State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Notice: Use this form to request **a written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This from should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do not use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested.** Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf"

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name
Flad	John	J	Flad Development + Investment Corp

Mailing Address	City	State	ZIP Code
3330 University Ave, Suite 206	Madison	WI	53705

Phone # (include area code)	Fax # (include area code)	Email
608-833-8100		JFlad@Flad-development.com

The requester listed above: (select all that apply)

- [x] Is currently the owner
- [ ] Is considering selling the Property
- [ ] Is renting or leasing the Property
- [ ] Is considering acquiring the Property
- [ ] Is a lender with a mortgagee interest in the Property
- [ ] Other. Explain the status of the Property with respect to the applicant:

Contact Information (to be contacted with questions about this request)

[ ] Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
Buckingham	William	W	Resource Engineering Associate.

Mailing Address	City	State	ZIP Code
3510 Parmenter St, Suite 100	Middleton	WI	53562

Phone # (include area code)	Fax # (include area code)	Email
608-220-3804		bill@reaeng.com

Section 2. Property Information

Property Name	FID No. (if known)
Shorewood Commons	

BRRTS No. (if known)	Parcel Identification Number
02-13-560698	181/0709-174-9821-8

Street Address	City	State	ZIP Code
3330 University Ave	Madison	WI	53705

County	Municipality where the Property is located	Property is composed of:	Property Size Acres
Dane	○ City ○ Town ⊗ Village of Shorewood Hills	◉ Single tax parcel ○ Multiple tax parcels	2.5

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

⊗ No ○ Yes

Date requested by: _____

Reason:

_____

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

◯ No. **Include the fee that is required for your request in Section 3, 4 or 5.**

◯ Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:
Section 3. Technical Assistance or Post-Closure Modifications;
Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: **[Numbers in brackets are for WI DNR Use]**

☐ No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of $350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.

☐ Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of $700.**

☐ Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of $1050.**

☐ Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of $1050.**

☐ Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of $1050.**

☐ Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of $1050.**

☐ Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of $350**

☐ Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of $425.**

☐ Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of $425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

☒ Schedule a Technical Assistance Meeting - **Include a fee of $700.**

☐ Hazardous Waste Determination - **Include a fee of $700.**

☐ Other Technical Assistance - **Include a fee of $700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

☐ Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of $1050, and:**

☐ Include a fee of $300 for sites with residual soil contamination; and

☐ Include a fee of $350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 4. Request for Liability Clarification

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. **[Numbers in brackets are for DNR Use]**

☐ "Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the real Property, and/or the personal Property and fixtures;

(2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;

(3) the date the environmental assessment was conducted by the lender;

(4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.

(5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.

(6) a copy of the Property deed with the correct legal description; and,

(7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).

(8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292. 21(1)(c)2.,h.-i., Wis. Stats.:

h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.

i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

☐ "Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the Property;

(2) the date of Property acquisition by the representative;

(3) the means by which the Property was acquired;

(4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;

(5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and

(6) a copy of the Property deed with the correct legal description.

☐ Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

☐ hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];

☐ Perceived environmental contamination - [649];

☐ hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or

☐ solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of $700, a summary of the environmental liability clarification being requested, and the following:**

(1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).

(2) current and proposed ownership status of the Property;

(3) date and means by which the Property was acquired by the LGU, where applicable;

(4) a map and the ¼, ¼ section location of the Property;

(5) summary of current uses of the Property;

(6) intended or potential use(s) of the Property;

(7) descriptions of other investigations that have taken place on the Property; and

(8) (for solid waste clarifications) a summary of the license history of the facility.

Section 4. Request for Liability Clarification (cont.)

☐ Lease liability clarification - s. 292.55, Wis. Stats. [646]

- ❖ **Include a fee of $700 for a single Property, or $1400 for multiple Properties and the information listed below:**

(1) a copy of the proposed lease;

(2) the name of the current owner of the Property and the person who will lease the Property;

(3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;

(4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;

(5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and

(6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

- ❖ **Include a fee of $700 and an adequate summary of relevant environmental work to date.**

☐ No Action Required (NAR) - NR 716.05, [682]

- ❖ **Include a fee of $700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

☐ Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

- ❖ **Include a fee of $700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/lgu.html#tabx4.

