Integral Consulting Inc.
110 Marter Ave.
Suite 304
Moorestown, NJ 08057

telephone: 856.399.7700
www.integral-corp.com

MEMORANDUM

To:	James Fish—Environmental Program Specialist, Alaska Department of Environmental Conservation
From:	Integral Consulting Inc.
Date:	July 1, 2024
Subject:	Work Plan Technical Memorandum—Soil Characterization, Williams Alaska Petroleum, Inc., Former North Pole Refinery, North Pole, Alaska
Project No.:	CF2052

On behalf of Williams Alaska Petroleum, Inc. (Williams), Integral Consulting Inc. (Integral) has prepared this Work Plan Technical Memorandum for soil characterization in response to feedback from the Alaska Department of Environmental Conservation (ADEC) on the Updated Site Characterization Report (SCR) for PFAS – Revision 1 (Integral 2024) at the former Flint Hills Resources Alaska North Pole Refinery (Site; Figure 1). This work plan specifically addresses subsurface soil sampling to be completed in the former fire training area (FTA) and surface soil sampling to be completed in terrestrial habitats at the Site. The sampling was previously included in the Updated SRC for PFAS; however; ADEC requested additional details regarding sample collection and methods.

SOIL CHARACTERIZATION

Terrestrial Habitat Soil Sampling

To characterize surface soil outside of the former production areas, surface soils will be collected from terrestrial habitats identified at the site (Figure 2). Soil samples will be collected using precleaned/decontaminated stainless-steel trowels and/or hand augers (depending on the soil conditions). Due to the shallow depth of the samples (0–6-inch interval), pre-clearing and utility mark out are not anticipated to be required.

Former Fire Training Area Soil Sampling

Limited excavation of the former fire training area was conducted in 2015. The excavation was based on the depth and lateral extent of the membrane liner placed at the base of the former FTA (approximately 2 to 3 feet below grade). Post-excavation soil samples show that PFOA and PFOS remain in the former fire training area above ADEC soil clean up levels (under 40 inch[1]) for PFOA and PFOS (Figure 3). To determine the extent of soil above the clean up levels, particularly the under 40-inch, further soil sampling is proposed.

Soil borings in the former FTA (Figure 3) will be completed to the Water Table Zone, the groundwater interval containing the highest PFOA and PFOS concentrations [2]. All soil boring locations will be recorded in the field using a handheld global positioning system unit with sub-meter accuracy. Direct-push (Geoprobe® or equivalent) or hollow-stem auger drilling technologies will be used to advance soil borings to a depth of approximately 16 ft below ground surface or until refusal. All drilling locations will be cleared of buried utilities prior to drilling using ground penetrating radar and/or hand-clearing techniques in accordance with facility requirements at the Site.

A minimum of three soil samples will be collected from each boring in accordance with the 2022 *Field Sampling Guidance* (ADEC 2022). One soil sample will be collected from the surface (0–6 in. interval) to assess for surface discharges and/or surface runoff, one from the 6-in. interval corresponding to the midpoint of the soil boring, and one from the 6-in. interval above the seasonal water table observed at the time of sampling to determine whether PFOA and PFOS in the soil may be a source of groundwater contamination. Additional samples may be collected, as necessary, based on changes in lithology and other field observations to support horizontal and vertical delineation of PFOA and PFOS detected in soil in the former fire training area.

Sample Handling and Quality Control Sampling

For both terrestrial habitat and fire training soil sampling, samples will be collected and shipped with completed chain-of-custody documentation to an ADEC-certified analytical testing laboratory.

[1] "Under 40 inch zone" standards are applicable to a location that receives a mean annual precipitation of less than 40 inches each year.
[2] Locations may be adjusted based on access requirements from the current property owner Marathon Inc.

Field quality control samples will be collected at a minimum of 1 field duplicate per every 20 samples and 1 field equipment blank per sampling team/equipment per day per the ADEC guidance document referenced above.

Sample Analysis

The soil samples will be submitted for analysis using U.S. Environmental Protection Agency (EPA) Method 1633. Sampling and reporting will follow the ADEC guidance *Minimum Quality Assurance Requirements for Sample Handling, Reports and Laboratory Data* (ADEC 2019).

The results of these analyses will be validated by EcoChem, who performed a compliance validation (USEPA Stage 2A). That validation will be based on the EPA National Functional Guidelines for Organic Data Review (USEPA 2017, 2020).

Investigation Derived Waste

Following completion of sampling activities, the excess soil will be containerized for characterization and proper disposal. Prior to transport or treatment, the Contaminated Media Transport and Treatment or Disposal Approval Form will be prepared and submitted to ADEC for approval. It is anticipated that the NRC/US-Ecology Viking Road Facility will be the final receiving location.

