April 7, 2025

Kanon Kupferer
Ichijo USA Co., Ltd
1406 140th Place Northeast Suite 104
Bellevue, Washington 98007

Re: Supplemental Subsurface Investigation and Disproportionate Cost Analysis Report
Former Brookdale Golf Course
1802 Brookdale Road East
Tacoma, Washington 98445

Dear Mr. Kupferer:

J.S. Held, LLC (J.S. Held) is pleased to submit this *Supplemental Subsurface Investigation and Disproportionate Cost Analysis Letter Report* (SSI and DCA) for the Former Brookdale Golf Course located at 1802 Brookdale Road East in Tacoma, Washington (subject property, or "Site"). The work detailed herein is being performed on behalf of Ichijo USA Co., Ltd. (Ichijo, or 'Client'). The subject property was previously operated as a golf course facility and is currently being redeveloped as a residential neighborhood consisting of single-family homes. Ichijo currently owns the subject property. A general vicinity map is included in **Figure 1.**

All work performed is in support of Client's efforts to comply with the requirements of the Model Toxics Control Act (Revised Code of Washington [RCW] 70A.305) and its implementing regulations (Washington Administrative Code [WAC] 173-340, collectively "MTCA").

The subject property is currently enrolled in the Washington State Department of Ecology's (Ecology) Expedited Voluntary Cleanup Program (EVCP). The EVCP site ID is XS0016 and Mr. Frank Winslow is the Site manager.

The work described herein was performed in response to Ecology's Opinion Letter, dated January 30th, 2023. In review of the letter and in consultation with Ecology, Ecology's primary concerns were the sufficiency of groundwater characterization for the Site and subsequent cleanup level development. A *Groundwater Assessment Work Plan*, dated January 16, 2024, was prepared by TRC Environmental Corporation (TRC) and submitted to Ecology for review prior to implementation. TRC's work plan was conditionally accepted via email on January 17, 2024. Ecology's opinion letter and TRC's work plan are included in J.S Held's *Site Status letter*, dated June 24, 2024 (**Attachment A)**.

J.S. Held implemented the work plan in February 2024. The general objective of the assessment was to empirically demonstrate that current soil conditions are protective of groundwater for dieldrin. The assessment included the installation of 10 monitoring wells. Surface water sampling in select locations was also performed as part of the assessment. Monitoring well locations and surface water sampling locations are included on **Figure 2**.

Groundwater samples were collected from the newly installed monitoring wells in March 2024. A total of 10 groundwater samples were submitted for analysis of dieldrin. Dieldrin was detected in only one monitoring well (JSH-MW-7). Additional groundwater samples were collected from JSH-MW-7 to further assess groundwater conditions near JSH-MW-7. A total of three groundwater samples were collected at JSH-MW-7. Dieldrin was detected at concentrations ranging from 0.014 to 0.084 micrograms/liter (µg/L) which exceeds the MTCA Method B Groundwater Cleanup Level (Method B CUL) of 0.0055 µg/L.

Groundwater analytical results from the groundwater assessment indicate that dieldrin impacts to groundwater are localized and limited to the area near monitoring well JSH-MW-7. The findings of the 2024 groundwater assessment are detailed in J.S. Held's *Site Status letter*, dated June 24, 2024 **(Attachment A)**.

On May 23, 2024, a conference call was held between J.S. Held and Mr. Winslow to discuss the findings of the groundwater assessment. Also discussed was the potential of establishing a parcel-specific environmental covenant near monitoring well JSH-MW-7 where localized dieldrin impacts to groundwater were identified. Mr. Winslow provided comments in response to the Site Status letter via email correspondence, dated July 3, 2024 (**Attachment B**). Several key points were raised regarding the proposed remedy, including periodic monitoring and institutional controls memorialized in an environmental covenant:

1. Additional groundwater characterization would be required at JSH-MW-7 to define the extent of dieldrin impacts to groundwater.
2. A disproportionate cost analysis (DCA) would be required to support the proposed remedy of institutional controls with periodic monitoring.
3. The proposed environmental covenant area may need to be expanded to include Tract F unless data can demonstrate the absence of dieldrin in this area.

During discussions with Mr. Winslow, it was determined that further characterization of groundwater impacts near JSH-MW-7 was necessary to support the proposed environmental covenant area. The SSI and DCA documented herein was performed in response to the comments provided by Mr. Winslow and Ecology. The work performed and documented in this report directly addresses these comments through targeted investigation and development of a DCA.

Objective

The general objective of this report is as follows:

- Document recently completed subsurface investigation activities;
- Detail the findings of the investigation; and
- Provide a DCA to support a restrictive no further action (NFA) determination with institutional controls.

Additional Groundwater Characterization

The following sections detail the additional groundwater characterization techniques and findings.

Monitoring Well Installation

On September 27, 2024, two monitoring wells were installed (JSH-MW-11 and JSH-MW-12) in locations upgradient and downgradient of monitoring well JSH-MW-7. Monitoring well locations are depicted on **Figure 3**. The upgradient and downgradient locations of the monitoring wells were agreed upon during the May 23, 2024 conference call with Ecology. The monitoring wells were installed at depths ranging from 20-feet to 25-feet using hollow-stem-auger (HSA) drilling methods.

Soil conditions encountered during drilling at each location were logged using the Unified Soil Classification System (USCS) with visual-manual procedures (ASTM Method 2488D).

Two soil samples were collected from each monitoring well location. Samples were placed in clean, unused, laboratory-supplied containers, and labeled with pertinent sampling information. All samples were immediately placed on ice in a cooler upon collection. All samples were transported under strict chain-of-custody procedures to Friedman & Bruya of Seattle, Washington. Soil samples were submitted for total organic carbon (TOC) using U.S. Environmental Protection Agency (EPA) Method 9060.

Groundwater levels measured during well installation showed several existing wells were dry due to significant seasonal drops in site-wide groundwater. It was determined that a 15-feet section of 0.010 slotted well screen was warranted to ensure wells remained effective in capturing groundwater year-round. Wells were constructed in accordance with the "Minimum Standards for Construction and Maintenance of Wells" (WAC 173-160) under the supervision of a Washington-licensed well driller and an experienced environmental professional from J.S. Held. Monitoring well completion logs are included in **Attachment C**.

After completion, each well was developed to remove fine materials accumulated within the well during drilling and to set the filter pack. The wells were then allowed to equilibrate prior to groundwater sampling. The locations of the two new monitoring wells were surveyed to establish horizontal location and vertical elevation by a Washington-licensed surveyor.

Groundwater Sampling

Groundwater sampling was performed on October 8, 2024, using standard low-flow sampling techniques. Prior to sampling, groundwater elevations were measured in all monitoring wells using an electronic water level meter. The depth to water was measured to the nearest 0.01 foot, relative to a surveyed point on the north side of the PVC well casing. Groundwater was purged using a peristaltic pump at no more than 200 milliliters per minute. Field parameters were observed every 3 to 5 minutes until stabilization was achieved. Groundwater was considered stabilized after at least three consecutive readings fit the following criteria:

- Temperature: +/- 0.1C
- pH: +/- 0.1 pH units
- Specific conductance: +/- 3%
- Dissolved Oxygen: +/- 0.3 mg/L (optional)
- Oxidation Reduction Potential: +/- 10 millivolts (optional)
- Turbidity ± 10% (when turbidity is greater than 10 NTUs)

A total of two groundwater samples were collected from JSH-MW-11 and JSH-MW-12.

Samples were placed in clean, unused, laboratory-supplied containers, and labeled with pertinent sampling information. All samples were immediately placed on ice in a cooler upon collection. All samples were transported under strict chain-of-custody procedures to Friedman & Bruya of Seattle, Washington. Each groundwater sample was submitted for analysis of dieldrin using U.S. EPA Method 8081B.

Findings

Piezometric Conditions

Groundwater elevations at the subject property ranged from 307.79-feet to 317.16-feet above mean sea level. Approximately five of the 12 monitoring wells were dry during the October 2024 groundwater monitoring event. Groundwater elevation data indicate groundwater flow direction at the subject property is generally in a north direction with a horizontal hydraulic gradient of 0.018 feet/foot. On average, groundwater levels dropped 4.7 feet between March and October 2024 measurements. Groundwater elevation data are presented in **Table 1**. **Figure 4** depicts groundwater flow direction and elevations from the October 2024 groundwater monitoring event.

Soil Analytical Results

A total of four soil samples were submitted for analysis of TOC. A summary of cumulative soil analytical results is provided in **Table 2**. Copies of the laboratory analytical reports are provided in **Attachment D**.

TOC was detected at concentrations ranging from 0.494 mg/kg to 4.03 mg/kg.

Groundwater Analytical Results

A total of two groundwater samples were submitted for analysis. A summary of cumulative groundwater analytical results is provided in **Table 3**. Copies of the laboratory analytical reports are provided in **Attachment D**.

Dieldrin was not detected in groundwater samples collected from JSH-MW-11 and JSH-MW-12 at a concentration that exceeded the laboratory reporting limit of 0.005 µg/L.

Extent of Impacts

Analytical results indicate that upgradient and downgradient sampling locations proximate to monitoring well JSH-MW-7 are not impacted with dieldrin. Impacts appear to be limited and localized to a small area (less than a 50-foot radius) around JSH-MW-7. Sample locations and analytical results are depicted on **Figure 5.**

Disproportionate Cost Analysis

This section presents an evaluation and comparison of the proposed remedial alternatives for selecting the preferred cleanup action for purposes of generating a Disproportionate Cost Analysis (DCA). The DCA was prepared to evaluate criteria using weighting factors consistent with those established and previously accepted by Ecology. The weighted values were summed, and the summed scores are compared to the estimated cost of each alternative to generate the DCA. A remedial alternatives scoring sheet is provided in **Table 4**.

Order-of-magnitude costs have been estimated for each alternative based on the descriptions and associated assumptions presented in the sections below. Costs are summarized for each respective alternative and are provided in **Table 5** though **Table 7**. The order-of-magnitude costs are based on typical costs for Washington State and current knowledge. These costs are for comparison purposes only and actual implementation costs will vary from those provided.

Description of Alternatives

Applicable cleanup action technologies have been identified and screened for potential inclusion in the remediation alternatives for the Site. Each identified technology was screened based on applicability to site conditions, overall effectiveness, implementability, and relative cost. The technologies selected for further evaluation included institutional controls, groundwater extraction, excavation, and in-situ treatment techniques. Ultimately, excavation was not selected as part of this evaluation due to depths of saturated soils and unstable soil conditions. Soil removal and disposal of saturated soils and increased need for safety and shoring measures for type C soils makes this cleanup action not practicable. Based on the screening evaluation and MTCA's threshold and other requirements, the following alternatives have been selected for evaluation:

Alternative 1 – Institutional Controls

Alternative 2 – Groundwater Extraction System

Alternative 3 – In-situ Bioremediation

Descriptions of each of the alternative are provided below.

Alternative 1 - Institutional Controls

Alternative 1 involves implementation of institutional controls in the form of legal deed restrictions on groundwater use at the subject property to limit exposure. Groundwater use restrictions would prohibit the use of Site groundwater as a source of potable water to prevent contact with or ingestion of dissolved contaminants. The area governed by a potential environmental covenant will be proximate to monitoring well JSH-MW-7 and would encompass the "open space" south of Chesney Avenue East, Tract EE, and Tract F. The proposed environmental covenant area is depicted in **Figure 3**. A breakdown of the estimated cost to implement Alternative 1 is provided in **Table 5**. Implementation of institutional controls would include the following elements:

- Professional survey of the environmental covenant area (or equivalent);
- Drafting of an environmental covenant document;
- Consultation with Ecology, the Client, and local land use planning officials; and
- Compliance groundwater monitoring.

Completion of Alternative 1 includes the following assumptions:

- Development of a new legal description and map for the subject property showing the location where the deed restriction applies will be required. Boundary markers or reference monuments need to be established by a Washington State licensed surveyor;
- Compliance groundwater monitoring will be conducted every 15 months for approximately five years, totaling four monitoring events;
- Certain land use restrictions will be applied to the environmental covenant to prevent exposure to contaminated groundwater. The covenant will include details such as groundwater use, land use restrictions, and construction restrictions, and can be drafted by either Ecology or the Client. Consultation with the Client, legal counsel, and the proper regulatory agencies will be required to ensure the covenant's terms comply with local regulations and land use plans;
- Site restoration activities will require decommissioning all 12 groundwater monitoring wells by a Washington State licensed driller or professional engineer; and
- A final report documenting the details of the environmental covenant will be submitted to appropriate regulatory agencies for review and approval.

Alternative 2 - Groundwater Extraction System

Alternative 2 involves the installation and operation of a localized groundwater extraction system. The system would consist of submersible and/or above-ground pumps to extract impacted groundwater. Implementation of this technology would require installation of several recovery wells near monitoring well JSH-MW-7. Impacted groundwater would be routed via recovery trenches to a system enclosure where water can be directly discharged to the city sewer for treatment. A breakdown of the estimated cost to implement Alternative 2 is provided in **Table 6.** Implementation of a groundwater extraction system would include the following elements:

Pre-Remedial Activities

- A pilot test to assess the feasibility of a groundwater extraction system and facilitate proper system design and operation;
- One or more extraction well(s) would be required to be installed for the pilot study;
- Preparation of Engineering Design Report (EDR) by a professional engineer, including engineering drawings and specifications for the remediation system, equipment used, layout, and operational parameters; and
- Contractor bid solicitation and contracting.

Groundwater Extraction System Installation

- Obtaining necessary permits for installation, including but not limited to building permits, electrical work, and groundwater discharge permit;
- Installation of extraction wells, trenches, conveyance piping and pumps;
- Installation of instrumentation, control system, and treatment system enclosure;
- Electrical and plumbing services; and
- System startup and optimization.

Operation and Maintenance (O&M)

- Annual system maintenance and repair;
- Groundwater influent and effluent sampling;
- Bi-monthly site visits; and
- Cost for electrical usage and equipment replacement.

Performance and Compliance Monitoring

- Annual groundwater sampling;
- Sampling labor, equipment, and analytical costs;
- Investigation derived waste (IDW) disposal; and
- Annual compliance reporting.

Completion of Alternative 2 includes the following assumptions:

- Compliance groundwater monitoring will occur bi-annually for four years and quarterly for the final year of compliance sampling, totaling 12 monitoring events;
- Bid solicitation of up to three subcontractors to perform system installation and startup;
- Installation of up to three, 6-inch PVC extraction wells. The number of extraction wells is contingent on hydrogeological conditions and pilot testing results;
- Groundwater will be directly discharged to city sewer for treatment by publicly owned treatment works (POTW);

- Estimates for system operation and maintenance are based on an operational period of five years. The actual system operation duration will depend on extent of groundwater impacts, hydrogeological conditions, and system performance;
- Site restoration activities will require system decommissioning and removal, surface reclamation, and decommissioning all 12 groundwater monitoring wells by a Washington State licensed driller or professional engineer; and
- A final report documenting the cleanup will be submitted to appropriate regulatory agencies for review and approval.

Alternative 3 - In-situ Bioremediation

Alternative 3 involves *in-situ* bioremediation through injection of treatment technologies. *In-situ* bioremediation would consist of injecting a substrate and bacterial culture via drilling rig techniques or similar methods. A mixture of a reducing agent and carbon source would be injected into impacted groundwater. Upon contact with the contaminant, injection substrate works in conjunction with specially prepared microbial cultures that degrade dieldrin to less harmful compounds. The use of drilling rig techniques with specialized injection tooling would deliver bioremediation media to target groundwater depths and locations. A breakdown of the estimated cost to implement Alternative 3 is provided in **Table 7.** Implementation of *in-situ* bioremediation technology would include the following elements:

Pre-Remedial Activities

- Collecting baseline groundwater geochemical data to evaluate ambient groundwater conditions and total bacterial culture count;
- Completion of bench scale testing to evaluate effectiveness of remedial injections prior to implementation of full-scale events;
- Design injection media mixture based on baseline groundwater data and bench scale testing; and
- Contractor bid solicitation and contracting.

***In-situ* Bioremediation Injections**

- Bioremediation media and bacterial culture delivered via direct push injections using drilling rig techniques;
- Mobilization of equipment and site preparation;
- Injection media, bacterial culture, drilling subcontractor and equipment costs; and
- J.S. Held contractor oversight.

Performance and Compliance Monitoring

- Bi-annual groundwater sampling;
- Sampling labor, equipment, and analytical costs;
- IDW disposal; and

- Annual compliance reporting.

Completion of Alternative 3 includes the following assumptions:

- A total of two injection events will be conducted. The performance of remedial injections will be highly dependent on microbial presence, geochemical conditions of groundwater, nutrient availability, and hydrogeological conditions. Additional injection events may be required;
- Compliance groundwater monitoring will occur bi-annually for four years and quarterly for the final year of compliance sampling, totaling 12 monitoring events;
- Site restoration activities will require decommissioning all 12 groundwater monitoring wells by a Washington State licensed driller or professional engineer; and
- A final report documenting the cleanup will be submitted to appropriate regulatory agencies for review and approval.

Evaluation of Remedial Alternatives

This section presents an evaluation and comparison of the proposed remedial alternatives for selecting the preferred cleanup action. In accordance with MTCA, the alternatives are evaluated relative to the criteria specified in WAC 173-340-360(5)(d), which include the following:

- Protectiveness;
- Permanence;
- Effectiveness over the long term;
- Management of implementation risks;
- Technical and administrative implementability; and
- Costs.

The overall evaluation is then used to calculate the relative ranking of each alternative compared to the other alternatives.

Each of the alternatives are subjectively ranked between 1 and 5 for each of the sub-criteria; 5 being the best and 1 being the worst. The sub-criteria values are then averaged to provide the criterion score. The sum of the criterion scores is then used as a final score to rank each alternative.

The subjective rankings are based on professional judgment, the understanding and application of established scientific and engineering principles, experience with other sites and similar technologies, vendor information, and our understanding of specific Site conditions that could and would affect each of the alternatives.

For the DCA, the non-cost based criteria were analyzed using weighting factors established by Ecology. The weighted values were summed, and the summed scores are compared to the estimated cost of each alternative. A brief description of scoring components is provided below. The results of the remedial alternatives criteria scoring is provided in **Table 8**.

Protectiveness

Protectiveness is defined in WAC 173-340-360(5)(d)(i) as:

> *"The degree to which the alternative protects human health and the environment, including likely vulnerable populations and overburdened communities. When assessing protectiveness, consider at least the following:*
>
> *(A) The degree to which the alternative reduces existing risks;*
>
> *(B) The time required for the alternative to reduce risks at the site and attain cleanup standards;*
>
> *(C) The on-site and offsite risks remaining after implementing the alternative; and*
>
> *(D) Improvement of the overall environmental quality."*

All of the proposed remedial alternatives are protective of human health and the environment. Alternatives 2 and 3 actively remediate impacted groundwater beneath the Site. Alternative 1 does not actively reduce contamination; however, it reduces risk with a higher level of certainty than the other alternatives by blocking access to groundwater in perpetuity.

Alternative 2 received the highest score, followed, in order, by Alternative 1 and 3.

Permanence

Permanence is defined in WAC 173-340-360(5)(d)(iI) as:

> "The degree to which the alternative permanently reduces the toxicity, mobility, or mass of hazardous substances, including:
>
> *(A) The adequacy of the alternative in destroying the hazardous substances;*
>
> *(B) The reduction or elimination of hazardous substance releases and sources of releases;*
>
> *(C) The degree of irreversibility of waste treatment process; and*
>
> *(D) The characteristics and quantity of treatment residuals generated."*

At the completion of remedial activities, all of the alternatives would result in a solution that is adequately permanent. Proposed technologies in Alternatives 2 and 3, if successfully implemented, would be permanent, but the degree of certainty in the success of the technology varies. Alternative 1 does not reduce or eliminate contamination. It is ranked moderately high based primarily on a high degree of irreversibility while generating no waste stream.

Alternative 2 received the highest score, followed, in order, by Alternative 3 and 1.

Effectiveness over the Long Term

Effectiveness over the long term is defined in WAC 173-340-360(5)(d)(iii):

> *"The degree to which the alternative is likely to be effective over the long term, including for vulnerable populations and overburdened communities. When assessing the long-term effectiveness of the alternative, consider at least the following:*
>
> *(I) The degree of certainty that the alternative will be successful;*
>
> *(II) The reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels;*
>
> *(III) The resilience of the alternative to climate change impacts;*
>
> *(IV) The magnitude of residual risk with the alternative in place; and*
>
> *(V) The effectiveness of controls required to manage treatment residues or remaining wastes."*
>
> *"Except as provided for sediment sites and cleanup units in WAC 173-204-570(4), when assessing the relative degree of long-term effectiveness of cleanup action components, the following types of components may be used as a guide, in descending order:*
>
> *(I) Reuse or recycling;*
>
> *(II) Destruction or detoxification;*
>
> *(III) Immobilization or solidification;*
>
> *(IV) On-site or offsite disposal in an engineered, lined and monitored facility;*
>
> *(V) On-site isolation or containment with attendant engineering controls; and*
>
> *(VI) Institutional controls and monitoring."*

All of the proposed alternatives have the intent of effectively protecting human health and the environment over the long term; however, there are varying levels of certainty and reliability associated with proposed technologies in Alternatives 2 and 3. Alternative 1 is ranked highly based primarily on a high degree of certainty and reliability.

Alternative 1 received the highest score, followed, in order, by Alternative 2 and 3.

Management of Implementation Risks

Management of short-term risks is defined in WAC 173-340-360(5)(d)(iv):

> *"The risks to human health and the environment, including likely vulnerable populations and overburdened communities, associated with the alternative during construction and implementation, and the effectiveness of the alternative to manage such risks."*

All of the proposed alternatives have manageable short-term risks and effective measures for remediating risks by active treatment or mitigating risks by institutional controls. The proposed technologies in

Alternatives 2 and 3 are relatively simple to implement but do pose moderate risks due to potential exposures to treatment chemicals and contaminated groundwater. Alternative 1 poses no risk to implement, and therefore scored the highest.

Alternative 1 received the highest score, followed, in order, by Alternative 2 and 3.

Technical and Administrative Implementability

Technical and administrative implementability is defined in WAC 173-340-360(5)(d)(v):

"The ability to implement the alternative, including consideration of:

(A) The technical difficulty of designing, constructing, and otherwise implementing the alternative in a reliable and effective manner, regardless of cost;

(B) The availability of necessary offsite facilities, services, and materials;

(C) Administrative and regulatory requirements;

(D) Scheduling, size, and complexity;

(E) Monitoring requirements;

(F) Access for construction operations and monitoring; and

(G) Integration with existing facility operations."

Proposed Alternatives 2 and 3 are both technically feasible and have demonstrated their effectiveness at similar sites; however, these alternatives are also considered to be the most technically difficult in terms of design and implementation. Alternative 1 ranks highest among the three in all categories for consideration of technical and administrative implementability. Alternative 1 offers the best option to seamlessly integrate into existing facility operations. It is least the lease complex and technically challenging in its design and implementation.

Alternative 1 received the highest score, followed, in order, by Alternative 3 and 2.

Cost

Cost is defined in WAC 173-340-360(5)(d)(vi):

"The costs of remedial actions necessary to implement the alternative, including:

(A) Construction costs, such as preconstruction engineering design and permitting, physical construction (including labor, equipment, materials, and contingencies), waste management and disposal, compliance monitoring during construction (including sampling and analysis), construction management, establishment of institutional controls, regulatory oversight, and quality assurance and quality control; and

(B) Postconstruction costs, such as operation and maintenance activities necessary to maintain the effectiveness of a constructed cleanup action component, waste

management and disposal, replacement or repair of equipment (including labor, equipment, and materials), permit renewal, compliance monitoring (including sampling and analysis), maintaining institutional controls, financial assurances, periodic reviews, postconstruction management, and regulatory oversight.

(I) ***Design life.*** *Estimate the design life of cleanup action components, including engineered controls. If the period of time in which a component is needed exceeds the design life of the component, include the cost of replacing or repairing the component in the cost estimate.*

(II) ***Future costs.*** *Discount postconstruction costs using present worth analysis doing the following:*

- *Estimate future costs using constant-year dollars; and*
- *Discount future costs using the current U.S. Treasury real interest rate for bonds of comparable maturity to the period of analysis. If project costs exceed 30 years, use the current U.S. Treasury 30-year real interest rate. "*

Order of magnitude costs have been estimated for each of the alternatives. These costs are for comparison purposes only and actual implementation costs will vary from those provided below. These estimated costs incorporate a variety of necessary assumptions, and the accuracy of those assumptions cannot be fully known at this time. The following table summarizes these estimated costs, and a more detailed analysis of costs is provided in **Table 5 through Table 7**.

Disproportionate Cost Analysis Results

As previously discussed, each alternative was assigned a score for each of the criteria. A score of 5 represents the highest overall perceived benefit and a score of 1 represents the lowest overall perceived benefit. The raw scores are summarized below and are weighted for each criterion according to weighting factors established by Ecology. The sum of the individual weighted scores for each alternative represents a value of the overall benefit of the alternative. The chart below present the DCA using the estimated order-of-magnitude costs and net benefit values presented above.

Cost-To Benefit Analysis Chart

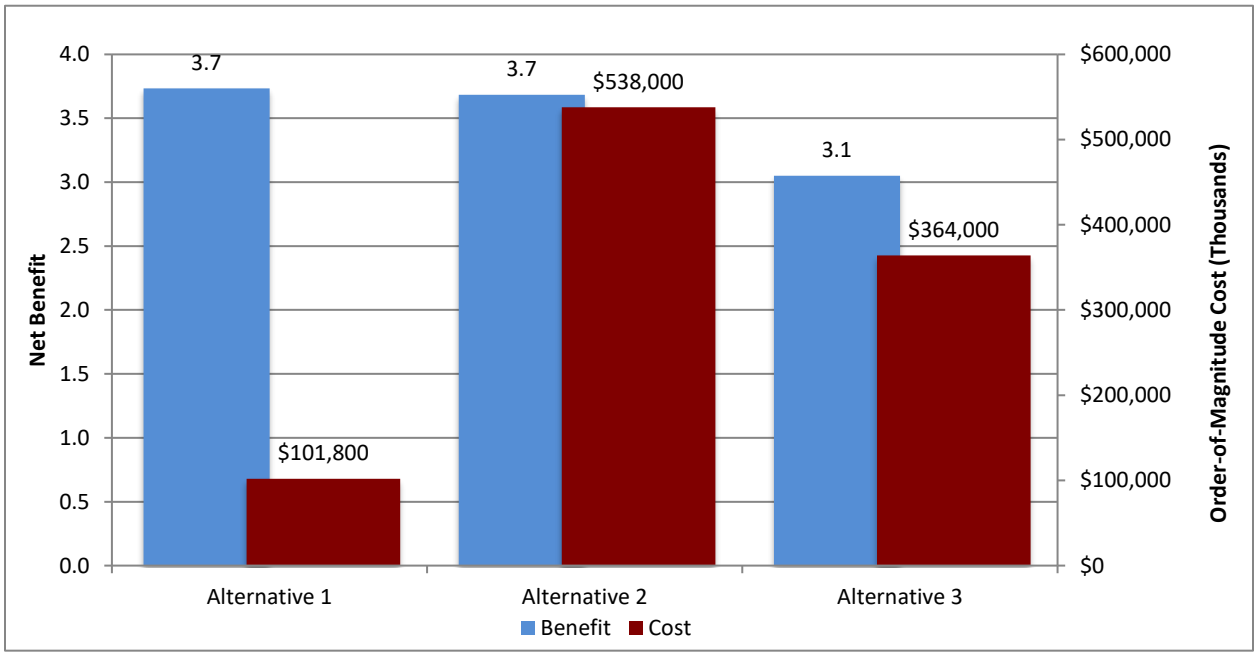

Table 8 - Remedial Alternatives Scoring Summary

Factor	Weighting[a]	Alternative 1: Institutional Controls		Alternative 2: Groundwater Extraction System		Alternative 3: In-situ Bioremediation	
		Rank[b]	Value[c]	Rank	Value	Rank	Value
Protectiveness	0.3	3.5	1.05	3.8	1.15	3.3	1.00
Permanence	0.3	3.0	0.90	4.0	1.20	3.7	1.11
Effectiveness Over the Long Term	0.2	4.0	0.80	3.5	0.70	2.0	0.40
Management of Implementation Risk	0.1	5.0	0.50	3.0	0.30	2.5	0.25
Technical and Administrative Implementability	0.1	4.8	0.48	3.3	0.33	3.5	0.35
Sum	**1**	**3.7**		**3.7**		**3.1**	

Notes:
a Ecology-prescribed weighting factors.
b Subjective ranking as discussed in the Report. Highest rank is 5 and lowest rank is 1.
c Weighting values consistent with those established and previously accepted by Ecology.

Conclusions

The following conclusions are supported by the findings of the SSI and DCA detailed in this report:

- Groundwater impacts associated with monitoring well JSH-MW-7 have been fully characterized. The extent of groundwater impacts does not extend beyond upgradient monitoring well JSH-MW-12 and downgradient monitoring well JSH-MW-11.
- Groundwater impacts remain limited and localized to an undeveloped area of the subject property consisting of the "open space" south of Chesney Avenue East, Tract EE, and Tract F.
- Based on the DCA, Alternative 1 (Institutional Controls) is the best alternative and meets the MCTA criteria for the selection of this remedial alternative. This approach is protective of human health and the environment, provides the best cost-to-benefit ratio, and can be readily implemented.
- Implementation of an environmental covenant with periodic compliance monitoring will be required to obtain a restrictive No Further Action (NFA) determination from Ecology. The area governed by a potential environmental covenant will be proximate to monitoring well JSH-MW-7 and would encompass the "open space" south of Chesney Avenue East, Tract EE, and Tract F. The proposed area for the environmental covenant is depicted on **Figure 3.**
- Based on the findings of the cumulative work completed at the Site and the implementation of an environmental covenant in the area where dieldrin impacts to groundwater remain, no further remediation at the Site is warranted.

- Ichijo will perform any Site monitoring as required by Ecology, in accordance with the conditions of the environmental covenant for institutional controls. Ichijo understands that the sampling frequency will be once every 16 months for the duration of 5 years until the Ecology 5-year review period, which is four total events.
- Ichijo respectfully requests that a restrictive NFA for the Site be granted once the environmental covenant is recorded with the appropriate governing bodies, pursuant to the Model Toxics Control Act ("MTCA"), chapter 70.105D Revised Code of Washington and Uniform Environmental Covenants Act ("UECA"), chapter 64.70 RCW.

Please contact me at (206) 451-5225 should you have any questions or want to discuss further.

Sincerely,

Austin York, L.G.
Project Geologist

Eric Koltes, L.G.
Principal Geologist

ENCLOSURES

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Table 1 – Groundwater Elevations
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Table 3 – Groundwater Analytical Results
Table 4 – Remedial Alternatives Scoring Results
Table 5 – Alternative 1 – Institutional Controls
Table 6 – Alternative 2 – Groundwater Extraction System
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Table 8 – Remedial Alternative Scoring Summary (Embedded)

Figures
Figure 1 – General Vicinity Map
Figure 2 – Site Representation Map
Figure 3 – Proposed Environmental Covenant Area
Figure 4 – Groundwater Elevation Map (October 2024)
Figure 5 – Groundwater Analytical Results

Attachments
Attachment A – Site Status Letter
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Tables

Table 1
Groundwater Elevations
Supplemental Subsurface Investigation and DCA Report
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample ID	Date	Depth to Water (feet)	Elevation of Top of Casing[a]	Calculated Groundwater Elevation
JSH-MW-1	3/5/2024	13.01	326.62	313.61
	10/8/2024	16.21		310.41
JSH-MW-2	3/5/2024	14.60	323.96	309.36
	10/8/2024	Dry		Dry
JSH-MW-3	3/5/2024	4.88	319.80	314.92
	10/8/2024	11.58		308.22
JSH-MW-4	3/5/2024	9.45	323.17	313.72
	10/8/2024	NM		NM
JSH-MW-5	3/5/2024	7.88	329.94	322.06
	10/8/2024	12.78		317.16
JSH-MW-6	3/5/2024	11.00	327.62	316.62
	10/8/2024	Dry		Dry
JSH-MW-7	3/5/2024	7.18	323.68	316.50
	3/29/2024	7.89		315.79
	5/9/2024	9.21		314.47
	10/8/2024	Dry		Dry
JSH-MW-8	3/5/2024	13.61	329.90	316.29
	10/8/2024	Dry		Dry
JSH-MW-9	3/5/2024	13.31	330.04	316.73
	10/8/2024	Dry		Dry
JSH-MW-10	3/5/2024	12.18	324.98	312.80
	10/8/2024	15.69		309.29
JSH-MW-11	10/8/2024	17.98	325.77	307.79
JSH-MW-12	10/8/2024	14.04	321.83	311.73

Note:

a Wells surveyed by Pace on March 5 and October 18, 2024, referenced to North American Vertical Datum of 1988 (NAVD88).

