GUSTAVUS AIRPORT GATE REPLACEMENT
PROJECT NO. SSAPT00093

ENVIRONMENTAL MANAGEMENT PLAN
GUSTAVUS, ALASKA

ADEC FILE NO.: 1507.38.017
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PREPARED BY:

R&M CONSULTANTS, INC.
9101 VANGUARD DRIVE
ANCHORAGE, ALASKA 99507

PREPARED FOR:
ALASKA DEPARTMENT OF TRANSPORTATION &
PUBLIC FACILITIES
SOUTHCOAST REGION
6860 GLACIER HIGHWAY
JUNEAU, ALASKA USA 99811

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanonane-1sulfonic acid
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADONA	4,8-dioxa-3H-perfluorononanoic acid
AFFF	aqueous film forming form
BTEX	benzene, toluene, ethylbenzene, and xylenes
COPC	contaminant of potential concern
cy	cubic yard
DOT&PF	Department of Transportation and Public Facilities
DoD	Department of Defense
DRO	diesel-range organics
EMP	Environmental Management Plan
GRO	gasoline-range organics
HDPE	high density polyethylene
HFPO-DA	hexafluoropropylene oxide dimer acid
IATA	International Air Transport Association
IDW	investigation derived waste
LCS	laboratory control spike
LCSD	laboratory control spike duplicate
MB	method blank
MeOH	methanol
NMeFOSAA	n-methylperfluorooctanesulfonamidoacetic acid
NEtFOSAA	n-ethylperfluorooctanesulfonamidoacetic acid
PAH	polycyclic aromatic hydrocarbons
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid

PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFTriA	perfluorotridecanoic acid
PFTeA	perfluorotetradecanoic acid
PFUnA	perfluoroundecanoic acid
PID	photoionization detector
PPE	personal protective equipment
QEP	qualified environmental professional
QS	qualified sampler
R&M	R&M Consultants, Inc.
RRO	residual-range organics
SAP	Sampling and Analysis Plan
SDG	sample data group
SOW	statement of work
TLC	Teflon lined cap lid
TLS	Teflon lined septa lid
USDOT	U.S. Department of Transportation
USGS	U.S. Geological Survey
UST	underground storage tank
VOC	volatile organic compounds

1.0 INTRODUCTION

The State of Alaska Department of Transportation and Public Facilities Southcoast Region (DOT&PF) retained R&M Consultants, Inc. (R&M) under Agreement Number 25193022, IRIS project number SSAPT00093, to develop an Environmental Management Plan (EMP) for the Gustavus Airport Gate Replacement project in Gustavus, Alaska. This EMP has been developed in accordance with 18 Alaska Administrative Code (AAC) 75 (ADEC, 2020a), Alaska Department of Environmental Conservation (ADEC) Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites (ADEC, 2017a), and Field Sampling Guidance (ADEC, 2019a). This EMP will serve as the ADEC approved Sampling and Analysis Plan (SAP) to be followed by the construction contractor and their environmental consultant during earth disturbing construction activities as described herein. The project location, vicinity, site features, and areas of concern are shown on **Drawings A-01 and A-02** in **Appendix A**.

1.1 ENVIRONMENTAL OBJECTIVES FOR CONSTRUCTION ACTIVITIES

The replacement of the gate at the Gustavus Airport may disturb potentially perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) contaminated soil. Environmental considerations include generation and stockpiling of up to 15 cubic yards (cy) of potentially contaminated soil, characterization of stockpiles, storage and disposal recommendations for the soil based on testing results, and compliance with applicable ADEC guidance and regulations (e.g. 18 AAC 75 and Field Sampling Guidance). Excavation details are provided in **Section 2.5.1.** The following field objectives were developed to guide earth disturbing work performed for this project to mitigate risks associated potentially contaminated soil.

The objectives of the environmental portion of the project are as follows:

- Limit impacts to the construction schedule by developing procedures and construction practices to manage stockpiled material while performing construction activities.
- When backfilling the excavation, make an effort to place soil in approximately the same location from which it was removed.
- Reuse as much of the excavated material as practicable to minimize waste soil generation.
- Field screen and collect chemical samples of stockpiled soil in accordance with ADEC Field Sampling Guidance (ADEC, 2019a).
- Manage potentially contaminated soil for reuse or disposal.
- Manage dewatering activities in accordance with an ADEC Dewatering permit, if necessary.

1.2 SITE DESCRIPTION AND HISTORY

The site is located at Gustavus Airport in Gustavus, Alaska. The Gustavus Airport Gate Replacement project will encompass an approximately 60-foot by 60-foot area surrounding the current Gustavus Airport gate at the northwest end of Airport Access Road. A 24-foot pivot swing gate is proposed to replace the existing 20-foot electric slide gate. This project is within the airport boundary, which is a known ADEC contaminated site with previously detected per- and polyfluoroalkyl substances (PFAS) contamination. The site is located in Township 40 South, Range 59 East, and Section 8 of the Copper River Meridian, USGS Quadrangle Juneau B-6. The site location and vicinity is shown on **Drawing A-01** and site features are shown on **Drawing A-02.**

1.3 PROJECT FIELD PERSONNEL AND QUALIFICATIONS

Earth disturbing activities (excavation) associated with the Gustavus Airport Gate Replacement project shall be conducted in accordance with this EMP. To document that environmental tasks associated with the Gustavus Airport Gate Replacement project are conducted in accordance with this Work Plan, a Qualified Environmental Professional (QEP) or Qualified Sampler (QS) shall be on site when excavation operations occur in the construction area **Drawing A-02**. Reporting shall be prepared under direct supervision of a QEP.

QEPs and/or QS' proposed to perform field tasks and reporting shall be listed in the table included in Appendix B and forwarded to ADEC for approval as Modification 2. Both primary and alternate personnel shall be listed.

1.4 BACKGROUND AND PREVIOUS INVESTIGATIONS

Background and previous investigations include information pertaining to active contaminated sites within Gustavus airport boundaries.

1.4.1 DOT&PF GUSTAVUS AIRPORT SITEWIDE PFAS

In July of 2018 DOT&PF detected PFAS (PFOS and PFOA) in groundwater at two public water system wells near the Gustavus Airport. Concentrations of PFOS and PFOA exceeded the EPA lifetime health advisory levels in public water systems at the Gustavus Airport (ADEC File No.: 1507.38.017; Hazard ID: 26904). The contamination is presumed to have originated from historic use of aqueous film forming foam (AFFF) at various locations at the Gustavus Airport. Delineation of groundwater contamination efforts occurred in 2018. A total of 101 private wells were sampled for PFAS analysis with 18 exceeding the project action level of 65 parts per trillion for a summation of 5 PFAS analytes based on a 6 May 2019 entry on the ADEC contaminated sites database. Alternate drinking water is currently being provided by DOT&PF to homeowners affected by PFAS contamination exceeding the 65 parts per trillion action level. Ongoing groundwater monitoring occurs annually. Groundwater flow direction varies by location throughout the Gustavus Airport with groundwater flow generally to the south (east-southeast to southwest). The DOT&PF Gustavus Airport Sitewide PFAS site may impact ground disturbance related to the Gustavus Airport Gate Replacement project as it is located primarily cross gradient, but potentially upgradient.

1.4.2 DOT&PF GUSTAVUS CRASH FIRE AND RESCUE STATION

In August of 2014, a 500-gallon heating oil underground storage tank (UST) was removed from the DOT&PF Crash, Fire, and Rescue Station at the Gustavus Airport (ADEC File No.: 1507.38.014; Hazard ID: 26294). An unknown amount of heating oil had been released from the UST. Samples collected from the excavation indicated diesel-range organics (DRO) contamination exceeding ADEC cleanup level and groundwater contamination. As of November 2016, a landfarm cell contains approximately 15 to 20 cubic yards. Ongoing groundwater monitoring occurs at the site and two groundwater drinking wells on site are also under monitoring for DRO and benzene, toluene, ethylbenzene, and xylenes (BTEX). The DOT&PF Gustavus Airport Crash, Fire, and Rescue Station contaminated site is to the south of the Gustavus Airport Gate Replacement project. Groundwater flow direction is generally to the south (southwest to southeast). The DOT&PF Gustavus Airport Crash, Fire, and Rescue Station site is not considered to impact ground disturbance related to the Gustavus Airport Gate Replacement project as it is located down to cross gradient.

