**: not detected
- **E**: greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
- **GRO**: Soil Type 2
- **DVP**: Soil Type 2

**Table 3**

#### Subsurface Soil Analytical Results - Detected Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Readings (ppm) (mg/Kg) (mg/l) (mg/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium (total)</td>
<td></td>
<td>6.22 8.9 0.39</td>
</tr>
<tr>
<td>Cadmium</td>
<td></td>
<td>0.143</td>
</tr>
<tr>
<td>Arsenic</td>
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<td>6.22 8.9 0.39</td>
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<tr>
<td>Barium</td>
<td></td>
<td>0.0338</td>
</tr>
<tr>
<td>Lead</td>
<td></td>
<td>34.1 21 22.2</td>
</tr>
<tr>
<td>Volatile Organics/TPH</td>
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<td>Toluene</td>
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<td>147,000,000</td>
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<tr>
<td>Non-Detected Parameters</td>
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<td>0.808</td>
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</tbody>
</table>

Notes:
- **NA**: not analyzed
- **U**: not detected
- **E**: greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.
- **GRO**: Soil Type 2
- **DVP**: Soil Type 2
### Table 3

#### Subsurface Soil Analytical Results - Detected Parameters

**Shaw Boulevard Phase II ESA**

**St. Louis, MO**

**Residential Non-Residential Construction Worker**

**Soil Type 2 Soil Type 2 Soil Type 2**

#### Readings (ppb) (mg/Kg) (mg/Kg) (mg/Kg)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Soil Type 2</th>
<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
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<th>Residential Indoor Inhalation of Vapor</th>
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</thead>
<tbody>
<tr>
<td>Lead</td>
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<td>NA</td>
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<td>NA</td>
</tr>
<tr>
<td>Selenium</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<td>NA</td>
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<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Cadmium</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
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<td>NA</td>
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<td>NA</td>
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<td>NA</td>
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</tbody>
</table>

#### Notes

- U: not detected
- NA: none detected

### APPENDIX B - SOIL SAMPLE RESULTS TABLE

**Table 4**

#### Subsurface Soil Analytical Results - Detected Parameters

**Shaw Boulevard Phase II ESA**

**St. Louis, MO**

**Residential Non-Residential Construction Worker**

**Soil Type 2 Soil Type 2 Soil Type 2**

#### Readings (ppb) (mg/Kg) (mg/Kg) (mg/Kg)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
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<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
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<tr>
<td>Lead</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

#### Notes

- U: not detected
- NA: none detected

### APPENDIX B - SOIL SAMPLE RESULTS TABLE

**Table 5**

#### Subsurface Soil Analytical Results - Detected Parameters

**Shaw Boulevard Phase II ESA**

**St. Louis, MO**

**Residential Non-Residential Construction Worker**

**Soil Type 2 Soil Type 2 Soil Type 2**

#### Readings (ppb) (mg/Kg) (mg/Kg)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Method</th>
<th>Soil Type 2</th>
<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
<th>Non-Residential Construction Worker – Indoor Inhalation of Vapor</th>
<th>Residential Indoor Inhalation of Vapor</th>
<th>Residential Indoor Inhalation of Vapor</th>
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</thead>
<tbody>
<tr>
<td>Lead</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<td>NA</td>
<td>NA</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

#### Notes

- U: not detected
- NA: none detected
Detected Parameters
Ingestion, Inhalation, and Dermal Contact

Table 4

Soil Analytical Results - Soil Type 2

Soil Type 2

Sampling Depth (ft below surface): 6010B Selenium

Sampling Date: 7471 Mercury

Notes:

APPENDIX B - SOIL SAMPLE RESULTS TABLE

Table 3

Subsurface Soil Analytical Results - Detected Parameters

St Louis, MO

Soil Type 2

Soil Type 2

Soil Type 2

Soil Type 2

Soil Type 2

APPENDIX B - SOIL SAMPLE RESULTS TABLE

Table 4

Historical Surface Soil Analytical Results - Detected Parameters

Shaw Boulevard Phase II ESA

St Louis, MO

Residential Non-Residential Construction Worker

B-3 B-4 TL-1 TL-2

Ingestion,
inhalation and dermal contact
Ingestion, Inhalation, and Dermal Contact