NM Not measured - Well buried under construction debris.

Table 2
Soil Analytical Results
Supplemental Subsurface Investigation and DCA Report
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample ID	Sample Depth (feet)	Sample Date	Total Organic Carbon[a]
JSH-MW-1:2	2	2/19/2024	<0.400
JSH-MW-1:15	15	2/19/2024	<0.400
JSH-MW-2:2	2	2/19/2024	**1.6**
JSH-MW-2:15	15	2/19/2024	<0.400
JSH-MW-3:2	2	2/20/2024	**2.93**
JSH-MW-3:5	5	2/20/2024	**3.84**
JSH-MW-4:2	2	2/20/2024	<0.400
JSH-MW-4:15	15	2/20/2024	<0.400
JSH-MW-5:2	2	2/20/2024	<0.400
JSH-MW-5:10	10	2/20/2024	<0.400
JSH-MW-6:2	2	2/21/2024	<0.400
JSH-MW-6:10	10	2/21/2024	<0.400
JSH-MW-7:2	2	2/21/2024	**1.15**
JSH-MW-7:10	10	2/21/2024	<0.400
JSH-MW-8:2	2	2/21/2024	**3.97**
JSH-MW-8:15	15	2/21/2024	<0.400
JSH-MW-9:2	2	2/22/2024	**0.494**
JSH-MW-9:15	15	2/22/2024	<0.400
JSH-MW-10:2	2	2/22/2024	**4.03**
JSH-MW-10:15	15	2/22/2024	<0.400
JSH-MW-11:2	2	9/26/2024	**0.658**
JSH-MW-11:20	20	9/26/2024	<0.400
JSH-MW-12:2	2	9/26/2024	**1.8**
JSH-MW-12:15	15	9/26/2024	<0.400

Notes:

All results presented in milligrams per kilogram (mg/kg).

Bold Bold results indicate that the compound was detected.

< Result is less than the laboratory reporting limit.

a Analyzed by EPA Method 9060

Table 3
Groundwater Analytical Results
Supplemental Subsurface Investigation and DCA Report
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample ID	Screen Interval (ft)	Sample Date	Dieldrin
JSH-MW-1	10-20	3/6/2024	<0.005
JSH-MW-2	10-20	3/6/2024	<0.005
JSH-MW-3	3-13	3/6/2024	<0.005
JSH-MW-4	9-19	3/6/2024	<0.005
JSH-MW-5	7-17	3/5/3034	<0.005
JSH-MW-6	5-15	3/5/2024	<0.005
JSH-MW-7	3-13	3/5/2024	**0.084**
		3/29/2024	**0.030**
		5/9/2024	**0.014**
JSH-MW-8	10-20	3/5/2024	<0.005
JSH-MW-9	10-20	3/5/2024	<0.005
JSH-MW-10	10-20	3/6/2024	<0.005
JSH-MW-11	10-25	10/8/2024	<0.005
JSH-MW-12	5-20	10/8/2024	<0.005
JSH-SW-1	NA	3/5/2024	<0.005
JSH-SW-2	NA	3/5/2024	<0.005
JSH-SW-3	NA	3/6/2024	<0.005
JSH-SW-4	NA	3/6/2024	<0.005
JSH-SW-5	NA	3/6/2024	<0.005
MTCA Method B Groundwater Cleanup Level[b]			**0.0055**

Notes:

All results presented in micrograms per liter (µg/L).

Bold	Bold results indicate that the compound was detected.
	Shaded cells indicate that the compound was detected at a concentration greater than the cleanup level.
<	Result is less than the laboratory reporting limit.
a	Analyzed by EPA Method 8081B
b	MTCA Method B Groundwater Cleanup Level used, Cleanup Levels and Risk Calculations (CLARC) guidance.
NA	Not Applicable

Table 4
Remedial Alternatives Scoring Results
Supplemental Subsurface Investigation and DCA Report
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

	Alternative 1		Alternative 2		Alternative 3	
Criteria	**Institutional Controls**	***Score*** [a]	**Groundwater Extraction System**	***Score*** [a]	**In-situ Bioremediation**	***Score*** [a]
Description/Issues	Place deed restriction on a section of the property where impacts are present. Will require implementation of institutional controls in groundwater.		Groundwater pumped via extraction wells and treated using activated carbon filtration. Clean water is discharged back into the ground or public sewer.		Injection of reducing agents and microorganisms to activitely degrade dieldrin breakdown in the groundwater.	
Protectiveness	The degree to which the alternative protects human health and the environment, including likely vulnerable populations and overburdened communities. **WAC 173-340-360(5)(d)(i)**					
Overall Protectiveness	*Protective if maintained*	*4*	*Protective when complete*	*4*	*Protective when complete*	*4*
Reduces Existing Risks	*Reduces risks when implemented*	*4*	*Reduces risks when implemented*	*4*	*Reduces risks when implemented*	*4*
Time Required to Reduce Risk	*Longer duration to reduce risks*	*2*	*Shorter duration to reduce risks*	*3*	*Moderate duration to reduce risks*	*2*
On-Site Risks	*Reduces risk with high level of certainty*	*5*	*Reduces risks with high level of certainty*	*3*	*Reduces risks with moderate level of certainty*	*3*
Off-Site Risks	*Reduces risks with lower level of certainty*	*5*	*Reduces risks with high level of certainty*	*5*	*Reduces risks with moderate level of certainty*	*3*
Improvement in Environmental Quality	*No immediate change in environmental quality*	*1*	*High level of improvement*	*4*	*High level of improvement*	*4*
Criterion Score		***3.5***		***3.8***		***3.3***
Permanence	The degree which the alternative permanently reduces the toxicity, mobility, or mass of hazardous substances. **WAC 173-340-360(5)(d)(ii)**					
Reduces Toxicity, Mobility, and Volume	*Does not reduce toxicity, mobility, or volume*	*1*	*Reduces toxicity, mobility, and volume*	*5*	*Reduces toxicity, mobility, and volume slowly*	*4*
Degree of Irreversibility	*Largely irreversibility*	*3*	*Largely Irreversible*	*5*	*Moderately irreversible, potential rebound*	*4*
Waste Characteristics	*No waste stream*	*5*	*Generates large volume of waste*	*2*	*Moderate volume of waste*	*3*
Criterion Score		***3.0***		***4.0***		***3.7***
Effectiveness Over the Long Term	The degree to which the alternative is likely to be effective over the long term, including for vulnerable populations and overburdened communities. **WAC 173-340-360(5)(d)(iii)**					
Degree of Certainty	*High Degree of Certainty*	*4*	*Moderately to highly certain*	*3*	*Moderate to low certainty*	*2*
Reliability	*Highly reliable*	*4*	*Moderately to highly reliable*	*3*	*Moderately reliable*	*3*
Residual Risk	*Low*	*4*	*Moderate, includes waste*	*3*	*Moderate*	*3*
Technology Hierarchy	*High*	*4*	*High*	*5*	*Moderate to high*	*4*
Criterion Score		***4.0***		***3.5***		***3.0***
Management of Implementation Risk	The risks to human health and the environment, including likely vulnerable populations and overburdened communities, associated with the alternative during construction and implementation, and the effectiveness of the alternative to manage such risks. **WAC 173-340-360(5)(d)(iv)**					
During Construction and Implementation	*Low risks*	*5*	*Moderate risks, handling of contaminated groundwater and spent carbon*	*3*	*Moderate risks, chemical exposure*	*2*
Effectiveness of Risk Management	*Very Effective*	*5*	*Moderately effective*	*3*	*Moderately effective*	*3*
Criterion Score		***5.0***		***3.0***		***2.5***
Technical and Administrative Implementability	The ability to implement the alternative. **WAC 173-340-360(5)(d)(v)**					
Technically Possible	*Possible if property owner agrees to environmental covenant.*	*5*	*Possible, based on pilot testing and subsurface data.*	*4*	*Possible, based on pilot testing and subsurface data*	*4*
Access	*No issues related to access for implementing deed restrictions*	*5*	*No issues related to access*	*4*	*No issues related to access*	*4*
Availability of Necessary Resources	*Readily available*	*5*	*Available, possible delays with subcontractor*	*4*	*Available, possible delays with subcontractor*	*4*
Scheduling, Size, and Complexity	*Very low complexity; environmental covenant can be prepared within 2 to 4 weeks.*	*5*	*Moderate complexity and size; pump and treat system installation and startup can be completed within 8 to 12 weeks*	*3*	*Moderate to low complexity and size; permiting requirements, treatment tailored to site-specific conditions, continous monitoring.*	*3*
Monitoring Requirements	*Moderate to low*	*4*	*Moderate to High*	*2*	*Moderate to High*	*2*
Integration with Existing Features	*High, no development planned on proposed EC area*	*5*	*Moderate to low, will require coordination to minimize disruption to existing and future operations*	*3*	*Moderate, minimal disruption to existing and future operations*	*4*
Criterion Score		***4.8***		***3.3***		***3.5***
TOTAL SCORE	***20.3***		***17.7***		***16.0***	
Conceptual Level Cost [b]	**$101,800**		**$538,000**		**$364,000**	

Notes:

a Each sub-criterion is scored from 5 (best) to 1 (worst) based on the perceived benefit; the total criterion score is the average of the associated sub-criterion scores.

b Estimated cost were developed consistant with WAC 173-340-360(5)(d)(vi). See Tables 5 through 7 for a detailed analysis of estimated costs.

Table 5
Alternative 1 - Institutional Controls
Supplemental Subsurface Investigation and DCA Report
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Task	Component	Units	Basis	Unit Cost	Subtotal	Professional Labor	Component Subtotal	Task Subtotal
Implement Institutional Controls								
	Environmental Covenant	1	LS			$ 10,000	$ 10,000	
	Interactions with Agencies and Property Owner	1	LS			$ 6,000	$ 6,000	
								$ 16,000
Site Assessment								
	Proffessional Survey	1	LS	$ 5,000	$ 5,000	$ 1,000	$ 6,000	
								$ 6,000
Compliance Groundwater Sampling								
	Groundwater Monitoring							
	Sampling Labor and Equipment	1	event	$ 1,500	$ 1,500	$ 6,500	$ 8,000	
	Groundwater Analytical Costs	3	well	$ 100	$ 300		*$ 300*	
	IDW	1	drum	$ 750	$ 750		*$ 750*	
	Subtotal per Event						*$ 8,300*	
	Every 15 Months for 5 Years						*$ 33,200*	
	Groundwater Monitoring Subtotal							***$ 50,600***
Site Restoration and Closure								
	Final Report	1	LS	$ 20,000		$ 20,000	$ 20,000	
	Well Closure	12	well	$ 100	$ 1,200		$ 1,200	
	PE Labor	1	LS			$ 8,000	$ 8,000	
	Site Restoration and Closure Subtotal	1					$ 29,200	***$ 29,200***
PROJECT TOTAL								**$ 101,800**

Notes:
LS Lump sum

Table 6
Alternative 2 - Groundwater Extraction System
Supplemental Subsurface Investigation and DCA Report
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Task	Component	Units	Basis	Unit Cost	Subtotal	Professional Labor	Component Subtotal	Task Subtotal
Pre-Remedial Activities								
	Pilot Testing	1	LS	$ 5,000	$ 5,000	$ 10,000	$ 15,000	
	Treatment System Design	1	LS			$ 25,000	$ 25,000	
	Discharge Permit	1	LS			$ 5,000	$ 5,000	
	Construction Permit	1	LS			$ 10,000	$ 10,000	
	Bid Solicitation	3	each			$ 2,500	$ 7,500	
	Contracting	1	each			$ 5,000	$ 5,000	
	Pre-Remedial Activities Subtotal							***$ 67,500***
GWE Treatment System (Capital Cost)								
	GW Extraction Well Installation (6" PVC to 20ft bgs)	3	Days	$ 10,000		$ 30,000	$ 30,000	
	GW Extraction Pumps (4")	1	LS	$ 8,500	$ 8,500		$ 8,500	
	GW Extraction Wellhead Connections/Vaults	3	each	$ 2,500	$ 7,500		$ 7,500	
	Trenching and Installation of Conveyance Piping	150	LF	$ 4	$ 525		$ 525	
	Wellhead Connections/Vaults	3	each	$ 750	$ 2,250		$ 2,250	
	Installation of Conveyance Piping	150	LF	$ 5	$ 750		$ 750	
	Drill cuttings and disposal	20	drums	$ 350	$ 7,000		$ 7,000	
	POTW Cost	1	LS	$ 10,000	$ 10,000		$ 10,000	
	Misc. Plumbing/Piping	50	LF	$ 30	$ 1,500		$ 1,500	
	Instrumentation	1	LS	$ 2,500	$ 2,500		$ 2,500	
	Control Panel	1	LS	$ 3,000	$ 3,000		$ 3,000	
	Electrical Service	1	each	$ 10,000	$ 10,000		$ 10,000	
	Treatment System Enclosure	1	each	$ 20,000	$ 20,000		$ 20,000	
	Temporary Restoration and Demobilization	1	LS	$ 8,000	$ 8,000		$ 8,000	
	System Startup	1	LS	$ 2,500	$ 2,500	$ 5,000	$ 7,500	
	System Installation Report	1	LS			$ 12,500	$ 12,500	
	GWE Treatment System Subtotal							***$ 131,500***
System Operation and Maintenance (O&M)								
	Annual System O&M (4 Years)							
	Electrical Usage	12	months	$ 300	$ 3,600		$ 3,600	
	Site Visits (bi-monthly)	6	visits	$ 2,500		$ 15,000	$ 15,000	
	Annual O&M Subtotal						$ 18,600	
	5-Year O&M Subtotal						$ 93,000	
	Periodic O&M Costs							
	Other Equipment Maintenance or Repair	1	LS	$ 5,000	$ 5,000	$ 10,000	$ 15,000	
	Periodic O&M Costs Subtotal						$ 15,000	***$ 108,000***
Compliance Groundwater Sampling								
	Groundwater Monitoring							
	Sampling Labor and Equipment	1	event	$ 1,500	$ 1,500	$ 6,500	$ 8,000	
	Groundwater Analytical Costs	3	well	$ 100	$ 300		*$ 300*	
	IDW	1	drum	$ 750			*$ 750*	
	Subtotal per Event						*$ 9,050*	
	Bi-annual for 4 Years (8 events) Subtotal							
	Quarterly for 1 Year (4 events)						$ 108,600	
	Reporting (annual for 5 years)	5	each	$ 10,000		$ 50,000	$ 50,000	
	Groundwater Monitoring Subtotal							***$ 176,700***
Site Restoration and Closure								
	Closure Report	1	LS		$ 20,000		$ 20,000	
	System Decommissioning	1	LS		$ 25,000		$ 25,000	
	Well Closure	12	well	$ 100	$ 1,200		$ 1,200	
	PE Labor	1	LS			$ 8,000	$ 8,000	
							$ 54,200	
	Site Restoration and Closure Subtotal							***$ 54,200***
PROJECT TOTAL								**$ 538,000**

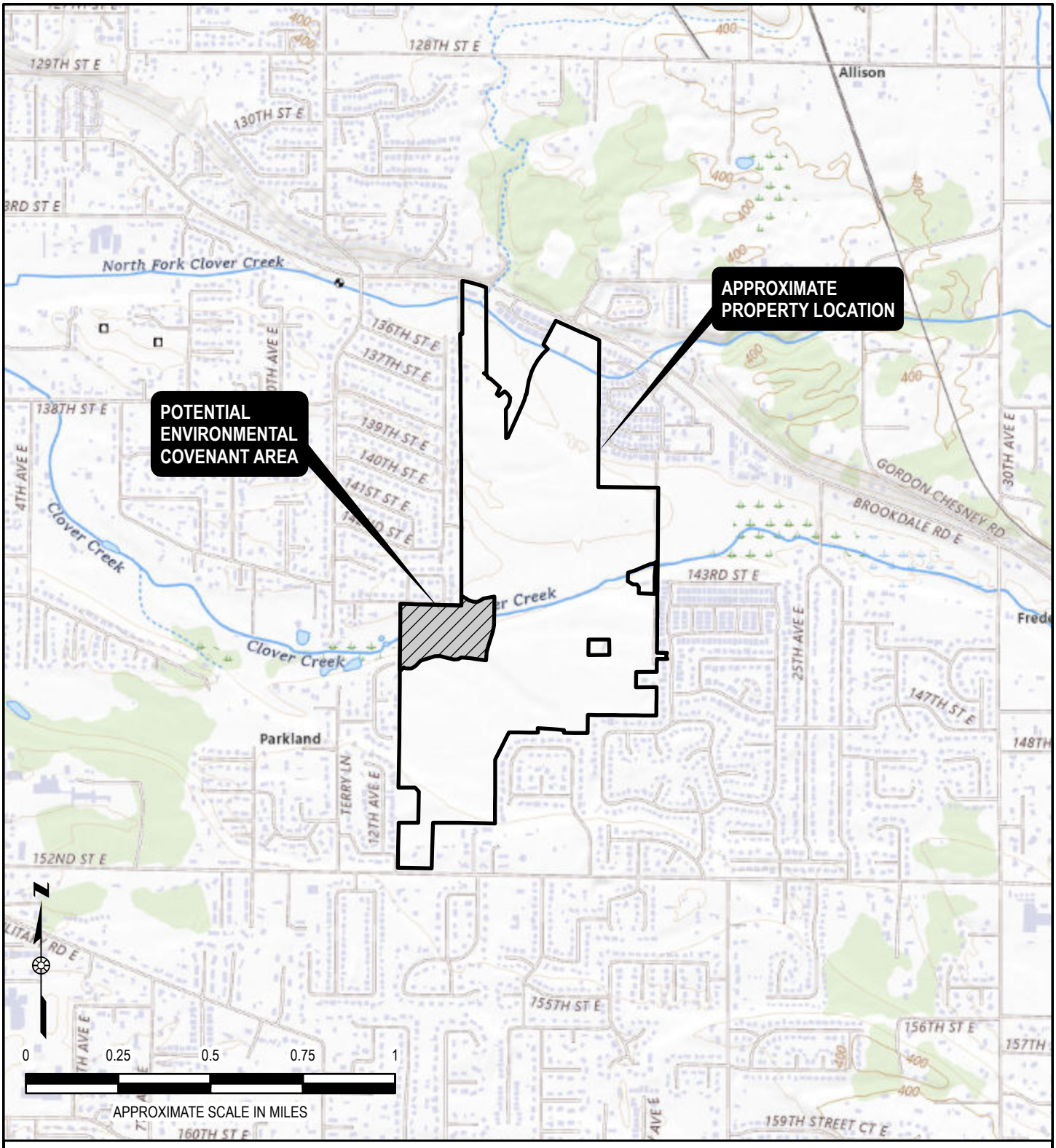
Notes:
LS Lump sum

Table 7
Alternative 3 - In-situ Remediation
Supplemental Subsurface Investigation and DCA Report
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Task	Component	Units	Basis	Unit Cost	Subtotal	Professional Labor	Component Subtotal	Task Subtotal
Pre-Remedial Activities								
	Baseline Groundwater Sampling Event							
	Sampling Labor and Equipment	1	event	$ 1,500	$ 1,500	$ 6,500	$ 8,000	
	Groundwater Analytical Costs	3	well	$ 1,000	$ 3,000		$ 3,000	
	IDW	1	drum	$ 750	$ 750		$ 750	
	Subtotal for Event						$ 11,000	
	Bench Scale Testing	1	LS	$ 5,000	$ 5,000	$ 10,000	$ 15,000	
	Bioremediation Design	1	LS			$ 8,000	$ 8,000	
	Contracting	1	LS			$ 5,000	$ 5,000	
	Pre-Remedial Activities Subtotal							***$ 50,800***
Bioremediation Treatment								
	ERD Injection Cost (1 event)							
	Mobilization and Site Prep.	1	LS	$ 5,000	$ 5,000	$ 5,000	$ 10,000	
	Injection Media (3DME/ZVI)	1	LS	$ 1,500	$ 1,500		$ 1,500	
	Bio-Aug Culture	1	each	$ 7,000	$ 7,000		$ 7,000	
	Equipment Rental	1	event	$ 5,000	$ 5,000		$ 5,000	
	Driller Subcontractor Cost	1	event	$ 20,000	$ 20,000		$ 20,000	
	Field Personnel Contractor Oversight	+	event			$ 15,000	$ 15,000	
	Subtotals per Event				*$ 38,500*	*$ 20,000*	*$ 58,500*	
	Two Injection Events							***$ 117,000***
Compliance Groundwater Sampling								
	Groundwater Monitoring							
	Sampling Labor and Equipment	1	event	$ 1,500	$ 1,500	$ 6,500	$ 8,000	
	Groundwater Analytical Costs	3	well	$ 100	$ 300		*$ 300*	
	IDW	3	drums	$ 350	$ 1,050		*$ 1,050*	
	Subtotal per Event						*$ 8,300*	
	Bi-annual for 4 Years (8 events) Subtotal						*$ 66,400*	
	Quarterly for 1 Year (4 events) Subtotal						$ 33,200	
	Reporting (annual for 5 years)	5	each	$ 10,000		$ 50,000	*$ 50,000*	
	Groundwater Monitoring Subtotal							***$ 167,300***
Site Restoration and Closure								
	Final Report	1	LS		$ 20,000		$ 20,000	
	Well Closure	12	well	$ 100	$ 1,200		$ 1,200	
	PE Labor	1	LS			$ 10,000	$ 8,000	
	Site Restoration and Closure Subtotal						$ 29,200	
								$ 29,200
PROJECT TOTAL								**$ 364,000**

Notes:
LS Lump sum

Figures



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- PROPOSED ENVIRONMENTAL COVENANT AREA
- PIERCE COUNTY

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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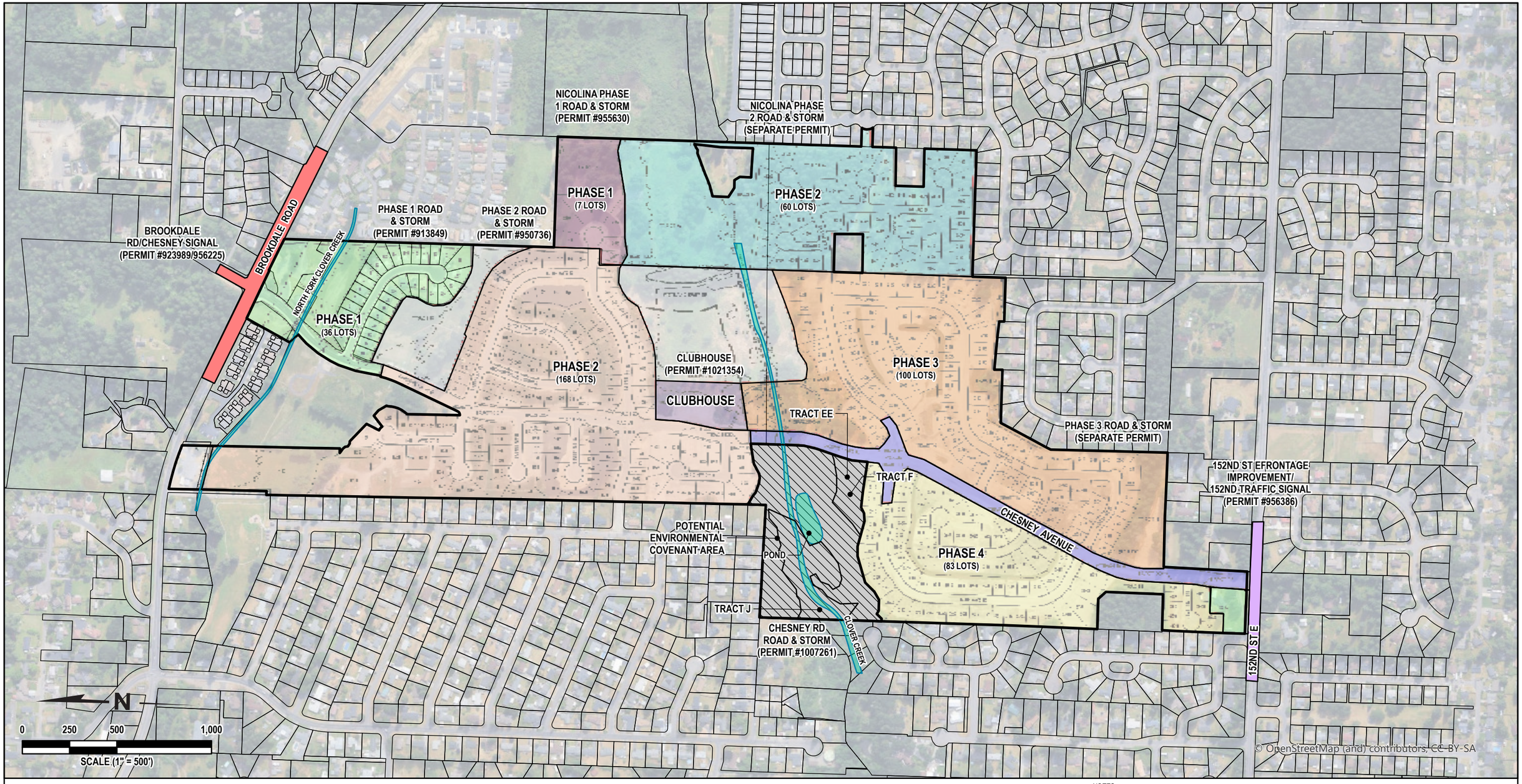
FIGURE 1

GENERAL VICINITY MAP

FORMER BROOKDALE GOLF COURSE
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

DRAWN BY: VB	CHECKED BY: AY/NH	DATE: 4/7/2025	PROJECT NO. 240102403



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- TAX PARCELS (PIERCE COUNTY)
- APPROXIMATE CREEK LOCATION
- APPROXIMATE POND LOCATION
- PROPOSED ENVIRONMENTAL COVENANT AREA

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.

2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 2

SITE REPRESENTATION MAP

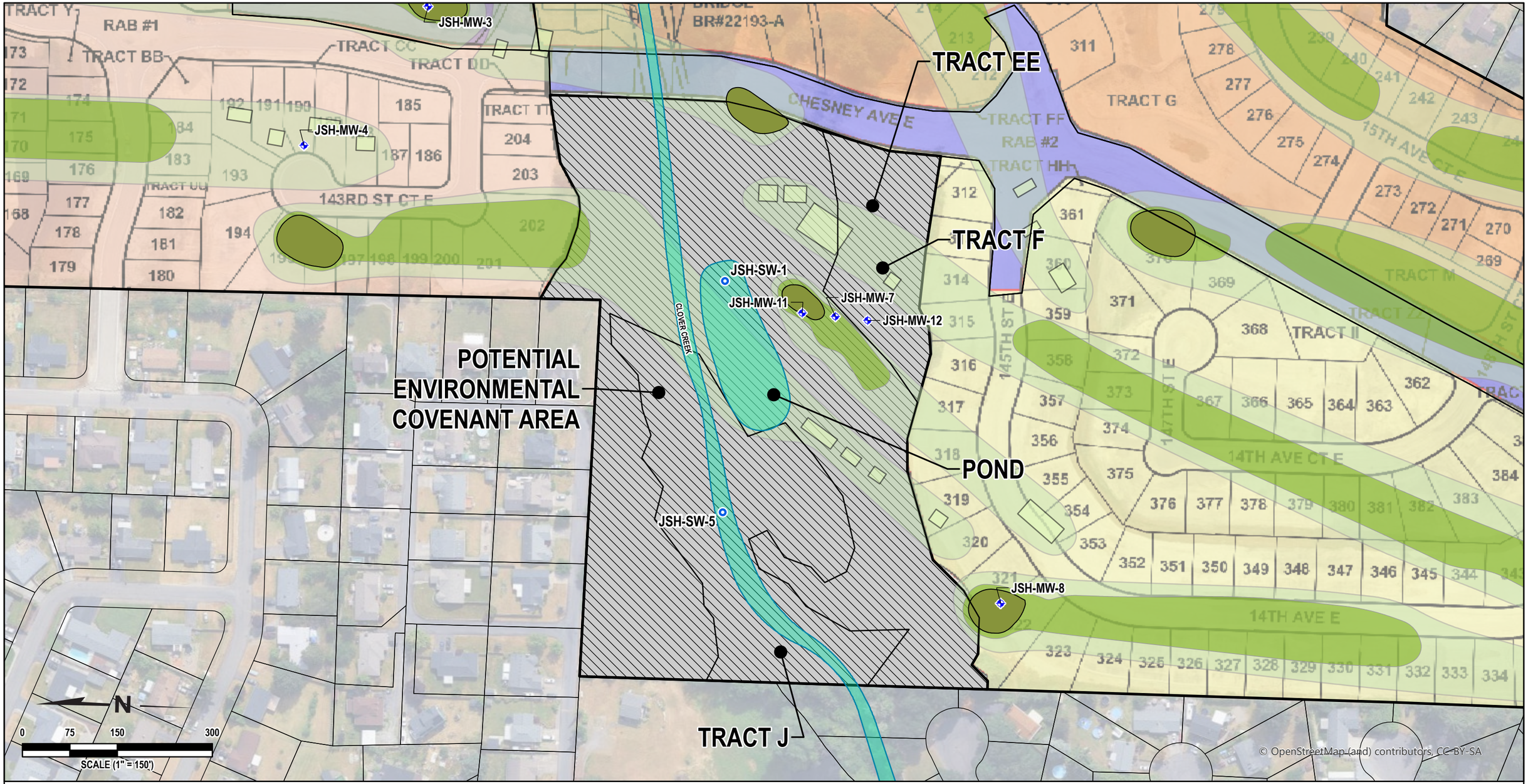
FORMER BROOKDALE GOLF COURSE
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

DRAWN BY: VB	CHECKED BY: AY/NH	DATE: 4/7/2025	PROJECT NO. 240102403

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

2. GROUNDWATER ELEVATION CONTOURS INTERPRETED FROM MARCH 2024 GROUNDWATER ELEVATION DATA



LEGEND

- SURFACE WATER SAMPLE
- MONITORING WELL LOCATION
- PROPOSED ENVIRONMENTAL COVENANT AREA
- APPROXIMATE PROPERTY BOUNDARY
- TAX PARCELS (PIERCE COUNTY)
- APPROXIMATE CREEK LOCATION
- APPROXIMATE POND LOCATION
- FORMER GOLF COURSE HOLE
- FORMER GOLF COURSE FAIRWAY
- FORMER GOLF COURSE GREEN
- FORMER GOLF COURSE TEE BOX

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

NOTES:

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FIGURE 3
PROPOSED ENVIRONMENTAL COVENANT AREA

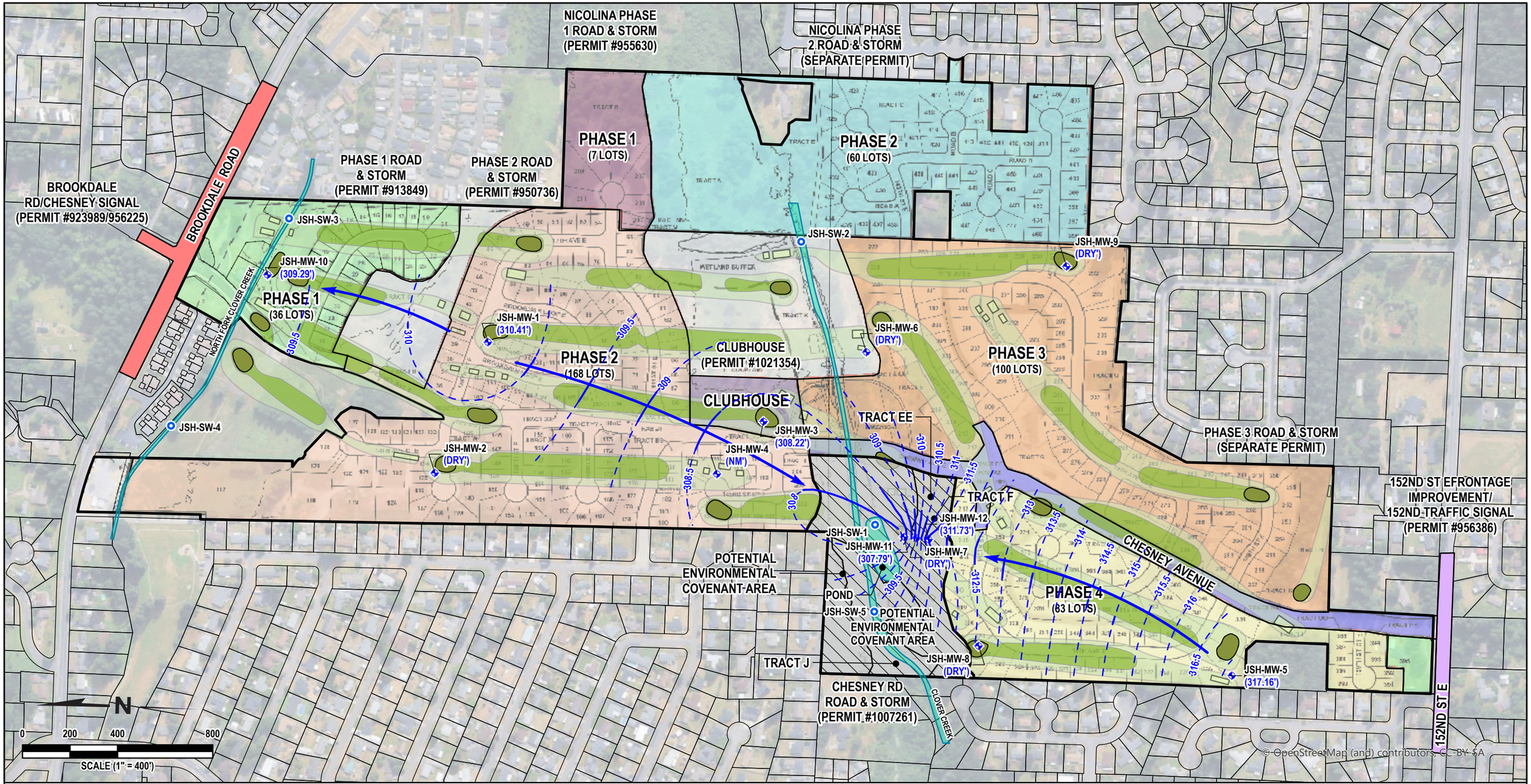
FORMER BROOKDALE GOLF COURSE
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

DRAWN BY: VB	CHECKED BY: AY/NH	DATE: 4/7/2025	PROJECT NO. 240102403

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

2. GROUNDWATER ELEVATION CONTOURS INTERPRETED FROM MARCH 2024 GROUNDWATER ELEVATION DATA



LEGEND

- SURFACE WATER SAMPLE
- MONITORING WELL LOCATION
- APPROXIMATE PROPERTY BOUNDARY
- TAX PARCELS (PIERCE COUNTY)
- APPROXIMATE CREEK LOCATION
- APPROXIMATE POND LOCATION
- FORMER GOLF COURSE HOLE
- FORMER GOLF COURSE FAIRWAY
- FORMER GOLF COURSE GREEN
- FORMER GOLF COURSE TEE BOX
- GROUNDWATER ELEVATION CONTOUR (0.5-FOOT INTERVAL) DASHED WHERE INFERRED
- INFERRED GROUNDWATER FLOW VECTORS
- PROPOSED ENVIRONMENTAL COVENANT AREA

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

2. GROUNDWATER ELEVATION CONTOURS INTERPRETED FROM OCTOBER 2024 GROUNDWATER ELEVATION DATA

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.

