MONTANA
Department of Transportation

Christopher Dorrington, Director

2701 Prospect ▪ PO Box 201001
Helena MT 59620-1001

Section 1 RP and Site Information:

Date: **January 7, 2026**

RP Info: **MDT Remediation & Assessment Section**
PO Box 201001
Helena, MT 59620-1001
Attn: Aaron Anderson

Workplan for Groundwater Monitoring & Sampling
MDT Drummond Maintenance Facility
Granite County, Montana
DEQ Facility ID No. 20-09294, Release No. 127 WPID # 35126

MDT is presenting a work plan and cost estimate to conduct two additional groundwater monitoring events as recommended in the WCEC Oxidant Injection and Groundwater Monitoring Report, dated August 14, 2025.

Section 2 History:

The Montana Department of Transportation (MDT) Drummond Maintenance facility was constructed in 1969 coinciding with the completion of I-90, the construction of a new bridge over the Clark Fork River, and the realignment of Highway 1. MDT records indicate that a 1,000-gallon gasoline UST and a pump island were located on the north side of the main shop building. The installation date of the tank system is unknown but is believed to be in the early 1970s. Anecdotal information indicated that a gasoline leak was discovered by MDT personnel following the loss of an entire tank volume (1,000 gallons) from the UST system in 1975. The tank was believed to have been removed and replaced by MDT following discovery of the leak.

A MDT subcontractor removed the gasoline UST from the north side of the shop building on September 22, 1989 and reported a petroleum release to the Montana Department of Health and Environmental Sciences (now DEQ). The tank removed in 1989 was in the same location of the leaking tank that was removed and replaced in 1975. Both tanks contained gasoline. The contractor excavated approximately 950 bank cubic yards (BCY) of gasoline contaminated soil. The excavation was reported to extend to a maximum depth of 20 feet below ground surface (bgs) and was located to the north of the former UST and pump island. This excavated soil was landfarmed at an unknown location on the facility. The subcontractor documented the remedial activities in a brief report (Montana Tank Testing 1990); however, no laboratory analytical results were discussed or included in the report. The removed tank was replaced by another 1,000-steel gasoline UST that was later removed by a MDT subcontractor, Shannon Environmental, in 1992. Specific details of initial activities are not well documented. No further environmental activities associated with the gasoline release were conducted after 1992.

In 2007, six monitoring wells were installed at the facility by MDT to investigate the extent of

groundwater contamination. Monitoring results from 2007 through 2011 showed that hydrocarbon impacts were present in the area of the former UST system, and these impacts appeared to be contained on-site. A soil vapor extraction (SVE) system was installed at the facility in 2008. The system consisted of five vertical 4-inch PVC extraction wells connected with subsurface PVC vacuum lines to a centrally housed 1.5 horsepower regenerative blower controlled with a valve manifold. The system operated continuously from 2008 until December 2011, and was monitored on a quarterly basis. The SVE system removed significant petroleum hydrocarbon mass from the subsurface during its operation. Utilizing a formula based on analytical data, calibrated exhaust PID readings, and measured air flow rates, the SVE system removed approximately 1,514 gallons of gasoline (Additional Remedial Investigation Report, WET, dated May 2012). The SVE system was pulsed during 2011 to determine if hydrocarbon recovery could be increased or optimized. Pulsing of the system did not increase recovery and exhaust concentrations continued to decrease throughout the year. Evaluation of the SVE system performance indicated the hydrocarbon removal rate reached asymptotic levels that warranted system shutdown. The system was shut down on December 6, 2011.

A soil investigation was conducted on June 16, 2011 in the vicinity of the former UST system to evaluate the effectiveness of the in-situ SVE soil mitigation. The investigation consisted of five soil borings using a direct-push technology with continuous soil cores collected at five-foot intervals to a total depth of 25 feet bgs. Results of the soil investigation conducted at the facility in June 2011 indicated that soil contamination was minimal with only one interval from SB-1 with soil results above the Risk Based Screening Levels (RBSLs) from 24-25' bgs. SB-1 was located adjacent to MW1, and the zone from 24-25' bgs was unlikely to be mitigated from the SVE system because it was beneath the soil/groundwater interface.