1.5 SITE DESCRIPTION / SITE HISTORY

The project is located at the Gustavus Airport in Alaska. The planned construction area includes a 60-foot by 60-foot area around Vehicle Gate B at the northwest end of Airport Access Road. Drawings A-01 and A-02 provide location and vicinity and construction area maps.

1.6 TOPOGRAPHY

The Gustavus Airport and surrounding area is generally flat. The airport's paved runway lies to the northwest and north, and other airport development borders the site to the northeast and east. The areas to the south and west are generally vegetated.

1.7 SURFACE DRAINAGE

Surface drainage of stormwater is primarily by overland sheet flow to the south and west. The closest waterbody is the Salmon River, which is approximately one mile to the west; the Salmon River is not listed as an "Impaired Waterbody" by ADEC (ADEC, 2020b).

1.8 GENERAL GEOLOGY

Gustavus lies on the north shore of Icy Passage at the mouth of the Salmon River in the St. Elias Mountains. Gustavus, which began as an agricultural homestead in 1914, lies on flat, glacial outwash plain (DGGS, 2015). During excavation of the former underground waste oil storage tank and a former fuel UST at the Maintenance Station in 1999, the excavation encountered fine silt and sand (Smith, 1999).

1.9 CLIMATE

Based on climate data (1966 to 2016) recorded at the Glacier Bay, Alaska weather station (503294), the mean annual air temperature was approximately 41 degrees Fahrenheit (°F), with minimum and maximum monthly averages of approximately 35 °F (January) and 47 °F (July), respectively. The area received an average of 70.6 inches of precipitation per year, with a maximum monthly mean of approximately 11.2 inches in October (WRCC, 2020).

1.10 GROUNDWATER CONDITIONS

During the 1999 excavation of the former USTs, groundwater was encountered at 7.5 feet bgs (Smith, 1999). Shallow groundwater was observed at approximately 6.5 feet bgs during Class V injection well leach field removal. Based on the location of Icy Passage and regional topography, groundwater is assumed to generally flow to the south (ranging between southeast and southwest) towards Icy Passage.

2.0 INVESTIGATION METHODS

Field activities related to ground disturbing activities will be guided by this EMP, ADEC Field Sampling Guidance (ADEC, 2019a), and 18 AAC 75 (ADEC, 2020a).

2.1 CONTAMINANTS OF POTENTIAL CONCERN

Based on the approved task order statement of work (SOW) and ADEC listed contaminated site histories (Section 1.4), contaminants of potential concern (COPC) identified for the proposed Gustavus Airport Gate Replacement project include the following:

- PFAS compounds PFOA and PFOS
- Gasoline-range organics (GRO)
- Diesel-range organics (DRO)
- Residual-range organics (RRO)
- Polycyclic aromatic hydrocarbons (PAH)
- Volatile organic compounds (VOC)

COPC including GRO, DRO, RRO, PAH, and VOC were added at ADEC's request to identify potential fuel contamination related to Hazard ID 26294 as described in Section 1.4.2.

2.2 FIELD SCREENING

Field screening methods shall at least include visual, olfactory, and photoionization detector (PID) screening of stockpiled soil samples collected during the Gustavus Airport Gate Replacement project. Field screening techniques do not work for PFAS, and field screening during this project will be performed in the event evidence of other contaminants may be present (e.g. petroleum hydrocarbons).

- Visual and olfactory screening shall be used to look for visual signs of contamination including discoloration of soil, sheen on groundwater or pore water, and unusual odors (i.e. petroleum or solvent).
- PID screening must utilize the ADEC heated headspace method (ADEC, 2019a).
- Visual signs of contamination may override the PID results for waste handling as COPCs include multiple semi and non-volatile contaminants.

Field screening with a PID will be conducted by sealing soil within a zip-top bag, agitating it, and warming it to a minimum of five degrees Celsius (40 °F) prior to screening with a PID. The heated head space sample should be agitated for 15 seconds at the beginning and end of the headspace development period. Screening with the PID will be conducted at least 10 minutes, but no longer than one hour, after soil collection. A bag blank (no soil) will be collected to account for high PID screening bias at least once per day or once per box of bags, whichever is greater. Each bag will be punctured with the PID sample probe, rather than opening the bag, to prevent low PID screening bias. Visual or olfactory signs of contamination may override the PID results for waste handling. Field screening samples will be collected at the locations and rates shown in Table 2-1.

TABLE 2-1: PID SOIL FIELD SCREENING LOCATIONS AND RATES

By Volume (cubic yards)	Rate of Field Screening	Associated Number of Chemical Samples
0 to 10	5	1
11 to 50	5	2
51 to 100	1 per 10 cy	3
100+	1 per 10 cy	3, plus 1 for each additional 200 cy or portion thereof

NOTES:
For definitions, see the Acronyms and Abbreviations table.
Information based on ADEC Field Sampling Guidance (ADEC, 2019a) Table 2A.

2.3 CHEMICAL SAMPLING METHODOLOGY

Chemical samples will be collected in accordance with ADEC Field Sampling Guidance (ADEC, 2019a). Soil samples will be analyzed for an analytical suite based on the COPC identified for the site in **Section 1.2.** Chemical samples will be collected by an ADEC QEP using grab methods. Recovered soil samples will be characterized and logged in accordance with ADEC Field Sampling Guidance (ADEC, 2019a). Soil chemical samples will be collected in accordance with **Section 2.3.1.** Frequency of sample collection will be in accordance with **Table 2-1.** Stockpiled soil generated during construction process that is unable to be placed back in the excavation will be field screened and sampled at the frequency indicated in **Section 2.5.1 and Table 2-1.**

2.3.1 CHEMICAL SOIL SAMPLING

The project is designed to collect soil samples to assess the potential presence of PFAS contamination in stockpiled soils. Chemical soil samples will be collected in accordance with ADEC Field Sampling Guidance (ADEC, 2019a) at the rates specified in **Table 2-1** and analyzed for the analytes specified in **Section 2.1**.

Soil samples shall be collected from freshly uncovered soil in the stockpile at least 18 inches below the surface. High-density polyethylene (HDPE) jars will be obtained from the laboratory for soil sample collection. New HDPE jars, nitrile gloves, and metal spoons will be used for each sample. Fill sample containers using the clean metal spoon, clean off container threads with a clean paper towel if necessary, tightly place lid back on the container, and finish filling out sample label and affix to sample jar.

The widespread nature of PFAS combined with the parts per billion cleanup levels for soil and groundwater create significant cross contamination challenges from sources not usually considered during typical sediment, soil, surface water, and groundwater sampling. **Table 2-2** provides common items that present potential cross contamination pathways and provides various mitigation options.

2.3.2 CHEMICAL WATER SAMPLING

In the event that dewatering is required, chemical samples and an ADEC dewatering permit may be necessary prior to disposal. Analytes for dewatering chemical samples shall include the COPC identified in **Section 1.2** as well as any additional analyses as required by ADEC. Dewatering is not

anticipated during this project. Specific water sampling requirements should be added to **Appendix B** as a modification, as necessary.