☐ Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

- ❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,

(2) a copy of the Property deed with the correct legal description.

☐ Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

- ❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,

(2) a copy of the Property deed with the correct legal description.

☐ Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

- ❖ **Include a fee of $1400, and the information listed below:**

(1) a draft schedule for remediation; and,

(2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

- ☐ Phase I Environmental Site Assessment Report - Date: _____
- ☐ Phase II Environmental Site Assessment Report - Date: _____
- ☐ Legal Description of Property (required for all liability requests and specialized agreements)
- ☐ Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

☐ Groundwater ☐ Soil ☐ Sediment ☐ Other medium - Describe: _____

Date of Collection: _____

- ☐ A copy of the closure letter and submittal materials
- ☐ Draft tax cancellation agreement
- ☐ Draft agreement for assignment of tax foreclosure judgment
- ☐ Other report(s) or information - Describe: _____

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

- ○ Yes - Date (if known): _____
- ○ No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Section 7. Certification by the Person who completed this form

- ☐ I am the person submitting this request (requester)
- ☒ I prepared this request for: John Flad
  Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

William W. Bumgarner
Signature

5/25/21
Date Signed

Environmental Consultant
Title

608-220-3804
Telephone Number (include area code)

Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a DNR regional brownfields specialist with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf.

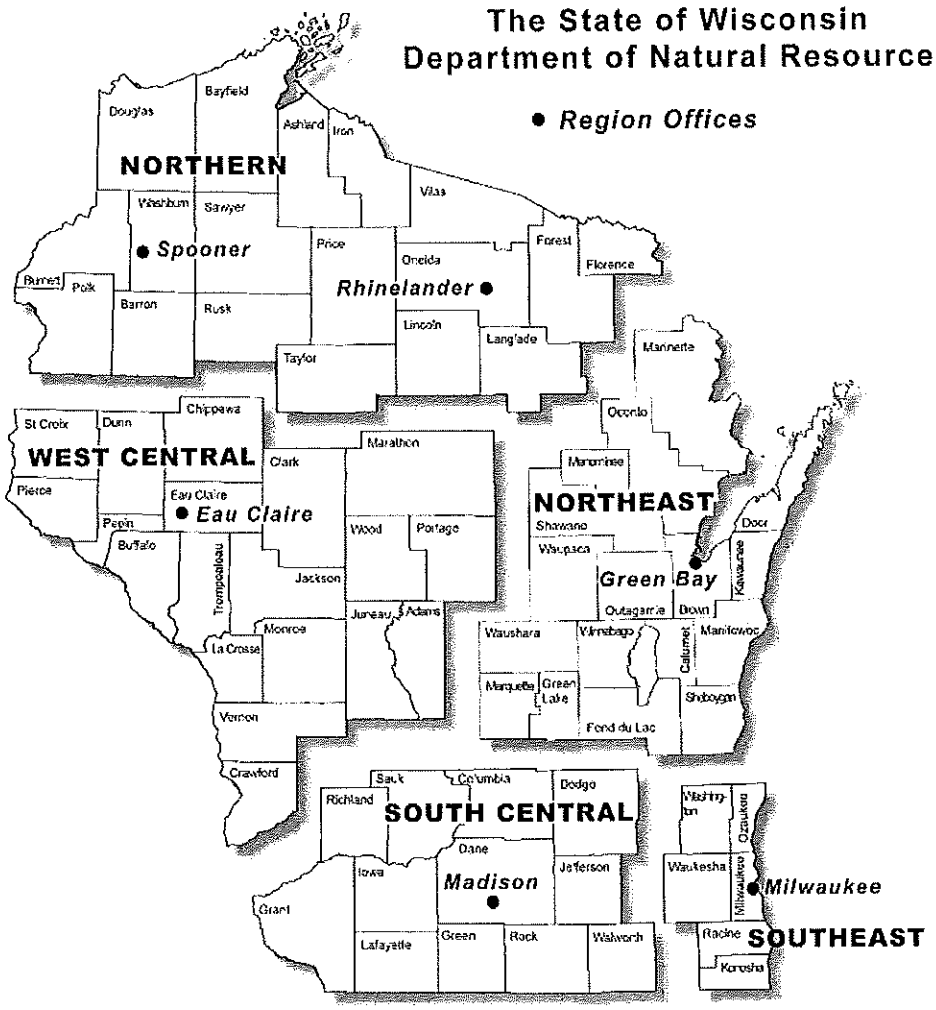
DNR NORTHERN REGION
Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