Since the decommissioning of the SVE system, six additional borings (SB-1, SB-2, SB-3, SB-4, SB-5, & MW-1S,) have been advanced within the treatment zone and perimeter of the sites. Soil samples from the borings indicate a significant reduction of soil contamination within the SVE treatment zone. The only RBSL exceedance from a post SVE soil sample was from SB-1, located adjacent MW-1. SB-1 had a C9-C12 Aliphatics detection of 1,070 mg/kg, exceeding the RBSL of 1,000 mg/kg for that constituent. However, SB-1 also documented a 60% reduction in TPH values and the elimination of benzene from 14 mg/kg to non-detect. In addition, the soil sample was collected from 24-25 feet bgs, in a zone underneath the soil/groundwater interface and unlikely to be affected by the SVE system the majority of the year. Despite the RBSL exceedance, the soil result from SB-1 indicated that the SVE system was successful in soil mitigation.

Three borings (MW-3S, MW-7, & MW-8) indicate that there is not a significant secondary source area outside of the SVE treatment zone.

The old shop well had detections of benzene, xylene, and Total Petroleum Hydrocarbons (TPH) that were beneath the RBSLs during a sampling event on April 26, 2007. The old shop well screen was completed from 74-80 feet bgs; however it is assumed that the contamination originated from a shallow zone and entered the well through an annular pathway during well pumping or via leaking casing joints. A new shop supply well was subsequently installed in October 2007. The old shop well has been sampled since it was taken out of service and has not had any detections since the original sample. It was properly abandoned in 2014 to prevent it from serving as a corridor for contamination.

On November 14-15, 2018, MDT injected a calcium peroxide powder with 17.3% active oxygen ORC slurry. 606.27 lbs of the ORC slurry was injected under a dilute application rate of approximately 10% during the pilot study. The ORC slurry was injected within the decommissioned SVE wells. The ORC injection successfully introduced DO into the regional aquifer, based on DO measurements taken before and after the injection. The application was sufficient that the area influenced by the ORC injection exceeded the size of the plume. The ORC contamination observed in the worst case well MW-1S was reduced in the monitoring event conducted 6 months after the injection.

WCEC conducted an oxidant injection at the MDT Drummond facility on November 4 – 6, 2024. ORC Advanced® was injected in 21 boreholes in the vicinity of MW-1S. Continued groundwater monitoring is needed to evaluate the effectiveness of the ORC Advanced® injection. It is likely that this site could reach closure within five years through monitored natural attenuation.

Depth to groundwater at the site ranges from 18-25' bgs.

Section 3 Groundwater Monitoring Objectives:

The additional groundwater monitoring events will be conducted during June 2026 and November 2026 to continue to evaluate the impact of the oxidant injection on groundwater concentrations.

The additional data is important to determine the impact of the injection on groundwater contamination, and whether the mitigation activities have decreased contamination levels to beneath the Risk Based Screening Levels (RBSLs). It will be used to determine what additional activities are necessary for the release.

For the June 2026 event, groundwater samples will be collected from MW-1S, MW-2, MW-3S, MW-4, MW5, MW-6, MW-7, and MW-8.

For the November 2026 event, groundwater samples will be collected from MW-1S, MW-3S, MW-2, and MW-7.

Fieldwork for groundwater monitoring will be collected according to the attached SOP. Groundwater samples will be collected utilizing low-flow sampling equipment. The low flow pump will be lowered into the upper 1/3 of the water column, and water will be constantly monitored through a flow-through cell for pH, temperature, specific conductivity, dissolved oxygen (DO), and oxygen reducing potential (ORP). Once those parameters stabilize, a groundwater sample will be collected directly from the discharge tube after disconnecting the flow-through cell.

Groundwater samples will be analyzed for VPH. Groundwater samples will also be analyzed for intrinsic biodegradation indicators (IBIs) such as methane, sulfates, nitrates, ferrous iron, and manganese.

Section 4 Work Plan Tasks:

The work plan is for two groundwater monitoring events. It is separated into the following tasks.

Task 1: Work Plan Preparation.
This work plan is designed to be in accordance with DEQ's Groundwater Monitoring Work Plan and Report Guidance for Petroleum Releases.

Task 2: June 2026 groundwater monitoring.
For the June 2026 event, groundwater samples will be collected from MW-1S, MW-2, MW-3S, MW-4, MW5, MW-6, MW-7, and MW-8.

Due to the depth of groundwater, a bladder pump will be utilized as described in Section 3. Fieldwork for groundwater monitoring will be collected according to the attached SOP.

The PTRCF staff does not allow for MDT staff to present groundwater monitoring under a unit cost. Therefore the costs are based on a time and materials basis.

Task 3: November 2026 groundwater monitoring.
For the November 2026 event, groundwater samples will be collected from MW-1S, MW-3S, MW-2, and MW-7.

Due to the depth of groundwater, a bladder pump will be utilized as described in Section 3. Fieldwork for groundwater monitoring will be collected according to the attached SOP.

