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April 23, 2024

Montana Department of Environmental Quality
Leaking Underground Storage Tanks
P.O. Box 200901
Helena, MT 59620-0901

Attn: Mr. Reed Miner
P: (406) 755-8982
E: rminer@mt.gov

Re: Groundwater Monitoring Work Plan Required for the Petroleum Release at Travel Centers of America #256, 8018 US Highway 93, Missoula, Montana; Facility ID 32-02822 (TID 25272), Release 5028, Work Plan ID 34849
Terracon Project No. 26187119

Dear Mr. Miner:

Terracon Consultants, Inc. (Terracon) is pleased to provide this attached Groundwater Monitoring Work Plan (WP) and cost estimate for environmental consulting services at the abovementioned facility. The WP was prepared in response to a Montana Department of Environmental Quality (DEQ) Work Plan Request letter dated March 13, 2024.

1.0 Project Information

The property is located at 8018 US Highway 93 in Missoula, Montana (hereinafter the site). Four of the pump islands and former piping runs were exposed during Phase I of the piping and dispenser replacement project in 2014. Soil samples were collected by Tetra Tech on July 1, 2014 from 14 locations beneath the former piping and dispensers and submitted for volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), and RCRA 8 metals analysis. Review of the analytical results indicated contaminants in all of the samples and exceedance of Montana Department of Environmental Quality (MDEQ) Tier 1 Soil Risk-Based Screening Levels (RBSLs) in seven samples (Figure 1 in Appendix A). The samples exceeded MDEQ Tier 1 Soil RBSLs for benzene (200 micrograms per kilogram [$\mu\text{g}/\text{kg}$] in 2014) in one sample (TAMT-SS-01), C₉-C₁₀ aromatics (700,000 $\mu\text{g}/\text{kg}$ in 2014) in two samples (TAMT-SS-01, TAMT-SS-02), C₉-C₁₈ aliphatics (2,000,000 $\mu\text{g}/\text{kg}$ in 2014) in seven samples (TAMT-SS-01, TAMT-SS-02, TAMT-SS-03, TAMT-SS-09, TAMT-SS-11,

TAMT-SS-013, TAMT-SS-014), and C₁₁-C₂₂ aromatics (2,000,000 µg/kg in 2014) in two samples (TAMT-SS-01, TAMT-SS-02). No metals exceedances were noted. Report of detections was made by Tetra Tech to Seth Hendrix/Alan Schiff of MDEQ on August 6, 2014.

In August 2014, the remaining three pump islands and associated former piping runs were exposed during Phase II of the project. On August 7, 2014, soil samples were collected by Tetra Tech from the remaining six locations beneath former piping and dispensers and analyzed for VPH, EPH, and metals. Review of the sample results indicated contaminants in four samples and exceedance of MDEQ Tier 1 RBSLs in two samples (Tetra Tech Figure 1 July 2018 Corrective Action Plan). The samples exceeded MDEQ Tier 1 Soil RBSLs for C₉-C₁₈ aliphatics (2,000,000 µg/kg in 2014) in two samples (TAMT-SS-015, TAMT-SS-020). No metals exceedances were noted.

The results of the analyses indicated that petroleum contamination was present in soil in the vicinity of the dispensers south of the building and suggest that there is a potential for petroleum contamination to leach to groundwater. The cause of the petroleum contaminants (likely diesel based on the laboratory results) beneath former piping and dispensers is not known. Potential causes include surface fueling spills during the lifetime of operation of the dispensers, or leaks in the piping systems joints. Records for piping tightness tests conducted prior to the 2014 Tetra Tech sampling indicated no leaks in product piping.

On August 18, 2014, MDEQ sent Kelly Gelske of TA a letter requesting that TA complete a 30-Day Petroleum Release Notification for submittal to MDEQ no later than September 17, 2014.

Based on the RBSL exceedances, MDEQ requested installation and sampling of soil borings and groundwater monitoring wells in a letter to Kelly Gelske (dated June 7, 2018). In response to the request and on behalf of TA, Terracon oversaw the installation of three permanent groundwater monitoring wells (TERR-MW-1, TERR-MW-3 and TERR-MW-4) and three soil borings (TERR-SB-2, TERR-SB-5 and TERR-SB-6) on the site. Due to an absence of groundwater observed in TERR-MW-3 and TERR-MW-4, only one groundwater sample was collected from monitoring well TERR-MW-1 for laboratory analysis. However, additional soil samples were analyzed in TERR-MW-3 and TERR-MW-4 to help vertically delineate the impacts.