2.4 INVESTIGATION DERIVED WASTE

Investigation derived water (IDW) may include soil, dewatering effluent, and solid wastes generated during construction oversight. **Table 2-3** provides recommended practices for waste handling and management. Field screening as described in **Section 2.2** and chemical testing for PFOA and PFOS will be utilized for waste classification. The QEP will coordinate with DOT&PF for final disposal of IDW generated by these construction activities. ADEC approval will be required prior to removal of any IDW from the site. Waste water or other investigation derived waste will not be discharged within 100 feet of surface water in accordance with 18 AAC 72.020(b) (ADEC, 2017b). While no IDW waste water generation is anticipated from the project, if generated it must be containerized in 1A2 steel drums and approval from ADEC must be obtained prior to discharge, transport, or disposal.

TABLE 2-2: PFAS CROSS CONTAMINATION SOURCES AND MITIGATION DESCRIPTIONS

Potential Cross Contaminations Sources	Mitigation Description
Field Equipment	
Teflon® materials	High-density polyethylene (HDPE) materials
Low-density polyethylene (LDPE) materials	Acetate Liners or Silicon Tubing
Waterproof field books	Change nitrile gloves after handling and before touching a sample or sample container
Plastic clipboards, binders, or spiral hard cover notebooks	Aluminum clipboards or Masonite
Post-It Notes®	NONE, do not use.
Chemical (blue) ice packs	Water ice, or double bag chemical ice packs with Ziploc® bags (water ice CANNOT be used for air cargo shipment)
Field Clothing and PPE	
New cotton clothing or synthetic water resistant, waterproof, or stain-treated clothing, clothing containing Gore-Tex™	Change nitrile gloves after handling or touching and before touching a sample or sample container
Clothing laundered using fabric softener	Do not use fabric softener on field clothing
Boots containing Gore-Tex™	Wear boots made with polyurethane and PVC, or prevent contact between boots and sampling equipment, nitrile gloves, or the media being sampled. Change nitrile gloves if they come into contact with boots and before touching a sample or sample container.
Tyvek®	Cotton clothing
Cosmetics, moisturizers, hand cream, or other related products as a part of personal cleaning/showering routine on the day of sampling	Sunscreens – Alba Organics Natural Sunscreen, Yes to Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss my face, baby sunscreens that are "free" or "natural" Insect Repellents –Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect repellant, Herbal Armor, California Baby Natural Bug Spray, BabyGanics, or a bug net. Sunscreen and Insect Repellant – Avon Skin So Soft Bug Guard Plus – SPF 30 Lotion
Sample Containers	
LDPE or glass containers	HDPE or polypropylene
Teflon-lined caps	Unlined polypropylene caps
Rain Events	
Waterproof of resistant rain gear	Use a Gazebo tent that is only touched or moved prior to and following sampling activities, or change nitrile gloves if they come into contact with rain gear and before touching a sample or sample container. Prevent runoff of water from rain gear into the sampling containers.
Equipment Decontamination	
Decon 90®	Alconox® and or Liquinox®
Water from an on-site well	Potable water from municipal drinking water supply, distilled water, or deionized water.

NOTES:
For definitions, see the Acronyms and Abbreviations table.

TABLE 2-3: IDW HANDLING AND MANAGEMENT

Waste Type	Determination Criteria	Reuse Criteria	Action	Disposal
Excavated Soil	Ability to reuse as backfill or not	Fit in excavation as backfill	Reuse within excavation boundaries as backfill	Not Applicable
		Cannot be used as backfill	Stockpile for characterization and disposal location determination – Characterization results below ADEC cleanup levels	ADEC-approved location
			Stockpile for characterization and disposal location determination – Characterization results exceed ADEC cleanup levels	ADEC-approved location
Dewatering Effluent	ADEC Dewatering Permit (Not anticipated)			
Removed Asphalt	Not Applicable		Stage for removal from the site. ADEC approval not required.	Dispose as typical construction debris
Removed Concrete				
Other Solid Waste	Not grossly contaminated	Not Applicable	Disposal as general garbage in accordance with project contracting documents.	Local landfill
	Grossly contaminated		Bulk bag or drum for disposal based on ADEC approval (i.e. via U.S Ecology)	ADEC-approved location

NOTES:
For definitions, see the Acronyms and Abbreviations table.
Acceptance of contaminated soil at a disposal location will require ADEC approval and coordination with the disposal facility prior to shipment.

2.5 CONSTRUCTION PRACTICES

Construction activities will include excavation of potentially contaminated soil. Construction practices shall be designed to adhere to the following procedures to handle soil, surface water, and groundwater generated during site activities, as necessary. DOT&PF has indicated a strong preference for reuse of any excavated soils, as the excavation will otherwise be backfilled by clean fill on potentially contaminated soils, which could create a larger quantity of contaminated material.

2.5.1 SOIL EXCAVATION AND STOCKPILING

There will be two excavation areas. The first is the gate post (Red circle on **Drawing E2**). This area is 40 inches deep by 12 inches diameter. The gate foundation is the second excavation area (see **Drawing S1** for dimensions). It is an 11-foot long, 4-foot wide, and 1.5-foot high rectangular concrete block, supported by four 42-inch deep by 12-inch diameter concrete cylindrical legs. Total area (including backfill) is approximately 232 cubic feet (8.5 cubic yards). In reality excavated quantities would be less because of an existing concrete foundation that has to be removed first; however, the exact dimensions of the existing foundation block are unknown. Total excavation with inflation due to excavation is estimated at 300 cubic feet (11 cubic yards). As field execution often results in larger

excavations than planned, this work plan assumes excavation and potential stockpiling of up to 15 cubic yards of soil.

Excavated soil shall be placed immediately to the side of the excavation and shall be reused as backfill. The top two feet of material will be segregated from deeper soils and will be reused as backfill to be placed in the approximate location from which it originated. If all material will not fit back in the excavation or the excavated material is not geotechnically suitable as backfill, soil from areas deeper than two feet will be wasted. Soil that does not fit back in the excavation or is unsuitable for backfill, shall be temporarily stockpiled for future disposal **(Table 3-2)** based on results of chemical sample results**.** Temporary stockpile(s) shall be constructed in accordance with 18 AAC 75.370 (ADEC, 2020a). If stockpiles are used, potentially contaminated soil stockpiles shall be **constructed of a 20-mil polyethylene bottom liner with a 6-mil reinforced top cover for temporary storage at a minimum**. It is recommended that 8-ounce non-woven felt fabric be placed above and below the bottom liner to prevent punctures. A berm may be required around the stockpile perimeter to prevent water from entering or exiting the stockpiled soil. Contaminated soil may be stored next to the location generated for short periods of time, but should be moved to temporary stockpiles (as described above) as soon as practicable.

Stockpiles must remain on DOT&PF airport property unless transportation and disposal is approved by ADEC prior to the action being taken. The proposed stockpile location is shown on **DRAWING A5**.

2.5.2 SURFACE WATER AND GROUNDWATER HANDLING

Surface water and groundwater encountered within the excavation may need to be removed via dewatering to allow construction to occur. Dewatering practices shall be determined in coordination with ADEC to obtain an ADEC dewatering permit if required. Dewatering is not anticipated as part of this project.

3.0 ANALYTICAL METHODS

This section details analytical procedures for project field activities. Environmental data will be collected using field screening procedures and by analysis of chemical soil samples. Laboratory analysis of chemical samples will be performed at ADEC-approved laboratories. Chemical laboratory data will be compared to ADEC migration to groundwater cleanup levels (ADEC, 2020a).

3.1 PROPOSED CLEANUP LEVELS

Soil chemical laboratory data will be compared to the ADEC migration to groundwater cleanup levels for COPC (ADEC, 2020a).

3.2 PROJECT ANALYTICAL LABORATORY

The analytical method and testing laboratory will be selected by the construction contractor QEP and added to the EMP as a work plan modification in Appendix B. The laboratory will provide a report for each sample data group (SDG) produced for the Gustavus Airport Gate Replacement. The laboratory shall be an ADEC and Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) approved for the analytical method being performed.