The PTRCF staff does not allow for MDT staff to present groundwater monitoring under a unit cost. Therefore the costs are based on a time and materials basis.

Task 4: Reporting.
An interim report will be submitted for the June 2026 groundwater monitoring event. At the conclusion of the November 2026 groundwater monitoring event, MDT will prepare a Standardized Generic Applications Report (AR-07) that includes the data from both groundwater monitoring events and a discussion regarding observed trends. A recommendation for future groundwater monitoring frequency will be included within the report.

Section 5 Schedule and Reporting
MDT proposes the following schedule:

June 2026:	Full groundwater monitoring of the well network at the Drummond facility.
July 2026:	Brief interim email to DEQ that includes the June 2026 analytical results. Interim submittal will conform to the DEQ Interim Data Submittal Expectations
November 2026:	Partial groundwater monitoring of key wells at the Drummond facility.
December 2026:	Review of analytical data, preparation of Report.
January 2027:	Delivery of the report.

The AR-07 report will include an updated RCP.

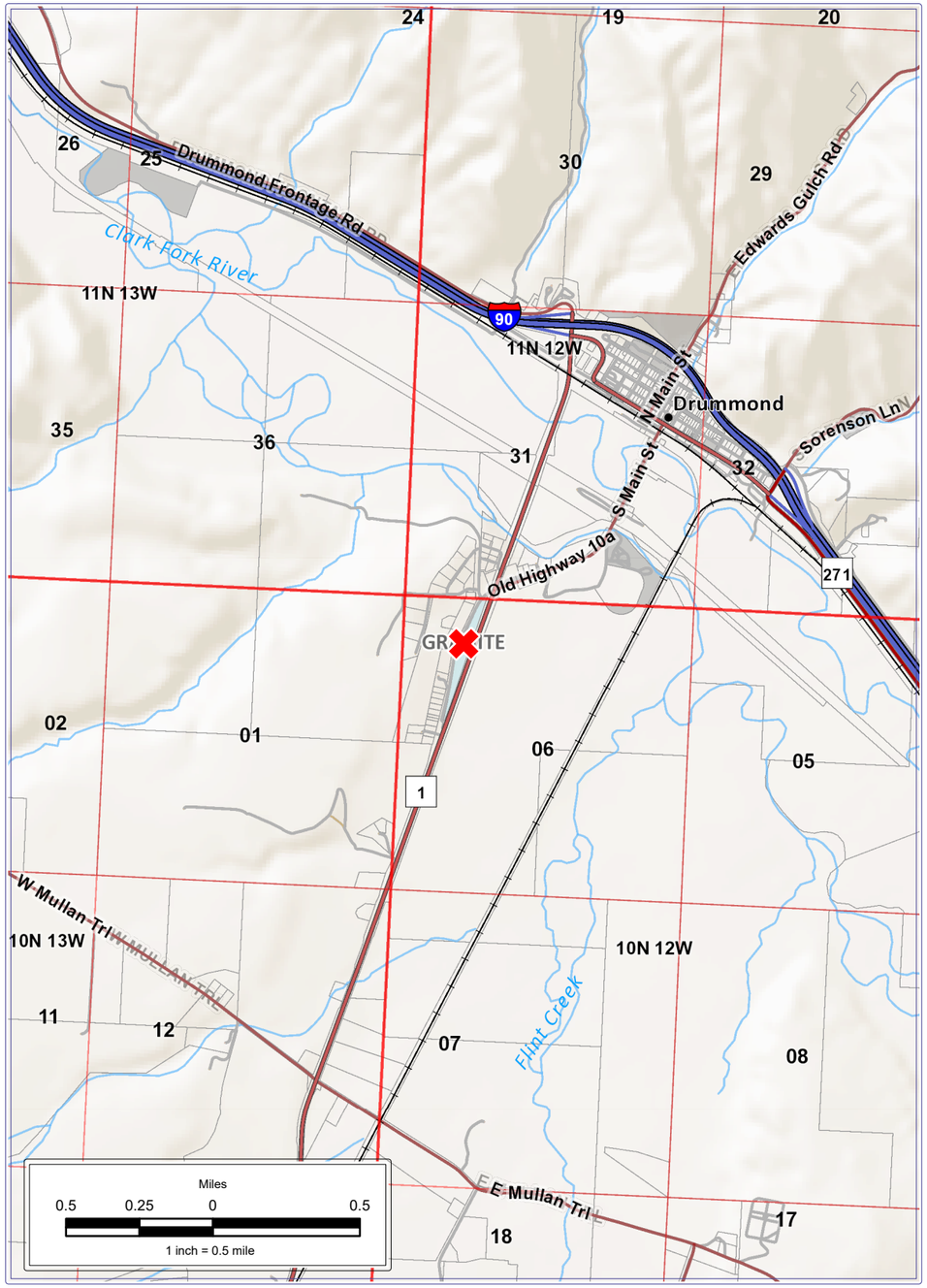
Section 6 Appendixes
The budget to conduct the work is based on a time and materials basis.