<table>
<thead>
<tr>
<th>Method</th>
<th>VOLATILE ORGANICS/TPH (mg/Kg)</th>
<th>METALS (mg/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8260B TPH-GRO</td>
<td>354,000</td>
<td>61,500</td>
</tr>
<tr>
<td>8270 TPH-GRO</td>
<td>1,720</td>
<td>6010B Arsenic 3.84</td>
</tr>
<tr>
<td>8270 TPH-DRO</td>
<td>143,000</td>
<td>6010B Barium 15000</td>
</tr>
<tr>
<td>8260 Benzene</td>
<td>177</td>
<td>6010B Cadmium 16.8</td>
</tr>
<tr>
<td>8260 Ethylbenzene</td>
<td>7,480</td>
<td>6010B Chromium (total) 74,600</td>
</tr>
<tr>
<td>8260 Naphthalene</td>
<td>36.3</td>
<td>7471 Mercury 46.3</td>
</tr>
<tr>
<td>8260 Toluene</td>
<td>6,210</td>
<td>6010B Selenium 380</td>
</tr>
<tr>
<td>8260 Xylenes, Total</td>
<td>7,830</td>
<td>6010B Lead 265</td>
</tr>
<tr>
<td>8260 Acetone</td>
<td>61,500</td>
<td>Notes: NA: not analyzed</td>
</tr>
<tr>
<td>8260 Chrysene</td>
<td>605</td>
<td>U: not detected</td>
</tr>
<tr>
<td>8260 Fluoranthene</td>
<td>2,260</td>
<td>Bolded = The concentration exceeds the Residential Inhalation of Vapors Target Level for Soil Type 2.</td>
</tr>
<tr>
<td>8260 Phenanthrene</td>
<td>3,220</td>
<td>Italized = The concentration exceeds the Non-Residential Indoor Inhalation Target Level for Soil Type 2.</td>
</tr>
<tr>
<td>8260 Pyrene</td>
<td>1,710</td>
<td>Highlighted = The concentration exceeds the Construction Worker Ingestion, Inhalation, and Dermal Contact Target Level for Soil Type 2.</td>
</tr>
<tr>
<td>8260 Diisopropyl ether</td>
<td>6,910</td>
<td>*For the parameters shown, the ingestion pathway has the lowest criteria for all applicable residential pathways.</td>
</tr>
<tr>
<td>8260 Methyl tert-butyl ether</td>
<td>3,450</td>
<td>Sample ID:</td>
</tr>
<tr>
<td>6010B Arsenic</td>
<td>3.84</td>
<td>Sampling Date:</td>
</tr>
<tr>
<td>6010B Barium</td>
<td>15000</td>
<td>Sampling Depth (ft below surface):</td>
</tr>
<tr>
<td>6010B Cadmium</td>
<td>16.8</td>
<td>VOLATILE ORGANICS/TPH (mg/Kg)</td>
</tr>
<tr>
<td>6010B Chromium (total)</td>
<td>74,600</td>
<td>J: Estimated value below the lowest calibration point. Confidence correlates with concentration.</td>
</tr>
<tr>
<td>7471 Mercury</td>
<td>46.3</td>
<td>E: Greater than upper calibration limit; Actual value is known to be greater than the upper calibration range.</td>
</tr>
<tr>
<td>6010B Selenium</td>
<td>380</td>
<td>State Bowen Page 1 of 1 Tetra Tech, Inc.</td>
</tr>
</tbody>
</table>

APPENDIX B - SOIL SAMPLE RESULTS TABLE

APPENDIX C
ASBESTOS SUMMARY TABLES

APPENDIX D
SITE PHOTOGRAPHS

Client: Description: Photograph Number:
Direction: Photographer: Date:
Client: Description: Photograph Number:
Direction: Photographer: Date:
EIERA
EIERA

Jeff Pritchard
Photograph of the front of the 4175 Shaw Boulevard site building.
Northeast 9/11/2015
1
Jeff Pritchard
Photograph of the south portion of the site where underground storage tanks (UST) were previously removed.
West 9/11/2015
2

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA
Client: Description: Photograph
Number:
Direction: Photographer: Date:
Client: Description: Photograph
Number:
Direction: Photographer: Date:
EIERA
EIERA

2
Jeff Pritchard
Photograph of the west portion of the site where USTs were previously removed.
South 9/11/2015
3
Jeff Pritchard
Photograph of the back (north side) of the site building.
South 9/11/2015
4

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA
Client: Description: Photograph
Number:
Direction: Photographer: Date:
Client: Description: Photograph
Number:
Direction: Photographer: Date:
EIERA
EIERA