Based on the results of Terracon's site investigation, VPH compounds naphthalene and C₉ to C₁₀ Aromatics were detected in the on-site soils in soil samples collected from soil borings TERR-SB-2 at concentrations exceeding their respective Tier 1 RBSL for subsurface soil, less than 10 feet to groundwater. However, the concentrations were vertically delineated to below the applicable RBSLs.

C₉ to C₁₈ Aliphatics were detected above the Tier 1 RBSL for subsurface soils in soil samples TERR-MW-1 at 18-20 feet, TERR-SB-2 at 20-22 feet, TERR-MW-4 at 20-22 feet, TERR-MW-4 at 28-30 feet, TERR-MW-4 at 38-40 feet, and TERR-SB-6 at 26-28 feet. C₁₁ to C₂₂ Aromatics were detected above the Tier 1 RBSL for subsurface soils in soil samples TAMT-SB02-01 at

12-14 feet, TERR-MW-1 at 18-20 feet, TERR-SB-2 at 20-22 feet, TERR-MW-4 at 20-22 feet, and TERR-SB-6 at 26-28 feet. With the exception of monitoring well TERR-MW-4, the impacts exceeding the C₉ to C₁₈ aliphatics and C₁₁ to C₂₂ aromatics RBSLs for subsurface soil were vertically delineated to concentrations below the applicable RBSLs.

The groundwater sample collected from monitoring well TERR-MW-1 exhibited a naphthalene concentration above Tier 1 Groundwater RBSL; however, the remaining VPH compounds were not detected above their respective RBSLs. In addition, the groundwater sample exhibited an EPH screen concentration above the Tier 1 Groundwater Screening Level of 1,000 micrograms per liter (µg/L); however, the sample did not exhibit EPH fractionation compounds at concentrations above their respective Tier 1 RBSLs for groundwater.

2.0 Scope of Work

At your request, the proposed scope of services is in response to the Work Plan Request *Groundwater Monitoring Well Work Plan Required for Petroleum Release at Missoula Travel Center, 8018 US Highway 93 North, Missoula, Missoula County, Montana; Facility ID 32-02822, Release 5028, Work Plan 34849*, dated March 13, 2024.

The scope of work specified in the MDEQ Work Plan Request includes groundwater sampling and analysis of groundwater from the existing on-site monitoring wells, validation of analytical data, evaluation of potential for petroleum-vapor intrusion, submittal of interim data, preparation of a Groundwater Monitoring Report submitted after the monitoring event. In addition, Terracon spoke with the MDEQ Project Manager, Mr. Reed Minor, on April 16, 2024 to determine the total number of sampling events to include in the work plan. Based on that conversation, the proposed scope of services includes up to four groundwater sampling events and associated reporting. Terracon's proposed approach to complete the work in accordance with MDEQ's letter request is detailed in the following paragraphs, with the exception of Work Plan Preparation.

2.1 Groundwater Monitoring

2.1.1 Project Management

Terracon personnel will provide informal status reports to the MDEQ project manager on an as needed basis. Other duties associated with this task include scheduling field work and project reporting; coordinating field activities with current facility operators; and monitoring the project budget and deliverables.

2.1.2 Groundwater Sampling

Terracon will mobilize to the site to conduct groundwater monitoring events during high and low groundwater in 2024 and 2025 for a total of four monitoring events. Monitoring will include measuring depth-to-water and collecting groundwater samples from all site monitoring wells associated with the petroleum release. Due to the absence of groundwater present in monitoring

wells TERR-MW-3 and TERR-MW-4 during the previous site investigation, Terracon will mobilize one week prior to the initial sampling event to develop TERR-MW-3 and TERR-MW-4 by surging and pumping until they are clear of sediment. It should be noted that if groundwater is not observed in one or more of the on-site monitoring wells, the MDEQ will be contacted immediately to determine if an alternate scope of services should be proposed.

Samples will be collected using a peristaltic pump, disposable polyethylene tubing, and low-flow purge and sampling procedures. Purge water will be disposed of on pervious ground on-site in accordance with MDEQ guidance. Should free product be detected in a well during monitoring, purge water from the affected well(s) will be containerized and disposal arranged. One duplicate and one field blank will be collected during each event. Groundwater field parameters (temperature, turbidity, conductivity, dissolved oxygen, pH, and oxygen reduction potential) will be measured in each well during purging, and once parameters stabilize, groundwater samples will be collected in laboratory-supplied bottles and analyzed for VPH; EPH screen, with fractionation, if necessary; and the lead scavengers 1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB). If the first sampling event laboratory results are below Montana risk-based screening levels, lead scavenger analysis will be discontinued.