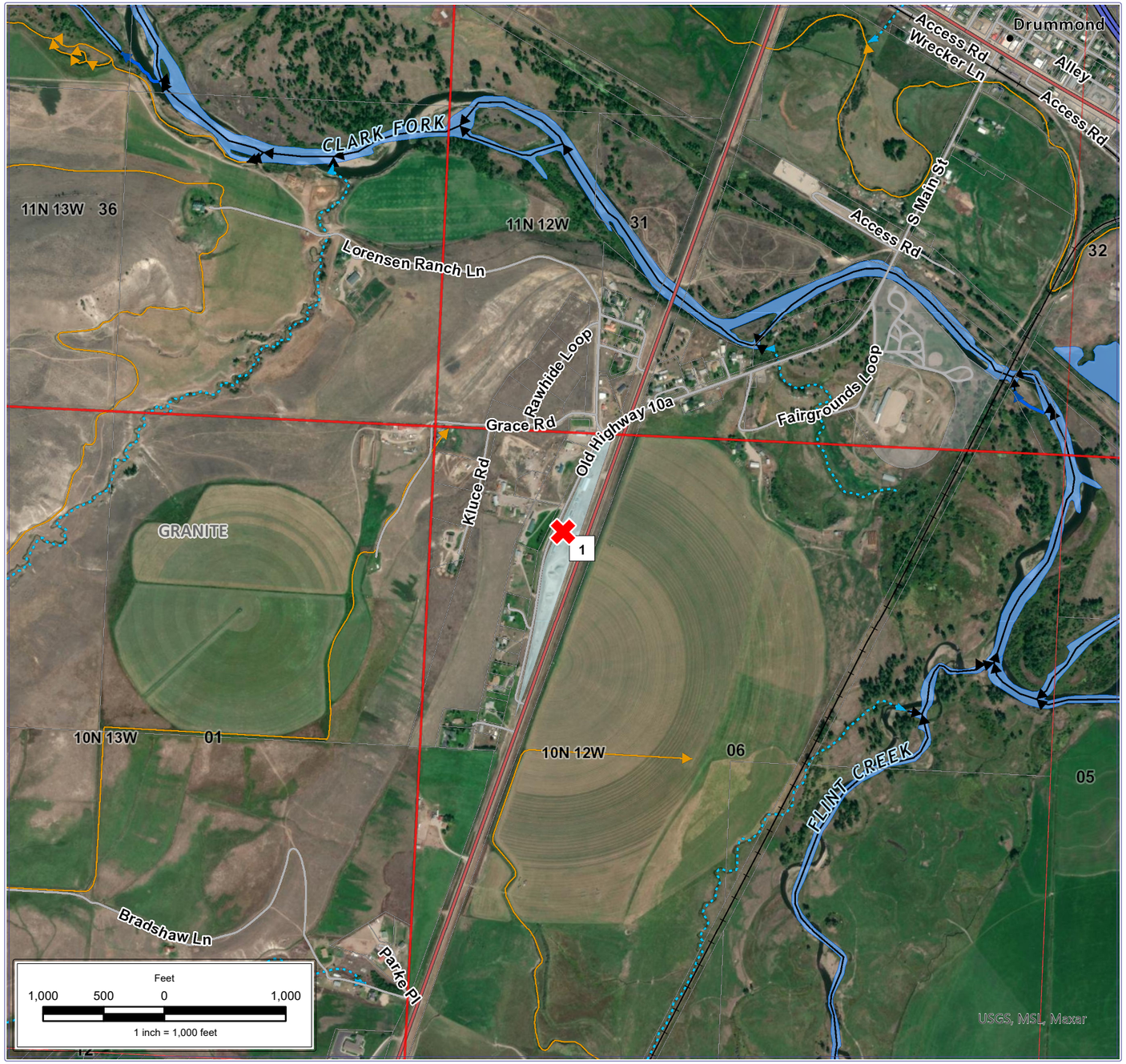
A site map and the MDT SOP is attached at the end of the document.

Don't hesitate to contact Aaron Anderson at (406) 444-0872 or aganderson@mt.gov with any questions or concerns.