3
Jeff Pritchard
Photograph of the floor drain to the oil/water separator inside the site building.
West 9/11/2015
5
Jeff Pritchard
Photograph of the floor drain to the oil/water separator inside the site building.
West 9/11/2015
6

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA
Client: Description: Photograph
Number:
Direction: Photographer: Date:
Client: Description: Photograph
Number:
Direction: Photographer: Date:
EIERA
4
Jeff Pritchard
Photograph of the interior of the site building.
West 9/11/2015
7
Jeff Pritchard
Photograph of asbestos-containing flooring (and associated mastic) in the office area of the site building.
North 9/11/2015
8

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA
Client: Description: Photograph
Number:
Direction: Photographer: Date:
Client: Description: Photograph
Number:
Direction: Photographer: Date:
EIERA
EIERA
Jeff Pritchard
Photograph of the office area that contains asbestos-containing vinyl flooring and mastic.
North 9/11/2015
9
Jeff Pritchard
Photograph of the interior of the site building.
East 9/11/2015
10

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERA0008TA

5
Client: Description: Photograph
Number: Direction: Photographer: Date:
Client: Description: Photograph
Number: Direction: Photographer: Date:

Cosmo Canacari
Photograph of asbestos-containing roof flashing (arrow)
that surrounds a roof penetration.
North 9/25/2015

11
Cosmo Canacari
Photograph of asbestos-containing roof flashing (arrow)
that surrounds a roof penetration.
West 9/25/2015

12

4175 Shaw Boulevard Site
St. Louis, Missouri
Seagull Project No. EIERTA0008TA

6

APPENDIX E
MDNR QAPP FOR BROWNFIELDS/VOLUNTARY CLEANUP PROGRAM SITES
APPENDIX F
SITE-SPECIFIC QUALITY ASSURANCE ADDENDUM TO MDNR QAPP
Revised 07/12/05 1 of 4
MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR AND LAND PROTECTION DIVISION
HAZARDOUS WASTE PROGRAM
BROWNFIELDS/VOLUNTARY CLEANUP PROGRAM (BVCP)
SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN ADDENDUM
(SSQA)

I. SITE NAME AND LOCATION:
SITE NAME: 4175 Shaw Boulevard Site
ADDRESS OR OTHER LOCATION IDENTIFIER:
CITY: St. Louis COUNTY: St. Louis STATE: Missouri ZIP: 63110

II. PROJECT MANAGEMENT INFORMATION:
CONTRACTOR: Seagull Environmental Technologies, Inc
CONTRACTOR EMAIL: jpritchard@seagullenvirotech.com
ADDRESS: 121 NE 72nd Street, Gladstone, Missouri, 64118
PHONE: 913-220-5887 FAX:

DISTRIBUTION LIST (Check as appropriate):
X BVCP Project Manager:
X Consultant/Contractor Director:
X Consultant/Contractor Project Manager:
X Consultant/Contractor Project Field Superintendent:
X Consultant/Contractor Laboratory Personnel:
X Technicians (Specify all):
X Other (Specify): EPA Region 7

PROJECT TYPE (Check as appropriate):
Site Investigation/Characterization Remedial Action Risk Management Other (specify):

PROJECT DESCRIPTION: (Note: This SSQA supplements the Generic QAPP for Brownfields/Voluntary Cleanup Program Sites, and includes documentation only for the specific site as indicated above.)
Remedial action planned for the site is to abate asbestos-containing material (ACM) and remove petroleum contaminated at the site. Remedial activities will also involve removal/disposal of waste oil that remains in the oil/water separator inside the site building. Remediation will be conducted in accordance with federal, state, and local regulations. Confirmation soil sampling will be completed to confirm attainment of site cleanup goals.