DNR SOUTH CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

DNR WEST CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702



Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer	Comments		
Fee Enclosed? ◯ Yes ◯ No	Fee Amount $	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		

RESOURCE ENGINEERING ASSOCIATES, INC.
3510 Parmenter Street
Suite 100
Middleton, WI 53562
Phone: 608-831-5522
Fax: 608-831-6564
Web: www.reaeng.com

April 21, 2021

Mr. John and Mr. Andrew Flad
Flad Development and Investment Corp.
3330 University Ave, Suite 206
Madison, WI 53705

RE: Cost Estimate for Additional Work at 3330 University Ave

Dear Sirs:

REA has met multiple times with Larry Kinsman and Tyler Emerson at Orin Remediation and meetings we have developed a strategy going forward where we pilot test two different methods of injection technology at the site; one in the source area and one as a barrier wall on the northeast corner of the property. Based on conversations with Orin, it is their opinion that this pilot test may possibly remediate the site without any additional work. The cost estimate for the entire pilot project is as follows:

Injection Remediation Project Cost Estimate + One Year of Sampling

Work Plan, Waiver Request, Village Coordination	$2,000
Well Installation & Development	
Commodities	$3,120
Consulting	$3,360
Preliminary Groundwater Sampling & Report	
Consulting	$805
Labs	$900
Injection Pilot Test (2 days on Site)	
Commodities	$48,551
Consulting	$3,500
Report (Consulting)	$2,500
Groundwater Sampling for Six Months	
Consulting and Commodities	$10,230
Quarterly Groundwater Sampling (2 times)	$3,410
Final Report + Closure Request	$3,000
Total Project Cost	**$81,376**

RESOURCE ENGINEERING ASSOCIATES, INC.
3510 Parmenter Street
Suite 100
Middleton, WI 53562
Phone: 608-831-5522
Fax: 608-831-6564
Web: www.reaeng.com

The pilot project would most likely be completed one year from completion of the injections.

If you have any questions concerning the cost estimate, or the project in general, feel free to call me at (608) 220-3804.

Sincerely,

William W. Buckingham, P.E.
Senior Engineer

ORIN Technologies

March 2, 2021

Bill Buckingham
REA Engineering Associates, Inc.
3510 Parmenter St.
Middleton, WI 53562

Subject: Proposal for a Remedial Injections at the 3330 University Ave Site Located in Madison, Wisconsin

Dear Bill:

ORIN Technologies, LLC. (ORIN) is pleased to present this proposal to REA Engineering Associates, Inc. (REA) for the remedial injection at the 3330 University Ave site located in Madison, Wisconsin (site). This proposal is based upon the latest information provided by REA.

Summary of Site Conditions

The primary contaminants of concern (COC) for remedial purposes defined by REA are chlorinated compounds with PCE being the remedial driver. As requested by REA, treatment will occur within two areas; Source Area treatment will be conducted in an approximate 20-ft by 20-ft area with a vertical interval of 10 to 25-ft bgs targeting MW-1/1R. Barrier Wall injection will be downgradient with an approximate 40-ft by 10-ft area with a vertical interval of 15 to 35-ft targeting MW-3.

Remedial Action Approach

ORIN will outline an implementation strategy utilizing Bioavailable Absorbent Media (BAM) and a water-soluble carbon source with ZVI (ABC+) which will be injected via Direct Push Technology (DPT). The treatment combination will provide quick absorption of the COCs and promote reducing groundwater conditions for enhanced reductive dechlorination. The Source Area will be treated with BAM and the Barrier Wall will be a combination of BAM and ABC+.