Sincerely,

Aaron Anderson
MDT Environmental





Site Location

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Site Location Maps

MDT Maintenance Facility
Highway 1
Drummond, MT

DRAWN BY: MM
DATE: 07/19/23
SCALE: 1:12,000

PROJECT NUMBER: 23-15147-70

IMAGE SOURCE: ESRI BASEMAPS

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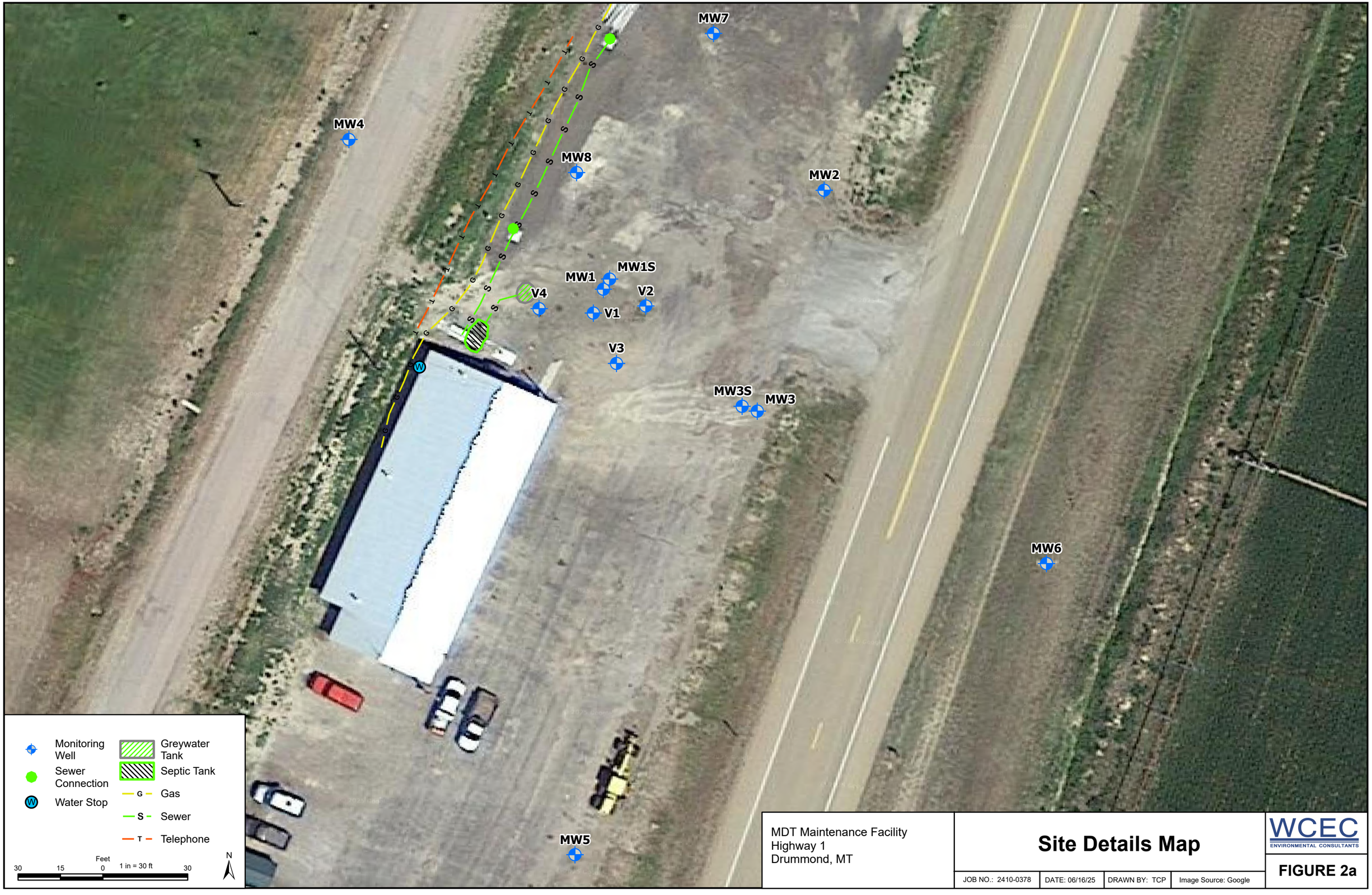
FIGURE 1



MDT Maintenance Facility
Highway 1
Drummond, MT

Site Details Map

JOB NO.: 2410-0378	DATE: 06/16/25	DRAWN BY: TCP	Image Source: Google

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FIGURE 2a