DATA QUALITY OBJECTIVES AND CRITERIA:
Detection Limits: According to Generic Site Assessment QAPP Identified in attached table
Accuracy: According to Generic Site Assessment QAPP Identified in attached table
Representativeness: According to Generic Site Assessment QAPP Identified in attached table
Comparability: According to Generic Site Assessment QAPP Identified in attached table
Completeness: According to Generic Site Assessment QAPP Identified in attached table
SPECIAL TRAINING/CERTIFICATION REQUIREMENTS:
- OSHA 40-hour (HAZWOPER)
- Geoprobe Operator
- Drill Rig Operator
- Mobile GC Field Analyst
- In-Field XRF Operator
- Other (specify): Asbestos abatement contractor with associated worker certifications

B/VCP SITE-SPECIFIC QAPP ADDENDUM FORM

DOCUMENTATION AND RECORDS (Check appropriate boxes):
- Field Analytical Sheets
- Log Book
- Photos
- Site Maps/ Figures
- Chain-of-Custody
- Property Ownership Records
- Environmental Records Report
- Utility Clearance Forms
- Health and Safety Plan

Other Documentation (Specify):

SAMPLING PROCESS DESIGN:
A. General Sampling Approach (Check appropriate boxes):
- Judgmental Sampling
- Transect Sampling
- Search Sampling
- Systematic Grid
- Random Sampling
- Stratified Random Sampling
- Systematic Random Sampling

B. Screening/Definitive Sampling (Check appropriate boxes):
- Screening without Definitive Confirmation
- Screening With Definitive Confirmation

NOTE: Minimum Confirmation Rate of ___ % for All Field Analytical Screening Samples Collected
- Definitive Sampling

SAMPLING METHODS (Specify all to be utilized):
Matrix: Methods: SOPs/Guidance: Sampling Equipment Proposed:
See Remedial Action Plan Section 5.0, Remedial Action Tasks.

SAMPLE HANDLING AND CUSTODY (Check appropriate box):
- In accordance with Generic QAPP and SOPs
- Other (specify):
See Remedial Action Plan Section 5.0 (Remedial Action Tasks).

ANALYTICAL METHODS (Check appropriate box):
- Identified in Attached Table
- Identified Below (Describe):
See Remedial Action Plan, Section 5.0 Remedial Action Tasks, and Tables 6 and 8.

QUALITY CONTROL (Check appropriate box):
- Not Applicable
- In accordance with Generic QAPP
- Specific requirements (state):
Describe Field QC Samples to be collected:
See Remedial Action Plan Section 5.4 (Quality Assurance Sampling) and 7.0 Quality Control Procedures.

INSTRUMENT/EQUIPMENT TESTING, INSPECTION, CALIBRATION/FREQUENCY AND MAINTENANCE
(Check appropriate box):
- Not Applicable
- In accordance with Generic QAPP
- Specific requirements (state):
Describe instrument/equipment, etc. proposed for use in this project subject to the above requirements:
Testing, inspection, and maintenance of laboratory equipment will be performed in accordance with the previously referenced SOPs and/or manufacturers’ recommendations.

INSPECTION/ACCEPTANCE OF SUPPLIES AND CONSUMABLES (Check appropriate box):
- Not Applicable
- In accordance with Generic QAPP
- Specific requirements (state):

NON-DIRECT MEASUREMENTS (Check appropriate box):
- Not Applicable
- In accordance with Generic QAPP
- Specific requirements (state):

DATA MANAGEMENT (Check appropriate box):
- In accordance with Generic QAPP
- Specific requirements (state):

ASSESSMENT AND RESPONSE ACTIONS (Check appropriate box):
- In accordance with Generic QAPP
- Specific requirements (state):

REPORTS TO MANAGEMENT (Check appropriate box):
- In accordance with Generic QAPP
- Specific requirements (state):
See Remedial Action Plan, Section 2.2

DATA VALIDATION AND USABILITY (Check appropriate box):
Data review and verification will be performed by the contractor or delegate in accordance with Generic QAPP, with data validation conducted according to USEPA guidance and Generic QAPP.

Data review, validation and verification will be performed as follows, with data validation conducted according to alternate methods (describe):

Field analysis utilized? Yes No (If yes, memorandum, field analytical sheets, etc. from field analyst should be reviewed by the contractor after completion of field analysis).

RECONCILIATION WITH USER REQUIREMENTS (Check appropriate box):

- In accordance with Generic QAPP
- Specific requirements (state):

B/VCV SITE-SPECIFIC QAPP ADDENDUM FORM

Revised 07/12/05 4 of 4

APPROVALS:

BVCP Project Manager Name Signature Date
Contractor Director Name Signature Date
Jeff Pritchard 10-14-2015
Contractor Project Manager Name Signature Date
Contractor Field Superintendent Name Signature Date

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

that___________________________________________________ as principal and ____________________________________________, as surety are

held and firmly bound to the Tower Grove Neighborhoods Community Development Corporation, in the sum of