Injection Methodology

The proposed remedial approach is the injection of the preferred treatment chemistry through a series of borings spaced in a grid-like pattern. The borings would be advanced to the appropriate depth using DPT. The treatment chemistry will be injected into the rods to create minimal positive pressure before commencing injection into the surrounding formation. The rods will then be raised through the vertical treatment zone while simultaneously injecting the treatment chemistry into the formation.

ORIN will use approximately 2 to 3-foot lift intervals throughout the vertical treatment zone and inject the appropriate amount of treatment chemistry into each interval. The proper amount of treatment chemistry will be administered according to the subsurface and known contamination characteristics in each injection area. The total volume, pressure, and rate of treatment chemistry injection will be monitored by ORIN and amended according to field conditions to ensure maximum injection effectiveness.

Immediately after the completion of each injection point, the borehole will be backfilled and hydrated using bentonite crumbles or chips to prevent subsequent treatment chemistry short circuiting.

Chemical Mixing and Delivery Methodology

The treatment chemistry will be prepared using ORINs specialized injection equipment. The treatment chemistry will be mixed and temporarily staged prior to injection in 200-gallon tanks located inside ORINs enclosed injection trailer. The tank will first be filled with the proper amount of water to achieve the appropriate treatment chemistry solution concentration. Multiple tanks will be mixed and used during the injection, which enables work to proceed steadily and efficiently. The treatment chemistry will be pumped into the formation using ORINs air-driven, chemically resistant pumps. The rate, pressure, and volume will be monitored using a chemically resistant inline electronic flow meter. Shut-off valves are present at numerous locations throughout the delivery system for health and safety purposes. To further mitigate accidental spills and/or leaks, ORIN uses a variety of catch basins and sorbent pads/socks.

Inject-and-Extract Methodology

ORIN's two part approach utilizes chemical injection and simultaneous vacuum extraction from monitoring wells. The process starts by extracting contaminated groundwater from wells located in the treatment area immediately before

injection begins. Once the injection starts, extraction locations will be coordinated with the adjacent injection locations.

Extraction recovers highly impacted groundwater via screened wells. A dip leg or "stinger" is placed down the well and connected to a vacuum extraction truck. The extraction draws in treatment chemistry from adjacent injection points providing hydraulic control and more precise placement of injected chemicals. As the chemistry is drawn through the subsurface, desorbing contaminant mass becomes mobilized and more easily recovered via vacuum extraction.

To further maximize the enhanced contaminant recovery, injection and extraction rates are coordinated to create cones of impression, and cones of depression. The influence and cones created from the extraction can vary from only a change in groundwater flow direction, to vacuuming the well dry for the duration groundwater is being extracted. Cones of impression allow the treatment chemistry to influence approximately a few inches to a foot into the smear zone, enabling desorption and subsequent recovery of contaminant held in the smear zone. Cones of depression occur while treatment chemistry is being drawn at a higher rate toward the extraction well. This allows for the chemistry to contact the largest area possible enabling more efficient product recovery. ORIN would direct the activities of the VAC truck during injection.

Preferred Treatment Chemistry Description

This section of the report summarizes the properties of the preferred treatment chemistries for the site.

Bioavailable Absorbent Media

BAM is a sustainable, pyrolyzed, recycled cellulosic bio-mass product (>80% fixed carbon) derived from a proprietary blend of recycled organic materials with a high cation exchange and an estimated half-life of 500 years. BAM has diverse pore sizes with a minimum total surface area of up to 1,133 square meters per gram or 127 acres/lb. BAM has also demonstrated it can promote chemical reactions of sorbed contaminants at ordinary temperature, including between microbes and molecules, local redox reactions between molecules, and hydrolysis. BAM itself contains active functional groups that are capable of oxidizing or reducing organic compounds and by acting as a catalyst when

combined with reactive oxygen species (ROS) such as oxygen, peroxides, or ozone making it a useful strategy for remediation.