Quality Assurance and Quality Control

All sampling will be completed in strict accordance with Terracon's standard QA/QC procedures. The following procedures will be used during sample collection to provide quality assurance and quality control (QA/QC), to minimize loss of volatiles, and to maintain the suitability of samples for analysis. Sample collection and analytical procedures were consistent with SW-846: *Test Methods for Evaluating Solid Waste*, November 1986, and updates published by the U.S. EPA. QA/QC methods used are defined below:

- All sample containers/preservatives will be supplied by a state-certified laboratory. Analyses will be performed by a state-certified laboratory.
- All samples will be handled in a manner which minimizes the loss of organic compounds to volatilization and biodegradation.
- All samples for analyses will be placed in a cooler on ice (at a temperature of 4° C) immediately following collection.
- Chain-of-custody procedures will be utilized during sampling and delivery
- Documentation of the sampling and QA/QC procedures including notes will be available for MDEQ inspection. These notes will document the procedures for sampling and all other routine activities, along with field notes describing the sequence of activities that took place during fieldwork.

Laboratory Analysis

Samples will be submitted to Pace Analytical in Mount Juliet, Tennessee for VPH, EPH, and lead scavengers 1,2-DCA and EDB. If the EPH screen results exceed 1,000 µg/L, the sample will be further analyzed for EPH fractions. One trip blank and one field duplicate sample will be analyzed for each sampling event for QA/QC purposes. The field duplicate sample will be collected by

splitting a natural sample in the field. The QA/QC samples will be submitted to Pace Analytical and analyzed for the same constituents as the natural samples.

2.1.3 Monitoring Well Survey

Following the completion of the initial groundwater sampling event, the on-site wells will be surveyed by a licensed surveyor and the top of casings will be determined to within 0.01 feet of mean sea level.

2.1.4 Waste Management

Purge water generated from groundwater monitoring will be disposed of in accordance with the MDEQ Purge Water Disposal Flowchart. No free product was detected in wells during the 2018 monitoring event; therefore, purge water will be discharged to the ground. Should conditions exist that preclude purge water disposal (i.e., free product), purge water will be containerized and properly disposed of.

2.1.5 Interim Data Submittal

Terracon will prepare and submit an Interim Data Submittal (IDS) after the first groundwater monitoring event of each calendar year. The IDS is expected to include discussion, data, tables, and figures described in the Groundwater Monitoring Work Plan and Report Guidance for Petroleum Releases found under the Guidance dropdown at the Petroleum Tank Cleanup Section (PTCS) webpage.

2.1.6 Project Reporting, Data Validation, and Release Closure Plan

Upon completion of the high and low monitoring activities for each calendar year, and within 60-days of receipt of analytical results from the second monitoring event, Terracon will prepare and submit a Groundwater Monitoring Report detailing the methods and results of the groundwater monitoring events. The report will include scaled map(s) showing the location of all sampling points and physical features of the site, tabular presentation of cumulative groundwater data, deviations from the approved work plan, assessment of attenuation rates, recommendations and conclusions. The report will also include data validation in accordance with MDEQ standards, a Data Validation Summary Form (DVSF) of the current data and previous data from the 2018 site investigation work by Terracon, and a Release Closure Plan (RCP) based on the monitoring results. Reports and supporting documentation will be submitted following MDEQ submittal requirements.

3.0 Project Schedule and Cost

The anticipated schedule for fieldwork activities and reporting is as follows:

2024 Groundwater Sampling

1st Groundwater Monitoring (GWM) Event May/June 2024
Receive Data from the Lab June/July 2024
Submit GWM IDS to MDEQ August 2024
2nd GWM Event October/November 2024
Receive data from the Lab December 2024
Submit GWM Report to MDEQ February 2025

2025 Groundwater Sampling

1st GWM Event May/June 2025
Receive Data from the Lab June/July 2025
Submit GWM IDS to MDEQ August 2025
2nd GWM Event October/November 2025
Receive data from the Lab December 2025
Submit GWM Report to MDEQ February 2026

Work effort levels have been estimated using best professional judgement and typical scenarios related to work of this type. The estimated cost for Terracon to complete this project is \$43,201.70. A detailed cost estimate is provided as **Attachment A**.