SCHEDULE/REPORTING

The upland soil sampling will be completed in late June 2024. The data will be used to support the ecological conceptual site model. If additional samples are necessary, a work plan for a second mobilization will be submitted to ADEC. Utility mark out (mark boring locations, electrical locate, ground penetrating radar survey) for all proposed subsurface soil borings will be conducted during the first two weeks of July with drilling anticipated to start on or around July 23, 2024.

Following completion of field mobilization activities, the findings of this work will be reported to ADEC consistent with AAC 75.335.

REFERENCES

ADEC. 2019. Minimum quality assurance requirements for sample handling, reports and laboratory data. Alaska Department of Environmental Conservation Division of Spill Prevention and Response Contaminated Sites Program. October.

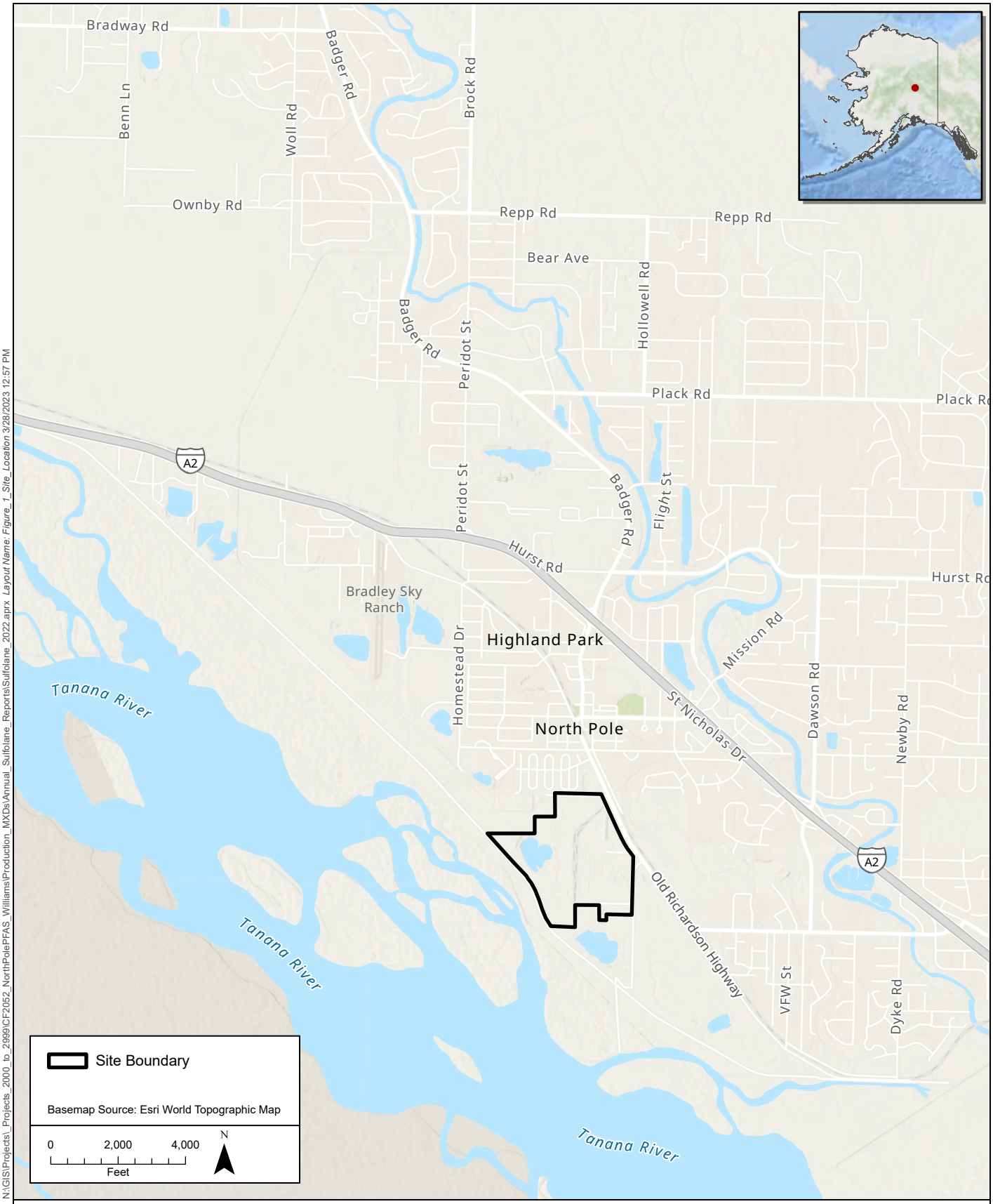
ADEC. 2022. Field sampling guidance. Alaska Department of Environmental Conservation Division of Spill Prevention and Response Contaminated Sites Program. January.