BAM has numerous synergistic qualities and is relatively affordable in large quantities for remediation purposes. It provides ample usable surface area for maximizing microbial colonization and thereby an active microbial community. Due to its unique 'honeycomb' structure, BAM provides increased pore space for the different strains of microbes. Most importantly, BAM's affinity for organic and inorganic compounds supports maximum contact (bio-availability through high sorbency) with microbes allowing for complete degradation.

The unique absorption capability of BAM prevents exterior surface microfilm buildup providing long term remediation capabilities. This allows BAM to absorb contaminants for more productive bio-attenuation of contaminants over a longer period of time. Granular Activated Carbon (GAC) primarily adsorbs contamination to the surface of the media, which then is subject to bio-film development, preventing further adsorption. As a result, BAM has been proven to supply long term maintenance free remedial abilities over GAC. Laboratory tests have also shown that BAM has a significantly higher absorptive capacity than commercially available GAC products.

ABC+

Anaerobic Biochem Plus (ABC+) is a mixture of ABC® formula and Zero Valent Iron (ZVI). Formulated and mixed on a site-by-site basis, up to twenty percent (20%) by weight of ZVI can be added. ZVI has been proven and widely accepted as an effective in situ remediation technology of recalcitrant compounds. The degradation process using ZVI is an abiotic process occurring on the surface of the granular iron, with the iron acting as an electron donor.

The addition of ZVI to the ABC® mixture provides a number of advantages. The ZVI will provide an immediate reduction. The ABC® will provide short-term and long-term nutrients to anaerobic growth, which also assists to create a reducing environment. ABC® contains soluble lactic acid and a phosphate buffer that provides phosphates, which are a micronutrient for bioremediation, and maintains the pH in a range that is best suited for microbial growth. In addition, the corrosion of iron metal yields ferrous iron and hydrogen, both of which are possible reducing agents. The hydrogen gas produced is also an excellent energy source for a wide variety of anaerobic bacteria.

The ABC® and ZVI are mixed with potable water and emplaced in the subsurface simultaneously. The dilution factor (i.e., water content) can be adjusted to achieve optimal dispersion and distribution based on site-specific parameters such as well spacing, permeability of the formation, and contaminant concentrations.

Scope of Services

- Remedial treatment will utilize in-situ DPT injection.
- Implementation in the field will take approximately 2 days, depending on unforeseen site and matrix conditions.
- Concentration, volume, and number of locations may vary depending on unforeseen site conditions and contaminant load at each area.
- ORIN will maintain field notes on the location of the injection points, amount of chemical injected, and any other injection related field observations.
- A brief report describing the remediation, chemical amount used, other field information and observations regarding the remedial effort will be submitted to REA after all field work is completed.

Source Area

- The targeted treatment interval will be from 10 to 25-ft bgs.
- Approximately 6 injection locations will be used for treatment in the targeted plume area.
- Inject an average of 150 gallons of 10% BAM treatment chemistry into each of the 6 injection locations.

Barrier Wall

- The targeted treatment interval will be from 15 to 35-ft bgs.
- Approximately 10 injection locations will be used for treatment in the targeted plume area (7 BAM and 3 ABC+).
- Inject an average of 200 gallons of 10% BAM treatment chemistry into each of the 7-injection locations.
- Inject an average of 200 gallons of 10% ABC+ treatment chemistry into each of the 3-injection locations.