FULL Contract amount in words and numbers

______Dollars ($_____________________) to be paid to the Tower Grove Neighborhoods Community Development Corporation, and for the lawful payment of said sum we, and each of us, hereby bind ourselves, our heirs, our executors, administrators, successors and assigns firmly by these presents,

The condition of this bond is such that:

WHEREAS the above-named principal did on the ____ day of ____________, 2015, enter into a contract with the

Tower Grove Neighborhoods Community Development Corporation for:

Environmental Remediation In Accordance with INVITATION FOR BID #2015-01

NOW, THEREFORE, if the above-named principal shall well and truly:

Keep and perform all of the contract on his, its’ or their part to be kept and performed, and faithfully comply with all of the laws of the State of Missouri applicable to the aforesaid contract and this bond and the conditions of said contract, and at the time stipulated in said contract or within a reasonable time if not time as stipulated:
Then this obligation shall be void, otherwise it shall remain in full force and effect.

It is understood and agreed that this bond shall not be avoided because of changes in the plans or specifications for the work, or because of extensions of time for the performance of work, and the surety above-named does hereby waive notice of and does hereby consent to any such changes or extensions of time.

In addition to any other remedies which may be had by the Tower Grove Neighborhoods Community Development Corporation (Owner), under this bond, the Owner may in case of default or abandonment of the contract hereinbefore referred to notify the surety hereto by registered or certified mail directed to the surety or to its attorney-in-fact for it authorized at the time of the execution of this bond that such default or abandonment has occurred, which such notice need not be detailed but may be in generalities, and the surety shall have the obligation to inquire into the nature of such default or abandonment and to thereafter within sixty (60) days from the date of such notice proceed toward completion without undue delay of the improvement in accordance with the contract aforesaid; and in the event of default on the part of the surety to proceed to complete as aforesaid the Tower Grove Neighborhoods Community Development Corporation, shall have the right to itself complete the work, and upon completion to be reimbursed by the principal, the surety or both of them for the cost of said completion including cost of re-advertisements, preparation of new plans, contracts, and all other ordinary and reasonable expenses in connection with completion of the work.

This bond shall be governed by the laws of the State of Missouri. The parties hereto agree that should any litigation arise out of this bond, the venue for such litigation shall be in the Circuit Court of the City of St. Louis, Missouri, and the parties hereto expressly waive all rights to venue inconsistent therewith.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of __________, 2015, or have caused these presents to be executed by our authorized agent on the same day and year.

Company: ______________________________ Approved as to Form:

By: _____________________________________

Tower Grove Neighborhoods Community Development Corporation Representative
ATTACHMENT C
PAYMENT BOND FOR LABOR AND MATERIALS
KNOW ALL MEN BY THESE PRESENTS that
_______________________________________________________________________________
principal and _________________________________________________________________, as
surety are held
and firmly bound to the Tower Grove Neighborhoods Community Development Corporation,
in the sum of FULL
Contract amount in words and numbers
_______________________________________________________________________________

Dollars ($_______________________) to be paid to the Tower Grove Neighborhoods
Community Development
Corporation, and for the lawful payment of said sum we, and each of us, hereby bind
ourselves, our heirs, our
executors, administrators, successors and assigns firmly by these presents,
The condition of this bond is such that:
WHEREAS the above-named principal did on the _____ day of _______________, 2015,
enter into a contract with
the Tower Grove Neighborhoods Community Development Corporation for:
Environmental Remediation In Accordance with INVITATION FOR BID #2015-01
NOW, THEREFORE, if the above-named principal shall well and truly:
Pay for any and all materials, lubricants, oil, gasoline, grain, hay, feed, coal and
coke, repairs on machinery,
groceries and foodstuffs, equipment and tools consumed or used in connection with the
construction of the work
afore-described, and all insurance premiums both for compensation and for all other
kinds of insurance on said
work above described, and for all labor performed in the work whether by the
principal or by subcontractor or
otherwise and at the prevailing hourly rate of wages made applicable to the work as
specified by the contract (if a
prevailing hourly rate of wages shall have been so specified).
Then this obligation shall be void, otherwise it shall remain in full force and
effect.
It is understood and agreed that this bond shall not be avoided because of changes in
the plans or specifications
for the work, or because of extensions of time for the performance of work, and the
surety above-named does
hereby waive notice of and does hereby consent to any such changes or extensions of
time.
It is understood and agreed that any person entitled to payment for any of the matters upon which this bond is conditioned shall have the right in his name or in the name of the Tower Grove Neighborhoods Community Development Corporation, to bring suit upon this bond for the recovery of such payment. It is further agreed that no such suit shall be instituted after the expiration of ninety (90) days from the completion of the contract hereinbefore referred to.