If you should have any questions or comments regarding this WP, please contact the undersigned at (406) 656-3072.

Sincerely,
Terracon Consultants, Inc.



Keanan T. Allen
Staff Scientist



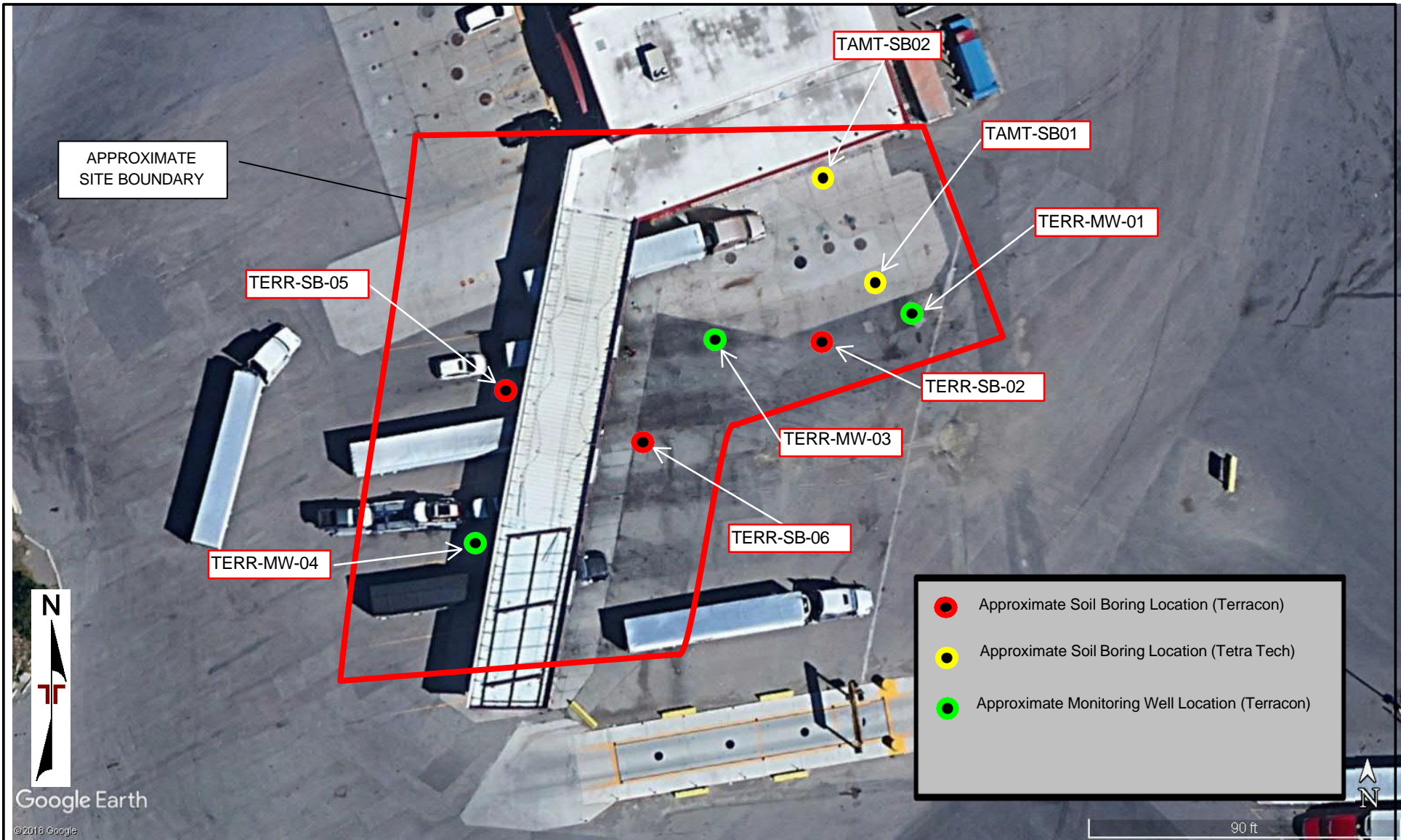
Robyn R. Sargent, CHMM
Manager of Regional Services -
Environmental

Attachments: Proposal Detail

Exhibit 1 – Site Diagram with Proposed Sampling Locations

Table 1 – Cost Estimate

cc: Mr. Clayton Barns, TravelCenters of America (cbarns@ta-petro.com)



Google Earth

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Project Manager:	Project No. 26187119
Drawn by: KTA	Scale: AS SHOWN
Checked by: RRS	File Name:
Approved by: RRS	Date: Apr. 2024



2110 Overland Ave, Ste 124
Billings, MT 59102-6440

SITE DIAGRAM

Travel Centers of America #256 LSI
8018 US Highway 93
Missoula, MT

Exhibit

1

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION
PURPOSES

Sargent, Robyn R.