3.3 CHEMICAL ANALYSIS METHODS AND COLLECTION DETAILS

Soil analytical methods and sampling details are presented in Table 3-1, which includes the required sample containers, sample preservation, and holding times. Containers will be new, pre-cleaned containers. Samples will be preserved as defined in the following tables until delivered to the laboratory for analysis.

TABLE 3-1: SOIL MATRIX ANALYTICAL ANALYSIS

Analyte Class	Analytical Method	Holding Time	Preservative	Containers
PFAS (full suite)	EPA 537.1 (modified)	14/28 days[1,2]	0 to 6°C	(1) 4 ounce HDPE container
GRO	AK101	28 days	MeOH, 0 to 6°	(1) 4oz amber glass, TLS lid
VOC	SW8260D	14 days	MeOH, 0 to 6°	Combine with GRO
DRO/RRO	AK102/103	14/40 days[1]	0 to 6°C	(1) 4oz amber glass, TLC lid
PAH	SW8270D SIM	14/40 days[1]	0 to 6°C	Combine with DRO/RRO

NOTES:
For definitions, see the Acronyms and Abbreviations table.
1 Collection-extraction/extraction-analysis dual holding times apply.
2 PFOS and PFOA holding times are from Method 537.1 for water samples; there are no soil sample holding times for this method.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Field activities and reporting will be conducted by a QEP, as defined 18 AAC 75.333 (ADEC, 2020a).

4.1 FIELD NOTES

Document all PID field screening readings, sample locations, and field observations in the field notes. The following information should be entered into the field notes:

- Project name
- Date
- Weather and site conditions
- Full names of on-site personnel
- Daily objectives
- Time and location of activities
- Deviations/modifications from the approved EMP
- Site sketches with reference to north direction, sample and field screening locations and depths, and on-site groundwater flow direction
- Location of the sample (e.g. a drawing of the sample)
- Sample number, sampler name or initials, date collected, time collected, analyses requested
- Type of sample (e.g. primary, duplicate, trip blank, etc.)
- Description of sediment /soil

4.2 SAMPLE CUSTODY

The objective of sample custody is to create an accurate, verified written record, which is traceable from the time of sample collection to receipt by the laboratory. Adequate sample custody will be achieved by means of appropriate field and analytical documentation. A sample is defined as in someone's custody if:

- In actual possession.
- In view, after being in physical possession.
- In physical possession and subsequently locked or otherwise sealed so that tampering will be evident.
- Kept in a secure area, restricted to authorized personnel.

In the event samples are shipped to an analytical laboratory using a means where the samples will leave the custody of the QEP the following guidance will be followed.

- Sample coolers/containers must arrive at the lab with an intact and correctly applied custody seal.
- If the seal was broken at some point during transport, the reason for breaking the seal, condition of the container contents, the cooler temperature, and anything added to or removed from the container must be documented on the chain-of-custody form.
- The container must then be sealed with a new custody seal if still in transit.

4.3 SAMPLE STORAGE, PRESERVATION AND HOLDING TIMES

Sample containers are pre-cleaned and treated according to EPA specifications for the appropriate methods. Clean containers will be stored separately to prevent exposure to fuels, solvents, and other chemicals. Sample storage and preservation criteria are provided in **Table 3-1**. Temperature blanks will be provided by the analytical laboratory at the rate of one per cooler.

4.4 SAMPLE HANDLING, PACKAGING AND SHIPMENT

Samples will be packaged and shipped in accordance with US Department of Transportation (USDOT) and International Air Transport Association (IATA), as applicable. Sampling handling procedures are designed to transport samples to the laboratory intact, at the proper temperature and free of external contamination. The chain-of-custody record which identifies the method of shipment, courier name(s), and other pertinent information, accompanies all sample shipments. The original chain-of-custody accompanies the shipment and a copy is retained in the project file.

Sample handling, packaging and shipment will follow the guidance in ADEC Field Sampling Guidance (ADEC, 2019a).

4.5 QUALITY CONTROL SAMPLES

The following quality control samples will be collected to assist with chemical data evaluation.

4.5.1 TEMPERATURE BLANKS

Temperature blanks will be provided by the analytical laboratory at the rate of one per cooler.

4.5.2 DUPLICATE SAMPLES

Duplicate soil samples will be collected at the rate of one per 10 primary samples. Duplicates will be submitted to the laboratory in the same manner as regular samples for all contaminants of concern, and the results compared to the primary samples. An ADEC laboratory data review checklist will be prepared for each set of laboratory data and included with the report (ADEC, 2020c).

4.5.3 TRIP BLANK SAMPLES

Trip blanks for volatile analyses (e.g. AK101, SW 8260) will be provided by the analytical laboratory at the rate of one per analysis per cooler. Blanks will be taken to the site and handled like all other samples during sampling efforts. The temperature blank will indicate whether the samples arrived at the laboratory within the acceptable temperature range. The trip blank(s) for volatile analyses (e.g. AK101, SW 8260) will be analyzed by the laboratory to ensure that handling has not contaminated the samples.

4.6 DATA QUALITY ASSESSMENT AND ADEC CHECKLISTS

Chemical data will be reviewed in accordance with ADEC Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data (ADEC, 2019b). Separate ADEC Laboratory Data Review Checklists (ADEC, 2020c) will be provided for each laboratory report.

The initial inspection of the data will screen for errors and inconsistencies. Chain of custody forms, sample handling procedures, analyses requested, sample description and ID, and cooler receipt forms will be checked. Sample holding times and preservation are also checked and noted. The next phase of data quality review is an examination of the actual data. By examining data from the laboratory matrix duplicates, blind duplicates, method blanks (MB), laboratory control samples (LCS), laboratory control sample duplicates (LCSD), surrogate recoveries, and field sample recoveries, the chemist can determine whether the data quality meets requirements. Each of these data quality indicators, as well as a comparison of reported results with project-specific sensitivity requirements (LODs below relevant cleanup levels), will be included in an after-action report.

5.0 REPORTING

After the sampling event, an after-action report will be prepared for DOT&PF review in accordance with ADEC Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites (ADEC, 2017a) and then submitted to ADEC to include:

- A summary of field efforts and field data, including:
- Site conditions
- EMP deviations/modifications
- Issues encountered and how resolved
- Sample dates
- Tabulated field screening results
- Copies of field notes
- Site Photos
- Final analytical sample results and laboratory data reports
- ADEC Laboratory Review Checklist
- Discussion of findings and recommendations for additional site work, if warranted
- Site maps

6.0 CLOSURE

This EMP has been prepared for the exclusive use of DOT&PF and their representatives in the study of this site. The investigation procedures and historical site information presented within this report are based on ADEC guidance current at the time of preparation, limited records review conducted by R&M, and information provided by DOT&PF. Since opinions of conditions prevailing on a particular site must be based on the work authorized by DOT&PF, the investigation is designed to be representative of the site at a particular moment in time and the result of services performed within the scope, limitations, and cost of the work requested. Changes in the conditions of this site may occur with the passage of time and may be due to natural processes or the works of humans. In addition, changes in government codes, either State or Federal regulations or laws, may occur. Due to such changes, which are beyond our control, observations and recommendations applicable to this site may need to be revised wholly or in part from time to time.

R&M performed this work in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No warranty, express or implied, beyond exercise of reasonable care and professional diligence, is made. Should you require additional information regarding the investigation or this report, please contact us.

Sincerely,

R&M CONSULTANTS, INC

Prepared by:

Vanessa Crandell-Beck
Environmental Geologist
Qualified Environmental Professional

Reviewed by:

Christopher D. Fell, CPG
Senior Geologist
Qualified Environmental Professional

Kristi M. McLean, LEED AP BD+C
Group Manager – Environmental Services
Qualified Environmental Professional

7.0 REFERENCES

ADEC (Alaska Department of Environmental Conservation), 2020a. "18 AAC 75: Oil and Other Hazardous Substances Pollution Control." 7 November 2020.