2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 4
GROUNDWATER ELEVATION MAP (OCTOBER 2024)

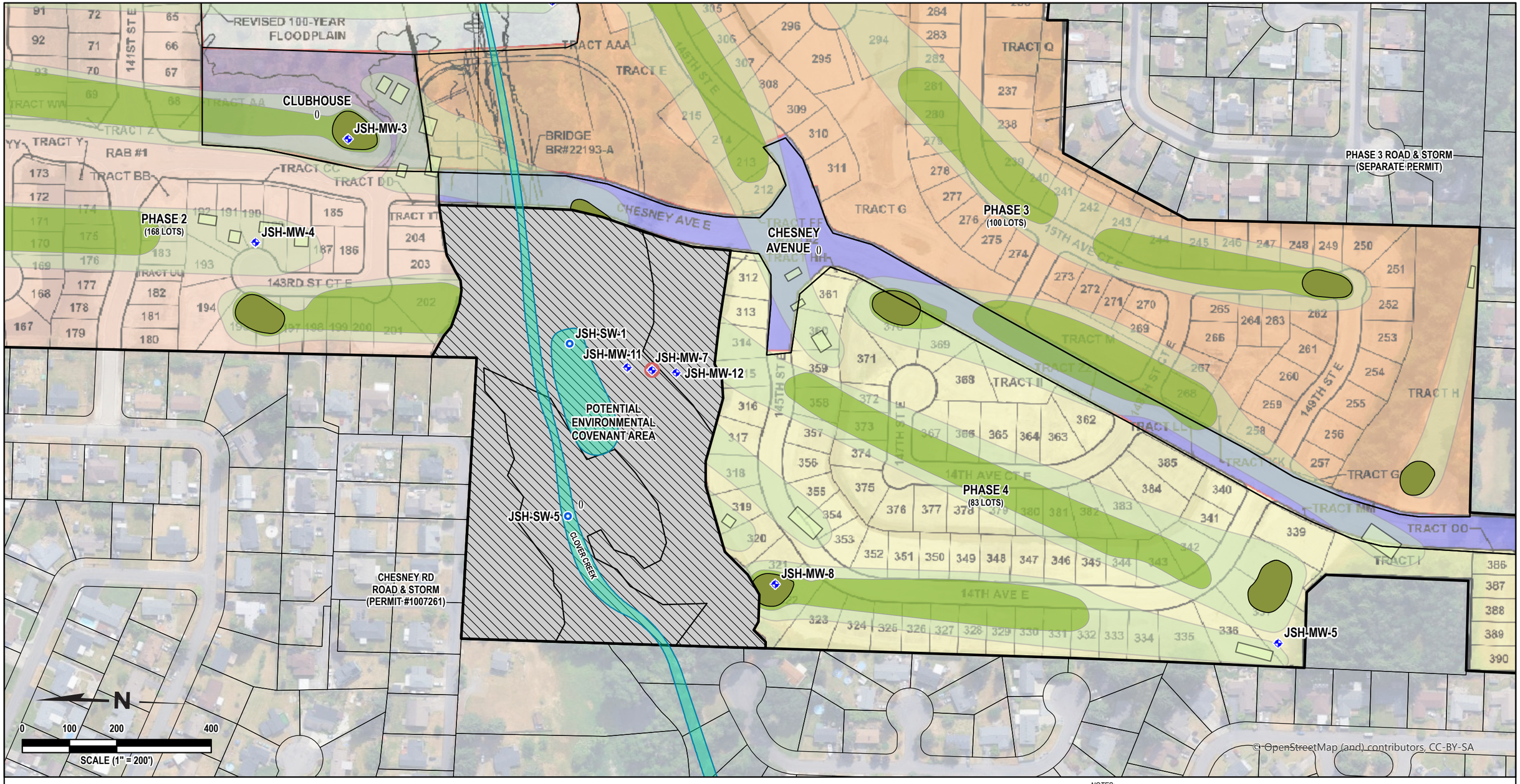
FORMER BROOKDALE GOLF COURSE
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

DRAWN BY: VB	CHECKED BY: AY/NH	DATE: 4/7/2025	PROJECT NO. 240102403

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

2. GROUNDWATER ELEVATION CONTOURS INTERPRETED FROM MARCH 2024 GROUNDWATER ELEVATION DATA



LEGEND

- SURFACE WATER SAMPLE
- MONITORING WELL LOCATION
- INDICATES A DIELDRIN DETECTION EXCEEDING MTCA METHOD B CLEANUP LEVELS IN GROUNDWATER
- APPROXIMATE PROPERTY BOUNDARY
- TAX PARCELS (PIERCE COUNTY)
- APPROXIMATE CREEK LOCATION
- APPROXIMATE POND LOCATION
- FORMER GOLF COURSE HOLE
- FORMER GOLF COURSE FAIRWAY
- FORMER GOLF COURSE GREEN
- FORMER GOLF COURSE TEE BOX
- PROPOSED ENVIRONMENTAL COVENANT AREA

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.

2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 5
GROUNDWATER ANALYTICAL RESULTS

FORMER BROOKDALE GOLF COURSE
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

DRAWN BY: VB	CHECKED BY: AY/NH	DATE: 4/7/2025	PROJECT NO. 240102403

FEATURE NOTES:

1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).

2. GROUNDWATER ELEVATION CONTOURS INTERPRETED FROM MARCH 2024 GROUNDWATER ELEVATION DATA

Attachment A – Site Status Letter

June 24, 2024

Mr. Frank Winslow
Washington State Department of Ecology
1250 West Alder Street
Union Gap, Washington 98903

Re: Former Brookdale Golf Course Groundwater Assessment

Dear Mr. Winslow:

J.S. Held, LLC ("JSH") is pleased to submit this *Site Status* letter for the Former Brookdale Golf Course located at 1802 Brookdale Road East in Tacoma, Washington (subject property, or "Site"). The work detailed herein is being performed on behalf of Ichijo USA Co., Ltd. (Ichijo; 'Client'). The subject property was previously operated as a golf course facility and is being redeveloped as a residential neighborhood consisting of single-family homes. Ichijo currently owns the subject property. A general vicinity map is included in **Figure 1.**

All work performed is in support of Client's efforts to comply with the requirements of the Model Toxics Control Act (Revised Code of Washington [RCW] 70A.305) and its implementing regulations (Washington Administrative Code [WAC] 173-340, collectively "MTCA").

The subject property is currently enrolled in the Washington State Department of Ecology's (Ecology) Expedited Voluntary Cleanup Program (EVCP). The EVCP site ID is XS0016 and Mr. Frank Winslow is the Site manager.

TRC was the consultant for this project prior to February 2024. Key project consultants working on this Site from TRC have since transitioned to JSH and are continuing as consultants to Ichijo. All work documented in this report was overseen by the same TRC consulting team that now continues to provide these services at JSH."

The work described herein is being performed in response to Ecology's Opinion Letter, dated January 30th, 2023 (**Attachment A**). In review of the letter and in consultation with Ecology, the primary Ecology concerns are regarding the sufficiency of the groundwater characterization for the Site and subsequent cleanup level development. A Groundwater Assessment Work Plan dated January 16, 2024, was prepared by TRC (Work Plan) and submitted to Ecology for review prior to implementation (**Attachment B**). The work plan was conditionally accepted via email on January 17, 2024.

The objective of this letter is to update Ecology on the implementation of the Work Plan and associated data collected in support of an eventual no further action (NFA) determination.

2024 Groundwater Assessment

Well Installation

JSH installed ten monitoring wells in February 2024. The general objective of the groundwater assessment at the Site was to empirically demonstrate that current soil conditions are protective of groundwater for dieldrin.

Additional assessment of surface water was also performed to address data gaps required for Site closure.

Monitoring wells JSH-MW-1 through JSH-MW-10 were installed to depths ranging from 13 feet to 20 feet using a hollow-stem auger (HSA) drill rig. Two soil samples were collected from each boring during advancement. Locations of monitoring wells are indicated on **Figure 2.**

Soil samples were submitted for the following analysis:

- Total Organic Carbon using U.S. Environmental Protection Agency (EPA) Method 9060.

A summary of soil analytical results is provided in **Table 1**. Copies of the laboratory analytical reports are provided in **Attachment C**. Monitoring well completion logs are provided in **Attachment D**.

Groundwater Sampling

JSH performed groundwater monitoring at the Site in March and May 2024. The monitoring included one full round of sampling at all wells and two rounds of follow-up sampling at JSH-MW-7.

Prior to sampling, JSH personnel collected piezometric data levels in all wells using an electronic water level meter. The depth to water was measured to the nearest 0.01 foot, relative to a surveyed point on the north side of the PVC well casing.

Groundwater sampling was performed using standard low-flow sampling techniques. Prior to sample collection, each well was purged until field measurements of pH, dissolved oxygen (DO), oxygen-reduction potential (ORP), temperature, and conductivity stabilized to within 10 percent of the prior measurement. Purging was performed using a peristaltic pump and disposable tubing at each well.

The groundwater samples were collected directly from the tubing into laboratory-supplied sample containers at a flow rate of less than 500 milliliters per minute.

A second groundwater sample was also collected from each well using a 0.45-micron waterra® field filter. These additional samples were collected to evaluate if dieldrin concentrations were biased-high due to fine suspended particles in groundwater. The additional filtered samples were only analyzed from wells that had detections of dieldrin in unfiltered samples.

Immediately upon collection, each sample container was appropriately labeled and placed into a chilled cooler pending submittal to the analytical laboratory.

Groundwater samples were placed into a cooler with ice and submitted to Friedman and Bruya, Inc., under standard chain-of-custody protocol.

Each groundwater sample was submitted for analysis of:

- Dieldrin using U.S. EPA Method 8081B.

Groundwater Analytical Results

A total of 10 groundwater samples were collected at the Site on March 5, 2024. A summary of groundwater analytical results is provided in **Table 2**. Copies of the laboratory analytical reports are provided in **Attachment C**.

During the March 5 sampling event, a total of 10 groundwater samples were initially submitted for analysis. Dieldrin was detected in only one location (JSH-MW-7) at a concentration of 0.084 micrograms/Liter (µg/L). The detected concentration exceeded the cleanup level of 0.0055 µg/L. Based on this finding, a field-filtered sample was also analyzed from JSH-MW-7. Dieldrin was not detected at a concentration exceeding the laboratory reporting limit in the field-filtered sample.

Dieldrin was not detected in any other collected samples.

On March 29, 2024, JSH returned to the site to resample JSH-MW-7 to confirm conditions. During the March 29 sampling event, dieldrin was detected at a concentration of 0.030 µg/L. The detected concentration exceeded the cleanup level of 0.0055 µg/L. Based on this finding, a field-filtered sample was again analyzed. Dieldrin was not detected at a concentration exceeding the laboratory reporting limit in the field-filtered sample.

Well Purging at JSH-MW-7

Analytical results from the additional groundwater sampling indicated a decreasing trend of dieldrin concentrations as additional volumes of water were removed from the well. In response to the observed decreasing concentration trends, JSH performed a pump test which consisted of purging an additional volume of groundwater at monitoring well JSH-MW-7. The objective of the pump test was to observe concentration trends as additional water was removed from the aquifer.

The purging was performed using a submersible pump with adjustable flowrate controls. Approximately 850 gallons were purged from the monitoring well to assess concentration trends as water was removed. Due to extremely low pump rates, the purging was conducted over a three-day period. Sustainable pumping rates were about 0.5 to 0.6 gallons/minute. Higher pump rates were not effective and would dry the well.

Following the purging described above, one groundwater sample was collected from JSH-MW-7 on May 5, 2024. The groundwater analytical results from the sample collected following the purging indicated that dieldrin concentrations were reduced from 0.030 µg/L to 0.014 µg/L. Based on this result, an additional field-filtered sample was submitted for analysis. Dieldrin was not detected in the field filtered sample at a concentration exceeding the laboratory reporting limit.

Surface Water Sampling

Surface water conditions were assessed for the presence of dieldrin in Clover Creek, the North Fork Clover Creek tributary, and the pond located adjacent to the east of Clover Creek.

JSH collected a total of five surface water samples. Two surface water samples were collected from the North Fork Clover Creek tributary. Two surface water samples were collected from Clover Creek and one surface water sample was collected from the pond located adjacent to the south of Clover Creek. Surface water sample locations are depicted on **Figure 2.**

Immediately upon collection, each sample container was appropriately labeled and placed into a chilled cooler pending submittal to the analytical laboratory.

Surface water samples were placed into a cooler with ice and submitted to Friedman and Bruya, Inc., under standard chain-of-custody protocol.

Each surface water sample was submitted for analysis of:

- Dieldrin using U.S. EPA Method 8081B.

Surface Water Analytical Results

A total of five surface water samples were collected at the site in February 2024.

Dieldrin was not detected in any of the surface water samples at a concentration exceeding the laboratory reporting limit.

A summary of surface water analytical results is provided in **Table 2**. Copies of the laboratory analytical reports are provided in **Attachment C**.

Discussion with Ecology

JSH and Ichijo conducted a conference call with the EVCP Site Manager, Mr. Frank Winslow on May 23, 2024. JSH and Mr. Winslow discussed the findings of the 2024 groundwater assessment and the potential next steps required as part of the Site closure process. The findings are discussed below.

Filtered Samples

Dieldrin was not detected in dissolved groundwater at a concentration exceeding the laboratory reporting limit in any of the samples collected after field-filtering.

It is JSH's opinion that the analytical results from the field filtered samples indicate that dieldrin is likely persistently sorbing to very fine particles that are not observable or apparent in turbidity values collected during low-flow sampling.

Dieldrin has a low log octanol-water partition coefficient and, as consistent with its intended purpose, binds to soil particles and is not readily water soluble.

Field filters are typically used when investigating the presence of metals in groundwater. However, in certain cases, field filtering has also been used when investigating the presence of other low solubility compounds such as carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and polychlorinated biphenyls (PCBs). Due to the documented low solubility of dieldrin, field filtering should also be considered for assessment of dieldrin in groundwater.

A total of three rounds of groundwater sampling has been performed at monitoring well JSH-MW-7. The analytical results from each sampling event indicate that dieldrin is not present in any of the dissolved groundwater samples (i.e., filtered samples). The repeatable nature of the groundwater sampling and subsequent analytical results empirically demonstrate that concentrations of dieldrin detected above the MTCA B cleanup level are likely due to very fine soil and/or sediment particles in the unfiltered samples.

Based on this analysis:

- JSH is respectfully requesting that Ecology accepts the analytical results from the existing filtered groundwater data from samples collected using the 0.45-micron waterra® field filters.

- If Ecology declines the current filtered data, would Ecology accept alternative filters containing engineered silica filter media or similar material to collect additional samples?

Parcel-Specific Environmental Covenant

In the event that filtered data is not accepted, JSH and Mr. Winslow discussed the potential of establishing a parcel-specific environmental covenant at the Site during the conference call held on May 23, 2024.

The environmental covenant would be restricted to groundwater only. Groundwater analytical results at JSH-MW-7 demonstrate decreasing concentration trends of dieldrin in unfiltered groundwater. The reduction in concentrations of dieldrin indicate that impacts are likely limited and localized to the area around JSH-MW-7.

The area governed by a potential environmental covenant will be proximate to monitoring well JSH-MW-7 and would encompass the "open space" south of Chesney Avenue East, Tract EE, and Tract F. The proposed environmental covenant area is depicted in **Figure 2**.

Based on this discussion, JSH has the following inquiries:

- Would Ecology allow for an environmental covenant for the parcels outlined on Figure 2 based on current site data?

- If a parcel-specific restriction is not allowed using current data, what additional data would be required to accept the environmental covenant option for the proposed area depicted on **Figure 2**?

Please respond to this letter outlining Ecology's requests.

JSH and Ichijo look forward to our continued collaboration with Ecology in our efforts to address Ecology's comments and concerns during the site closure process.

Please contact me at (425) 515-5266 should you have any questions or want to discuss further.

Very truly,

Eric Koltes

Eric Koltes, L.G.
Principal Geologist

Nate Hinsperger, L.G.
Senior Geologist

ENCLOSURES

Table

Table 1	Soil Analytical Results
Table 2	Groundwater and Surface Water Analytical Results
Table 3	Low-Flow Sampling Field Parameters
Table 4	Groundwater Elevation Data

Figures

Figure 1	General Vicinity Map
Figure 2	Groundwater and Surface Water Analytical Results and Piezometric Conditions

Attachments

Attachment A	January 30, 2023, Ecology Opinion Letter
Attachment B	Groundwater Assessment Work Plan (TRC)
Attachment C	Laboratory Analytical Reports
Attachment D	Monitoring Well Completion Logs

Tables

Table 1
Soil Analytical Results
Site Status Letter
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample ID	Sample Depth (feet)	Sample Date	Total Organic Carbon
JSH-MW-1:2	2	2/19/2024	<0.400
JSH-MW-1:15	15	2/19/2024	<0.400
JSH-MW-2:2	2	2/19/2024	**1.6**
JSH-MW-2:15	15	2/19/2024	<0.400
JSH-MW-3:2	2	2/20/2024	**2.93**
JSH-MW-3:5	5	2/20/2024	**3.84**
JSH-MW-4:2	2	2/20/2024	<0.400
JSH-MW-4:15	15	2/20/2024	<0.400
JSH-MW-5:2	2	2/20/2024	<0.400
JSH-MW-5:10	10	2/20/2024	<0.400
JSH-MW-6:2	2	2/21/2024	<0.400
JSH-MW-6:10	10	2/21/2024	<0.400
JSH-MW-7:2	2	2/21/2024	**1.15**
JSH-MW-7:10	10	2/21/2024	<0.400
JSH-MW-8:2	2	2/21/2024	**3.97**
JSH-MW-8:15	15	2/21/2024	<0.400
JSH-MW-9:2	2	2/22/2024	0.494
JSH-MW-9:15	15	2/22/2024	<0.400
JSH-MW-10:2	2	2/22/2024	**4.03**
JSH-MW-10:15	15	2/22/2024	<0.400

Notes:

All results presented in milligrams per kilogram (mg/kg).

Bold	Bold results indicate that the compound was detected.
<	Result is less than the laboratory reporting limit.
a	Analyzed by EPA Method 9060

Table 2
Groundwater and Surface Water Analytical Results
Site Status Letter
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample ID	Screen Interval (ft)	Sample Date	Depth to Water (ft)	Dieldrin
JSH-MW-1	**10-20**	**3/6/2024**	**13.01**	<0.005
JSH-MW-2	**10-20**	**3/6/2024**	**14.60**	<0.005
JSH-MW-3	**3-13**	**3/6/2024**	**4.88**	<0.005
JSH-MW-4	**9-19**	**3/6/2024**	**9.45**	<0.005
JSH-MW-5	**7-17**	**3/5/3034**	**7.88**	<0.005
JSH-MW-6	**5-15**	**3/5/2024**	**11.00**	<0.005
JSH-MW-7	**3-13**	**3/5/2024**	**7.18**	**0.084**
				<0.005 *
		3/29/2024	**7.89**	**0.030**
				<0.005 *
		5/9/2024	**9.21**	**0.014**
				<0.005 *
JSH-MW-8	**10-20**	**3/5/2024**	**13.61**	<0.005
JSH-MW-9	**10-20**	**3/5/2024**	**13.31**	<0.005
JSH-MW-10	**10-20**	**3/6/2024**	**12.18**	<0.005
JSH-SW-1	NA	**3/5/2024**	NA	<0.005
JSH-SW-2	NA	**3/5/2024**	NA	<0.005
JSH-SW-3	NA	**3/6/2024**	NA	<0.005
JSH-SW-4	NA	**3/6/2024**	NA	<0.005
JSH-SW-5	NA	**3/6/2024**	NA	<0.005
MTCA Method B Groundwater Cleanup Level[b]				**0.0055**

Notes:

All results presented in micrograms per liter (µg/L).

Bold Bold results indicate that the compound was detected.

Shaded cells indicate that the compound was detected at a concentration greater than the cleanup level.

< Result is less than the laboratory reporting limit.

a Analyzed by EPA Method 8081B

b MTCA Method B Groundwater Cleanup Level (CLARC) used for Groundwater and Surface Water.

***** Sample field filtered using 0.45 micron cartridge filter

NA Not Applicable

Table 3
Low-Flow Sampling Field Parameters
Site Stauts Letter
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample ID	Sample Date	Depth to Water (feet)	pH	Conductivity (ms/cm^2)	DO (mg/L)	Temperature (ºC)	Turbidity (NTU)	ORP (mv)
JSH-MW-1	3/6/2024	13.01	6.78	0.264	4.51	8.16	14.6	52.6
JSH-MW-2	3/6/2024	14.60	6.4	0.157	2.74	8.8	2.18	213.3
JSH-MW-3	3/6/2024	4.88	6.35	0.145	0.96	7.94	1.32	136.5
JSH-MW-4	3/6/2024	9.45	6.78	0.193	0.53	8.89	4.85	-229
JSH-MW-5	3/5/3034	7.88	6.58	0.14	8.74	7.56	111	119
JSH-MW-6	3/5/2024	11.00	6.21	0.169	5.74	11.43	2.12	156.4
JSH-MW-7	3/5/2024	7.18	6.14	0.15	6.44	11.35	2.89	160.2
	3/29/2024	7.89	6.05	0.146	8.18	11.03	0.33	163.5
	5/9/2024	9.18	5.85	0.139	7.00	9.08	0.82	115.3
JSH-MW-8	3/5/2024	13.61	6.2	0.169	5.74	11.43	2.12	156.4
JSH-MW-9	3/5/2024	13.31	6.08	0.143	7.92	11.19	0.32	165.6
JSH-MW-10	3/6/2024	12.18	6.35	0.172	0.5	8.77	165	-454.4

Notes:

DO	Dissolved oxygen
NTU	Nephelometric Turbidiy Units
ORP	Oxidation-reduction potential

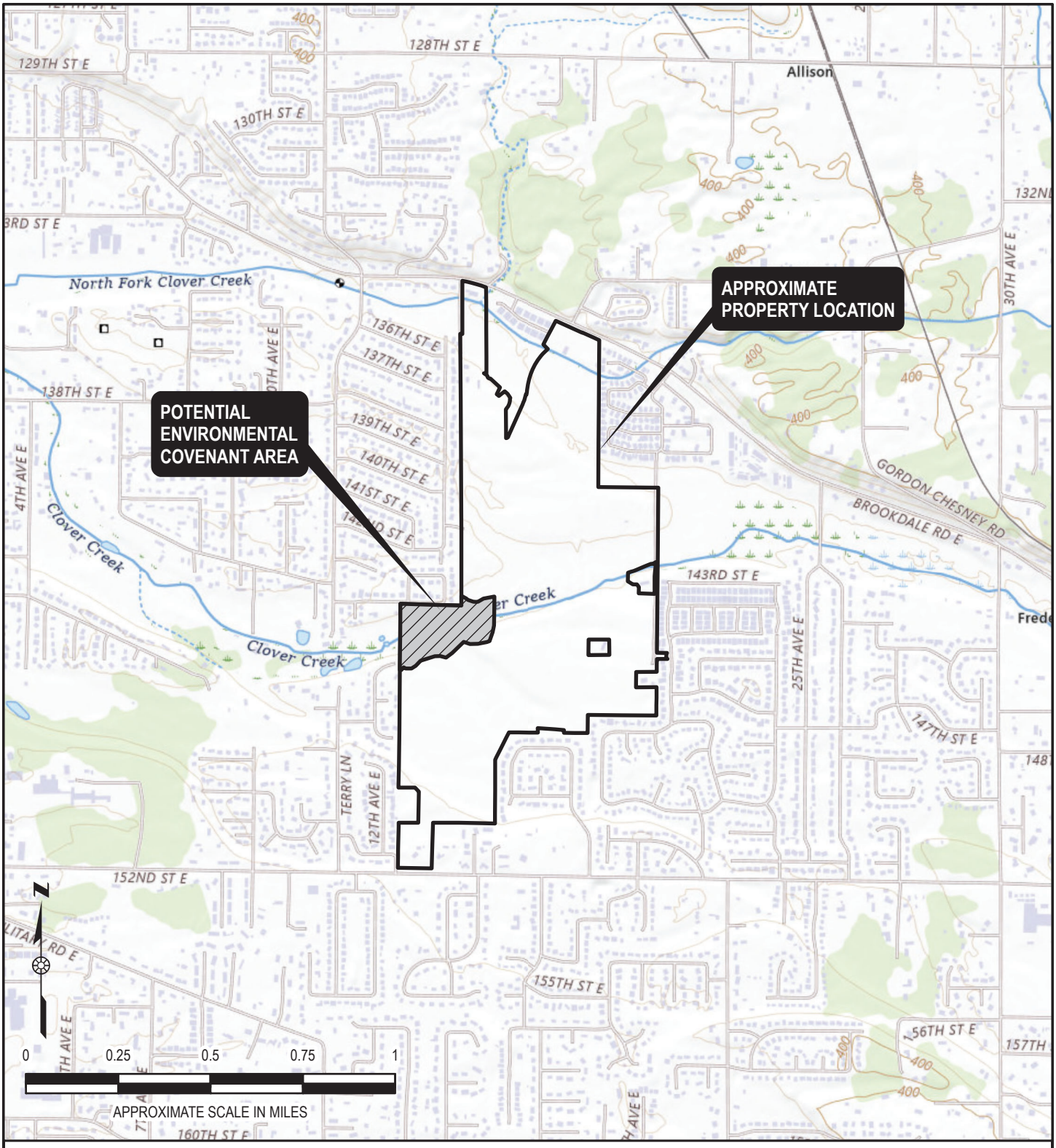
Table 4
Groundwater Elevation Data
Site Status Letter
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample ID	Date	Depth to Water (feet)	Elevation of Top of Casing[a]	Calculated Groundwater Elevation
JSH-MW-1	3/5/2024	13.01	326.62	313.61
JSH-MW-2	3/5/2024	14.60	323.96	309.36
JSH-MW-3	3/5/2024	4.88	319.80	314.92
JSH-MW-4	3/5/2024	9.45	323.17	313.72
JSH-MW-5	3/5/2024	7.88	329.94	322.06
JSH-MW-6	3/5/2024	11.00	327.62	316.62
JSH-MW-7	3/5/2024	7.18	323.68	316.50
JSH-MW-7	3/29/2024	7.89		315.79
JSH-MW-7	5/9/2024	9.21		314.47
JSH-MW-8	3/5/2024	13.61	329.90	316.29
JSH-MW-9	3/5/2024	13.31	330.04	316.73
JSH-MW-10	3/5/2024	12.18	324.98	312.80

Note:

a Wells surveyed by Pace on March 5, 2024, referenced to North American Vertical Datum of 1988 (NAVD88).