This bond shall be governed by the laws of the State of Missouri. The parties hereto agree that should any litigation arise out of this bond, the venue for such litigation shall be in the Circuit Court of the City of St. Louis, Missouri, and the parties hereto expressly waive all rights to venue inconsistent therewith.

**IN WITNESS WHEREOF,** we have hereunto set our hands and seals this _______ day of ____________, 2015, or have caused these presents to be executed by our authorized agent on the same day and year.

Company: _______________________________  
Approved as to Form:  
By: _____________________________________  
__________________________  
Tower Grove Neighborhoods Community  
Development Corporation Representative  
Surety: _________________________________  
By: _____________________________________  

1879755.4  
**AFFIDAVIT**  
STATE OF MISSOURI )  
) SS  
) ______ OF __________ )  
I, the undersigned, am over the age of 18 years and have personal knowledge of the matters stated herein. I am a duly authorized [officer] [member] of _________________________________, a _____________ [corporation] [limited liability company] (the “Company”) and am authorized by the Company to attest to the matters set forth herein. The Authority and the Company are parties to the [INSERT NAME OF AGREEMENT], dated _____________, ______ (the “Agreement”). I hereby affirm that the Company is enrolled and participates in a “federal work authorization program” as defined in Section 285.525 of the Revised Statutes of Missouri, as amended, with respect to the employees of Company working in connection with the [Cleanup] [Services] (as such term is defined in the Agreement) [____________________ services to be performed under the Agreement]. The Company does not knowingly employ any person who is an “unauthorized alien” as defined in Section 285.525 of the Revised Statutes of Missouri, as amended, in connection with the [Cleanup]
Services] [________________ services to be performed under the Agreement].

Further Affiant Sayeth Not.

By:
Title:

Subscribed and sworn to before me this _____ day of _________________.
Notary Public

My commission expires on:

ATTACHMENT D

Page 1 of 1

AFFIDAVIT OF COMPLIANCE
To be submitted with Vendor’s Bid

____We DO NOT take exception to the IFB Documents/Requirements.
____We TAKE exception to the IFB Documents/Requirements as follows:

Specific exceptions are as follows:

CITY OF SPRINGFIELD
STATEMENT OF “NO BID”
IFB #000-2009

RETURN THIS PAGE ONLY IF YOUR COMPANY PROVIDES THE PRODUCTS/SERVICES
BEING BID AND DECLINES

TO DO SO.

WE, THE UNDERSIGNED, HAVE DECLINED TO BID ON YOUR IFB #000-2009 FOR DESCRIPTION FOR
THE
FOLLOWING REASON(S):

____SPECIFICATIONS ARE TOO “TIGHT,” I.E. GEARED TOWARD ONE BRAND OR MANUFACTURER
(PLEASE EXPLAIN BELOW).

_____INSUFFICIENT TIME TO RESPOND TO INVITATION FOR BID.

_____OUR PRODUCT SCHEDULE WOULD NOT PERMIT US TO PREFORM.

Company Name __________________________________

By____________________________________________

Authorized Person’s Signature

________________________________________________

Print or type name and title of signer
Company Address_________________________________

________________________________________________

________________________________________________

Telephone Number________________________________
Fax Number______________________________________
Date____________________________________________

ADDENDA

Bidder acknowledges receipt of the following addendum:
Addendum No. ___
Addendum No. ___
Addendum No. ___
Addendum No. ___
Addendum No. ___
ATTACHMENT E

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

This certification is required by the Department of Education regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, for all lower tier transactions meeting the threshold and tier requirements stated at Section 85.110.

Instructions for Certification

1. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this proposal that it will include the clause titled A Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion - Lower Tier Covered Transactions, and without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may but is not required to check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals are presently debarred,
suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Certification

* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE
ED 80-0014, 9/90 (Replaces GCS-009 (REV.12/88), which is obsolete)
SIGNATURE DATE
Suffix:
* First Name: Middle Name:
* Last Name:
Prefix:
* Title:
* NAME OF APPLICANT

Optional - You may attach 1 file to this page.

Add Attachment Delete Attachment View Attachment

ATTACHMENT F
ATTACHMENT G