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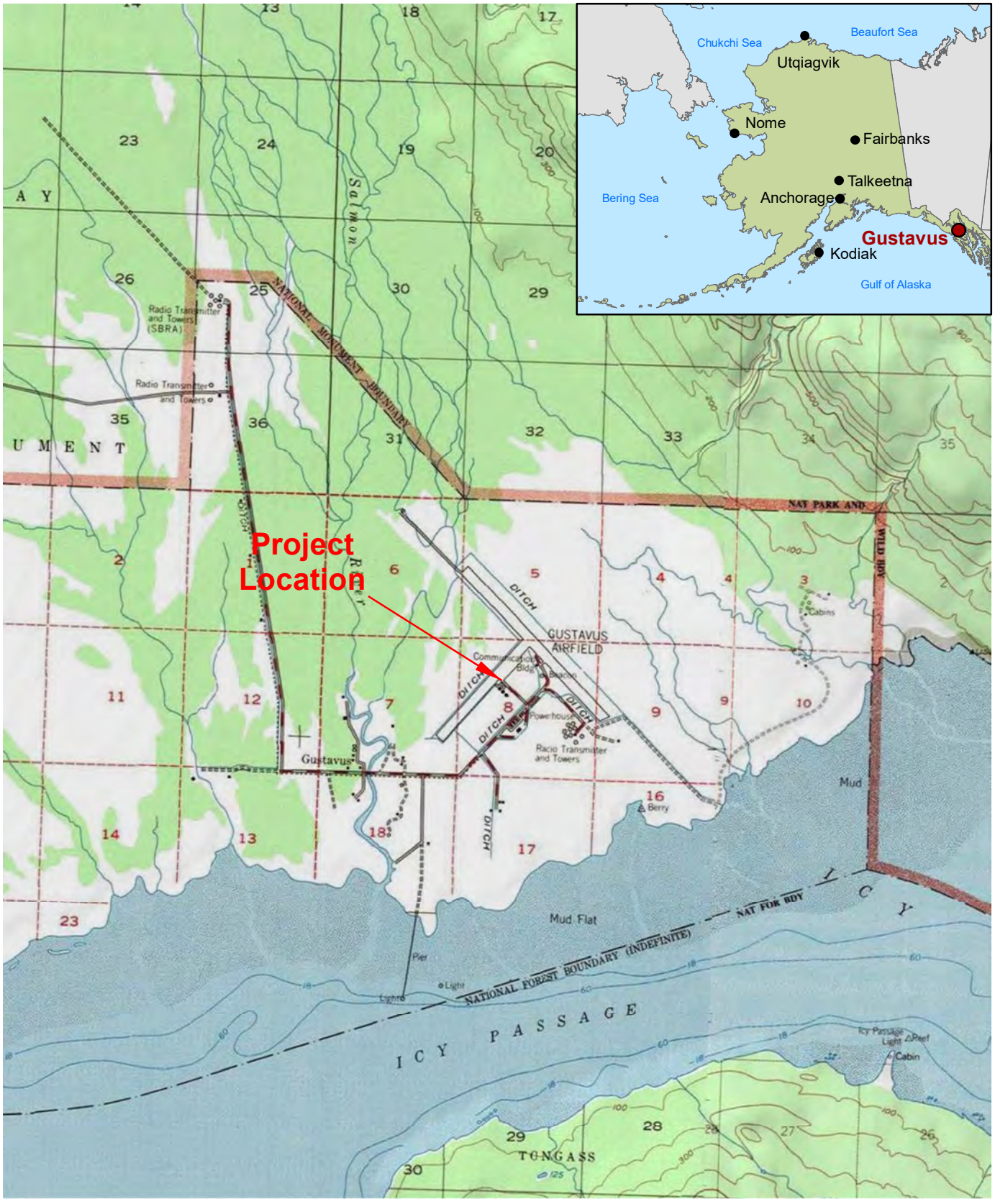
APPENDIX A
DRAWINGS



ALL LOCATIONS ARE APPROXIMATE

0 0.5 1 2

APPROXIMATE SCALE IN MILES

NOTES:
Juneau B-6, USGS 15-minute quadrangle, 1:63,360

N

Date Saved: 12/4/2020 9:18:31 AM by CFell Z:_GIS\Projects\2780.01 DOT_SC Hazmat Term Gustavus Gate Replacement\Map Documents\DWG_A-01_SiteLocVic_2780_01 EMP.mxd

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R&M CONSULTANTS, INC.

ENVIRONMENTAL MANAGEMENT PLAN
GUSTAVUS AIRPORT GATE REPLACEMENT

LOCATION AND VICINITY

PROJ.NO:	2780.01
DATE:	DEC 2020
REF:	EMP
DRAWING NO.:	A-01

ALL LOCATIONS ARE APPROXIMATE

0 250 500 1,000

APPROXIMATE SCALE IN FEET

NOTES:
Aerial Imagery from ESRI Online World Imagery

N

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R&M CONSULTANTS, INC.

ENVIRONMENTAL MANAGEMENT PLAN
GUSTAVUS AIRPORT GATE REPLACEMENT

SITE FEATURES MAP

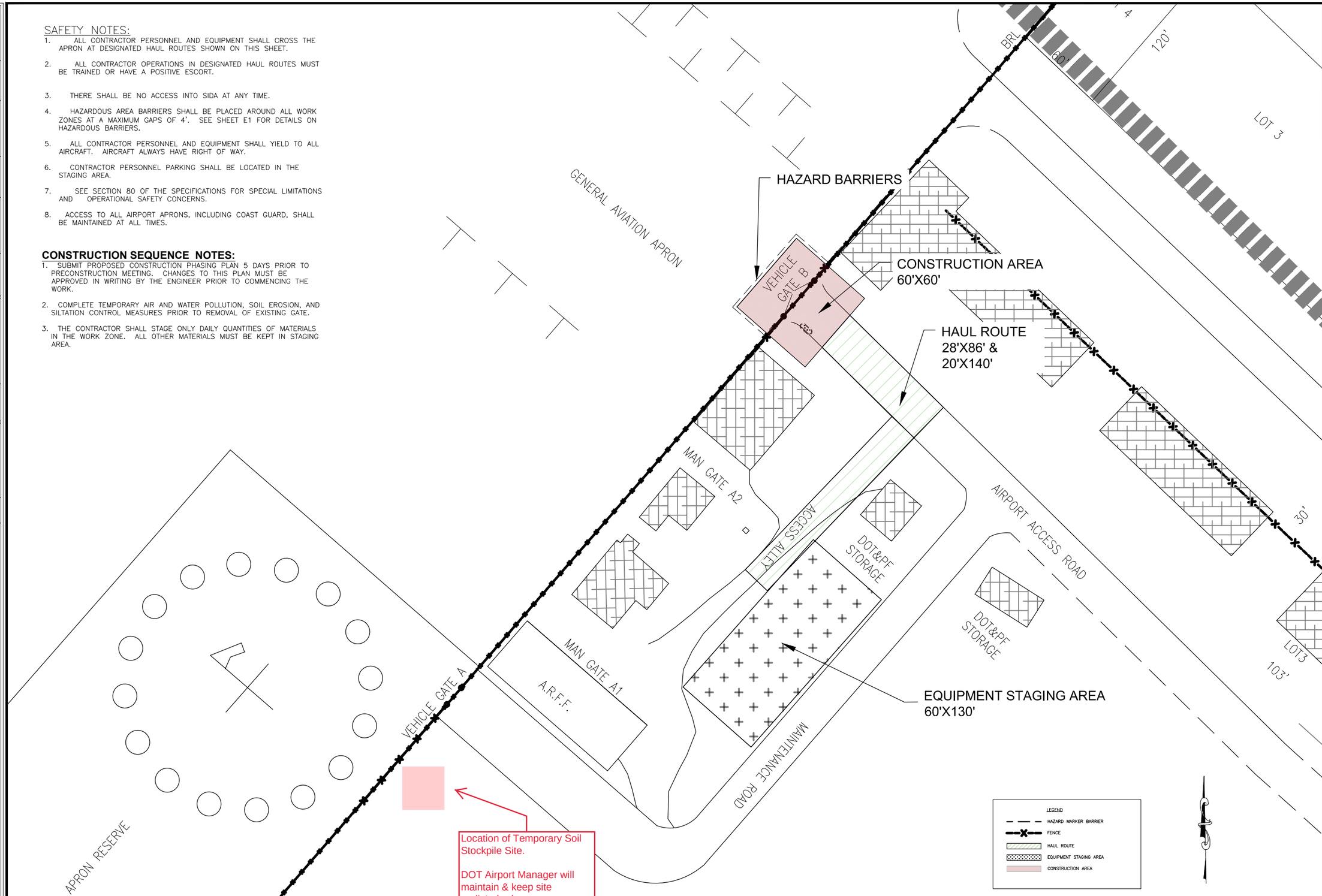
PROJ.NO:	2780.01
DATE:	DEC 2020
REF:	EMP
DRAWING NO.:	A-02