Integral. 2024. Updated Site Characterization Report for PFAS – REV1, Williams Alaska Petroleum, Inc., Former North Pole Refinery, North Pole, AK. Integral Consulting Inc. January 5.

USEPA. 2017. EPA Contract Laboratory Program national functional guidelines for organic Superfund methods data review. EPA-540-R-2017-002. U.S. Environmental Protection Agency, Washington, DC. January.

USEPA. 2020. EPA Contract Laboratory Program national functional guidelines for organic Superfund methods data review. EPA-540-R-20-005. U.S. Environmental Protection Agency, Washington, DC. November.

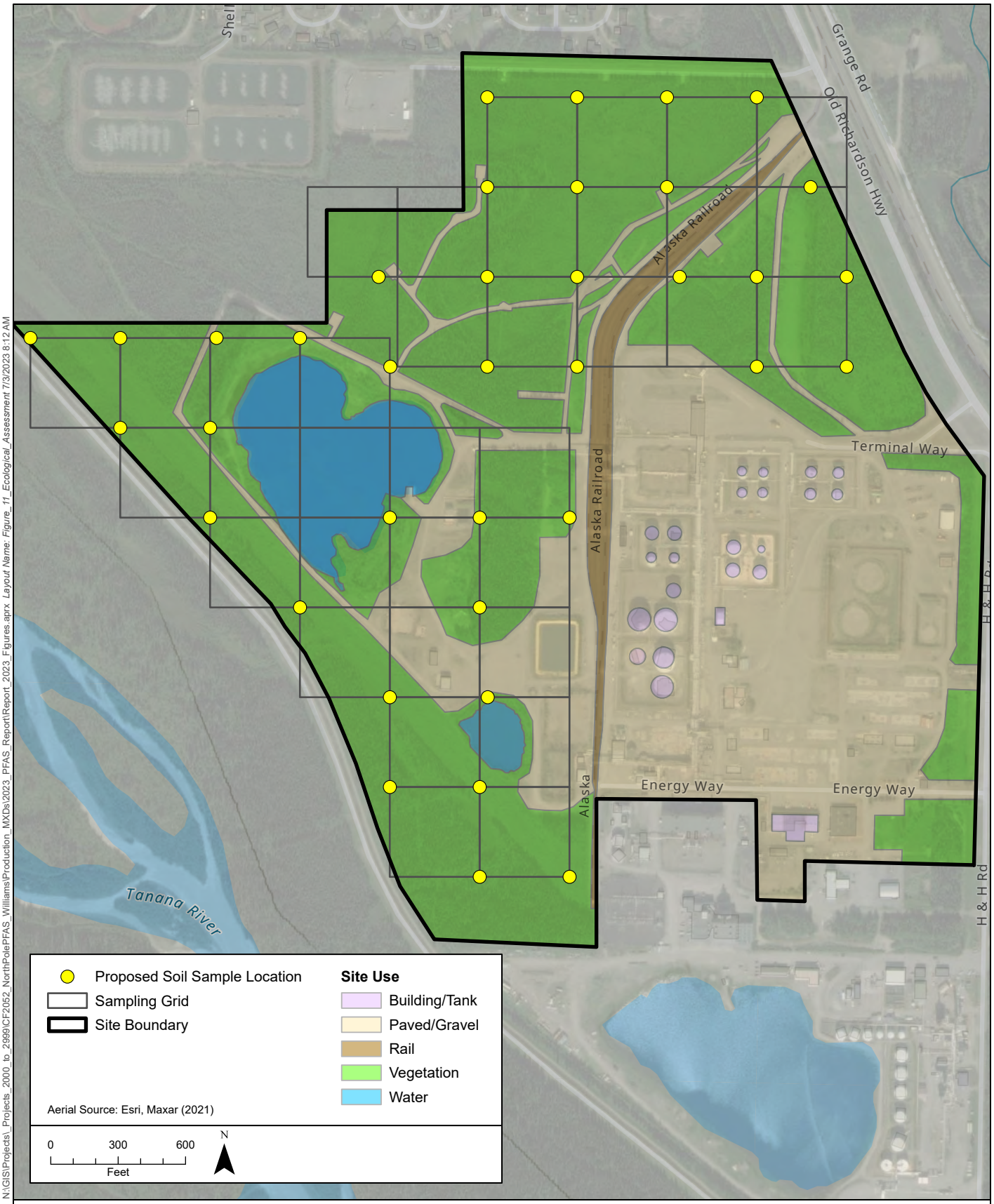
Figures



N:\GIS\Projects_Projects_2000_to_2999\CF2052_NorthPolePFAS_Williams\Production_MXDs\Annual_Sulfolane_Reports\Sulfolane_2022.aprx *Layout Name: Figure_1_Site_Location* 3/28/2023 12:57 PM

integral consulting inc.