Figures



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- PROPOSED ENVIRONMENTAL COVENANT AREA
- PIERCE COUNTY

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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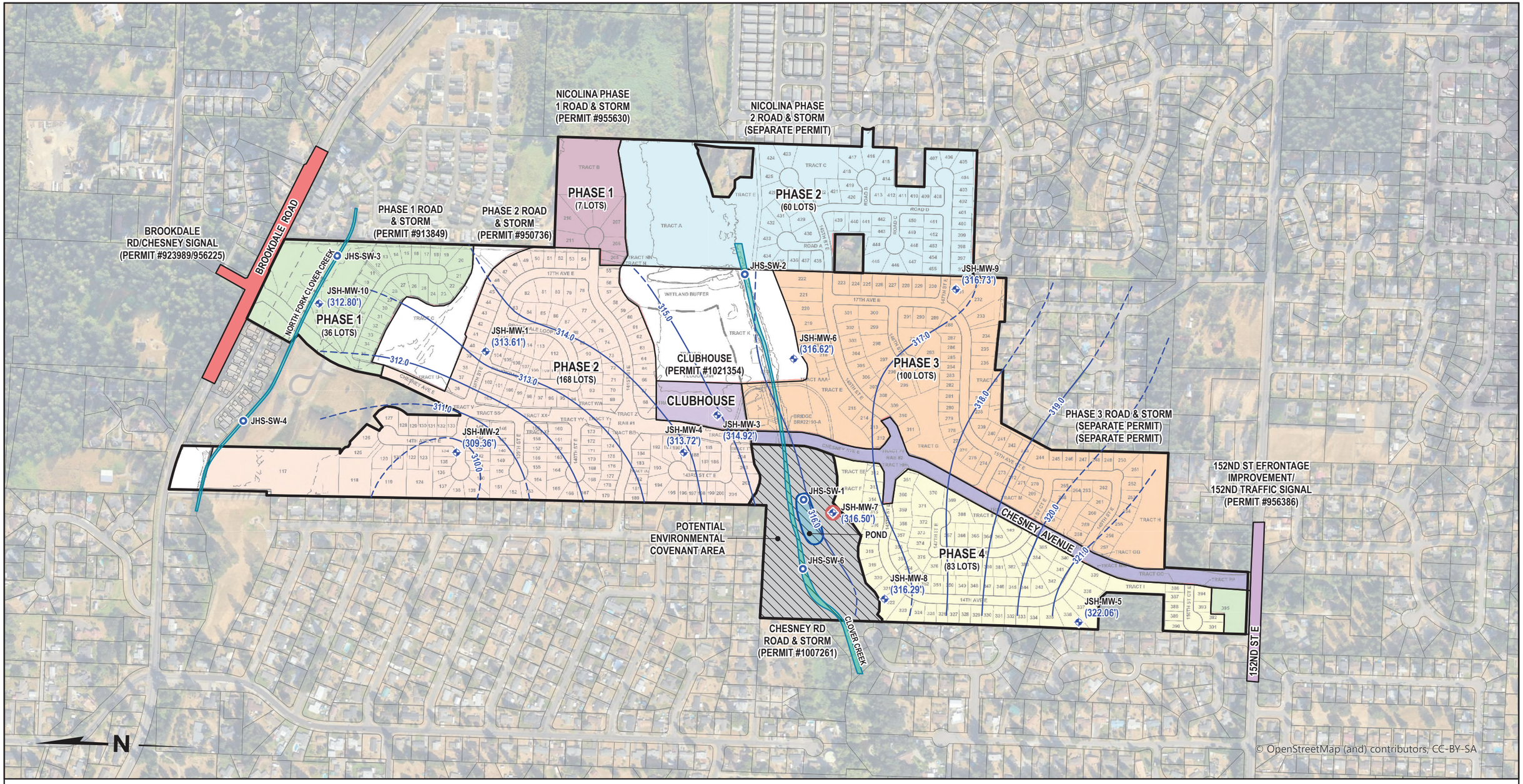
FIGURE 1

GENERAL VICINITY MAP

FORMER BROOKDALE GOLF COURSE
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

DRAWN BY: VB	CHECKED BY: AY/NH	DATE: 6/13/2024	PROJECT NO. 240102403



LEGEND

- MONITORING WELL LOCATION
- INDICATES A DIELDRIN DETECTION EXCEEDING MTCA METHOD B CLEANUP LEVELS IN GROUNDWATER
- GROUNDWATER ELEVATION CONTOUR (1-FOOT INTERVAL) DASHED WHERE INFERRED
- PROPOSED ENVIRONMENTAL COVENANT AREA
- APPROXIMATE PROPERTY BOUNDARY
- TAX PARCELS (PIERCE COUNTY)
- APPROXIMATE CREEK LOCATION
- APPROXIMATE POND LOCATION

FEATURE NOTES:
1. PHASING DETAILS AND PROPERTY LAYOUT ADAPTED FROM BARGHAUSEN CONSULTING ENGINEERS PHASING PLAN (7/1/23).
2. GROUNDWATER ELEVATION CONTOURS INTERPRETED FROM MARCH 2024 GROUNDWATER ELEVATION DATA

0 250 500 1,000
SCALE (1" = 500')

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 2
GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS AND PIEZOMETRIC CONDITIONS

FORMER BROOKDALE GOLF COURSE
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

DRAWN BY: VB	CHECKED BY: AY/NH	DATE: 6/13/2024	PROJECT NO. 240102403

Attachment A – Ecology Opinion Letter, January 30, 2023

Electronic Copy

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775 • Olympia, Washington 98504-7775 • 360-407-6300

January 30, 2023

Randy Barnett
Ichijo USA Co., LTD
1406 140th Pl NE, Ste 104
Bellevue, WA 98007
randy@ichijousa.com

Re: Opinion on the Proposed Cleanup at a Site:

- **Site Name:** Brookdale Golf Club
- **Site Address:** 1802 Brookdale Rd E, Tacoma, Pierce County, WA 98445
- **Facility/Site ID:** 7758
- **Cleanup Site ID:** 14894
- **VCP Project ID:** SW1672

Dear Randy Barnett:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Former Brookdale Golf Club facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70A.305 Revised Code of Washington (RCW).[2]

Issue Presented and Opinion

Ecology is responding to your request for a no further action (NFA) determination for your Site. Upon the completion of your proposed cleanup, it has been determined that further action is necessary.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70A.305 RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340[3] (collectively "substantive requirements of MTCA"). The analysis is provided below.

[1] https://apps.ecology.wa.gov/publications/SummaryPages/9406.html
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305
[3] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Dieldrin in soil and groundwater.
- Arsenic in soil and groundwater.

The parcel(s) of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (FSID #89267963). At this time, we have no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

Basis for the Opinion

This opinion is based on the information contained in the documents listed under **Enclosure A**:

You can request these documents by filing a records request.[4] For help making a request, contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or call 360-407-6040. Before making a request, check whether the documents are available on Ecology's Cleanup Site Search web page.[5]

This opinion is void if any of the information contained in those documents is materially false or misleading..

Analysis of the Cleanup

1. Characterization of the Site.

Ecology's current opinion is primarily based on the submittal of additional investigatory reports since Ecology's prior August 24, 2020, Opinion.[6] These reports include the Supplemental Remedial Investigation Report (SRIR) and Cleanup Action Report (CAR), both dated August 31, 2022.

[4] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[5] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=14894
[6] Ecology Opinion, Further Action at Site: Former Brookdale Golf Club, August 24, 2020.

In addition to presenting a summary of the Supplemental RI (North of Clover Creek) Report (dated May 29, 2020) which was incorporated in Ecology's prior August 24, 2020, opinion, the August 31, 2022, SRIR/CAR also included the Supplemental RI (South of Clover Creek).

Based on review of the activities conducted in those reports, Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action. The soil and groundwater sampling performed at the Site has not sufficiently characterized and remediated the extent of dieldrin releases in soil and groundwater at the Site to the requested cleanup levels (CULs).

Ecology Comments

Ecology appreciates the significant remedial investigation (RI) and cleanup that you have conducted within the Site boundaries both north and now south of Clover Creek. We generally concur with the investigative and remedial excavation approach you have taken, based on our December 10, 2019, and August 24, 2020, Opinions. We also concur with your assessment that if additional areas of contamination are detected, additional remediation would need to be conducted.[7]

Nicolina Meadows. Post EPI's September 19, 2019, Technical Memorandum on the Nicolina Meadows PPD Project, and as previously requested in Ecology's prior August 24, 2020, Opinion, please present additional RI results from the areas west of the former golf course in the wetlands of the proposed Nicolina Meadows housing development. Analytical data along this boundary will provide an indication that hazardous substances released from the Site have not migrated to the Nicolina Meadows location.[8,9] Please see Section 2: Establishment of Cleanup Standards (Section 2) below to further refine sampling and analytical requirements within this area.

On-Site Dieldrin Soil and Groundwater Data. Please refer to Section 2 below for further discussion on the soil and groundwater data generated to date.

Delineated Isopleth Maps. Ecology accepts the depiction of the lateral and vertical soil confirmation sample data in the plan view diagrams of the tee and green excavations in the August 31, 2022, CAR.

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[7] Report pages 2-3.

[8] Letter from Department of Ecology Southwest Regional Office, To Robert Jenkins, Pierce County Planning and Public Works, September 12, 2019, available at: https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=91905.

[9] Letter from Stephen R. Shelton, Office of the Pierce County Hearing Examiner, Re: Major Amendment to Approved Preliminary Plat, available at: https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=93053

Arsenic, Ethylene Dibromide (EDB), Dieldrin, Diazinon, Nitrate (as N), and ortho-Phosphate (as P). Ecology appreciates the additional assessment of surface/subsurface soil, sediment, groundwater, and surface water for these additional compounds. Ecology requests that these data be summarized in one table for both of the investigations conducted on the north and south sections of the course. Based on the data, Ecology concludes the following:

- ***Soil:*** EDB, Diazinon, and both Nitrate and Phosphate data do not indicate a concern in on-site soil at the soil sample locations. However, while arsenic was present at various concentrations in all the collected samples, it occurred above the MTCA Method A CUL of 20 milligrams per kilogram (mg/kg) in soil samples obtained from locations B-7 and AOI-20. Arsenic within the AOI-20 area was reportedly excavated in September/October 2020[10] according to TRC's Response to Ecology Comments dated February 3, 2021. However, the soil confirmation sample data in Table 22 of the August 31, 2022, CAR does not exhibit arsenic data to assess adequacy of impacted soil removal. Please provide these data.

- ***Sediment:*** EDB, Diazinon, and both Nitrate and Phosphate data do not indicate a concern in on-site sediment at the respective sample locations – although no freshwater sediment cleanup values exist for those compounds. In addition, while arsenic was present at various concentrations in all the collected samples, it occurred below the Ecology Freshwater Sediment Cleanup Objective of 14 mg/kg. Dieldrin was also not detected in any of the sediment samples at the laboratory method detection limits (MDL) of 0.006 mg/kg, and at a level above the Ecology freshwater sediment cleanup objective of 0.0049 mg/kg. Please refer to the discussion under Section 2 below regarding this issue.

- ***Groundwater:*** EDB, Diazinon, and both Nitrate and Phosphate data do not indicate a concern in on-site groundwater at the temporary well groundwater sample locations. While total arsenic was present at various concentrations above the MTCA Method A CUL of 5 micrograms per Liter (µg/L), the dissolved sample results did not occur at or above the laboratory MDL of 1 µg/L. Dieldrin was detected in sample B4 at 0.032 µg/L above the MTCA CUL of 0.0055 µg/L but not detected in most of the samples at an MDL of 0.02 µg/L. Please refer to the discussion under Section 2.

[10] TRC Cleanup Action Report – Former Brookdale Golf Course, pg. 10, August 31, 2022.

- ***Surface Water.*** Arsenic, EDB, Diazinon, and both Nitrate and Phosphate data do not indicate a concern in on-site surface water from either the Clover Creek, NFCC, or the main irrigation pond samples. While dieldrin was not detected at or above the laboratory MDL of 0.02 µg/L, that MDL occurred at four orders of magnitude above the CLARC surface water CUL for human health of 0.0000061 µg/L. Please refer to the discussion under Section 2 below.

Indicator Hazardous Substances. As stated above in the selection of cleanup standards, use of the MDLs to assess whether other indicator hazardous substances as analyzed by the full list of organochlorine pesticides are present at the remedial excavation limits is not sufficient. A comparison between the MDLs and the respective CULs should be provided to further assess whether other indicator substances are present. Please refer to the discussion under Section 2 below regarding this issue.

Environmental Information Management System (EIM) Results. Ecology acknowledges TRC's uploading of the environmental data from the August 31, 2022, SRIR/CAR documents. In addition, Ecology also confirms receipt of the January 25, 26, and 27, 2017, results for 4,4-DDE and 4,4-DDT.

Terrestrial Ecological Evaluation. Ecology will reevaluate the TEE upon application of the lower cleanup levels for soil dieldrin discussed in Section 2 below.

2. Establishment of Cleanup Standards.

Ecology has determined that not all the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA. Under MTCA, cleanup standards consist of three primary components; points of compliance,[11] cleanup levels,[12] and applicable state and federal laws.[13]

Points of Compliance: Points of compliance are the specific locations at the Site where cleanup levels must be attained. For this Site, the standard points of compliance for soil and protection of groundwater are appropriate. However, points of compliance for sediment in the Clover Creek are also applicable and need to be included for the Site. Ecology provides the following table of standard points of compliance for the Site:

[11] WAC 173-340-200 "Point of Compliance."
[12] WAC 173-340-200 "Cleanup level."
[13] WAC 173-340-200 "Applicable state and federal laws," WAC 173-340-700(3)(c).

Media	Points of Compliance
Soil-Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. *WAC 173-340-740(6)(d)* ***Ecology concurs that the standard point of compliance for soil direct contact is appropriate for the Site.***
Soil-Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site. *WAC 173-340-747* ***Ecology concurs that the standard point of compliance for soil protection of groundwater is appropriate for the Site.***
Soil-Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. *WAC 173-340-7490(4)(b)* ***Ecology concurs with the standard soil point of compliance for ecological protection, but a Terrestrial Ecological Evaluation (TEE) is needed to evaluate potential cleanup standards based on ecological protection.***
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the Site. *WAC 173-340-720(8)(b)* ***Ecology concurs that the standard point of compliance for groundwater is appropriate for the Site.***
Sediment	Based on the protection of sediment quality, compliance with the requirements of 173-204 WAC.[14]

Cleanup Levels. Cleanup levels are the concentrations of a hazardous substance in soil, water, air, or sediment that are determined to be protective of human health and the environment. At this Site, with the exception of the calculated TPH soil CULs and the groundwater CUL for pentachlorophenol (PCP), as the EPA MCL, Ecology concurs with the selection of the other CULs as follows:

Applicable Laws and Regulations. In addition to establishing minimum requirements for cleanup standards, applicable local, state, and federal laws may also impose certain technical and procedural requirements for performing cleanup actions. Ecology's suggestions for including applicable laws and regulations for this cleanup were provided in our December 10, 2019, opinion for the Site. Ensure to adequately address this requirement in the completed RI.

[14] WAC 173-340-760

3. Selection of Cleanup Action.

Ecology has determined the cleanup action you selected for the Site as a whole does not meet the substantive requirements of MTCA. Based on Ecology's review of the August 31, 2022, CAR,[15] the remedial excavation process at the Site was independently conducted by Ichijo in conjunction with completion of the initial Environmental Partner's, Inc. (EPI) RI/FFS[16] on March 18, 2019.

Based on review of the RI portion of the EPI RI/FFS as stated in Ecology's December 10, 2019, Opinion,[17] Ecology's review comments focused on completion of the RI sufficient for Ecology to determine that the requirements of WAC 173-340-350 were met. This included consideration of additional chemicals being assessed in soil, groundwater, surface water, and sediment as well as potential adjustments to cleanup levels and use of indicator hazardous substances for the project.

Ecology further stated that it would review the FFS and concurrently submitted EPI CAR[18] when sufficient information was available for Ecology to determine that the RI for the Site had been completed. As a result, Ecology determined at that time that characterization of the Site was not sufficient to establish cleanup standards and select a cleanup action. However, at that time, Ecology also understood that remedial excavation actions proposed in the March 2019 EPI CAR were already underway at the Site.

Interim remedial measures (IRM)[19] are a necessary component for Site cleanup and closure and as such, Ecology concurs with execution of the remedial excavations completed thus far across the Site as IRM's based on dieldrin and arsenic (at AOI-20) in soil. Ecology appreciates your efforts to reduce contaminant concentrations in the environment. As was the case with these excavations, IRM's are remedial actions conducted without Ecology oversight or approval and are not executed under an administrative order, agreed order, or consent decree.

Per WAC 173-340-515(3)(a), Ecology shall determine whether IRM's meet the substantive requirements of MTCA and/or whether further remedial action may be necessary at the Site. Those entities conducting IRM's do so at their own risk, and may be required to take additional remedial actions if Ecology determines such actions are necessary. In such circumstances, Ecology reserves all of its rights to take actions authorized by law.

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[15] TCR Environmental Consultants, Cleanup Action Report – Brookdale Golf Course, August 31, 2022.
[16] Environmental Partners, Inc., Remedial Investigation and Focused Feasibility Study Report – Brookdale Golf Course, March 18, 2019.
[17] Ecology, Opinion – Further Action – Former Brookdale Gold Course, December 10, 2019.
[18] Environmental Partners, Inc., Cleanup Action Report – Brookdale Golf Course, March 18, 2019.
[19] WAC 173-340-430

Further and of general note relative to TRC's February 3, 2021, response to Ecology comments, specifically Comment 2, all levels cited by the Manchester Laboratory consist of analytical method reporting limits (MRL) which are analogous to the practical quantitation limit (PQL). The PQL is the lowest amount of a compound that can be accurately calibrated and quantified according to the quality control objectives of the instrument.

Conversely, TRC incorrectly references Manchester levels as MDLs relative to the selection of matrix (i.e., soil, sediment, groundwater, and surface water) CULs. Although statistically derived, the MDL is less accurate in terms of analytical quantity determination than the PQL. As such, for the purposes of proposing alternative CULs exceeding established MTCA cleanup levels, the PQL should always be cited in the laboratory analytical report and utilized accordingly.

In addition, and as referenced under WAC 173-340-707(4), when the PQL occurs above cited Ecology CULs, Ecology can require the use of improved analytical techniques to achieve lower PQLs and other appropriate actions. This may involve utilizing Washington-approved analytical laboratories that incorporate the most up-to-date instrumentation and quality control methods to achieve the necessary analytical method limits.

Soil. As originally stated in Section 2.3 of the March 2019 EPI CAR, remedial excavation conducted at the Site was primarily based on dieldrin at the proposed MTCA Method B cleanup level of 0.0625 mg/kg, a CUL that is based on direct contact with soil. Based on Ecology's review of data from TRC's May 29, 2020, Supplemental Remedial Investigation[20] and on Ecology's subsequent August 24, 2020, Opinion,[21] Ecology specifically mentioned on page 6 of our opinion, that TRC's proposed dieldrin soil CUL of 0.0625 mg/kg did not account for groundwater protection. Rather, Ecology suggested using the dieldrin soil CUL of no greater than 0.0028 mg/kg as protective of groundwater and as stated in Ecology's Cleanup Levels and Risk Calculation Master Table (CLARC).[22] Alternatively, Ecology also stated that an empirical demonstration could be completed showing that soil concentrations would not cause an exceedance of the applicable groundwater CUL.

To that end, the groundwater dieldrin CUL of 0.0055 µg/L was specified in both the TRC May 29, 2020, Supplemental Remedial Investigation Report (SRIR) and TRC August 31, 2022, SRIR. However, both the initial groundwater grab samples obtained from the 2020 SRIR soil borings and the 2022 SRIR monitoring well groundwater samples were reported at stated MDLs of 0.02 µg/L and 0.1 µg/L above the respective CUL.

[20] TRC Environmental Consultants, Supplemental Remedial Investigation – Brookdale Golf Club, May 29, 2020.
[21] Ecology, Further Action Opinion – Former Brookdale Golf Club, August 24, 2020.
[22] Ecology, Cleanup Levels and Risk Calculation Master Table, July 2022.

As a result, Ecology does not consider that dieldrin in groundwater has been adequately evaluated across the Site nor does an analytical (nor empirical) basis currently exist to adequately assess whether the direct contact-based soil CUL for dieldrin of 0.0625 mg/kg proposed by TRC would be applicable (i.e., protective of groundwater). The groundwater CUL may also be applied to surface water as it is a realistic upward adjustment to the regulatory surface water PQL.

Although Ecology is in agreement that dieldrin has both a low aqueous solubility and an elevated log octanol water-partitioning coefficient, and which generally indicates limited vertical migration via adsorption to vadose zone soil, its long-term application and widespread operational use as a pesticide on the Brookdale Golf Course tees and greens is of concern. This includes its presence in soil that has been subjected to many decades of surface recharge from regional precipitation as well as its persistence in the environment, and which subsequently indicates the potential for the presence of dieldrin in groundwater at the Site.

In TRC's February 3, 2021, response to Ecology's August 24, 2020, comments on the TRC May 29, 2020, SRIR, TRC stated on page 14 that Ecology's December 10, 2019, Opinion[23] did not provide input on using alternative soil cleanup standards for dieldrin other than what was described in the TRC's March 2019 CAR. Hence, TRC stated that based upon that "feedback", the CAR was fully implemented at the Site. However, as stated above in Ecology's December 10, 2019, Opinion, Ecology's review of the RI portion of the EPI RI/FFS focused on providing comments for completing the RI sufficient for Ecology to determine that the requirements of WAC 173-340-350 were met.

Ecology further stated that it would review the FFS and the March 2019 EPI CAR when sufficient information was available for Ecology to determine that the RI for the Site had been completed. As a result, Ecology determined at that time, characterization of the Site was not sufficient to establish cleanup standards and select a cleanup action. Ecology also concluded in the December 10, 2019, opinion letter that additional remedial investigation is necessary at the Site before selecting a cleanup action.[24] However, Ecology also understood that remedial excavation actions proposed in the March 2019 EPI CAR were already underway at the Site.

TRC's February 3, 2021, response further discussed that the 0.0028 mg/kg soil dieldrin MDL specified by Ecology was not widely commercially available and was generally considered to be an estimate by the Washington-state accredited laboratories that they had consulted with.

[23] P. 6.
[24] P. 8.

These laboratories were not specified by name, however. TRC therefore concluded that the laboratory MDL of 0.01 mg/kg that was achieved by the Washington State-accredited project laboratory used for the Brookdale RI/FFS was considered to be reasonable and appropriate. Based on review of the laboratory analytical reports from the 2019 EPI RI/FS Report dated March 18, 2019, for dieldrin in soil, the analytical limit of 0.01 mg/kg was not specified as either an MDL or PQL. However, the laboratory quality control sample results did list it as a "reporting limit" in the footnotes, so Ecology assumes that it represents a PQL and not the MDL.

Groundwater/Surface Water. Similarly, regarding Ecology's suggested groundwater and surface water CUL for dieldrin of 0.0055 µg/L, TRC stated in the SRIR/CAR that while that MDL was theoretically achievable, it was not commercially utilized nor available. TRC further stated that based on their discussions with unspecified laboratory directors, that the MDL could only be achieved under ideal conditions and would be widely considered as a potentially unreliable estimate based on a formal (and unspecified) MDL study. TRC proposed a groundwater and surface water CUL of 0.02 µg/L.

Sediment. Regarding sediment, Ecology specified a freshwater sediment cleanup objective (SCO) for dieldrin of not greater than 0.0049 mg/kg and a regulatory PQL of 0.003 mg/kg. As a result, no upward adjustment of the PQL should occur. Alternatively, TRC mentioned their laboratory MDL for dieldrin in sediment was 0.006 mg/kg and that a lower MDL was widely considered an estimate consistent with the explanations for soil and groundwater. TRC also mentioned that the findings of the RI demonstrated compliance with Table 4 Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels Chemical Criteria of Ecology's Sediment Management Standards (WAC 173-204-563). Sediment MDL for dieldrin in TRC sediment samples actually ranged from 0.006 to 0.01 mg/kg.

CULs. TRC CULs for dieldrin in soil, sediment, groundwater, and surface water for the Site were selected as the respective analytical MDL. This selection was based on the exposure pathways for human and ecological receptors at the site and specifications under WAC 173-340-707 that stated either the PQL or the MDL would serve as the CUL if the standard media CUL was less than the technically achievable MDL for a specific compound.

Ecology does not concur with TRC's conclusion of 1) utilizing the analytical method MDLs as the CUL for soil and sediment and 2) concluding that the Ecology CULs were analytically unachievable nor commercially utilized or available.[25] As per WAC 173-340-707(2), though Ecology recognizes that there may be situations where a hazardous substance is not

[25] TRC Response to Ecology Comments dated August 24, 2020; page 7; February 3, 2021.

detected or is detected at a concentration below the PQL utilizing sampling and analytical procedures which comply with the requirements of WAC 173-340-830, Ecology does not believe that this is the case at this Site.

The soil CUL of 0.0028 mg/kg (2.8 micrograms per kilogram [µg/kg]) proposed by Ecology are achievable by several commercial laboratories in the Pacific Northwest utilizing the current standard analytical method for organochlorine pesticides, EPA Method 8081B. To that end, the achievable soil MDL and PQL for dieldrin by EPA Method 8081B should at least be 0.005 µg/kg and 1.0 µg/kg.

The sediment CUL to be achieved should be correlative to the freshwater SCO of 0.0049 mg/kg, and a PQL of 0.003 mg/kg. As a result, there should be no upward adjustment to the PQL and the proposed CUL should not be greater than 0.0049 mg/kg.

Additionally, per WAC 173-340-830(2)(f), analytical laboratories shall achieve the lowest PQLs consistent with the selected analytical method and WAC 173-340-707. As a result, Ecology would concur with a Site CUL for dieldrin in groundwater and surface water that proposes using the MDL of 0.005 µg/L and a PQL of 0.01 µg/L versus the Method B CUL of 0.0055 µg/L. The proposed change in Site CULs does not exclude the use of an empirical demonstration for the Site, following WAC 173-340-747(3)(f).

Next Steps

Based on the CUL discussion above, the lateral and vertical extents of all RI and remedial soil, sediment, groundwater, and surface water data should be reevaluated relative to the suggested CUL's and MDL/PQL. Additional cleanup activities should be based on utilizing an analytical laboratory that can achieve and comply with those levels. Please also adequately summarize all environmental matrix data in tables for review and correlation with the laboratory analytical reports. Once these requested data are submitted, Ecology can better evaluate whether the RI is complete.

Limitations of the Opinion

1. Opinion Does Not Settle Liability with the State.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

2. Opinion Does Not Constitute a Determination of Substantial Equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action a party performs is substantially equivalent. Courts make that determination.
See RCW 70A.305.080 and WAC 173-340-545.

3. State is Immune from Liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion.
See RCW 70A.305.170(6).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our Voluntary Cleanup Program webpage.[26] If you have any questions about this opinion, please contact me at 360-489-5347 or joe.hunt@ecy.wa.gov.

Sincerely,

Joe Hunt, LHG
Toxics Cleanup Program
Southwest Region Office

JH/js/tam

Enclosure: A – List of Documents

cc by email: Thomas Morin, TRC, tmorin@trccompanies.com
Sharon Bell, Tacoma Pierce County Health District, sbell@tpchd.org
Robert Jenkins, Pierce County Planning and Land Services, rob.jenkins@piercecountywa.gov
Jerome Lambiotte, Ecology, jerome.lambiotte@ecy.wa.gov
Ecology Site File

[26] https://www.ecy.wa.gov/vcp

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Enclosure A

List of Documents

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List of Documents

1. TRC, *Cleanup Action Report – Brookdale Golf Course*, August 31, 2022.
2. TRC, *Supplemental Remedial Investigation Report – Brookdale Golf Course*, August 31, 2022.
3. TRC, *Response to Ecology Comments Dated August 24, 2020, Brookdale Golf Course*, February 3, 2021.
4. TRC Environmental Corporation (TRC), *Supplemental Remedial Investigation Report – Brookdale Golf Course*, May 29, 2020.
5. Environmental Partners, Inc., *Response to Ecology Comments; Nicolina Meadows PPD Project, Tacoma, WA*, September 19, 2019.
6. Environmental Partners, Inc., *Response to Ecology Comments (dated December 10, 2019)*, May 29, 2020.
7. Environmental Partners, Inc., *Cleanup Action Plan - Brookdale Golf Course*, March 18, 2019.
8. Environmental Partners, Inc., *Remedial Investigation and Focused Feasibility Study Report - Brookdale Golf Course*, March 18, 2019.

Attachment B – Groundwater Assessment Work Plan

1180 NW Maple St., Suite 310
Issaquah, WA 98027
T 425.395.0010
TRCcompanies.com

January 16, 2024

Mr. Frank Winslow, LHG
Washington State Department of Ecology
1250 West Alder Street
Union Gap, Washington 98903

Re: Groundwater Assessment Work Plan
Former Brookdale Golf Course
1802 Brookdale Road East
Tacoma, Washington

TRC Project Number: 430733.0

Dear Mr. Winslow:

TRC Environmental Corporation (TRC) is pleased to present this Work Plan for continued assessment at the Former Brookdale Golf Course. The Former Brookdale Golf Course is located at 1802 Brookdale Road East in Tacoma, Washington (Site; Figure 1). The Work Plan was prepared on behalf of the owner, Ichijo USA Co., Ltd. (Ichijo).

The work proposed herein is in support of Ichijo's ongoing efforts to comply with the requirements of the Model Toxics Control Act (Revised Code of Washington [RCW] 70A.305) and its implementing regulations (Washington Administrative Code [WAC] 173-340; collectively "MTCA").

The Site is currently enrolled in the Washington State Department of Ecology's (Ecology) Expedited Voluntary Cleanup Program (EVCP) as VCP Site XS0016. Due to the development schedule and pending transactions, it was deemed necessary to expedite Ecology's review process.

Key information about the Site is provided in Table 1, below.

Table 1
Key Information

Ecology Facility Site ID Number	7758
Ecology Cleanup ID Number	14894
VCP Number	XS0016
Project Consultant for the Site	TRC Environmental Corporation 1180 Northwest Maple Street, Suite 310 Issaquah, Washington 98027

Table 1
Key Information

	425-395-0010 Attn: Eric Koltes/Nate Hinsperger
Current Property Owner	Ichijo USA Co., Ltd. 1406 140th Place NE, Suite 104 Bellevue, Washington 98007 Attn: Kanon Kupferer

PREVIOUS ENVIRONMENTAL WORK

TRC (as both our previous business entity Environmental Partners, Inc.; EPI and TRC) performed a remedial investigation and focused feasibility study for the Site. These activities were documented in EPI's *Remedial Investigation and Focused Feasibility Study* (RI/FFS) dated March 19, 2020, TRC's *Supplemental Remedial Investigation Report* (SRI) dated May 29, 2020, and TRC's *Supplemental Remedial Investigation Report – South of Clover Creek* (SRI) dated August 31, 2022. These documents were previously submitted to Ecology under the VCP.

Cleanup actions were additionally performed at the Site in June through October 2019. These actions were documented in TRC's *Cleanup Action Report*, dated August 31, 2022.

Ecology has issued several opinion letters regarding the sufficiency of the characterization and cleanup of the Site. The most recent opinion letter was dated January 30, 2023. In this letter, Ecology detailed several concerns with the characterization and cleanup of the Site. In TRC's review, the most pressing issue appears to be centered on the sufficiency of the prior groundwater characterization. Particularly, the laboratory reporting limits (RLs) for groundwater samples achieved during the prior work.

In the absence of groundwater impacts, direct contact cleanup levels (CULs) would apply for Site contaminants of concern (COCs) using an empirical evidence approach. Therefore, TRC proposes first performing an additional groundwater assessment using lower RLs to empirically demonstrate that COCs are not present in groundwater. This effort would also serve to narrow the focus of issues that are required to address for Site closure.

Ecology also indicated in recent correspondence following the submittal of this Work Plan that data gaps for dieldrin in surface water and sediment are present at the Site. The data gaps for surface water and sediment are directly related to the achievable laboratory RLs that were available during the performance of the SRI.

TRC proposes using lower RLs for the additional assessment of surface water at the Site.

Because the laboratory RL for dieldrin in sediment is not substantially higher than Ecology's Sediment Management Standards Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels

Chemical Criteria (WAC 173-204-563 Table VI), other lines of evidence will be used to address the data gaps.

As a component of this groundwater assessment, TRC will also assess data gaps in surface water that will be required for Site closure.

As indicated in prior documents, dieldrin is the indicator hazardous compound (IHC) for impacts at the Site. Therefore, the groundwater assessment will focus on the presence or absence of dieldrin.

After completion of the groundwater assessment proposed herein, TRC will submit a full response to comments for the January 30, 2023 Ecology opinion letter for discussion towards closure.

OBJECTIVES

The general objective of the work presented herein is to perform groundwater assessment at the Site for purposes of empirical demonstration that current soil conditions are protective of groundwater for dieldrin. Additional assessment of surface water will be performed to address data gaps required for Site closure.

The specific objective are as follows:

- Installation and development of up to ten new monitoring wells;
- Establish piezometric conditions;
- Sampling and analysis of the newly installed wells;
- Sampling and analysis of surface water;
- Report preparation; and
- Response to Ecology.

METHODOLOGY

Well Installation

TRC will install ten monitoring wells at the Site. The monitoring wells will be installed in locations that are representative of groundwater conditions across the Site. The rationale of the well locations includes the following:

- Wells will be installed near the southwestern property boundary that is the portion of the Site nearest to group A/B water supply wells and wellhead protection zones.