From: David Collins <dcollins@wwcengineering.com>
Sent: Friday, April 19, 2024 10:32 AM
To: Sargent, Robyn R.
Cc: Kyna Christensen
Subject: RE: Surveying Capabilities

Roby,

The cost for providing elevations at ground level and top of casing for the 3 wells on the map provided would be \$3,000. This cost assumes that we would be provided access to the site without any additional safety training. WWC would perform the survey with the usual thoroughness and safety of the engineering/surveying profession. The work would be completed within 2 weeks of a signed contract and deliverables within 1 week of the field work.

Thanks,
Dave

**WWC** ENGINEERING
DAVID COLLINS, P.L.S. | Project Manager
1275 Maple Street, Suite F | Helena, MT 59601
O: 406.443.3962 | D: 406.558.3585 | C: 406.560.8024
www.wwcengineering.com

From: Sargent, Robyn R. <Robyn.Sargent@terracon.com>
Sent: Thursday, April 18, 2024 4:45 PM
To: David Collins <dcollins@wwcengineering.com>
Cc: Kyna Christensen <kchristensen@wwcengineering.com>
Subject: RE: Surveying Capabilities

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Sounds good. Thanks for the assistance.

Robyn Sargent, CHMM
D (406) 371-9862 | M (214) 662-3528
robyn.sargent@terracon.com

From: David Collins <dcollins@wwcengineering.com>
Sent: Thursday, April 18, 2024 3:47 PM
To: Sargent, Robyn R. <Robyn.Sargent@terracon.com>
Cc: Kyna Christensen <kchristensen@wwcengineering.com>
Subject: Re: Surveying Capabilities

Robyn,

I'm on the road, but will be back in the office tomorrow. I'll get you a cost estimate by end of day tomorrow if that works for you.

Thanks,
Dave

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From: Sargent, Robyn R. <Robyn.Sargent@terracon.com>
Sent: Thursday, April 18, 2024 3:19:21 PM
To: David Collins <dcollins@wwcengineering.com>
Subject: FW: Surveying Capabilities

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Dave,

As I relayed in the email to Kyna, I have a project site where I need the ground level and top of casing surveyed on three monitoring wells. The site is a Travel Centers of America site located at 8018 US Highway 93 in Missoula. I have attached a map showing the locations if you need it. We are preparing our work plan, so I just need a bid right now. We hope to start up the sampling in May or June, so I will let you know when we are ready to move forward.

I actually have another site in Great Falls I need surveyed as well, but will send that in a separate email.

Let me know if you have any questions.

Thanks,

Robyn Sargent, CHMM
D (406) 371-9862 | M (214) 662-3528
robyn.sargent@terracon.com

From: Kyna Christensen <kchristensen@wwcengineering.com>
Sent: Thursday, April 18, 2024 12:11 PM
To: Sargent, Robyn R. <Robyn.Sargent@terracon.com>
Cc: David Collins <dcollins@wwcengineering.com>
Subject: RE: Surveying Capabilities

Hey Robyn,

Dave Collins is the person you need to speak with. I added him to this email. He can get you costs.

Kyna


KYNA CHRISTENSEN | Environmental Scientist
1275 Maple Street, Suite F | Helena, MT 59601
O: 406.443.3962 | D: 406.558.3559 | C: 406.670.3866
www.wwcengineering.com

From: Sargent, Robyn R. <Robyn.Sargent@terracon.com>
Sent: Thursday, April 18, 2024 11:35 AM
To: Kyna Christensen <kchristensen@wwcengineering.com>
Subject: Surveying Capabilities

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Hey Kyna,

I wanted to touch base to see if you could give me some insight on whether WWC has survey capabilities in Helena to survey some permanent monitoring wells at one of our sites in Missoula. I have had the Billings office do some locally, but that's a hefty move from here to Missoula. If so, could you direct me to the best person to get a quote from?

Hope all is well!

Robyn Sargent, CHMM *(She/Her/Hers)*
Principal | Manager of Regional Environmental Services (ID, MT, UT)



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