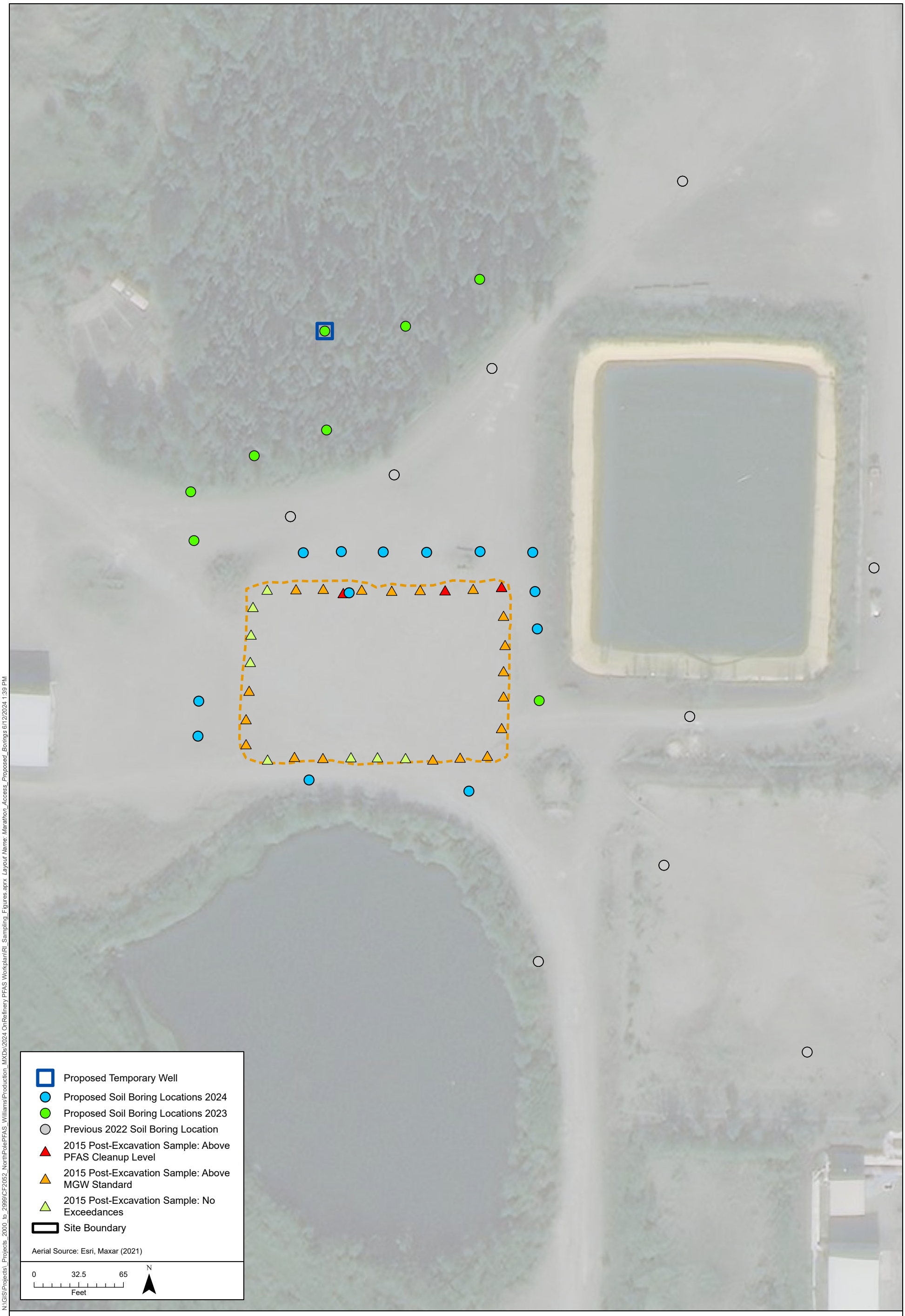
Figure 1.
Site Location



N:\GIS\Projects_Projects_2000_to_2999\CF2052_NorthPolePFAS_Williams\Production_MXDs\2023_PFAS_Report\Report_2023_Figures.aprx Layout Name: Figure_11_Ecological_Assessment 7/3/2023 8:12 AM

integral consulting inc.

Figure 2.
Proposed Soil Sampling Locations for Terrestrial Ecological Risk Assessment



N:\GIS\Projects_Projects_2000_to_2999\CF2052_NorthPolePFAS_Williams\Production_MXDs\2024 OnRefinery PFAS Workplan\RI_Sampling_Figures.aprx *Layout Name: Marathon_Access_Proposed_Borings* 6/12/2024 1:39 PM

integral consulting inc.

Figure 3.
Proposed Soil Boring Locations
Former Fire Training Area