- Wells will be installed at tees and greens where concentrations of dieldrin in soil were observed to be the highest during the remedial investigation (RI). Table 2 (below) summarizes the highest concentrations of dieldrin in soil identified during the RI and the rationale for proposed monitoring well locations.

Table 2
Rationale for Proposed Monitoring Well Locations

Area	Tee/Green	Max Dieldrin (mg/kg)	Sample	Proposed MWs*	Ecology Suggested MW	Location Rationale
1	T1	0.51	PG-2-NW	2	1	Aerial coverage
	G2	20				
	G9	4.2				
2	G1	2.0				
	G18	1.9				
3	T2	2.3	Tee-4-D	0	0	
	T4	5.1				
	G1	0.68				
4	T11	2.9	Green 8	1	1	Aerial coverage
	G8	6.0				
5	T18	1.8	Green 17	0	1	Aerial coverage
	G10	0.72				
	G17	9.0				
6	T3G 2	0.4	Green 2-SW	1	0	Aerial coverage
		4.7				
7	T8	9.2	Tee 8-B	0	1	Aerial coverage
	G7	1.4				
8	T12	1.8	Green 11	1	1	Aerial coverage
	G11	5.4				
9	T17	6.7	Tee 17-D	1	1	Aerial coverage
	G16	1.5				
10	G3	1.4	Green 3	1	1	Aerial coverage
11	G12	1.3	Green 15-S	1	1	Aerial coverage
	G15	5.9				
12	T7	0.096				
	G6	0.93				
13	T13	4.2	Green 14-N	1	1	Aerial coverage, water wells**
	T15	0.12				
	T16	0.061				
	G14	6.8				

Table 2
Rationale for Proposed Monitoring Well Locations

Area	Tee/Green	Max Dieldrin (mg/kg)	Sample	Proposed MWs*	Ecology Suggested MW	Location Rationale
14	T5	1.4				
	G4	5.1				
	G5	7.2				
15	T14	1.3	Tee 14-N	2	1	Areal coverage, water wells**
	G13	0.016				

Notes:
(mg/kg) Milligrams per kilogram.
* Proposed monitoring wells on Figure 2.
** Area is in closer proximity to Group A/B water supply wells and wellhead protection zones.
Dieldrin > 5 mg/kg
Dieldrin 1-5 mg/kg

Drilling Methods

Wells will be installed and completed using hollow-stem auger (HSA) drilling and sampling methods by a Washington state-licensed well driller.

During drilling at each location soil samples will be collected at 5-foot vertical intervals. At least two soil samples will be retained from each boring (20 total) and placed directly into laboratory-supplied glass sample containers. All soil samples will be submitted for total organic carbon using SW-846 Method 9060.

Soil conditions encountered during drilling at each location will be logged using the Unified Soil Classification System (USCS) with visual-manual procedures (ASTM Method 2488D). Soil conditions and field screening results will be recorded on boring and well completion logs.

Each monitoring well will be installed to a total depth of 20 feet and will include 0.010 pre-pack screen ranging from ten to 15 feet in length. Each well will be completed at the surface with a flush-mounted, traffic-rated monument and sealed with a locking watertight plug. The wells will be constructed in accordance with the “Minimum Standards for Construction and Maintenance of Wells” (WAC 173-160) under the supervision of a Washington-licensed well driller and an experienced environmental professional from TRC. Final well design and construction may be adjusted based on field observations during drilling.

The locations of all new monitoring wells will be surveyed to establish horizontal location and vertical elevation by a Washington-licensed surveyor. Horizontal locations will be accurate to 0.1 foot and vertical elevations will be accurate to 0.01 foot.

Well Development

After completion, each well will be developed to remove fine materials accumulated within the well during drilling and to set the filter pack. The wells will then be allowed to equilibrate for at least 48 hours prior to groundwater sampling.

The new wells will be developed using a combination of over pumping and surging. Well development will be completed by continuous pumping at a steady rate using a submersible pump or waterra® tubing.

Because dieldrin exhibits both a low aqueous solubility and an elevated log octanol water-partitioning coefficient, soil particles in groundwater will skew the data and will not be representative of groundwater conditions. Therefore, well development will only be considered completed when less than 5 nephelometric turbidity units (NTU) have been achieved. Accordingly, well development will be terminated when the turbidity of the discharge water decreases to less than 5 NTU.

Groundwater Sampling and Analysis

TRC will conduct groundwater sampling from the 10 newly installed monitoring wells following completion of the well development described above. The sampling event will be performed to assess current groundwater conditions at the Site following the previously documented remedial actions and to demonstrate compliance with the MTCA Method B CUL for dieldrin in groundwater.

Methodology

Prior to sampling, TRC personnel will collect piezometric groundwater level data in all wells using an electronic water level meter. The depth to water will be measured to the nearest 0.01 foot, relative to a surveyed point on the north side of the PVC well casing.

Groundwater sampling will be performed using standard low-flow sampling techniques. Prior to sample collection, each well was purged until field measurements of pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), temperature, and conductivity stabilized to within 10 percent of the prior measurement. A turbidity value of less than 5 NTU will be achieved prior to collecting the groundwater samples. Purging will be performed using a peristaltic pump and disposable tubing at each well.

The groundwater samples will be collected directly from the tubing into laboratory-supplied sample containers at a flow rate of less than 100 milliliters per minute. Immediately upon collection, each sample container was appropriately labeled and placed into a chilled cooler pending submittal to the analytical laboratory.

Groundwater samples will be placed into a cooler with ice and submitted to Friedman and Bruya, Inc. in Seattle, Washington, under standard chain-of-custody protocol. Each groundwater sample will be submitted for analysis of dieldrin using U.S. Environmental Protection Agency (EPA) Method 8081.

Surface Water Sampling

Surface water conditions will be assessed in Clover Creek and the North Fork Clover Creek tributary for the presence of dieldrin. TRC will collect a total of five surface water samples during the groundwater assessment. Proposed surface water sample locations are depicted on Figure 2.

Two surface water samples will be collected from the North Fork Clover Creek tributary. Two surface water samples will be collected from Clover Creek and one surface water sample will be collected from the pond located adjacent to the east of Clover Creek.

Surface water samples will only be collected during dry conditions to ensure that the collected samples are representative of current surface water conditions and are not impacted by surface runoff during a precipitation event.

Each surface water sample will be submitted for analysis of dieldrin using EPA Method 8081.

Cleanup Levels and Laboratory Reporting Limits

Groundwater and surface water CULs for dieldrin were evaluated in accordance with MTCA and take into consideration exposure pathways and receptors based on current and likely future uses of the Site. Based on current and expected future use of the Site, exposure pathways for human and ecological receptors were considered for the development of applicable CULs. The CUL for the applicable IHC are presented in Table 3 below.

Table 3
Established Groundwater and Surface Water CULs
and Laboratory Reporting Limits

Compound	MTCA Method B Groundwater Cleanup Level[a,b]	Laboratory Reporting Limit[c] (µg/L)
Dieldrin	0.0055	0.0050

Notes:
(µg/L) Micrograms per liter.
a MTCA Method A Groundwater Cleanup Level (Table 740-1). Where no MTCA Method A Cleanup Level established, MTCA Method B Groundwater Cleanup Levels (from CLARC) used.
b MTCA Method B Groundwater Cleanup Level used for Surface Water Cleanup Level as requested in Ecology's August 24, 2020, Opinion Letter.
c Friedman and Bruya, Inc. Laboratory Reporting Limit for dieldrin in water.

Reporting

All work performed will be documented by TRC. Documentation will include a summary of the groundwater assessment activities, including digital monitoring well boring logs, documentation of the performed groundwater sampling, a summary of the findings of the groundwater assessment, and laboratory reports documenting the analytical results from the groundwater assessment.

Following the completion of the groundwater assessment, TRC will submit a full response to comments for the January 30, 2023 Ecology opinion letter for discussion towards closure.

If warranted, TRC will also prepare an amended CAR for the Site compliant with the requirements of MTCA following Ecology's general guidance for such reports. This report will ultimately be required to support an NFA determination. The CAR that summarizes the previously completed remedial actions will, in addition, summarize the findings of this groundwater assessment and document that Site conditions meet the requirements of MTCA.

Schedule

TRC will schedule the proposed scope of work immediately upon receipt of written acceptance of this Work Plan from Ecology described herein. The monitoring well installation is tentatively scheduled to be completed in February 2024, pending Ecology's acceptance.

TRC's response to comments and documentation summarizing the results and findings of the groundwater assessment will be submitted within 4 weeks of receipt of all laboratory data.

Sincerely,

NATHANIEL DAVID HINSPERGER

Prepared by:
Nate Hinsperger, L.G.
Senior Geologist

ERIC MICHAEL KOLTES

Reviewed and Approved by:
Eric Koltes, L.G.
Principal Geologist

cc: Kanon Kupferer; Ichijo USA Co., Ltd.

ENCLOSURES

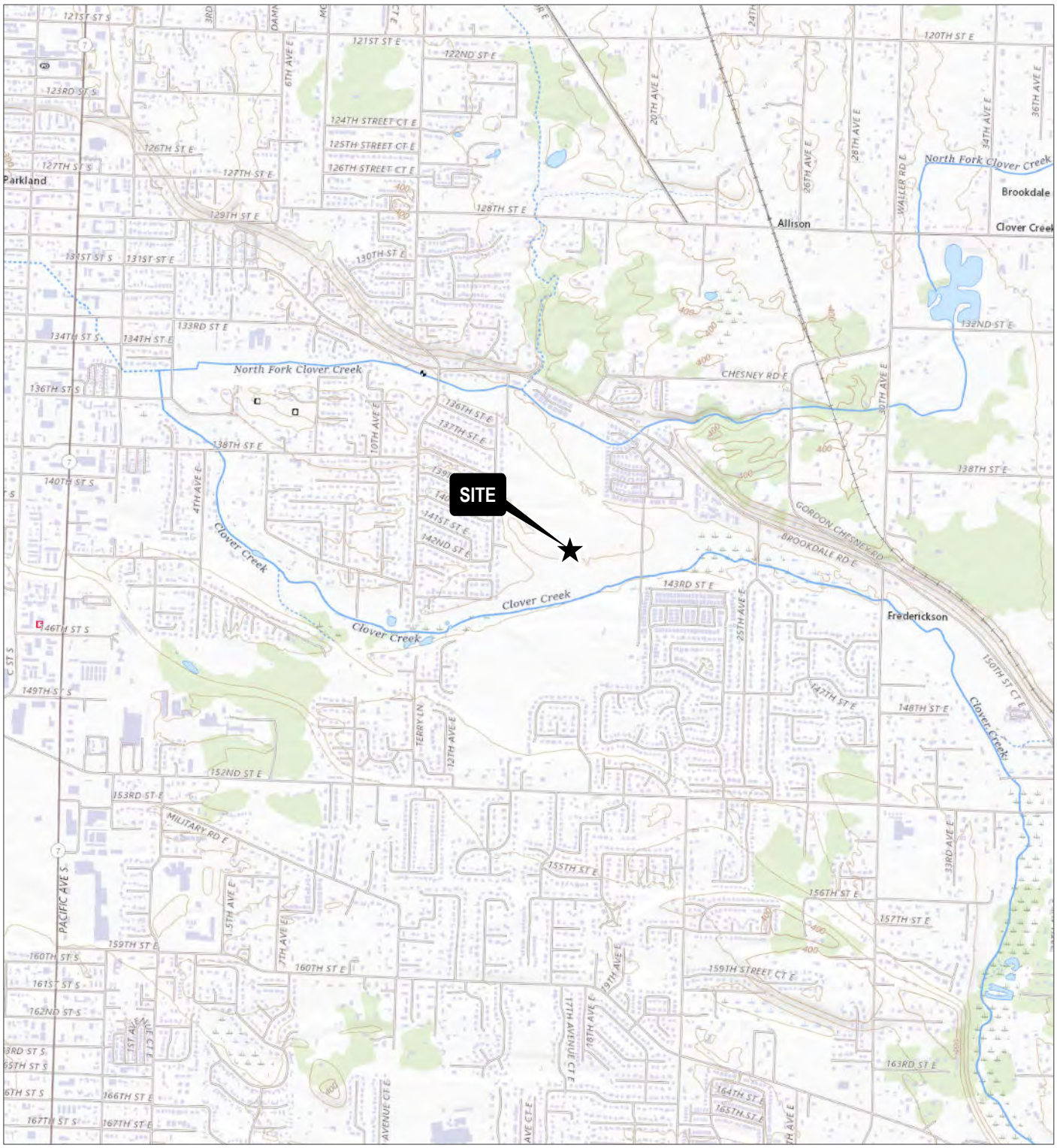
Tables (embedded)

Table 1	Key Information
Table 2	Rationale for Proposed Monitoring Well Locations
Table 3	Established Groundwater and Surface Water Cleanup Levels and Laboratory Reporting Limits

Figures

Figure 1	General Vicinity Map
Figure 2	Site Representation Showing Proposed Monitoring Well Locations

Figures



BASE MAP: USGS COLOR TOPO IMAGERY
DATA SOURCES: TRC

0 1,000 2,000
FEET
1:24,000 1" = 2,000'

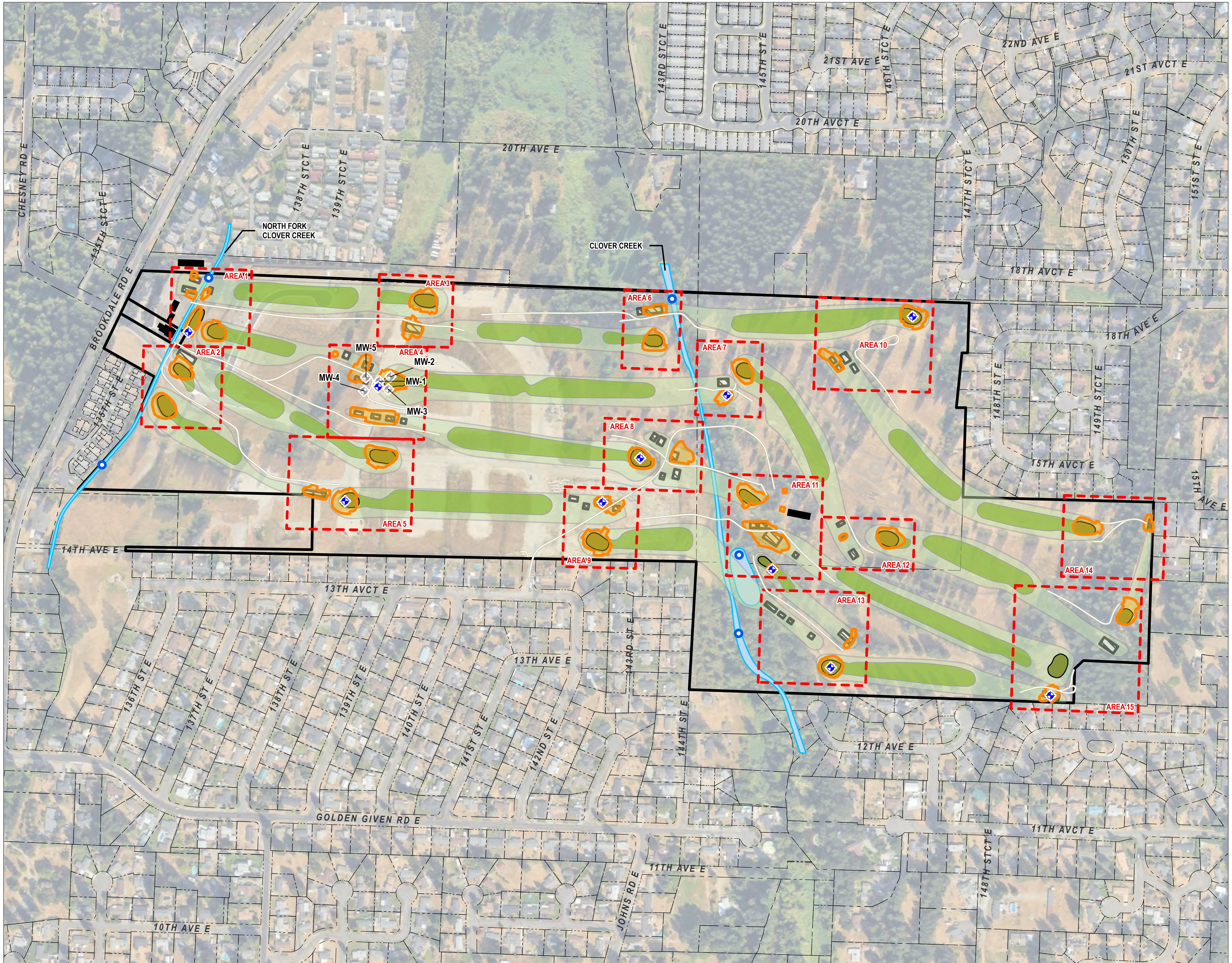
PROJECT: **FORMER BROOKDALE GOLF COURSE**
1802 BROOKDALE ROAD EAST
TACOMA, WASHINGTON

TITLE:
GENERAL VICINITY MAP
GROUNDWATER ASSESSMENT WORK PLAN

DRAWN BY:	S. RAY	PROJ. NO.:	430733.0000.0000
CHECKED BY:	N. HINSPERGER		
APPROVED BY:	N. HINSPERGER		**FIGURE 1**
DATE:	JANUARY 2024		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: ADDITIONAL GROUNDWATER CHARACTERIZATION WORK PLAN 2023



PROPOSED MONITORING WELL LOCATION
DECOMMISSIONED MONITORING WELL LOCATION
PROPOSED SURFACE WATER SAMPLE LOCATION
GOLF COURSE CART PATH
APPROXIMATE LIMITS OF REMEDIAL EXCAVATION
APPROXIMATE SUBJECT PROPERTY BOUNDARY
BUILDING
FORMER GOLF COURSE GREEN
FORMER GOLF COURSE FAIRWAY
FORMER GOLF COURSE HOLE
FORMER GOLF COURSE TEE BOX
PARCEL BOUNDARY
REMEDIAL AREA
WATER FEATURE

BASE MAP: GOOGLE EARTH AND THEIR DATA PARTNERS.
DATA SOURCES: TRC, PIERCE COUNTY GIS OPENDATA PORTAL

N

1:5,400
1" = 450'
0 225 450 FEET

PROJECT:	FORMER BROOKDALE GOLF COURSE 1802 BROOKDALE ROAD EAST TACOMA, WASHINGTON
TITLE:	SITE REPRESENTATION SHOWING PROPOSED MONITORING WELL LOCATIONS GROUNDWATER ASSESSMENT WORK PLAN

DRAWN BY:	S. RAY	PROJ. NO.:	430733.0000.0000
CHECKED BY:	N. HINSPERGER	FIGURE 2	
APPROVED BY:	N. HINSPERGER		
DATE:	JANUARY 2024		

TRC
1180 NW MAPLE STREET, SUITE 310
ISSAQUAH, WA 98027
PHONE: 425.395.0010

FILE: Additional Groundwater Characterization Work Plan 2023.aprx

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet; Map Rotation: 90
-- Saved By: SRAY on 1/12/2024, 08:40:38 AM; File Path: T:\1-PROJECTS\chijo\430733_Brookdale\2-APRX\Additional Groundwater Characterization Work Plan 2023.aprx; Layout Name: Fig 2 - Site Rep

Attachment C – Laboratory Analytical Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

March 1, 2024

Nate Hinsperger, Project Manager
JS Held
18732 Redmond-Fall City Road
Redmond, WA 98052

Dear Mr. Hinsperger:

Included are the results from the testing of material submitted on February 21, 2024 from the 240102403 Former Brookdale Golf Course, F&BI 402303 project. There is 1 page included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Eric Koltes
JSH0301R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 21, 2024 by Friedman & Bruya, Inc. from the JS Held 240102403 Former Brookdale Golf Course, F&BI 402303 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
402303 -01	JSH-MW-1:2
402303 -02	JSH-MW-1:5
402303 -03	JSH-MW-1:10
402303 -04	JSH-MW-1:15
402303 -05	JSH-MW-1:20
402303 -06	JSH-MW-2:2
402303 -07	JSH-MW-2:5
402303 -08	JSH-MW-2:10
402303 -09	JSH-MW-2:15
402303 -10	JSH-MW-2:20
402303 -11	JSH-MW-3:2
402303 -12	JSH-MW-3:5
402303 -13	JSH-MW-3:10
402303 -14	JSH-MW-3:15
402303 -15	JSH-MW-4:2
402303 -16	JSH-MW-4:5
402303 -17	JSH-MW-4:10
402303 -18	JSH-MW-4:15
402303 -19	JSH-MW-5:2
402303 -20	JSH-MW-5:5
402303 -21	JSH-MW-5:10
402303 -22	JSH-MW-5:15
402303 -23	JSH-MW-6:2
402303 -24	JSH-MW-6:5
402303 -25	JSH-MW-6:10
402303 -26	JSH-MW-6:15
402303 -27	JSH-MW-7:2
402303 -28	JSH-MW-7:5
402303 -29	JSH-MW-7:10
402303 -30	JSH-MW-7:13
402303 -31	JSH-MW-8:2
402303 -32	JSH-MW-8:5
402303 -33	JSH-MW-8:10
402303 -34	JSH-MW-8:15
402303 -35	JSH-MW-8:20

The samples marked for TOC analysis were sent to Fremont Analytical. The report is enclosed

402303

SAMPLE CHAIN OF CUSTODY 02/21/24 D4

Page # 1 of 4

Report To Nate Hinsperger / Eric Kolles

Company JS Held

Address 18732 Redmond-Fall City Rd

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinsperger@JSheld.com / Eric.Kolles@JSheld.com

SAMPLERS (*signature*)

PROJECT NAME 240102403 Former Brookdale Golf Course

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOC SW-846 Method 9060				Notes
JSH-MW-1:2	01	2-19-24	0943	Soil	1								X				
JSH-MW-1:5	02	"	0836	"	1												
JSH-MW-1:10	03	"	0850	"	1												
JSH-MW-1:15	04	"	0925	"	1								X				
JSH-MW-1:20	05	"	0930	"	1												
JSH-MW-2:2	06	"	1100	"	1								X				
JSH-MW-2:5	07	"	1105	"	1												
JSH-MW-2:10	08	"	1112	"	1												
JSH-MW-2:15	09	"	1121	"	1								X				
JSH-MW-2:20	10	2-19-24	1132	Soil	1												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	2-21-24	1625
Received by:	HONG NGUYEN	FBI	2-21-24	16:25
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

4020 402303

SAMPLE CHAIN OF CUSTODY 02/21/24 04

Page # 2 of 4

Report To Nate Hinsperger / Eric Kolles

Company JS Held

Address 18732 Redmond-Fall City Rd

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinsperger@JSheld.com, Eric.Kolles@JSheld.com

SAMPLERS (*signature*) Austin York

PROJECT NAME 240102403 Former Brookdale Golf Course

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOC SW-846 Method 9060				Notes
JSH-MW-3:2	11	2-20-24	0810	soil	1								X				
JSH-MW-3:5	12	"	0815	"	1								X				
JSH-MW-3:10	13	"	0825	"	1												
JSH-MW-3:15	14	"	0830	"	1												
JSH-MW-4:2	15	"	0940	"	1								X				
JSH-MW-4:5	16	"	0955	"	1												
JSH-MW-4:10	17	"	1010	"	1												
JSH-MW-4:15	18	2-20-24	1045	soil	1								X				
~~JSH-MW-4:20~~ AY																	
JSH-MW-5:2	19	2-20-24	1300	soil	1								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	2-21-24	1625
Received by:	HONG NGUYEN	FBI	2/21/24	16:25
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

402303

SAMPLE CHAIN OF CUSTODY

02/21/24 04

Page # 3 of 4

Report To Nate Hinsperger / Eric Kolves

Company JS Held

Address 18732 Redmond-Fall City Rd

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinsperger@JSHeld.com / Eric.Kolves@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME 240102403 Former Brookdale Golf Course

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOC SW846 Method 9060				Notes
JSH-MW-5:5	20	2-20-24	1315	Soil	1												
JSH-MW-5:10	21	↓	1330	↓	1								X				
JSH-MW-5:15	22	2-20-24	1338		1												
JSH-MW-6:2	23	2-21-24	0818		1								X				
JSH-MW-6:5	24	↓	0826		1												
JSH-MW-6:10	25		845		1								X				
JSH-MW-6:15	26		0847		1												
JSH-MW-7:2	27		1115		1								X				
JSH-MW-7:5	28	↓	1120	↓	1												
JSH-MW-7:10	29	2-21-24	1130	Soil	1								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nathan York	JS Held	2-21-24	1625
Received by:	HONG NGUYEN	FBT	2/21/24	16:25
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

~~402303~~ (AP) 402303

SAMPLE CHAIN OF CUSTODY 02/21/24 D4

Page # 4 of 4

Report To Nate Hinsperger / Eric Kolles

Company JS Held

Address 18732 Redmond-Fall City Rd

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinsperger@JSHeld.com / Eric.Kolles@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME 240102403 Former Brookdale Golf Course

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOC SW-846 Method 9060				Notes
JSH-MW-7:13	30	2-21-24	1136	Soil	1												
JSH-MW-8:2	31	"	1322	"	1								X				
JSH-MW-8:5	32	"	1328	"	1												
JSH-MW-8:10	33	"	1343	"	1												
JSH-MW-8:15	34	"	1408	"	1								X				
JSH-MW-8:20	35	2-21-24	1424	Soil	1												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	2-21-24	1625
Received by: HONG NGUYEN	HONG NGUYEN	FBI	2/21/24	16:25
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
5500 4th Ave S
Seattle, WA 98108

RE: 402303
Work Order Number: 2402411

February 29, 2024

Attention Michael Erdahl:

Fremont Analytical, Inc. received 16 sample(s) on 2/22/2024 for the analyses presented in the following report.

Total Organic Carbon by EPA 9060

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *02/29/2024*

CLIENT: Friedman & Bruya
Project: 402303
Work Order: 2402411

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2402411-001	JSH-MW-1:2	02/20/2024 9:43 AM	02/22/2024 3:00 PM
2402411-002	JSH-MW-1:15	02/20/2024 9:25 AM	02/22/2024 3:00 PM
2402411-003	JSH-MW-2:2	02/20/2024 11:00 AM	02/22/2024 3:00 PM
2402411-004	JSH-MW-2:15	02/20/2024 11:21 AM	02/22/2024 3:00 PM
2402411-005	JSH-MW-3:2	02/20/2024 8:10 AM	02/22/2024 3:00 PM
2402411-006	JSH-MW-3:5	02/20/2024 8:15 AM	02/22/2024 3:00 PM
2402411-007	JSH-MW-4:2	02/20/2024 9:40 AM	02/22/2024 3:00 PM
2402411-008	JSH-MW-4:15	02/20/2024 10:45 AM	02/22/2024 3:00 PM
2402411-009	JSH-MW-5:2	02/20/2024 1:00 PM	02/22/2024 3:00 PM
2402411-010	JSH-MW-5:10	02/20/2024 1:30 PM	02/22/2024 3:00 PM
2402411-011	JSH-MW-6:2	02/21/2024 8:18 AM	02/22/2024 3:00 PM
2402411-012	JSH-MW-6:10	02/21/2024 8:45 AM	02/22/2024 3:00 PM
2402411-013	JSH-MW-7:2	02/21/2024 11:15 AM	02/22/2024 3:00 PM
2402411-014	JSH-MW-7:10	02/21/2024 11:30 AM	02/22/2024 3:00 PM
2402411-015	JSH-MW-8:2	02/21/2024 1:22 PM	02/22/2024 3:00 PM
2402411-016	JSH-MW-8:15	02/21/2024 2:08 PM	02/22/2024 3:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2402411**
Date: **2/29/2024**

CLIENT: Friedman & Bruya
Project: 402303

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Friedman & Bruya
Project: 402303

Lab ID: 2402411-001 **Collection Date:** 2/20/2024 9:43:00 AM
Client Sample ID: **JSH-MW-1:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43055		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/27/2024 4:54:00 PM

Lab ID: 2402411-002 **Collection Date:** 2/20/2024 9:25:00 AM
Client Sample ID: **JSH-MW-1:15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43055		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/27/2024 5:08:00 PM

Lab ID: 2402411-003 **Collection Date:** 2/20/2024 11:00:00 AM
Client Sample ID: **JSH-MW-2:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	1.60	0.400		%-dry	1	2/28/2024 1:17:00 PM

Lab ID: 2402411-004 **Collection Date:** 2/20/2024 11:21:00 AM
Client Sample ID: **JSH-MW-2:15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/28/2024 1:27:00 PM

CLIENT: Friedman & Bruya
Project: 402303

Lab ID: 2402411-005 **Collection Date:** 2/20/2024 8:10:00 AM
Client Sample ID: **JSH-MW-3:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	2.93	0.400		%-dry	1	2/28/2024 1:53:00 PM

Lab ID: 2402411-006 **Collection Date:** 2/20/2024 8:15:00 AM
Client Sample ID: **JSH-MW-3:5** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	3.84	0.400		%-dry	1	2/28/2024 2:08:00 PM

Lab ID: 2402411-007 **Collection Date:** 2/20/2024 9:40:00 AM
Client Sample ID: **JSH-MW-4:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/28/2024 2:23:00 PM

Lab ID: 2402411-008 **Collection Date:** 2/20/2024 10:45:00 AM
Client Sample ID: **JSH-MW-4:15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/28/2024 2:36:00 PM

CLIENT: Friedman & Bruya
Project: 402303

Lab ID: 2402411-009 **Collection Date:** 2/20/2024 1:00:00 PM
Client Sample ID: **JSH-MW-5:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/28/2024 2:53:00 PM

Lab ID: 2402411-010 **Collection Date:** 2/20/2024 1:30:00 PM
Client Sample ID: **JSH-MW-5:10** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/28/2024 3:08:00 PM

Lab ID: 2402411-011 **Collection Date:** 2/21/2024 8:18:00 AM
Client Sample ID: **JSH-MW-6:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/28/2024 4:17:00 PM

Lab ID: 2402411-012 **Collection Date:** 2/21/2024 8:45:00 AM
Client Sample ID: **JSH-MW-6:10** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/28/2024 4:33:00 PM

CLIENT: Friedman & Bruya
Project: 402303

Lab ID: 2402411-013 **Collection Date:** 2/21/2024 11:15:00 AM
Client Sample ID: **JSH-MW-7:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43076		Analyst: FG
Total Organic Carbon	1.15	0.400		%-dry	1	2/28/2024 4:50:00 PM

Lab ID: 2402411-014 **Collection Date:** 2/21/2024 11:30:00 AM
Client Sample ID: **JSH-MW-7:10** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43055		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/27/2024 3:31:00 PM

Lab ID: 2402411-015 **Collection Date:** 2/21/2024 1:22:00 PM
Client Sample ID: **JSH-MW-8:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43055		Analyst: FG
Total Organic Carbon	3.97	0.400		%-dry	1	2/27/2024 4:27:00 PM

Lab ID: 2402411-016 **Collection Date:** 2/21/2024 2:08:00 PM
Client Sample ID: **JSH-MW-8:15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43055		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	2/27/2024 4:40:00 PM

Work Order: 2402411
CLIENT: Friedman & Bruya
Project: 402303

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **MB-43055**	SampType: **MBLK**	Units: **%-dry**	Prep Date: **2/27/2024**	RunNo: **89910**
Client ID: **MBLKS**	Batch ID: **43055**		Analysis Date: **2/27/2024**	SeqNo: **1876240**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.400									

Sample ID: **LCS-43055**	SampType: **LCS**	Units: **%-dry**	Prep Date: **2/27/2024**	RunNo: **89910**
Client ID: **LCSS**	Batch ID: **43055**		Analysis Date: **2/27/2024**	SeqNo: **1876241**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.06	0.400	1.000	0	106	80	120				

Sample ID: **2402411-014ADUP**	SampType: **DUP**	Units: **%-dry**	Prep Date: **2/27/2024**	RunNo: **89910**
Client ID: **JSH-MW-7:10**	Batch ID: **43055**		Analysis Date: **2/27/2024**	SeqNo: **1876243**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.400						0		20	