SAFETY NOTES:

1. ALL CONTRACTOR PERSONNEL AND EQUIPMENT SHALL CROSS THE APRON AT DESIGNATED HAUL ROUTES SHOWN ON THIS SHEET.
2. ALL CONTRACTOR OPERATIONS IN DESIGNATED HAUL ROUTES MUST BE TRAINED OR HAVE A POSITIVE ESCORT.
3. THERE SHALL BE NO ACCESS INTO SIDA AT ANY TIME.
4. HAZARDOUS AREA BARRIERS SHALL BE PLACED AROUND ALL WORK ZONES AT A MAXIMUM GAPS OF 4'. SEE SHEET E1 FOR DETAILS ON HAZARDOUS BARRIERS.
5. ALL CONTRACTOR PERSONNEL AND EQUIPMENT SHALL YIELD TO ALL AIRCRAFT. AIRCRAFT ALWAYS HAVE RIGHT OF WAY.
6. CONTRACTOR PERSONNEL PARKING SHALL BE LOCATED IN THE STAGING AREA.
7. SEE SECTION 80 OF THE SPECIFICATIONS FOR SPECIAL LIMITATIONS AND OPERATIONAL SAFETY CONCERNS.
8. ACCESS TO ALL AIRPORT APRONS, INCLUDING COAST GUARD, SHALL BE MAINTAINED AT ALL TIMES.

CONSTRUCTION SEQUENCE NOTES:

1. SUBMIT PROPOSED CONSTRUCTION PHASING PLAN 5 DAYS PRIOR TO PRECONSTRUCTION MEETING. CHANGES TO THIS PLAN MUST BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO COMMENCING THE WORK.
2. COMPLETE TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL MEASURES PRIOR TO REMOVAL OF EXISTING GATE.
3. THE CONTRACTOR SHALL STAGE ONLY DAILY QUANTITIES OF MATERIALS IN THE WORK ZONE. ALL OTHER MATERIALS MUST BE KEPT IN STAGING AREA.



SHEET NO.	TOTAL SHEETS
A5	19
STATE	YEAR
ALASKA	2020

PROJECT DESIGNATION
SSAPT00093

ADDENDUM NO.

ATTACHMENT NO.

REVISIONS

NO.	DATE	DESCRIPTION

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
6860 GLACIER HWY, JUNEAU, AK 99811
(907) 465-1763

SR DM AIRPORT GATE/FENCE REPAIRS/REPLACEMENT

CONSTRUCTION SAFETY & PHASING PLAN

FILE Q:\Gus\SSAPT00093\Planset\SSAPT00093_A5_CSPP.dwg | DATE 12/14/2020 10:47 | LAYOUT A5 | DESIGNED WMC | CHECKED --- | DRAFTED WMC

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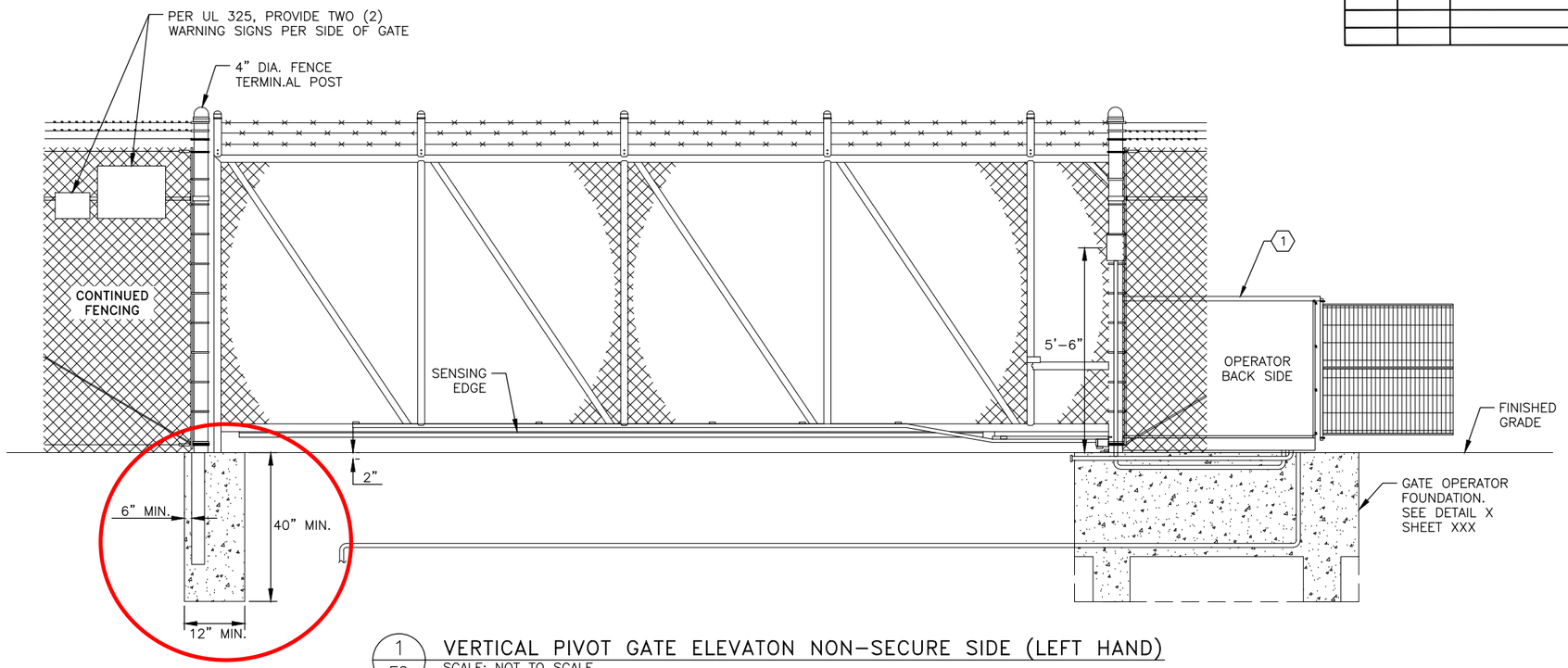
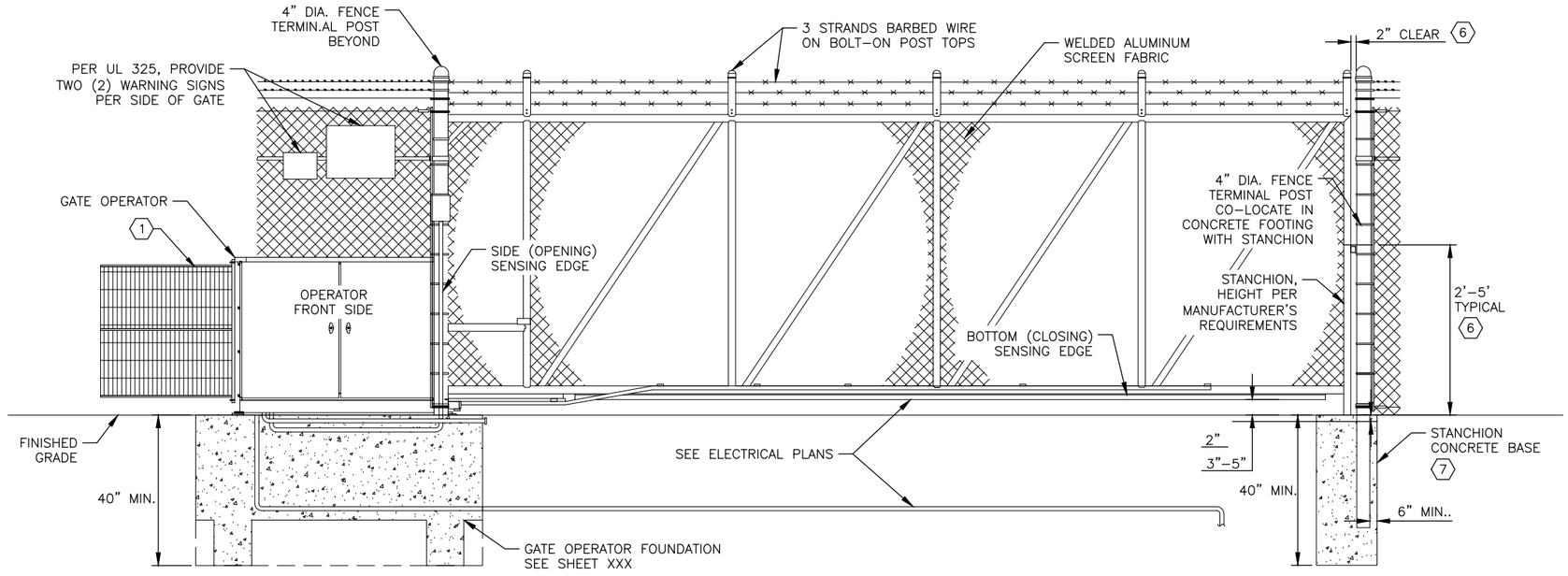