ORIN Technologies

Cost Estimate

Remedial Injection	**$48,551**

Assumptions

- All water used for remedial activities described within this proposal will be available from onsite fire hydrants or another source with equivalent flow rate provided by REA.
- ORIN will maintain site cleanliness by properly disposing refuse, including used PPE.
- Information supplied to ORIN from REA is accurate and representative regarding the site contaminants and concentrations, area and volume of materials to treat, and the geology of the site.
- Treatment chemical, injection equipment, Geoprobe, vac truck, and ORIN injection personnel are included in the estimated cost.
- ORIN is responsible for administering the chemicals.
- ORIN will prepare and implement a site-specific health and safety plan upon award of this project. Preparation costs are included.
- REA is responsible for traffic control, if necessary.
- REA is responsible for acquiring the proper permits no later than the beginning of the scheduled remediation start date.
- REA is responsible for marking all private and public utility lines in or near the area of concern.
- REA is responsible for signing off on the final locations of the injection points.
- ORIN will not be responsible for any treatment chemistry infiltration into nearby utility trenches, sewer systems, basements, catch basins, etc.
- The site is accessible to ORIN and ORIN's subcontractor's equipment.

ORIN Technologies

Health and Safety

To ORIN, health and safety is not just a priority, it's a value. By being proactive instead of reactive, ORIN has learned to identify and listen to health and safety triggers, such as fatigue, emotion and rushing. ORIN reports near misses and lessons learned to help facilitate open discussions with clients and vendors alike about health and safety on our projects.

ORIN is ISN certified. ISN is a certification that ensures all members are up to date and compliant with safety standards and training in some of the most safety conscious industries. We pursued ISN certification to show our commitment to health and safety, and to ensure we meet even the most stringent requirements for companies we work with.

ORIN subscribes to Occupational Safety and Health Administration (OSHA)- and United States Environmental Protection Agency (USEPA)-mandated Health and Safety standards for protection of hazardous waste workers. Because of the wide range of potential exposures for our employees, ORIN must make conservative judgments as to potential health risks. The services outlined in this proposal are offered based on providing Level D health and safety protection (Tyvek®, steel-toed boots, hard hats, nitrile gloves, hearing protection, eye protection, and air-purifying respirators). ORIN personnel will abide by the applicable OSHA guidelines for personal safety outlined in 29 CFR 1910.

Prior to daily commencement of injection activities, ORIN will conduct health and safety tailgate meetings with all applicable onsite personnel. The meetings will include but will not be limited to: discussion of the work planned for the day and any potential hazards, changes in work assignment, any problems encountered during past operations, and any other pertinent health and safety issues.

We look forward to working with you on this project. If you have additional questions or comments, please feel free call our office at (608) 838-6699 or my cell phone at 608-514-2095.

Sincerely,

Tyler Emerson
Project Manager
ORIN Technologies, LLC.

ORIN Technologies, LLC.
405 Investment Court, Verona, WI 53593 Phone 608-838-6699 Fax 608-838-6695

Soil Essentials
CORE • VAPOR • GROUNDWATER INVESTIGATION

BID ESTIMATE

4/12/2021	Resource Engineering Associates, Inc.
Well / Peizometer	3510 Parmenter St Suite 100
3330 University Ave., Madison, WI	Middleton, WI 53562
Soil Essentials Job #	Attn: Bill Buckingham

Thank you for the opportunity to provide a proposal for this project. Soil Essentials is a woman owned business. We respectfully submit the following scope of services for the project referenced above:

➡ MOB (includes decon)	$600.00
➡ Geoprobe Footage Rate 4.25 auger	
1 Borings to 27 feet @ $16.00 / foot	$432.00
1 Borings to 43 feet @ $16.00 / foot	$688.00
➡ 2 Inch PVC	
70 Feet @ $16.00 / foot	$1,120.00
➡ Flushmounts	
2 @ $140.00 / each	$280.00
➡ Concrete Penetrations - $65.00 each	
➡ Asphalt Penetrations - $5.00 each	
➡ Drums - $65.00 each	
➡ Water Samples - $50.00 each	
➡ Impacted Soil Disposal Available	
ESTIMATE TOTAL	**$3,120.00**
Minimum Charge	

Bond Cost (if required)
Add 1.5% to the overall scope of services to cover bonding costs

Please note that additional authorized work, not specifically included with this proposal, will be billed at applicable time and material rates. If you have any questions, you can reach me at 815/265-6585.

Sincerely,

Jeff Anderson
Operations Manager

Proposal and Terms & Conditions Accepted by:

Signature

Print Name

Date