Sample ID: **2402411-014AMS**	SampType: **MS**	Units: **%-dry**	Prep Date: **2/27/2024**	RunNo: **89910**
Client ID: **JSH-MW-7:10**	Batch ID: **43055**		Analysis Date: **2/27/2024**	SeqNo: **1876244**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.24	0.400	1.000	0	124	75	125				

Sample ID: **2402411-014AMSD**	SampType: **MSD**	Units: **%-dry**	Prep Date: **2/27/2024**	RunNo: **89910**
Client ID: **JSH-MW-7:10**	Batch ID: **43055**		Analysis Date: **2/27/2024**	SeqNo: **1876245**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.24	0.400	1.000	0	124	75	125	1.239	0.242	20	

Work Order: 2402411
CLIENT: Friedman & Bruya
Project: 402303

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **MB-43076**	SampType: **MBLK**	Units: **%-dry**	Prep Date: **2/28/2024**	RunNo: **89911**
Client ID: **MBLKS**	Batch ID: **43076**		Analysis Date: **2/28/2024**	SeqNo: **1876255**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.400									

Sample ID: **LCS-43076**	SampType: **LCS**	Units: **%-dry**	Prep Date: **2/28/2024**	RunNo: **89911**
Client ID: **LCSS**	Batch ID: **43076**		Analysis Date: **2/28/2024**	SeqNo: **1876256**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.03	0.400	1.000	0	103	80	120				

Sample ID: **2402411-010ADUP**	SampType: **DUP**	Units: **%-dry**	Prep Date: **2/28/2024**	RunNo: **89911**
Client ID: **JSH-MW-5:10**	Batch ID: **43076**		Analysis Date: **2/28/2024**	SeqNo: **1876267**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.400						0		20	

Sample ID: **2402411-010AMS**	SampType: **MS**	Units: **%-dry**	Prep Date: **2/28/2024**	RunNo: **89911**
Client ID: **JSH-MW-5:10**	Batch ID: **43076**		Analysis Date: **2/28/2024**	SeqNo: **1876268**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.09	0.400	1.000	0	109	75	125				

Sample ID: **2402411-013ADUP**	SampType: **DUP**	Units: **%-dry**	Prep Date: **2/28/2024**	RunNo: **89911**
Client ID: **JSH-MW-7:2**	Batch ID: **43076**		Analysis Date: **2/28/2024**	SeqNo: **1876274**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.962	0.400						1.150	17.8	20	

Work Order: 2402411
CLIENT: Friedman & Bruya
Project: 402303

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **2402411-013AMS**	SampType: **MS**	Units: **%-dry**	Prep Date: **2/28/2024**	RunNo: **89911**
Client ID: **JSH-MW-7:2**	Batch ID: **43076**		Analysis Date: **2/28/2024**	SeqNo: **1876276**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	2.15	0.400	1.000	1.150	99.6	75	125				

Sample ID: **2402411-013AMSD**	SampType: **MSD**	Units: **%-dry**	Prep Date: **2/28/2024**	RunNo: **89911**
Client ID: **JSH-MW-7:2**	Batch ID: **43076**		Analysis Date: **2/28/2024**	SeqNo: **1876278**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	2.04	0.400	1.000	1.150	89.4	75	125	2.146	4.87	20	

Fremont Analytical
An Alliance Technical Group Company

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2402411
Logged by:	Morgan Wilson	Date Received:	2/22/2024 3:00:04 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
4.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
6.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8.	Are samples properly preserved?	Yes ☑	No ☐	
9.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
11.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
12.	Does paperwork match bottle labels?	Yes ☑	No ☐	
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all hold times (except field parameters, pH e.g.) able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

Item Information

Item #	Temp ºC
Sample	6.0

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2402411

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 5500 4th Ave S
City, State, ZIP Seattle, WA 98108
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont	
PROJECT NAME/NO. 402303	PO # D-685
REMARKS EIM	

TURNAROUND TIME
☒ Standard TAT
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: TOC 9060	Nitrate	Nitrite	Sulfate	RSK-175						Notes
JSH-MW-1:2		2/20/2024	0943	soil	1	x										
JSH-MW-1:15		2/20/2024	0925	soil	1	x										
JSH-MW-2:2		2/20/2024	1100	soil	1	x										
JSH-MW-2:15		2/20/2024	1121	soil	1	x										
JSH-MW-3:2		2/20/2024	08:10	soil	1	x										
JSH-MW-3:5		2/20/2024	08:15	soil	1	x										
JSH-MW-4:2		2/20/2024	09:40	soil	1	x										
JSH-MW-4:15		2/20/2024	10:45	soil	1	x										
JSH-MW-5:2		2/20/2024	13:00	soil	1	x										
JSH-MW-5:10		2/20/2024	13:30	soil	1	x										
JSH-MW-6:2		2/21/2024	08:18	soil	1	x										
JSH-MW-6:10		2/21/2024	08:45	soil	1	x										
JSH-MW-7:2		2/21/2024	11:15	soil	1	x										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	2/22/24	844
Received by:		Briana Ballard	FAI	2/22/24	3:00
Relinquished by:					
Received by:					

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2402409

Page # 2 of 2

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 5500 4th Ave S

City, State, ZIP Seattle, WA 98108

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER	
Fremont	
PROJECT NAME/NO.	PO #
402303	D-685
REMARKS	
EIM	

TURNAROUND TIME
☒ Standard TAT
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: TOC 9060	Nitrate	Nitrite	Sulfate	RSK-175						Notes
JSH-MW-7:10		2/21/2024	1130	soil	1	x										
JSH-MW-8:2		2/21/2024	1322	soil	1	x										
JSH-MW-8:15		2/21/2024	1408	soil	1	x										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	2/22/24	844
Received by:		Briana Ballard	FAI	2/22/24	3:00
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

March 6, 2024

Nate Hinsperger, Project Manager
JS Held
18732 Redmond-Fall City Rd
Redmond, WA 98052

Dear Mr. Hinsperger:

Included are the results from the testing of material submitted on February 23, 2024 from the 240102403 Former Brookdale Golf Course, F&BI 402349 project. There is 1 page included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Eric Koltes
JSH0306R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 23, 2024 by Friedman & Bruya, Inc. from the JS Held 240102403 Former Brookdale Golf Course, F&BI 402349 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
402349 -01	JSH-MW-9:2
402349 -02	JSH-MW-9:5
402349 -03	JSH-MW-9:10
402349 -04	JSH-MW-9:15
402349 -05	JSH-MW-9:20
402349 -06	JSH-MW-10:2
402349 -07	JSH-MW-10:5
402349 -08	JSH-MW-10:15
402349 -09	JSH-MW-10:20
402349 -10	JSH-MW-10:10

The samples marked for TOC analysis were sent to Fremont Analytical. The report is enclosed.

SAMPLE CHAIN OF CUSTODY

02/23/24 E2

402349

Report To Nate Hinsperger / Erik Kolkes

Company JS Held

Address 18732 Redmond-Fall City Rd

City, State, ZIP Redmond, WA 98052

Phone 425-558-5535 Email Nathaniel.Hinsperger@JSHeld.com / Erik.Kolkes@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME 240102403 Former Brookdale Golf Course

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

Page # 1 of 1

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOC SW-846 Mod 9060				Notes
JSH-MW-9:2	01	2-22-24	0805	Soil	1								X				
JSH-MW-9:5	02	"	0911	"	1												
JSH-MW-9:10	03	"	0820	"	1												
JSH-MW-9:15	04	"	0835	"	1								X				
JSH-MW-9:20	05	"	0845	"	1												
JSH-MW-10:2	06	"	1020	"	1								X				
JSH-MW-10:5	07	"	1027	"	1												
JSH-MW-10:15	08	"	1043	"	1								X				
JSH-MW-10:20	09	"	1056	"	1												
JSH-MW-10:10	10	2-22-24	1108	Soil	1												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	2-23-24	0600
Received by:	ANH PHAN	FBB	02/23/24	16:09
Relinquished by:		Samples received at 4 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
5500 4th Ave S
Seattle, WA 98108

RE: 402349
Work Order Number: 2402456

March 04, 2024

Attention Michael Erdahl:

Fremont Analytical, Inc. received 4 sample(s) on 2/26/2024 for the analyses presented in the following report.

Total Organic Carbon by EPA 9060

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *03/04/2024*

CLIENT: Friedman & Bruya
Project: 402349
Work Order: 2402456

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2402456-001	JSH-MW-9:2	02/22/2024 8:05 AM	02/26/2024 1:55 PM
2402456-002	JSH-MW-9:15	02/22/2024 8:35 AM	02/26/2024 1:55 PM
2402456-003	JSH-MW-10:2	02/22/2024 10:20 AM	02/26/2024 1:55 PM
2402456-004	JSH-MW-10:15	02/22/2024 10:43 AM	02/26/2024 1:55 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2402456**
Date: **3/4/2024**

CLIENT: Friedman & Bruya
Project: 402349

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Friedman & Bruya
Project: 402349

Lab ID: 2402456-001 **Collection Date:** 2/22/2024 8:05:00 AM
Client Sample ID: **JSH-MW-9:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43129		Analyst: FG
Total Organic Carbon	0.494	0.400		%-dry	1	3/4/2024 1:13:00 PM

Lab ID: 2402456-002 **Collection Date:** 2/22/2024 8:35:00 AM
Client Sample ID: **JSH-MW-9:15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43129		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	3/4/2024 12:00:00 PM

Lab ID: 2402456-003 **Collection Date:** 2/22/2024 10:20:00 AM
Client Sample ID: **JSH-MW-10:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43129		Analyst: FG
Total Organic Carbon	4.03	0.400		%-dry	1	3/4/2024 1:33:00 PM

Lab ID: 2402456-004 **Collection Date:** 2/22/2024 10:43:00 AM
Client Sample ID: **JSH-MW-10:15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Organic Carbon by EPA 9060				Batch ID: 43129		Analyst: FG
Total Organic Carbon	ND	0.400		%-dry	1	3/4/2024 1:43:00 PM

Work Order: 2402456
CLIENT: Friedman & Bruya
Project: 402349

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **MB-43129**	SampType: **MBLK**	Units: **%-dry**	Prep Date: **3/4/2024**	RunNo: **89993**
Client ID: **MBLKS**	Batch ID: **43129**		Analysis Date: **3/4/2024**	SeqNo: **1877810**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.400									

Sample ID: **LCS-43129**	SampType: **LCS**	Units: **%-dry**	Prep Date: **3/4/2024**	RunNo: **89993**
Client ID: **LCSS**	Batch ID: **43129**		Analysis Date: **3/4/2024**	SeqNo: **1877811**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.09	0.400	1.000	0	109	80	120				

Sample ID: **2402456-002ADUP**	SampType: **DUP**	Units: **%-dry**	Prep Date: **3/4/2024**	RunNo: **89993**
Client ID: **JSH-MW-9:15**	Batch ID: **43129**		Analysis Date: **3/4/2024**	SeqNo: **1877813**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.400						0		20	

Sample ID: **2402456-002AMS**	SampType: **MS**	Units: **%-dry**	Prep Date: **3/4/2024**	RunNo: **89993**
Client ID: **JSH-MW-9:15**	Batch ID: **43129**		Analysis Date: **3/4/2024**	SeqNo: **1877814**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.09	0.400	1.000	0	109	75	125				

Sample ID: **2402456-002AMSD**	SampType: **MSD**	Units: **%-dry**	Prep Date: **3/4/2024**	RunNo: **89993**
Client ID: **JSH-MW-9:15**	Batch ID: **43129**		Analysis Date: **3/4/2024**	SeqNo: **1877815**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.11	0.400	1.000	0	111	75	125	1.090	1.73	20	

Fremont Analytical
An Alliance Technical Group Company

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2402456
Logged by:	Clare Griggs	Date Received:	2/26/2024 1:55:00 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
4.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
6.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8.	Are samples properly preserved?	Yes ☑	No ☐	
9.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
11.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
12.	Does paperwork match bottle labels?	Yes ☑	No ☐	
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all hold times (except field parameters, pH e.g.) able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

Item Information

Item #	Temp °C
Sample	5.7

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2402456

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 5500 4th Ave S
City, State, ZIP Seattle, WA 98108
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER	
Fremont	
PROJECT NAME/NO.	PO #
402349	D-685
REMARKS	
EIM	

TURNAROUND TIME
☒ Standard TAT
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

						ANALYSES REQUESTED										
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	TOC 9060	Nitrate	Nitrite	Sulfate	RSK-175						Notes
JSH-MW-9:2		2/22/2024	805	soil	1	x										
JSH-MW-9:15		2/22/2024	835	soil	1	x										
JSH-MW-10:2		2/22/2024	1020	soil	1	x										
JSH-MW-10:15		2/22/2024	1043	soil	1	x										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	2/26/24	0807
Received by:		Nathan Keffler	FAI	2/26/24	1355
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

March 13, 2024

Nate Hinsperger, Project Manager
JS Held
18372 Redmond-Fall City Road
Redmond, WA 98052

RE: Ichijo Brookdale GC 240102403, F&BI 403088

Dear Mr Hinsperger:

Included are the results from the testing of material submitted on March 6, 2024 from the Ichijo Brookdale GC 240102403, F&BI 403088 project. There are 19 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Eric Koltes
JSH0313R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 6, 2024 by Friedman & Bruya, Inc. from the JS Held Ichijo Brookdale GC 240102403, F&BI 403088 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
403088-01	JSH-MW-8
403088-02	JSH-MW-7
403088-03	JSH-SW-1
403088-04	JSH-SW-2
403088-05	JSH-MW-6
403088-06	JSH-MW-9
403088-07	JSH-MW-5
403088-08	JSH-SW-3
403088-09	JSH-SW-4
403088-10	JSH-MW-10
403088-11	JSH-MW-3
403088-12	JSH-SW-5
403088-13	JSH-MW-4
403088-14	JSH-MW-2
403088-15	JSH-MW-1

All quality control requirements were acceptable.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-8	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-01
Date Analyzed:	03/07/24	Data File:	030711.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	54	20	121
Decachlorobiphenyl	79	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-7	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-02
Date Analyzed:	03/07/24	Data File:	030712.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	61	20	121
Decachlorobiphenyl	84	20	89

Compounds:	Concentration ug/L
Dieldrin	0.084

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-SW-1	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-03
Date Analyzed:	03/07/24	Data File:	030713.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	50	20	121
Decachlorobiphenyl	74	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-SW-2	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-04
Date Analyzed:	03/07/24	Data File:	030714.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	51	20	121
Decachlorobiphenyl	74	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-6	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-05
Date Analyzed:	03/07/24	Data File:	030715.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	54	20	121
Decachlorobiphenyl	80	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-9	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-06
Date Analyzed:	03/07/24	Data File:	030716.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	61	20	121
Decachlorobiphenyl	83	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-5	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-07
Date Analyzed:	03/07/24	Data File:	030717.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	49	20	121
Decachlorobiphenyl	73	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-SW-3	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-08
Date Analyzed:	03/07/24	Data File:	030718.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	49	20	121
Decachlorobiphenyl	72	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-SW-4	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-09
Date Analyzed:	03/07/24	Data File:	030719.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	48	20	121
Decachlorobiphenyl	77	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-10	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-10
Date Analyzed:	03/07/24	Data File:	030720.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	53	20	121
Decachlorobiphenyl	81	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-3	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-11
Date Analyzed:	03/07/24	Data File:	030721.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	55	20	121
Decachlorobiphenyl	86	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-SW-5	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-12
Date Analyzed:	03/07/24	Data File:	030722.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	47	20	121
Decachlorobiphenyl	88	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-4	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-13
Date Analyzed:	03/07/24	Data File:	030723.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	51	20	121
Decachlorobiphenyl	97 vo	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-2	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-14
Date Analyzed:	03/07/24	Data File:	030724.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	55	20	121
Decachlorobiphenyl	87	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-1	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	403088-15
Date Analyzed:	03/13/24	Data File:	031307.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	51	20	121
Decachlorobiphenyl	93 vo	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	JS Held
Date Received:	Not Applicable	Project:	Ichijo Brookdale GC 240102403
Date Extracted:	03/07/24	Lab ID:	04-564 mb
Date Analyzed:	03/07/24	Data File:	030708.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	AL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	53	20	121
Decachlorobiphenyl	61	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Date of Report: 03/13/24
Date Received: 03/06/24
Project: Ichijo Brookdale GC 240102403, F&BI 403088

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dieldrin	ug/L (ppb)	0.25	86	81	53-112	6

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

403088

03/06/24 / I3

Page # 1 of 2

Report To Nate Hinspeger / Erik Kolles

Company JS Held

Address 19372 Redmond Way

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinspeger@JSHeld.com / ErikKolles

SAMPLERS (*signature*)

PROJECT NAME: 24010 2403 Ichijo - Brookdale GC

PO #

REMARKS
TOTAL = unfiltered
DISS = field filtered
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total Dioxin - EPA 8081	Field filtered	Dissolved EPA 8081 Analysis		Notes
JSH-MW-8	01 A-B	3-5-24	1225	WATER	2								X	⊗			Archive Field Filtered ⊗ samples
JSH-MW-7	02		1319		2								X	⊗			
JSH-~~MW-1~~ SW-1	03		1335		2								X				
JSH-SW-2	04		1420		2								X				
JSH-MW-6	05		1432		2								X	⊗			
JSH-MW-9	06		1515		2								X	⊗			
JSH-MW-5	07	3-5-24	1535		2								X	⊗			
JSH-SW-3	08	3-6-24	0850		2								X				
JSH-SW-4	09		0855		2								X				
JSH-MW-10	10	3-6-24	1003	WATER	2								X	⊗			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	3-6-24	1612
Received by:	ANHPHAN	FSH	03/06/24	16:12
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

403088

SAMPLE CHAIN OF CUSTODY

03/06/24 Page # 2 of 2 I3

Report To Nate Hinspeger / Eric Kolter

Company JS Held

Address 18372 Redmond Way

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel-Hinspeger@JSHeld.com / Eric.Kolter@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME: 24010 2403 Ichijo - Brookdale GC.

PO #

REMARKS
Total = unfiltered
Diss = Field filtered
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total Dieldrin EPA 3051	Field Filtered	Dissolved Dieldrin EPA 3051		Notes
JSH-MW-3	11A-B	3-6-24	1110	WATER	2								X	⊗			Archive Field Filtered ⊗ samples
JSH-~~MW-~~SW-5	12		1140		2								X				
JSH-MW-4	13		1233		2								X	⊗			
JSH-MW-2	14		1330		2								X	⊗			
JSH-MW-1	15	3-6-24	1440	WATER	2								X	⊗			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	3-6-24	1612
Received by:	ANHPHAN	FBB	03/06/24	16:12
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

March 22, 2024

Nate Hinsperger, Project Manager
JS Held
18372 Redmond-Fall City Road
Redmond, WA 98052

RE: Ichijo Brookdale GC 240102403, F&BI 403088

Dear Mr Hinsperger:

Included are the additional results from the testing of material submitted on March 6, 2024 from the Ichijo Brookdale GC 24010 2403, F&BI 403088 project. There are 5 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Eric Koltes
JSH0322R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 6, 2024 by Friedman & Bruya, Inc. from the JS Held Ichijo Brookdale GC 24010 2403, F&BI 403088 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
403088-01	JSH-MW-8
403088-02	JSH-MW-7
403088-03	JSH-SW-1
403088-04	JSH-SW-2
403088-05	JSH-MW-6
403088-06	JSH-MW-9
403088-07	JSH-MW-5
403088-08	JSH-SW-3
403088-09	JSH-SW-4
403088-10	JSH-MW-10
403088-11	JSH-MW-3
403088-12	JSH-SW-5
403088-13	JSH-MW-4
403088-14	JSH-MW-2
403088-15	JSH-MW-1

All quality control requirements were acceptable.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-7	Client:	JS Held
Date Received:	03/06/24	Project:	Ichijo Brookdale GC 24010 2403
Date Extracted:	03/19/24	Lab ID:	403088-02
Date Analyzed:	03/20/24	Data File:	032017.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	63	20	121
Decachlorobiphenyl	92	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Note: The sample was field filtered.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	JS Held
Date Received:	Not Applicable	Project:	Ichijo Brookdale GC 24010 2403
Date Extracted:	03/19/24	Lab ID:	04-661 mb
Date Analyzed:	03/20/24	Data File:	032008.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	55	20	121
Decachlorobiphenyl	77	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Date of Report: 03/22/24
Date Received: 03/06/24
Project: Ichijo Brookdale GC 24010 2403, F&BI 403088

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dieldrin	ug/L (ppb)	0.25	85	85	53-112	0

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

403088

03/06/24 / I3

Page # 1 of 2

Report To Nate Hinspeger / Erik Kolles

Company JS Held

Address 19372 Redmond Way

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinspeger@JSHeld.com / ErikKolles@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME: 24010 2403 Ichijo - Brookdale GC

PO #

REMARKS
TOTAL = unfiltered
DISS = field filtered
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total Dieldrin EPA 8081	Field filtered	Dissolved EPA 8081 Dieldrin		Notes
JSH-MW-8	01 A-B	3-5-24	1225	WATER	2								X	⊗			Archive Field Filtered ⊗ samples
JSH-MW-7	02		1319		2								X	●			● Analyze per AY 03/14/24 ME
JSH-~~MW-1~~ SW-1	03		1335		2								X				
JSH-SW-2	04		1420		2								X				
JSH-MW-6	05		1432		2								X	⊗			
JSH-MW-9	06		1515		2								X	⊗			
JSH-MW-5	07	3-5-24	1535		2								X	⊗			
JSH-SW-3	08	3-6-24	0850		2								X				
JSH-SW-4	09	↓	0855	↓	2								X				
JSH-MW-10	10	3-6-24	1003	WATER	2								X	⊗			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	3-6-24	1612
Received by:	ANHPHAN	FBA	03/06/24	16:12
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

403088

SAMPLE CHAIN OF CUSTODY

03/06/24 Page # 2 of 2 I3

Report To Nate Hinspeger / Eric Kolter

Company JS Held

Address 18372 Redmond Way

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel-Hinspeger@JSHeld.com / Eric.Kolter@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME: 24010 2403 Ichijo - Brookdale GC.

PO #

REMARKS
Total = unfiltered
Diss = Field filtered
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☑ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total Dieldrin EPA 3051	Field Filtered	Dissolved Dieldrin EPA 3051		Notes
JSH-MW-3	11A-B	3-6-24	1110	WATER	2								X	⊗			Archive Field Filtered ⊗ samples
JSH-~~MW-~~SW-5	12		1140		2								X				
JSH-MW-4	13		1233		2								X	⊗			
JSH-MW-2	14		1330		2								X	⊗			
JSH-MW-1	15	3-6-24	1440	WATER	2								X	⊗			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	3-6-24	1612
Received by:	ANHPHAN	FBB	03/06/24	16:12
Relinquished by:		Samples received at 2 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

April 8, 2024

Nate Hinsperger, Project Manager
JS Held
18372 Redmond-Fall City Road
Redmond, WA 98052

RE: Ichijo-Former Brookdale GC 240102403, F&BI 403470

Dear Mr Hinsperger:

Included are the results from the testing of material submitted on March 29, 2024 from the Ichijo-Former Brookdale GC 240102403, F&BI 403470 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Eric Koltes, Austin York
JSH0408R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 29, 2024 by Friedman & Bruya, Inc. from the JS Held Ichijo-Former Brookdale GC 240102403, F&BI 403470 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
403470-01	JSH-MW-7

All quality control requirements were acceptable.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-7	Client:	JS Held
Date Received:	03/29/24	Project:	Ichijo-Former Brookdale
Date Extracted:	04/01/24	Lab ID:	403470-01
Date Analyzed:	04/01/24	Data File:	040120.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	59	20	121
Decachlorobiphenyl	72	11	159

Compounds:	Concentration ug/L
Dieldrin	0.030

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-7	Client:	JS Held
Date Received:	03/29/24	Project:	Ichijo-Former Brookdale
Date Extracted:	04/01/24	Lab ID:	403470-01 f
Date Analyzed:	04/01/24	Data File:	040119.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	57	20	121
Decachlorobiphenyl	69	11	159

Compounds:	Concentration ug/L
Dieldrin	<0.005

Note: The sample was field filtered.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	JS Held
Date Received:	Not Applicable	Project:	Ichijo-Former Brookdale
Date Extracted:	04/01/24	Lab ID:	04-755 mb
Date Analyzed:	04/01/24	Data File:	040116.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	60	20	121
Decachlorobiphenyl	46	11	159

Compounds:	Concentration ug/L
Dieldrin	<0.005

Date of Report: 04/08/24
Date Received: 03/29/24
Project: Ichijo-Former Brookdale GC 240102403, F&BI 403470

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dieldrin	ug/L (ppb)	0.25	69	64	54-115	8

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

403470

SAMPLE CHAIN OF CUSTODY

03/29/24

Report To Nate Hinsperger

Company JS Held

Address 18732 Redmond-Fall City Rd

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinsperger@JSHeld.com, Erik.Kolkes@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME: Ichijo - Former Brookdale G.C. 240102403

PO #

REMARKS: Hold dissolved (Field Filtered) sample

Project specific RLs? - Yes / No

INVOICE TO: JS Held

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dieldrin EPA 8081	Dieldrin (DISS)			Notes
JSH-MW-7	01 A B	3-29-24	0845	WATER	2								X	A			DISS-dissolved Field Filtered
																	A-per NH
																	04/05/24 ME
														Samples received at 4 °C			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	3-29-24	1108
Received by:	Michael Erdahl	F&B Inc	3/29/24	1108
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

May 21, 2024

Nate Hinsperger, Project Manager
JS Held
18372 Redmond-Fall City Road
Redmond, WA 98052

RE: Ichijo Former Brookdale GC 240102403, F&BI 405226

Dear Mr Hinsperger:

Included are the results from the testing of material submitted on May 13, 2024 from the Ichijo Former Brookdale GC 240102403, F&BI 405226 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Eric Koltes, Austin York
JSH0521R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 13, 2024 by Friedman & Bruya, Inc. from the JS Held Ichijo Former Brookdale GC 240102403, F&BI 405226 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
405226-01	JSH-MW-7
405226-02	TS-1

All quality control requirements were acceptable.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-7	Client:	JS Held
Date Received:	05/13/24	Project:	Ichijo Former Brookdale
Date Extracted:	05/16/24	Lab ID:	405226-01
Date Analyzed:	05/17/24	Data File:	051715.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	81	20	121
Decachlorobiphenyl	110 ip	20	89

Compounds:	Concentration ug/L
Dieldrin	0.014

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-7	Client:	JS Held
Date Received:	05/13/24	Project:	Ichijo Former Brookdale
Date Extracted:	05/16/24	Lab ID:	405226-01
Date Analyzed:	05/17/24	Data File:	051716.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	130 ip	20	121
Decachlorobiphenyl	118 ip	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Note: The sample was field filtered.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	TS-1	Client:	JS Held
Date Received:	05/13/24	Project:	Ichijo Former Brookdale
Date Extracted:	05/16/24	Lab ID:	405226-02
Date Analyzed:	05/17/24	Data File:	051717.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	61	20	121
Decachlorobiphenyl	94 ip	20	89

Compounds:	Concentration ug/L
Dieldrin	0.011

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	JS Held
Date Received:	Not Applicable	Project:	Ichijo Former Brookdale
Date Extracted:	05/16/24	Lab ID:	04-1171 mb
Date Analyzed:	05/17/24	Data File:	051709.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	64	20	121
Decachlorobiphenyl	72	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Date of Report: 05/21/24
Date Received: 05/13/24
Project: Ichijo Former Brookdale GC 240102403, F&BI 405226

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dieldrin	ug/L (ppb)	0.25	75	76	53-112	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

405226

SAMPLE CHAIN OF CUSTODY

05/13/24 F2

Page # 1 of 1

Report To Nate Hinsperger / Eric Koltes

Company JS Held

Address 19372 Redmond Way

City, State, ZIP Redmond, WA 98052

Phone 253-400-8963 Email Eric.Koltes@JSHeld.com Nathaniel.Hinsperger@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME: Ichijo - Former Brookdale GC. 24010240 3

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total Dieldrin EPA 8081	Dissolved Dieldrin EPA 8081			Notes
JSH-MW-7	01 A-B		1735	WATER	2								X	X			Dissolved field filtered
TS-1	02		1745	WATER	1								X				
						Samples received at 3 °C											

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	5-13-24	11:35
Received by:	VINH	FBI	5-13-24	11:35
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 405226 CLIENT JS Held INITIALS/DATE: NA 5/13/24

If custody seals are present on cooler, are they intact? ☑ NA ☐ YES ☐ NO

Cooler/Sample temperature 3 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☑ YES ☐ NO

How did samples arrive?
☐ Over the Counter ☑ Picked up by F&BI ☐ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 4 days

Are the samples clearly identified? (explain "no" answer below) ☐ YES ☑ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? ☑ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☑ NA (NP) ~~☑ YES~~ ☐ NO

Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

Sample ID's	☑ Yes ☐ No	
Date Sampled	☐ Yes ☑ No	☑ Not on COC/label
Time Sampled	☑ Yes ☐ No	☐ Not on COC/label
# of Containers	☑ Yes ☐ No	☐ Not on COC/label
Relinquished	☑ Yes ☐ No	
Requested analysis	☑ Yes ☐ On Hold	

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☑ NA ☐ YES ☐ NO

Number of unused TO15 canisters _____ Number of unused TO17 tubes _____

Attachment D – Monitoring Well Completion Logs

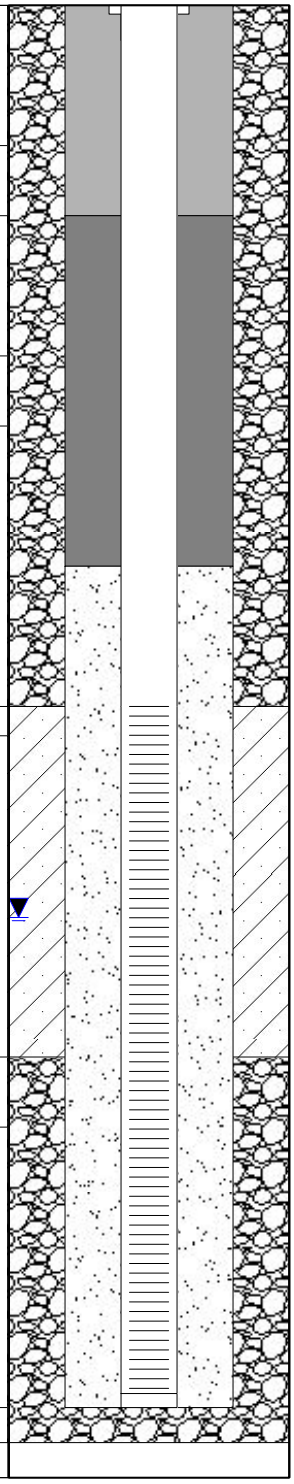
Soil Log and Well Construction Log for: JSH-MW-1

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/19/2024
Well Permit #: BPR-861

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-1:2	0.0				NA
			0.0	10.0	GW - Well-graded GRAVEL with cobbles; olive brown; dry; very dense.	
	JSH-MW-1:5	0.0				15-50/6
	JSH-MW-1:10	0.0				50/4
			10.0	15.0	SM - Silty SAND with gravel; dark brown; damp; very dense.	
	JSH-MW-1:15	0.0				27-50/4
			15.0	20.5	GM - Silty GRAVEL with sand; yellow-brown; wet; very dense.	
	JSH-MW-1:20	0.0				50/6