1 / E2 VERTICAL PIVOT GATE ELEVATON NON-SECURE SIDE (LEFT HAND)
SCALE: NOT TO SCALE



2 / E2 VERTICAL PIVOT GATE ELEVATON NON-SECURE SIDE (RIGHT HAND)
SCALE: NOT TO SCALE

GENERAL CIVIL STANDARDS NOTES:

1. SEE ELECTRICAL PLANS FOR ALL ELECTRICAL WORK. ALL ELECTRICAL ITEMS SHOWN ON THESE CIVIL STANDARDS PLANS ARE FOR REFERENCE ONLY.

SHEET NOTES:

1. THESE GATE ELEVATIONS DEPICT A GENERAL LAYOUT OF POWERED EQUIPMENT AT A 24 FOOT WIDE DRIVEWAY USING A VERTICAL PIVOT GATE SYSTEM. THESE DETAILS INCLUDE GENERAL SIZING, SPACING, AND DIMENSIONAL RELATIONSHIPS BETWEEN ADJACENT ELEMENTS. SEE SITE PLAN SHEET XXX & GATE ELEVATION ON SHEET XXX FOR MORE INFORMATION.
2. SEE ELECTRICAL PLANS FOR ONE-LINE, CONTROL SCHEMATIC DETAILS, AND POWER AND CONTROL CIRCUITING OF EQUIPMENT AT GATES.
3. BURY ALL CONDUIT PER ELECTRICAL, AND CONSTRUCT TRENCH REPAIR IN PAVED AND UNPAVED AREAS PER DETAILS, ON SHEET XXX.
4. NOT ALL ELEMENTS WITHIN THIS DETAIL ARE NOTED. SEE ELECTRICAL DETAILS FOR A COMPLETE SET OF ELEMENT NOTES AND KEY NOTES.
5. ALL CIVIL REQUIREMENTS SHOWN ARE GRAPHIC AND GENERIC IN NATURE. PROJECT SHALL ADHERE TO AIRPORT SPECIFIC REQUIREMENTS WHICH OVERRIDE ANY INFORMATION PROVIDED IN THIS PLAN. CONSULT ENGINEER FOR ANY QUESTIONS OR CLARIFICATIONS PRIOR TO MODIFYING DESIGN.
6. CONDUIT ROUTING SHOWN IN THIS DETAIL IS DIAGRAMMATIC ONLY. WHERE APPLICABLE AND PRACTICAL, ROUTE CONDUITS IN COMMON TRENCHES. FOLLOW TRENCHING AND CONDUIT PLACEMENT REQUIREMENTS ON ELECTRICAL PLANS.
7. GATE OPERATOR SHALL BE SOLIDLY GROUNDED TO THE OPERATOR FOUNDATION, AND BONDED TO THE ADJACENT FENCE LINE. PROVIDE FENCE LINE GROUND RODS, AND ROD CONNECTIONS BACK TO ELECTRICAL GROUNDING SYSTEM AS REQUIRED (NOT SHOWN HERE).
8. PROVIDE GATE WARNING SIGNS ON BOTH SIDES OF THE GATE PER UL 325 REQUIREMENTS. EXACT LOCATIONS, SIZES, AND TEXT & SYMBOLS ON THE SIGNS AS REQUIRED PER CODE.

KEY NOTES:

1. WHERE GATE OPERATOR IS NOT SUFFICIENTLY LONG TO ENCAPSULATE THE FULL HEIGHT OF THE VERTICAL GATE WHEN PERPENDICULAR TO GATE, PROVIDE GATE GUARD AT BACK OF OPERATOR TO PREVENT GATE DAMAGE OR ENTRAPMENT HAZARDS. FOLLOW MANUFACTURER GUIDELINES FOR GUARD SPECIFICATIONS.
2. CONDUITS ARE ROUTED TO CONCRETE CARD READER ISLAND ALONG DRIVEWAY. SEE SITE PLAN ON SHEETS XXX, AND CARD READER ISLAND DETAILS SHEET XXX FOR ISLAND ELEVATION.
3. PROVIDE STANCHION POST AT END OF PIVOT GATE. MOUNT AND SUPPORT FROM CONCRETE BASE AS REQUIRED PER MANUFACTURER'S RECOMMENDATIONS. SET POST PLUMB WITH FINISHED GRADE AND COORDINATE CLEARANCE BETWEEN GATE AND FENCE TERMIN.AL POST WITH ENGINEER.
4. PROVIDE A MAXIMUM 6" GAP BETWEEN FENCE TIE-IN AT STANCHION AND FULL 8-FOOT HEIGHT OF VERTICAL PIVOT GATE FENCING.
5. PROVIDE A MIN.IMUM 12" DIA. CONCRETE BASE FOR STANCHION. CO-LOCATE THE TERMIN.AL FENCE POST IN THE SAME CONCRETE BASE. WRAP FOUNDATION WITH THREE LAYERS OF 6 MIL. POLYETHYLENE SHEETING.