Well Completed to: 20 feet

Depth to Water: 13.01

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

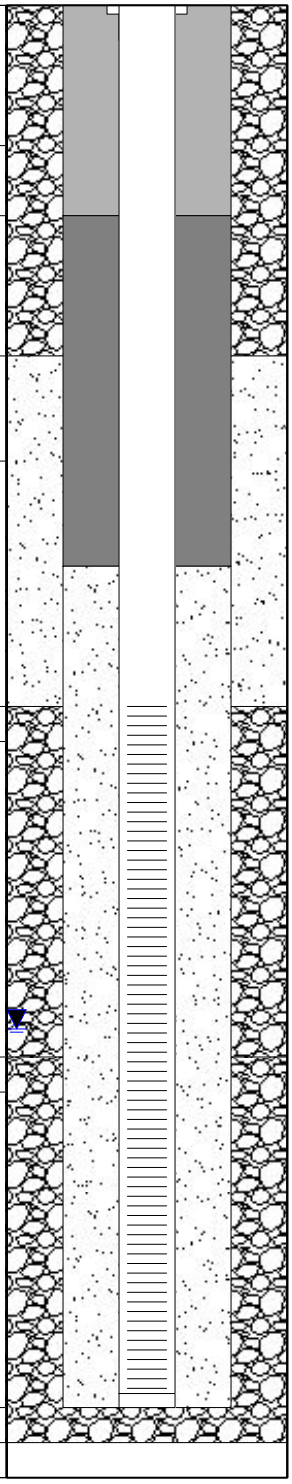
Soil Log and Well Construction Log for: JSH-MW-2

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/19/2024
Well Permit #: BPR-862

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-2:2	0.0	0.0	5.0	GW - Well-graded GRAVEL with cobbles; dark brown; dry; very dense.	NA
	JSH-MW-2:5	0.0	5.0	10.0	SW - Well-graded SAND with gravel; olive brown; damp; medium dense.	18-12-10
	JSH-MW-2:10	0.0	10.0	15.0	GW - Well-graded GRAVEL with sand; olive gray with orange staining; damp; very dense.	50/6
	JSH-MW-2:15	0.0	15.0	20.5	GW - Well-graded GRAVEL with sand; olive; wet; very dense. Color changes to dark gray at 20'.	50/6
	JSH-MW-2:20	0.0				50/6



Well Completed to: 20 feet

Depth to Water: 14.6

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

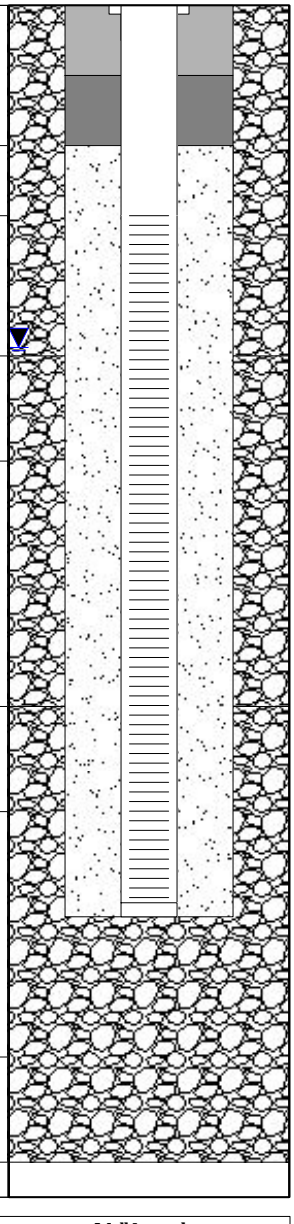
Soil Log and Well Construction Log for: JSH-MW-3

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/20/2024
Well Permit #: BPR-863

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
			0.0	5.0	GP - Poorly-graded GRAVEL with sand; dark brown; damp; loose.	
	JSH-MW-3:2	0.3				NA
	JSH-MW-3:5	0.0	5.0	10.0	GM - Silty GRAVEL with sand; dark brown; wet; dense.	19-24-29
	JSH-MW-3:10	0.0	10.0	16.5	GP - Poorly-graded GRAVEL with sand; olive brown; wet; dense	15-20-22
	JSH-MW-3:15	0.0				14-19-21



Well Completed to: 13 feet

Depth to Water: 4.88

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

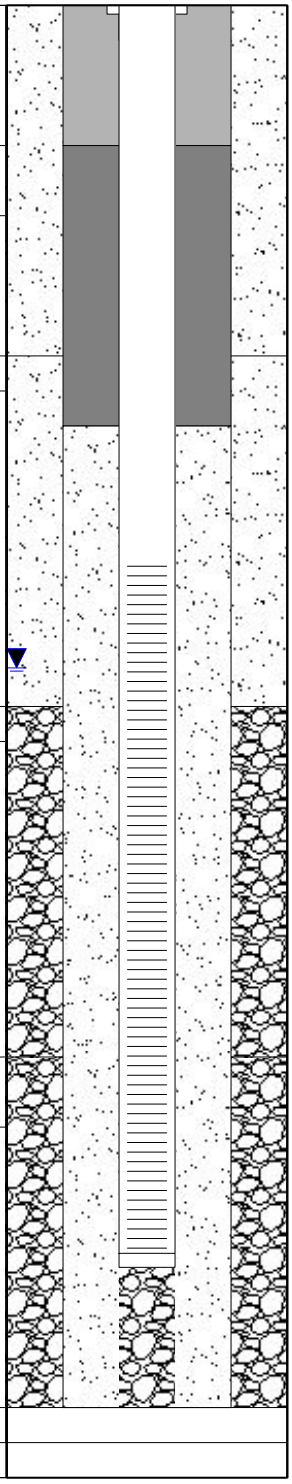
Soil Log and Well Construction Log for: JSH-MW-4

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/20/2024
Well Permit #: BPR-864

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-4:2	0.3	0.0	5.0	SP - Poorly-graded SAND with gravel; dark brown; damp; loose.	NA
	JSH-MW-4:5	0.3	5.0	10.0	SP-SM - Poordly-graded SAND with silt; olive brown; dry; very dense.	50/6
	JSH-MW-4:10	0.2	10.0	15.0	GM - Silty GRAVEL with sand; olive brown; damp; very dense.	50/6
	JSH-MW-4:15	0.7	15.0	20.0	GW - Well-graded GRAVEL; yellow-brown; wet; very dense.	27-50/6
	No Recovery		20.0	20.5	No Recovery	50/6



Well Completed to: 18 feet

Depth to Water: 9.45

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

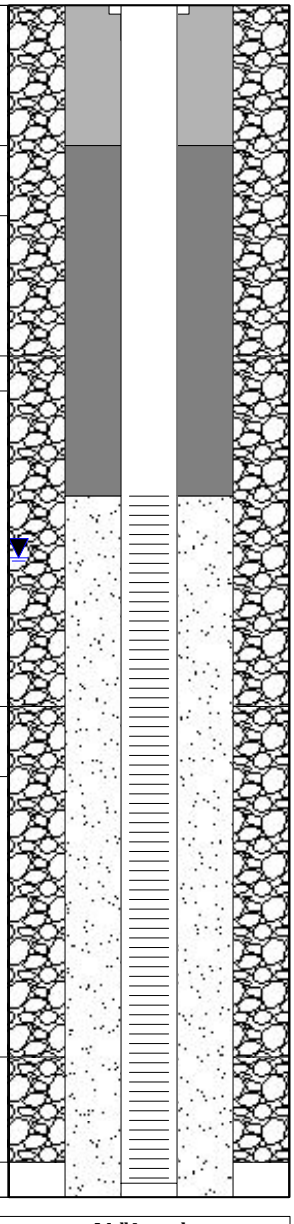
Soil Log and Well Construction Log for: JSH-MW-5

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/20/2024
Well Permit #: BPR-865

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-5:2	0.4	0.0	5.0	GP - Poorly-graded GRAVEL; dark brown; damp; loose.	NA
	JSH-MW-5:5	0.1	5.0	10.0	GW - Well-graded GRAVEL with cobbles; olive brown; wet; very dense.	50/6
	JSH-MW-5:10	0.1	10.0	15.0	GW - Well-graded GRAVEL with sand; olive gray; wet; very dense; sand lens from 10.3-10.6'.	28-50/6
	JSH-MW-5:15	0.2	15.0	16.5	GP - Poorly-graded GRAVEL with sand; olive gray; wet; very dense.	19-20-33



Well Completed to: 17 feet

Depth to Water: 7.88

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

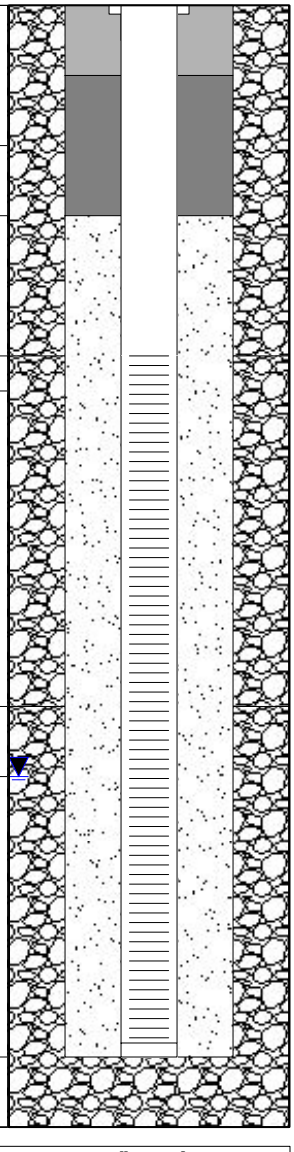
Soil Log and Well Construction Log for: JSH-MW-6

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/21/2024
Well Permit #: BPR-866

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-6:2	0.5	0.0	5.0	GP - Poorly-graded GRAVEL with sand; dark brown; moist; loose.	NA
	JSH-MW-6:5	0.1	5.0	10.0	GW - Well-graded GRAVEL with sand; olive brown; dry; very dense.	50/6
	JSH-MW-6:10	0.2	10.0	16.0	GW - Well-graded GRAVEL with sand; olive brown; wet; very dense.	50/6
	JSH-MW-6:15	0.2				33-50/6



Well Completed to: 15 feet

Depth to Water: 11

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

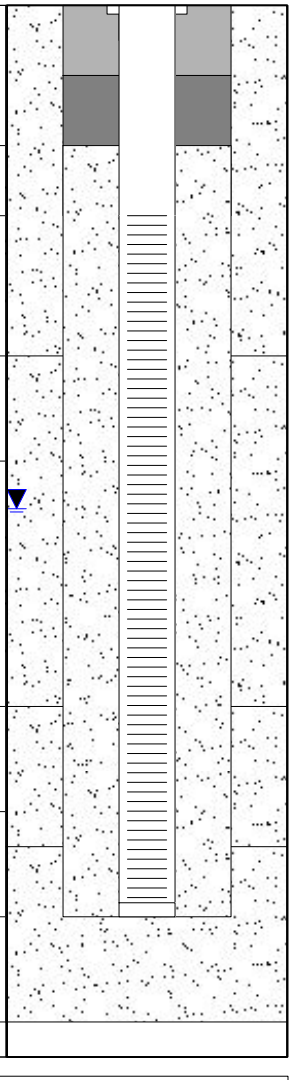
Soil Log and Well Construction Log for: JSH-MW-7

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/21/2024
Well Permit #: BPR-867

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-7:2	1.8	0.0	5.0	SP-SM - Poordly-graded SAND with silt; dark brown; moist; loose; trace organics.	NA
	JSH-MW-7:5	0.9				50/6
			5.0	10.0	SP-SM - Poordly-graded SAND with silt; dark brown; moist; dense; some gravel.	
	JSH-MW-7:10	0.2	10.0	12.0	SW - Well-graded SAND with gravel; olive brown; wet; dense.	50/6
			12.0	14.5	SP - Poorly-graded SAND with gravel; olive brown; wet; dense; gravel lens from 12.8-13'.	
	JSH-MW-7:13	0.3				33-50/6



Well Completed to: 13 feet

Depth to Water: 7.18

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

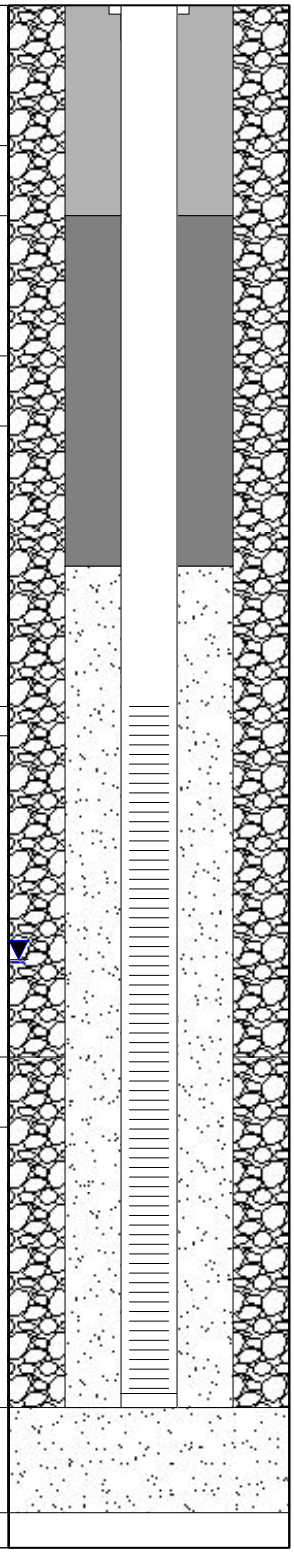
Soil Log and Well Construction Log for: JSH-MW-8

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/21/2024
Well Permit #: BPR-868

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-8:2	0.6				NA
	JSH-MW-8:5	0.3				34-50/6
			0.0	15.0	GW - Well-graded GRAVEL with sand; dark brown; moist; loose.	
	JSH-MW-8:10	0.2				50/4
	JSH-MW-8:15	0.5				40-50/6
			15.0	20.0	GW - Well-graded GRAVEL with sand; olive brown; wet; very dense.	
	JSH-MW-8:20	0.1	20.0	21.5	SP-SM - Poorly-graded SAND with silt and gravel; olive brown; wet; very dense.	21-23-28



Well Completed to: 20 feet

Depth to Water: 13.61

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

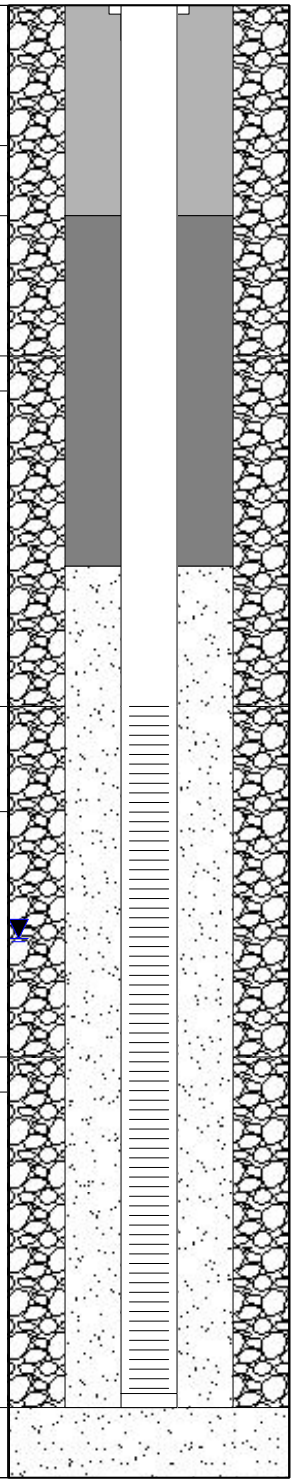
Soil Log and Well Construction Log for: JSH-MW-9

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/22/2024
Well Permit #: BPR-869

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-9:2	0.0	0.0	5.0	GP - Poorly-graded GRAVEL; olive brown; moist; dense; minor fine to coarse sand.	NA
	JSH-MW-9:5	0.0	5.0	10.0	GW - Well-graded GRAVEL; olive brown; moist; very dense; minor fine to coarse sand.	50/6
	JSH-MW-9:10	0.1	10.0	15.0	GP - Poorly-graded GRAVEL; olive brown; moist; dense; minor fine to coarse sand.	12-15-23
	JSH-MW-9:15	0.0	15.0	20.0	GP - Poorly-graded GRAVEL; olive brown; wet; dense; some fine to coarse sand.	50/6
	JSH-MW-9:20	0.0	20.0	21.0	SW - Well-graded SAND with gravel; olive brown; wet; very dense.	23-50/6



Well Completed to: 20 feet

Depth to Water: 13.31

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

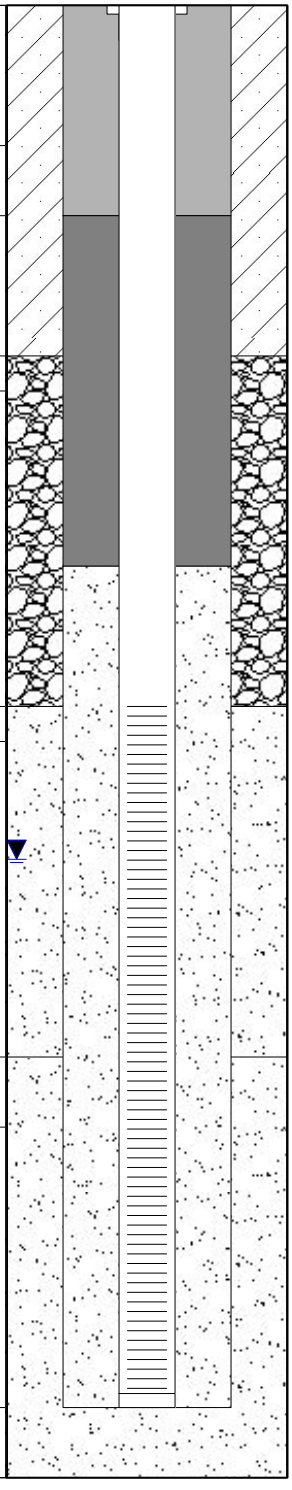
Soil Log and Well Construction Log for: JSH-MW-10

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/22/2024
Well Permit #: BPR-870

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
2	JSH-MW-10:2	0.3	0.0	5.0	SM - Silty SAND with gravel; dark brown; moist; loose; minor organics.	NA
5	JSH-MW-10:5	0.1	5.0	10.0	GP-GM - Poorly-graded GRAVEL with silt; dark brown; moist; very dense; some fine to coarse sand.	50/6
10	JSH-MW-10:10	0.1	10.0	15.0	SW-SM - Well-graded SAND with gravel and silt; olive brown; moist; very dense; minor silt and gravel.	50/6
15	JSH-MW-10:15	0.2	15.0	21.0	SW - Well-graded SAND with gravel; red brown; wet; very dense; minor silt.	27-50/6
20	JSH-MW-10:20	0.2				33-50/6



Well Completed to: 20 feet

Depth to Water: 12.18

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

Attachment B – Ecology Email – July 3, 2024

From: Winslow, Frank (ECY)
To: "Nate Hinsperger"
Cc: "Eric Koltes"; "Austin York"; "Kanon Kupferer"
Subject: RE: Ichijo USA, Former Brookdale Golf Course, Site Status Letter | 240102403
Date: Wednesday, July 3, 2024 3:00:14 PM
Attachments: image001.png
24.06.24 240102403 Site Status Letter.pdf

Hi Nate,

I have met with our Southwest Region peer reviewer and discussed the Site data with them.

Comment #1 – Extent of Groundwater Contamination

Our peer reviewer is concerned that the extent of groundwater contamination at location JSH-MW-7 has not been defined, and they are requesting additional groundwater characterization to define the extent. Their request makes sense and is consistent with Model Toxics Control Act (MTCA) requirements. Although the extent of the groundwater contamination is expected to be limited, similarly, we were not expecting to see dieldrin in groundwater at JSH-MW-7.

We recommend that groundwater samples be collected at locations offsetting from JSH-MW-7. Since the dieldrin contamination appears to be due to dieldrin application to the golf green, such offset locations should be outside of the golf green area to the extent possible. It would be helpful to have a map that overlays the current aerial photograph and the historical golf green in this area. If you could prepare such a map with proposed sampling locations, we would appreciate it.

I would expect that one sampling round may be sufficient to make the case of defining contamination extent, presuming results are non-detect (and appropriate detection limits). Since we recognize monitoring wells are costly, and since direct push sampling locations would have a greater likelihood of a cleanup level exceedance due to turbidity, one approach might be to install monitoring wells with an appropriate filter pack, but waiting to install a permanent surface completion later, only if needed. Such monitoring wells should be developed to reduce turbidity to the extent possible.

Comment #2 – Need for Disproportionate Cost Analysis (DCA)

A second comment from our peer reviewer pertains to the ultimate solution for the dieldrin in groundwater. In order to support a monitoring and environmental covenant approach for the dieldrin in groundwater, they would expect a disproportionate cost analysis (DCA) consistent with MTCA requirements that demonstrates the proposed remedial action to be the most permanent solution that is not disproportionate in costs relative to incremental benefits. Such a DCA should be presented within a Feasibility Study report. Their request makes sense and is consistent with MTCA requirements.

A DCA should include the most permanent practicable option (generally excavation and offsite disposal, unless not practicable at a site). Ecology has boring logs for the Site from the May 29, 2020 Supplemental RI Report. These boring logs show gravel with sand lithologies to a depth of 10-20 feet below ground surface (ft bgs), although a silt unit was shown at location B-3 from a depth of 12-15 ft bgs. I do not believe that Ecology has received boring logs for the new monitoring wells. Based on the lithologies reported in 2020 and depth to water at JSH-MW-7,

(7 to 9 ft bgs) it appears that excavation and offsite disposal would not likely be a practicable remedial approach for the dieldrin in groundwater.

Therefore, a DCA should include other potentially practicable options (e.g. pump-and-treat, remedial injections, etc.), as well as monitoring and institutional controls memorialized within a recorded environmental covenant. Ecology cannot provide our concurrence on the selection of a remedy of monitoring and institutional controls memorialized within a recorded environmental covenant unless the DCA shows that it is the most permanent option that is not disproportionate in cost when compared to relative benefits. Note that the extent of contamination needs to be verified prior to preparing and Ecology reviewing such as DCA.

Comment #3 – Proposed Area of Environmental Covenant

Presuming that Ecology concurs with a FS/DCA proposing monitoring and institutional controls memorialized in an environmental covenant (EC), we anticipate that the proposed EC area provided in attached Figure 2 would likely need to be expanded to include Tract F, unless data was collected to demonstrate than dieldrin was not present in groundwater at Tract F. Tract F is close to monitoring well JSH-MW-7.

As a side note, Figure 2 has a closed potentiometric contour (316.0) at location JHS-SW-1. No water level data was reported in Table 4 for surface water locations, so it is uncertain what the basis for this closed contour is (it may be an artifact of the contouring software used).

Closing

I hope this email provides sufficient clarity on next steps at the Site. We recognize that it has been a long and potentially frustrating process; however, this is at least in part due to the nature of the dieldrin contamination in the subsurface at the Site, which is not always predictable. We will continue to work with you to find the most expeditious pathway toward a no further action (NFA) determination for the Site.

Thanks, Frank

Frank P. Winslow, LHG

WA Expedited VCP Site Manager
Department of Ecology – Toxics Cleanup Program
1250 W. Alder Street, Union Gap, WA 98903
(509) 424-0543 (cell)

Frank.Winslow@ecy.wa.gov

From: Winslow, Frank (ECY)
Sent: Tuesday, June 25, 2024 1:19 PM
To: 'Nate Hinsperger' <Nathaniel.Hinsperger@jsheld.com>
Cc: Eric Koltes <Eric.Koltes@jsheld.com>; Austin York <Austin.York@jsheld.com>; Kanon Kupferer <kanon@ichijousa.com>
Subject: RE: Ichijo USA, Former Brookdale Golf Course, Site Status Letter | 240102403

Hi Nate,

Thank you for you submittal. I will be discussing this with my peer reviewer and get back to you as soon as possible.

Regards, Frank

Frank P. Winslow, LHG

WA Expedited VCP Site Manager
Department of Ecology – Toxics Cleanup Program
1250 W. Alder Street, Union Gap, WA 98903
(509) 424-0543 (cell)

Frank.Winslow@ecy.wa.gov

From: Nate Hinsperger <Nathaniel.Hinsperger@jsheld.com>
Sent: Monday, June 24, 2024 2:59 PM
To: Winslow, Frank (ECY) <fwin461@ECY.WA.GOV>
Cc: Eric Koltes <Eric.Koltes@jsheld.com>; Austin York <Austin.York@jsheld.com>; Kanon Kupferer <kanon@ichijousa.com>
Subject: Ichijo USA, Former Brookdale Golf Course, Site Status Letter | 240102403

External Email

Hi Frank,

Please see the attached Site Status Letter for the former Brookdale Golf Course. The letter summarized the findings of the recent groundwater assessment and addresses the items we discussed on our last call regarding site status and next steps. Please review when you have a chance and let me know if you have any questions.

Once you complete your review, let us know when you want to get on a call to discuss any of the details and what the plan is going forward.

Thanks,
Nate

Nate Hinsperger, L.G. | Senior Geologist
J.S. Held LLC
18372 Redmond Way, Redmond, WA 98052
Office +1 206 451 5225 | Mobile +1 253-400-6983

vcard | email | jsheld.com

50 & Forward: Watch the J.S. Held story from foundation to future

Attachment C – Well Completion Logs

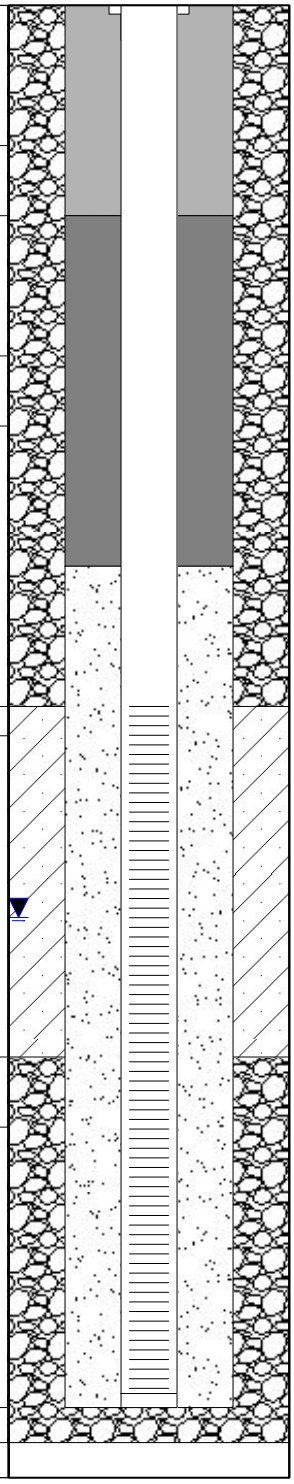
Soil Log and Well Construction Log for: JSH-MW-1

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/19/2024
Well Permit #: BPR-861

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-1:2	0.0				NA
			0.0	10.0	GW - Well-graded GRAVEL with cobbles; olive brown; dry; very dense.	
	JSH-MW-1:5	0.0				15-50/6
	JSH-MW-1:10	0.0				50/4
			10.0	15.0	SM - Silty SAND with gravel; dark brown; damp; very dense.	
	JSH-MW-1:15	0.0				27-50/4
			15.0	20.5	GM - Silty GRAVEL with sand; yellow-brown; wet; very dense.	
	JSH-MW-1:20	0.0				50/6



Well Completed to: 20 feet

Depth to Water: 13.01

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

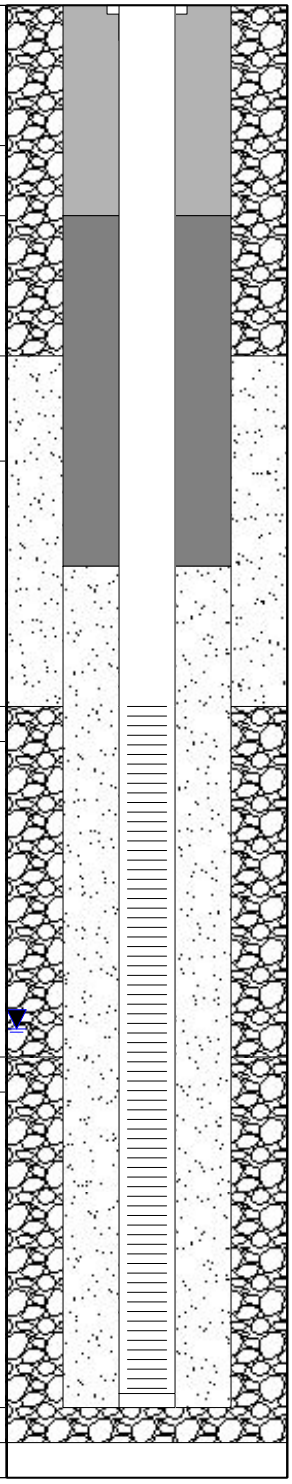
Soil Log and Well Construction Log for: JSH-MW-2

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/19/2024
Well Permit #: BPR-862

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-2:2	0.0	0.0	5.0	GW - Well-graded GRAVEL with cobbles; dark brown; dry; very dense.	NA
	JSH-MW-2:5	0.0	5.0	10.0	SW - Well-graded SAND with gravel; olive brown; damp; medium dense.	18-12-10
	JSH-MW-2:10	0.0	10.0	15.0	GW - Well-graded GRAVEL with sand; olive gray with orange staining; damp; very dense.	50/6
	JSH-MW-2:15	0.0	15.0	20.5	GW - Well-graded GRAVEL with sand; olive; wet; very dense. Color changes to dark gray at 20'.	50/6
	JSH-MW-2:20	0.0				50/6



Well Completed to: 20 feet

Depth to Water: 14.6

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

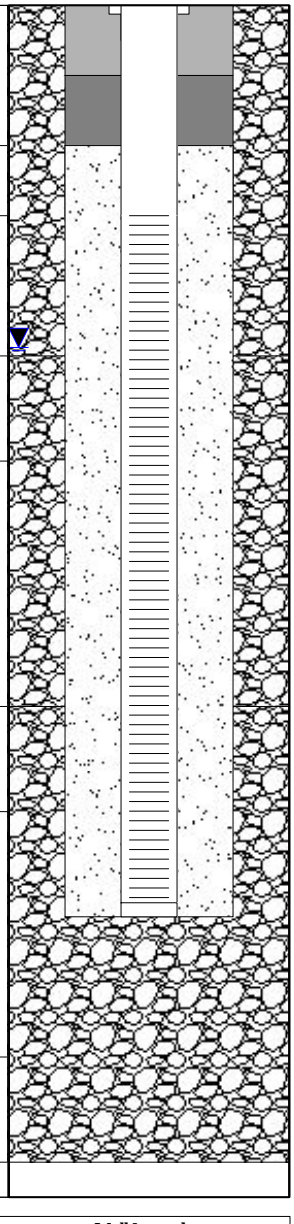
Soil Log and Well Construction Log for: JSH-MW-3

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/20/2024
Well Permit #: BPR-863

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
			0.0	5.0	GP - Poorly-graded GRAVEL with sand; dark brown; damp; loose.	
	JSH-MW-3:2	0.3				NA
	JSH-MW-3:5	0.0	5.0	10.0	GM - Silty GRAVEL with sand; dark brown; wet; dense.	19-24-29
	JSH-MW-3:10	0.0	10.0	16.5	GP - Poorly-graded GRAVEL with sand; olive brown; wet; dense	15-20-22
	JSH-MW-3:15	0.0				14-19-21



Well Completed to: 13 feet

Depth to Water: 4.88

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

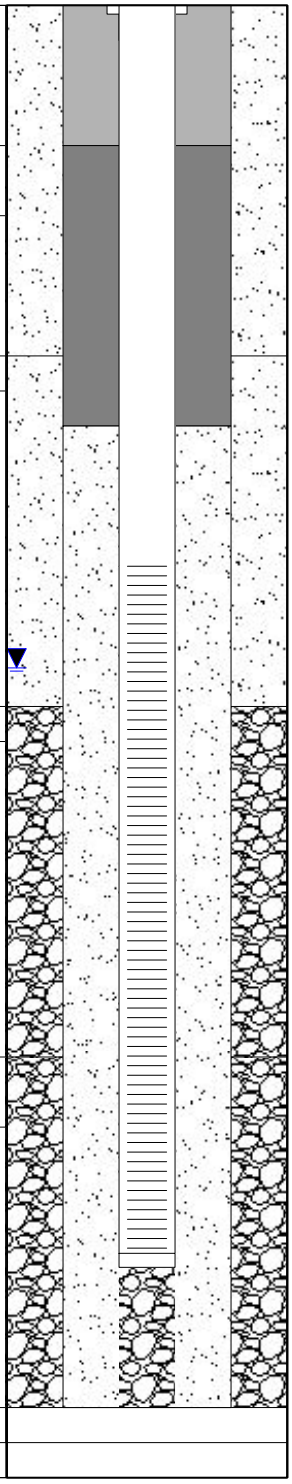
Soil Log and Well Construction Log for: JSH-MW-4

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/20/2024
Well Permit #: BPR-864

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-4:2	0.3	0.0	5.0	SP - Poorly-graded SAND with gravel; dark brown; damp; loose.	NA
	JSH-MW-4:5	0.3	5.0	10.0	SP-SM - Poordly-graded SAND with silt; olive brown; dry; very dense.	50/6
	JSH-MW-4:10	0.2	10.0	15.0	GM - Silty GRAVEL with sand; olive brown; damp; very dense.	50/6
	JSH-MW-4:15	0.7	15.0	20.0	GW - Well-graded GRAVEL; yellow-brown; wet; very dense.	27-50/6
	No Recovery		20.0	20.5	No Recovery	50/6



Well Completed to: 18 feet

Depth to Water: 9.45

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

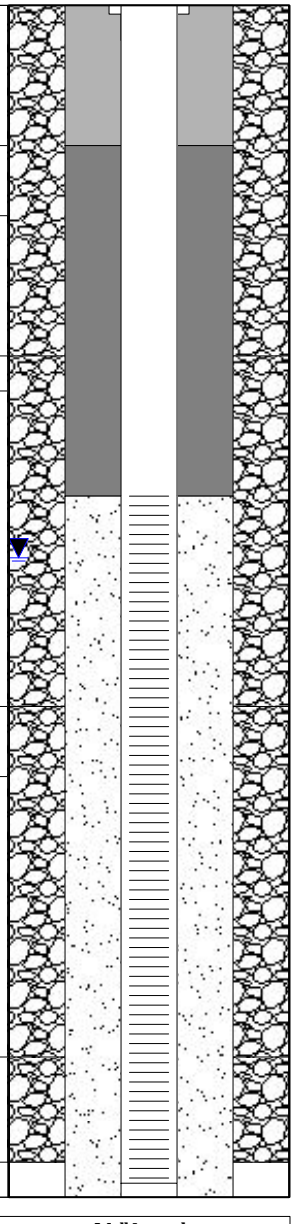
Soil Log and Well Construction Log for: JSH-MW-5

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/20/2024
Well Permit #: BPR-865

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-5:2	0.4	0.0	5.0	GP - Poorly-graded GRAVEL; dark brown; damp; loose.	NA
	JSH-MW-5:5	0.1	5.0	10.0	GW - Well-graded GRAVEL with cobbles; olive brown; wet; very dense.	50/6
	JSH-MW-5:10	0.1	10.0	15.0	GW - Well-graded GRAVEL with sand; olive gray; wet; very dense; sand lens from 10.3-10.6'.	28-50/6
	JSH-MW-5:15	0.2	15.0	16.5	GP - Poorly-graded GRAVEL with sand; olive gray; wet; very dense.	19-20-33



Well Completed to: 17 feet

Depth to Water: 7.88

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

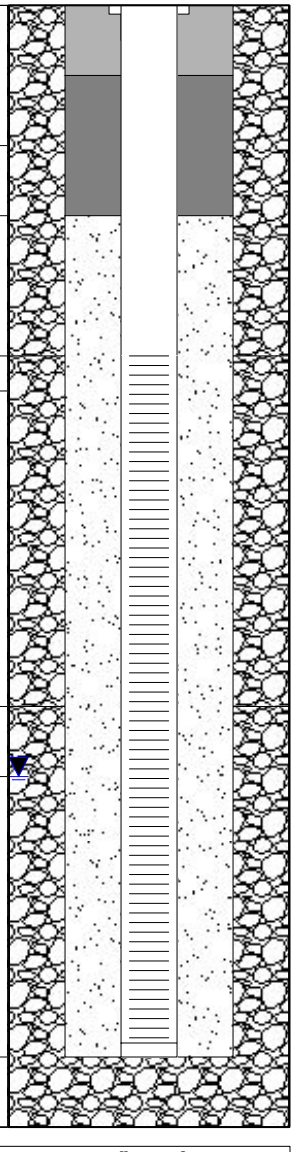
Soil Log and Well Construction Log for: JSH-MW-6

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/21/2024
Well Permit #: BPR-866

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-6:2	0.5	0.0	5.0	GP - Poorly-graded GRAVEL with sand; dark brown; moist; loose.	NA
	JSH-MW-6:5	0.1	5.0	10.0	GW - Well-graded GRAVEL with sand; olive brown; dry; very dense.	50/6
	JSH-MW-6:10	0.2	10.0	16.0	GW - Well-graded GRAVEL with sand; olive brown; wet; very dense.	50/6
	JSH-MW-6:15	0.2				33-50/6



Well Completed to: 15 feet

Depth to Water: 11

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

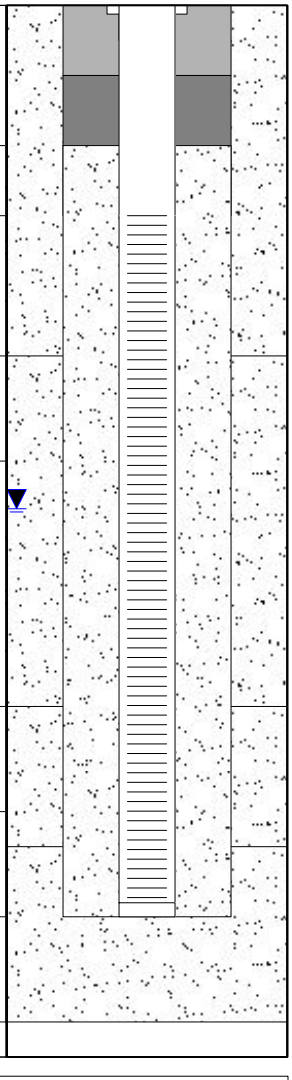
Soil Log and Well Construction Log for: JSH-MW-7

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/21/2024
Well Permit #: BPR-867

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-7:2	1.8	0.0	5.0	SP-SM - Poordly-graded SAND with silt; dark brown; moist; loose; trace organics.	NA
	JSH-MW-7:5	0.9				50/6
			5.0	10.0	SP-SM - Poordly-graded SAND with silt; dark brown; moist; dense; some gravel.	
	JSH-MW-7:10	0.2	10.0	12.0	SW - Well-graded SAND with gravel; olive brown; wet; dense.	50/6
			12.0	14.5	SP - Poorly-graded SAND with gravel; olive brown; wet; dense; gravel lens from 12.8-13'.	
	JSH-MW-7:13	0.3				33-50/6



Well Completed to: 13 feet

Depth to Water: 7.18

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

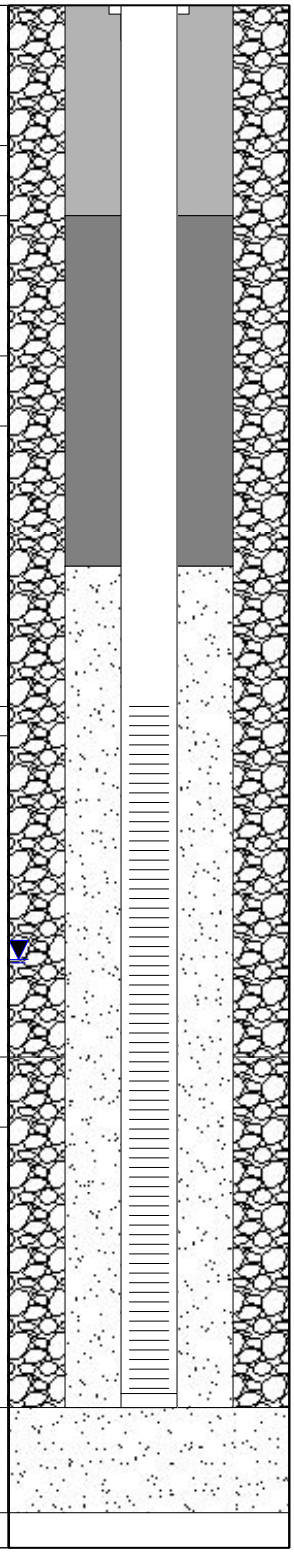
Soil Log and Well Construction Log for: JSH-MW-8

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/21/2024
Well Permit #: BPR-868

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-8:2	0.6				NA
	JSH-MW-8:5	0.3				34-50/6
			0.0	15.0	GW - Well-graded GRAVEL with sand; dark brown; moist; loose.	
	JSH-MW-8:10	0.2				50/4
	JSH-MW-8:15	0.5				40-50/6
			15.0	20.0	GW - Well-graded GRAVEL with sand; olive brown; wet; very dense.	
	JSH-MW-8:20	0.1	20.0	21.5	SP-SM - Poorly-graded SAND with silt and gravel; olive brown; wet; very dense.	21-23-28



Well Completed to: 20 feet

Depth to Water: 13.61

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

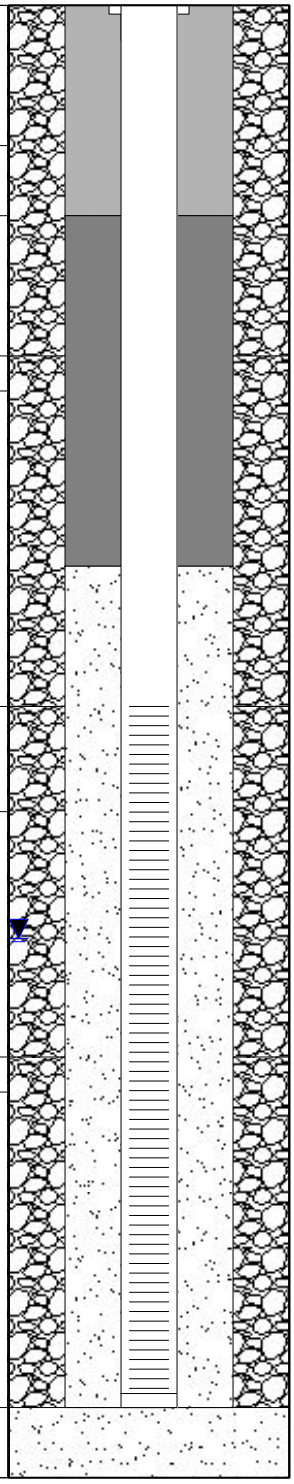
Soil Log and Well Construction Log for: JSH-MW-9

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/22/2024
Well Permit #: BPR-869

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
	JSH-MW-9:2	0.0	0.0	5.0	GP - Poorly-graded GRAVEL; olive brown; moist; dense; minor fine to coarse sand.	NA
	JSH-MW-9:5	0.0	5.0	10.0	GW - Well-graded GRAVEL; olive brown; moist; very dense; minor fine to coarse sand.	50/6
	JSH-MW-9:10	0.1	10.0	15.0	GP - Poorly-graded GRAVEL; olive brown; moist; dense; minor fine to coarse sand.	12-15-23
	JSH-MW-9:15	0.0	15.0	20.0	GP - Poorly-graded GRAVEL; olive brown; wet; dense; some fine to coarse sand.	50/6
	JSH-MW-9:20	0.0	20.0	21.0	SW - Well-graded SAND with gravel; olive brown; wet; very dense.	23-50/6



Well Completed to: 20 feet

Depth to Water: 13.31

Notes:

Well Legend

Cover
Cement
Casing
Bentonite
Screen
Sand
End Cap

Well Location Depicted on Site Figures

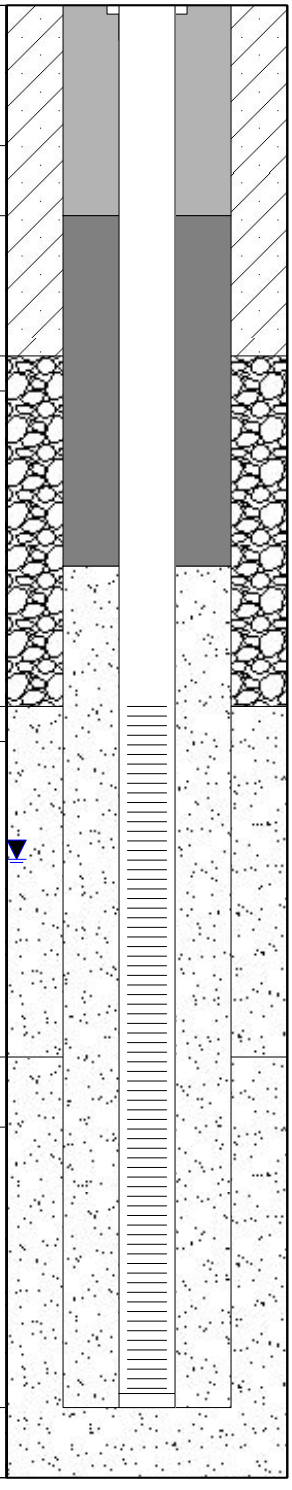
Soil Log and Well Construction Log for: JSH-MW-10

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 2/22/2024
Well Permit #: BPR-870

Drilling Company: Cascade Environmental
Driller/Helper: Wes Kennedy
Drill Rig Type: CME-75
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Flushmount

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
2	JSH-MW-10:2	0.3	0.0	5.0	SM - Silty SAND with gravel; dark brown; moist; loose; minor organics.	NA
5	JSH-MW-10:5	0.1	5.0	10.0	GP-GM - Poorly-graded GRAVEL with silt; dark brown; moist; very dense; some fine to coarse sand.	50/6
10	JSH-MW-10:10	0.1	10.0	15.0	SW-SM - Well-graded SAND with gravel and silt; olive brown; moist; very dense; minor silt and gravel.	50/6
15	JSH-MW-10:15	0.2	15.0	21.0	SW - Well-graded SAND with gravel; red brown; wet; very dense; minor silt.	27-50/6
20	JSH-MW-10:20	0.2				33-50/6



Well Completed to: 20 feet

Depth to Water: 12.18

Notes:

Well Legend

Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

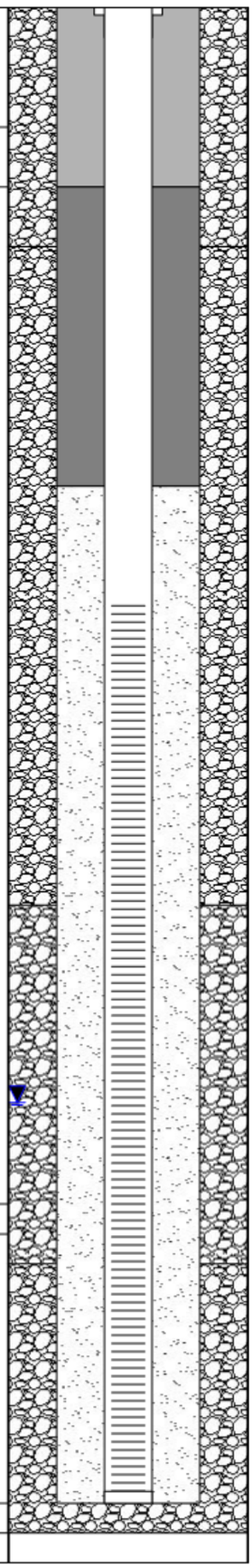
Soil Log and Well Construction Log for: JSH-MW-11

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA

J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 9/26/2024
Well Permit #: BPW-741

Drilling Company: Cascade Environmental
Driller/Helper: Curtis Askew
Drill Rig Type: CME-55 LAR
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Stick-Up

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
0–4	JSH-MW-11:2	0.0	0.0	4.0	GP - Poorly-graded GRAVEL with sand; brown; dry; mostly gravel with some sand; trace silt	NA
4–15		0.0	4.0	15.0	GW - GM - Well-graded GRAVEL with sand; light grey; dry; very dense; mostly gravel with some sand; few silt	
15–21	JSH-MW-11:20	0.0	15.0	21.0	GM - Silty GRAVEL with sand; olive brown; wet; very dense; mostly gravel with some silt and sand	50/6
21–25.5	JSH-MW-11:20	0.0	21.0	25.5	GM - Silty GRAVEL with sand; olive brown; wet; very dense; mostly gravel with some silt and sand	50/6



Well Completed to: 25 feet

Depth to Water: 19

Notes:

Well Legend
Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

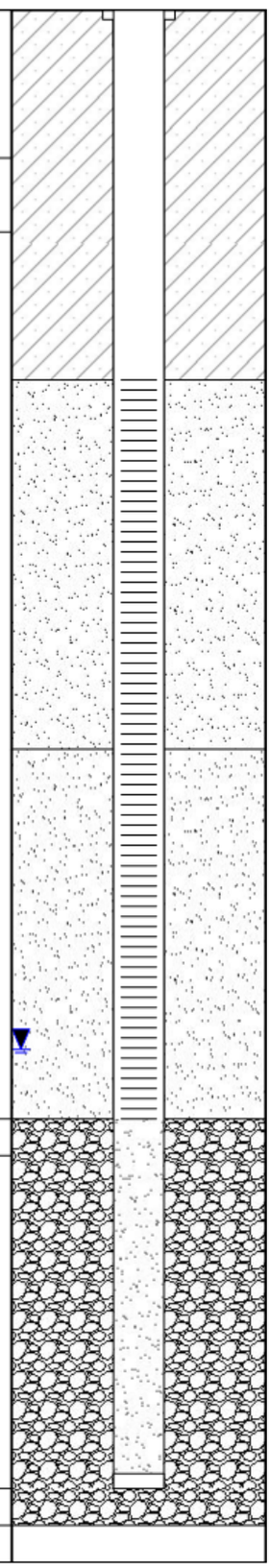
Well Location Depicted on Site Figures

Soil Log and Well Construction Log for: JSH-MW-12

Project Name: Ichijo USA Co.
Site Name: Former Brookdale Golf Course
Site Location: 1802 Brookdale Rd. E., Tacoma, WA
J.S. Held Project #: 240102403
Geologist: A. York
Project Manager: N. Hinsperger
Date Drilled: 9/26/2024
Well Permit #: BPW-742

Drilling Company: Cascade Environmental
Driller/Helper: Curtis Askew
Drill Rig Type: CME-55 LAR
Drilling Method: Hollow Stem Auger
Well Location: On Property
Well Diameter: 2-inch
Flushmount/Stick-Up: Stick-Up

Depth (ft)	Sample	PID (ppm)	From	To	Soil/Geologic Description	Blows
0–5	JSH-MW-12:2	0.0	0.0	5.0	SM - Silty SAND; brown; dry; loose; mostly fine sand with some silt; few gravel	NA
5–10		0.0	5.0	10.0	SP - SM - Poorly-graded SAND with silt; brown; dry; very dense; mostly fine sand with minor silt; few gravel	
10–15		0.0	10.0	15.0	SW-SM - Well graded SAND with silt; brown; dry; very dense; mostly fine to minor sand with some coarse grains; minor silt; few gravel	
15–20	JSH-MW-12:15	0.0	15.0	20.5	GW - Well graded GRAVEL with sand; brown; wet; very dense; mostly gravel with some fine to coarse sand; trace silt	50/6
20–21	JSH-MW-12:20	0.0				50/6



Well Completed to: 20 feet

Depth to Water: 15

Notes:

Well Legend
Cover
Casing
Screen
End Cap
Cement
Bentonite
Sand

Well Location Depicted on Site Figures

Attachment D – Laboratory Analytical Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

October 9, 2024

Nate Hinsperger, Project Manager
JS Held
18372 Redmond-Fall City Road
Redmond, WA 98052

RE: Ichijo-Former Broodkale GC 240102403, F&BI 409466

Dear Mr Hinsperger:

Included are the results from the testing of material submitted on September 27, 2024 from the Ichijo-Former Broodkale GC 240102403, F&BI 409466 project. There is 1 page included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Eric Koltes
JSH1009R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 27, 2024 by Friedman & Bruya, Inc. from the JS Held Ichijo-Former Broodkale GC 240102403, F&BI 409466 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
409466-01	JSH-MW-11:2
409466-02	JSH-MW-11:20
409466-03	JSH-MW-11:25
409466-04	JSH-MW-12:2
409466-05	JSH-MW-12:15
409466-06	JSH-MW-12:20

The samples marked for TOC analysis were sent to Alliance Technical Group. The report is enclosed.

409466

SAMPLE CHAIN OF CUSTODY

09/27/24

Page # 1 of 1 MI

Report To Nathaniel Hunsperger / Eric Kolles

Company J.S. Held

Address 10372 Redmond Way.

City, State, ZIP Redmond, WA 98052

Phone _____ Email Nathaniel.Hunsperger @ JS Held.com

cc: Eric.Kolles@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME: Ichijo - Former Brookdale G.C. 24010240 ?

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: JS Held

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- ☑ Archive samples
- ☐ Other _____
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TOC				Notes
JSH-MW-11:2	01	9-26-24	1100	SOIL	1								X				
JSH-MW-11:20	02	"	1149	"	1								X				
JSH-MW-11:25	03	"	1203	"	1												
JSH-MW-12:2	04	"	1411	"	1								X				
JSH-MW-12:15	05	"	1432	"	1								X				
JSH-MW-12:20	06	9-26-24	1440	SOIL	1												

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Susan York	JS Held	9-27-24	1430
Received by:	Anh Phan	FBI	09/27/24	14:30
Relinquished by:		Samples received at 4 °C		
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 409466 CLIENT JS Held INITIALS/ DATE: AP 09/27/24

If custody seals are present on cooler, are they intact? ☑ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☑ YES ☐ NO

How did samples arrive?
☑ Over the Counter ☐ Picked up by F&BI ☐ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO Initials/ Date: NP 9/27
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 1 days

Are the samples clearly identified? (explain "no" answer below) ☑ YES ☐ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? ☑ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☑ NA ☐ YES ☐ NO

Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

Sample ID's	☑ Yes ☐ No	☐ Not on COC/label
Date Sampled	☑ Yes ☐ No	☐ Not on COC/label
Time Sampled	☑ Yes ☐ No	☐ Not on COC/label
# of Containers	☑ Yes ☐ No	
Relinquished	☑ Yes ☐ No	
Requested analysis	☑ Yes ☐ On Hold	

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☑ NA ☐ YES ☐ NO

Number of unused TO15 canisters** _____ **Number of unused TO17 tubes** _____
**Fill out Green manifolds billing sheet

3600 Fremont Ave N
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
5500 4th Ave S
Seattle, WA 98108

RE: 409466,
Work Order Number: 2409593

October 07, 2024

Attention Michael Erdahl:

Fremont Analytical, Inc, an Alliance Technical Group company, received 4 sample(s) on 9/30/2024 for the analyses presented in the following report.

Sample Moisture (Percent Moisture)
Total Organic Carbon by EPA 9060

All analyses were performed according to our accredited Quality Assurance program. Please contact the laboratory if you should have any questions about the results.

Please note, while the appearance of our logo and branding will update, our commitment to accuracy, speed, and customer service remain values celebrated and shared by Alliance Technical Group. Thank you for the opportunity to serve you.

Sincerely,

Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.4 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Original

Date: *10/07/2024*

CLIENT: Friedman & Bruya
Project: 409466
Work Order: 2409593

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2409593-001	JSH-MW-11:2	09/26/2024 11:00 AM	09/30/2024 2:00 PM
2409593-002	JSH-MW-11:20	09/26/2024 11:49 AM	09/30/2024 2:00 PM
2409593-003	JSH-MW-12:2	09/26/2024 2:11 PM	09/30/2024 2:00 PM
2409593-004	JSH-MW-12:15	09/26/2024 2:32 PM	09/30/2024 2:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2409593**

Date: **10/7/2024**

CLIENT: Friedman & Bruya
Project: 409466

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Friedman & Bruya
Project: 409466

Lab ID: 2409593-001 **Collection Date:** 9/26/2024 11:00:00 AM
Client Sample ID: **JSH-MW-11:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R94674		Analyst: ZD
Percent Moisture	5.24	0.500		wt%	1	10/1/2024 8:25:04 AM
Total Organic Carbon by EPA 9060				Batch ID: 45437		Analyst: OP
Total Organic Carbon	0.658	0.400		%-dry	1	10/7/2024 11:20:00 AM

Lab ID: 2409593-002 **Collection Date:** 9/26/2024 11:49:00 AM
Client Sample ID: **JSH-MW-11:20** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R94674		Analyst: ZD
Percent Moisture	9.91	0.500		wt%	1	10/1/2024 8:25:04 AM
Total Organic Carbon by EPA 9060				Batch ID: 45437		Analyst: OP
Total Organic Carbon	ND	0.400		%-dry	1	10/7/2024 12:22:00 PM

Lab ID: 2409593-003 **Collection Date:** 9/26/2024 2:11:00 PM
Client Sample ID: **JSH-MW-12:2** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R94674		Analyst: ZD
Percent Moisture	6.14	0.500		wt%	1	10/1/2024 8:25:04 AM
Total Organic Carbon by EPA 9060				Batch ID: 45437		Analyst: OP
Total Organic Carbon	1.80	0.400		%-dry	1	10/7/2024 12:40:00 PM

Analytical Report

Work Order: **2409593**
Date Reported: **10/7/2024**

CLIENT: Friedman & Bruya
Project: 409466

Lab ID: 2409593-004 **Collection Date:** 9/26/2024 2:32:00 PM
Client Sample ID: **JSH-MW-12:15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R94674		Analyst: ZD
Percent Moisture	11.0	0.500		wt%	1	10/1/2024 8:25:04 AM
Total Organic Carbon by EPA 9060				Batch ID: 45437		Analyst: OP
Total Organic Carbon	ND	0.400		%-dry	1	10/7/2024 1:31:00 PM

Work Order: 2409593
CLIENT: Friedman & Bruya
Project: 409466

QC SUMMARY REPORT

Total Organic Carbon by EPA 9060

Sample ID: **MB-45437** SampType: **MBLK** Units: **%-dry** Prep Date: **10/4/2024** RunNo: **94837**
Client ID: **MBLKS** Batch ID: **45437** Analysis Date: **10/7/2024** SeqNo: **1980005**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.400									

Sample ID: **LCS-45437** SampType: **LCS** Units: **%-dry** Prep Date: **10/4/2024** RunNo: **94837**
Client ID: **LCSS** Batch ID: **45437** Analysis Date: **10/7/2024** SeqNo: **1980006**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.981	0.400	1.000	0	98.1	80	120				

Sample ID: **2409593-001ADUP** SampType: **DUP** Units: **%-dry** Prep Date: **10/4/2024** RunNo: **94837**
Client ID: **JSH-MW-11:2** Batch ID: **45437** Analysis Date: **10/7/2024** SeqNo: **1980010**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.668	0.400						0.6580	1.51	20	

Sample ID: **2409593-001AMS** SampType: **MS** Units: **%-dry** Prep Date: **10/4/2024** RunNo: **94837**
Client ID: **JSH-MW-11:2** Batch ID: **45437** Analysis Date: **10/7/2024** SeqNo: **1980011**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.79	0.400	1.000	0.6580	113	75	125				

Sample ID: **2409593-001AMSD** SampType: **MSD** Units: **%-dry** Prep Date: **10/4/2024** RunNo: **94837**
Client ID: **JSH-MW-11:2** Batch ID: **45437** Analysis Date: **10/7/2024** SeqNo: **1980012**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	1.82	0.400	1.000	0.6580	116	75	125	1.790	1.66	20	

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2409593
Logged by:	Morgan Wilson	Date Received:	9/30/2024 2:00:00 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Present ☐
4.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
6.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8.	Are samples properly preserved?	Yes ☑	No ☐	
9.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
11.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
12.	Does paperwork match bottle labels?	Yes ☑	No ☐	
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all hold times (except field parameters, pH e.g.) able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

Item Information

Item #	Temp ºC
Sample	2.4

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2409593

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 5500 4th Ave S
City, State, ZIP Seattle, WA 98108
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER	
Alliance Technical Group	
PROJECT NAME/NO.	PO #
409466	E-431
REMARKS	
EIM	

TURNAROUND TIME
☒ Standard TAT
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

						ANALYSES REQUESTED										
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	TOC										Notes
JSH-MW-11:2		9/26/2024	1100	soil	1	x										
JSH-MW-11:20		9/26/2024	1149	soil	1	x										
JSH-MW-12:2		9/26/2024	1411	soil	1	x										
JSH-MW-12:15		9/26/2024	1432	soil	1	x										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	9/30/24	0909
Received by:		Jack Hawthorne	ATG	9/30/24	1400
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

October 16, 2024

Eric Koltes, Project Manager
JS Held
18372 Redmond-Fall City Road
Redmond, WA 98052

RE: Ichijo-Former Brookdale GC 240102403, F&BI 410202

Dear Mr Koltes:

Included are the results from the testing of material submitted on October 10, 2024 from the Ichijo-Former Brookdale GC 240102403, F&BI 410202 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Nate Hinsperger (report and invoice)
JSH1016R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 10, 2024 by Friedman & Bruya, Inc. from the JS Held Ichijo-Former Brookdale GC 240102403, F&BI 410202 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	JS Held
410202-01	JSH-MW-12
410202-02	JSH-MW-11

All quality control requirements were acceptable.

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-12	Client:	JS Held
Date Received:	10/10/24	Project:	Ichijo-Former Brookdale
Date Extracted:	10/10/24	Lab ID:	410202-01
Date Analyzed:	10/14/24	Data File:	101414.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	62	20	121
Decachlorobiphenyl	59	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	JSH-MW-11	Client:	JS Held
Date Received:	10/10/24	Project:	Ichijo-Former Brookdale
Date Extracted:	10/10/24	Lab ID:	410202-02
Date Analyzed:	10/14/24	Data File:	101415.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	53	20	121
Decachlorobiphenyl	69	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	JS Held
Date Received:	Not Applicable	Project:	Ichijo-Former Brookdale
Date Extracted:	10/10/24	Lab ID:	04-2481 mb2
Date Analyzed:	10/14/24	Data File:	101409.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Tetrachlorometaxylene	62	20	121
Decachlorobiphenyl	51	20	89

Compounds:	Concentration ug/L
Dieldrin	<0.005

Date of Report: 10/16/24
Date Received: 10/10/24
Project: Ichijo-Former Brookdale GC 240102403, F&BI 410202

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dieldrin	ug/L (ppb)	0.25	86	88	50-104	2

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

410202

SAMPLE CHAIN OF CUSTODY

10/10/24 C2

Page # 1 of 1

Report To Nate Hinxperger / Eric Kolles

Company JS Held

Address 18372 Redmond Way

City, State, ZIP Redmond, WA 98052

Phone 425-556-5555 Email Nathaniel.Hinxperger@JSHeld.com / Eric.Kolles@JSHeld.com

SAMPLERS (*signature*)

PROJECT NAME: Ichijo - Former Brookdale GC 240102403

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: JS Held

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Diesel+ EPA 8021				Notes
JSH-MW-12	01	10-8-24	1232	WATER	1								X				
JSH-MW-11	02	10-8-24	1342	WATER	1								X				
							Samples received at 4 °C										

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Austin York	JS Held	10-9-24	1540
Received by:	VINH	FBI	10-9-24	1540
Relinquished by:				

Friedman & Bruya, Inc.
5500 4th Ave S.
Seattle WA 98108
(206) 285-8282
office@friedmanandbruya.com

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 410202 CLIENT JSH INITIALS/DATE: nd 10-9-24

If custody seals are present on cooler, are they intact? ☐ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☑ YES ☐ NO

How did samples arrive?
☐ Over the Counter ☑ Picked up by F&BI ☐ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO Initials/Date: AP 10/10/24
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 1 days

Are the samples clearly identified? (explain "no" answer below) ☑ YES ☐ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? ☑ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☑ NA ☐ YES ☐ NO

Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

Sample ID's	☑ Yes ☐ No	☐ Not on COC/label
Date Sampled	☑ Yes ☐ No	☐ Not on COC/label
Time Sampled	☑ Yes ☐ No	☐ Not on COC/label
# of Containers	☑ Yes ☐ No	
Relinquished	☑ Yes ☐ No	
Requested analysis	☑ Yes ☐ On Hold	

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☑ NA ☐ YES ☐ NO

Number of unused TO15 canisters _____ Number of unused TO17 tubes _____