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MISCELLANEOUS DETAILS

FILE | Q:\Gus\SSAPT00093\Planset\SSAPT00093_E1_Misc Details.dwg | DATE | 1/6/2021 9:29 | LAYOUT | E2 | DESIGNED | WMC | CHECKED | --- | DRAFTED | WMC

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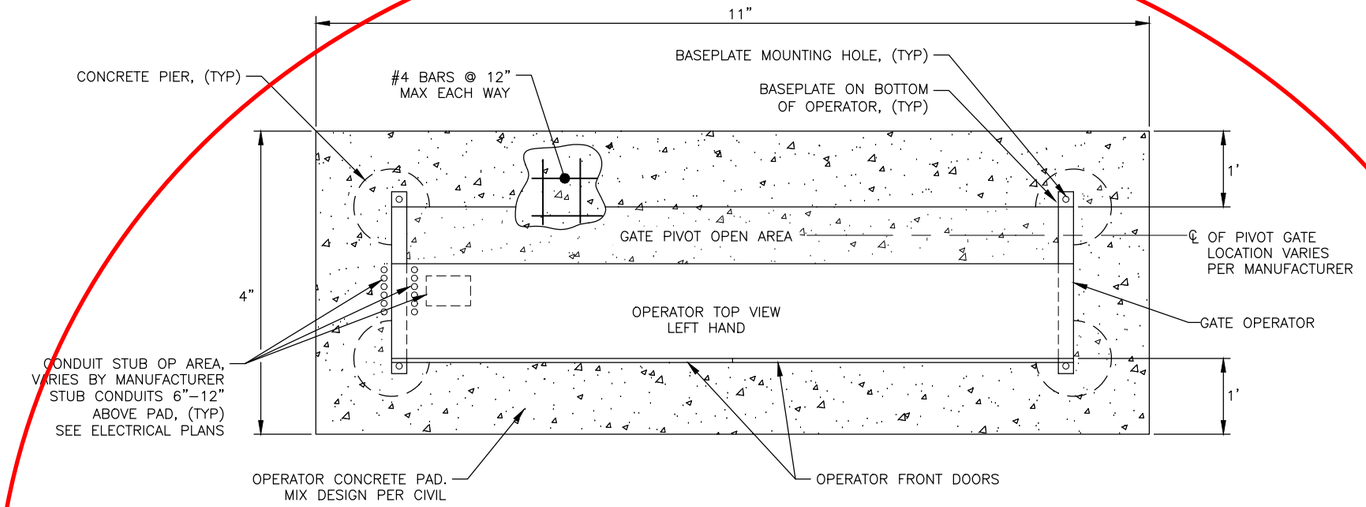
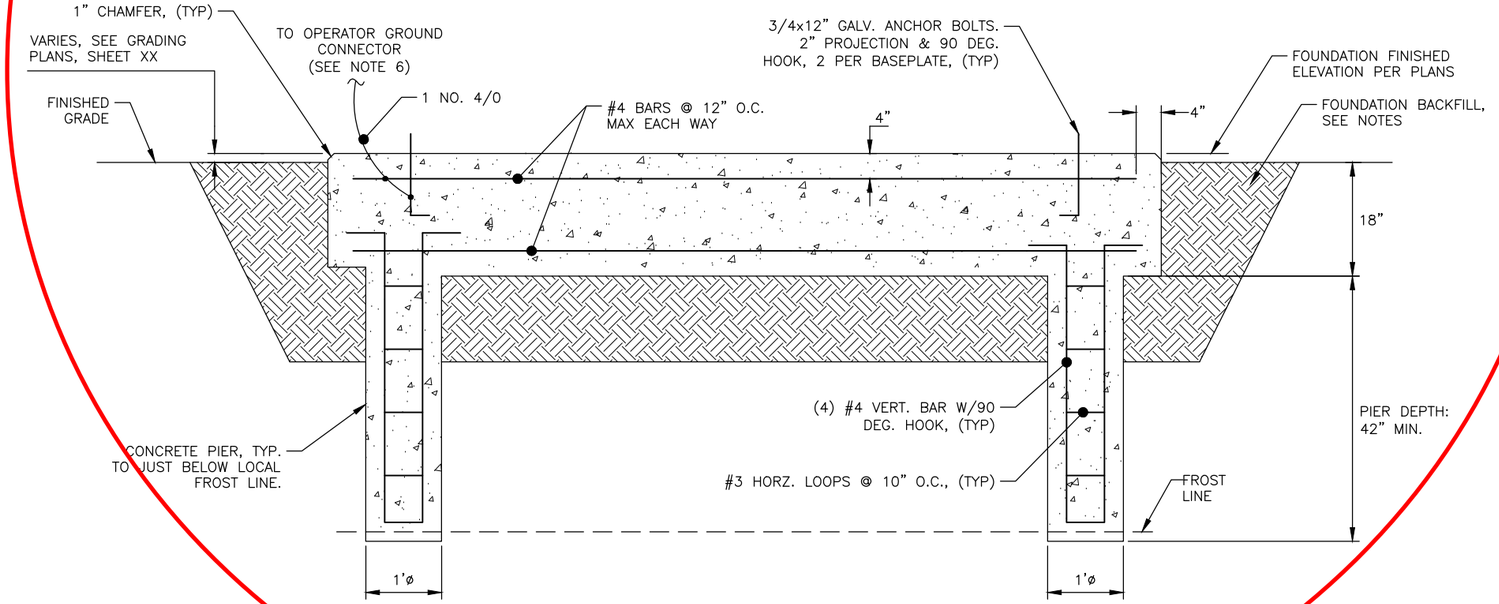
			ALASKA	SSAPT00093	2020	S1	19



GATE OPERATOR FOUNDATION SITE PLAN

NTS



GATE OPERATOR FOUNDATION ELEVATION

NTS

1/S1 GATE OPERATOR FOUNDATION DETAIL

SCALE: NOT TO SCALE

GENERAL CIVIL STANDARDS NOTES:

1. SEE ELECTRICAL PLANS FOR ALL ELECTRICAL WORK. ALL ELECTRICAL ITEMS SHOWN ON THESE CIVIL STANDARDS PLANS ARE FOR REFERENCE ONLY.

SHEET NOTES:

1. COORDINATE FOUNDATION DIMENSIONS, BASEPLATE LOCATIONS, ANCHOR POINTS, AND ANCHOR BOLT DETAILS WITH OPERATOR MANUFACTURER RECOMMENDATIONS.
2. MAINTAIN A MINIMUM OF 2" CONCRETE COVER OVER ALL EMBEDDED REINFORCEMENT BARS.
3. SEE PROJECT SPECIFIC CIVIL DETAILS AND SPECIFICATIONS FOR CONCRETE MIX DESIGN REQUIREMENTS, SUBBASE MATERIAL AND COMPACTION REQUIREMENTS, GEOTEXTILE FILTER FABRIC SPECIFICS, ETC. ADJUST DETAILS AS REQUIRED TO MEET THE STANDARDS REQUIRED BY THE PROJECT CIVIL ENGINEER.
4. BACKFILL 12" ALL SIDES AND BOTTOM. COMPACT SUBBASE TO 95% PER MODIFIED PROCTOR DENSITY METHOD. WRAP SUBBASE WITH GEOTEXTILE ON ALL SIDES, TOP AND BOTTOM PRIOR TO CONCRETE PLACEMENT.
5. THIS DETAIL IS BASED ON A LEFT HAND GATE OPERATOR. DETAIL APPLIES BUT IN A MIRRORED FASHION FOR RIGHT HAND OPERATORS.
6. BOND 4/0 TO REBAR IN CONCRETE FOOTING WITH UL LISTED EXOTHERMIC OR SPLIT–BOLT CLAMP.
7. PROVIDE FULL FOUNDATION TO FULL DEPTH IN LIEU OF CONCRETE PIERS SHOWN.
8. FOLLOW SIMILAR DESIGN FOR CANTILEVER GATE OPERATOR. COORDINATE DIMENSIONS, BASEPLATE LOCATIONS, ANCHOR POINTS, AND ANCHOR BOLT DETAILS WITH OPERATOR MANUFACTURER RECOMMENDATIONS.

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FENCING DETAILS

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APPENDIX B
WORK PLAN MODIFICATIONS

MODIFICATION 1 – ANALYTICAL LABORATORY

ANALYTICAL TESTING LOCATION

Laboratory Name	Analytical Methods	Analyte Groups
	EPA 537.1	PFAS (18 Compounds)

NOTES:
Compounds included in testing include the following 18 listed in EPA Method 537.1 based on DOT&PF guidelines for PFAS testing: n-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA), n-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA), perfluorobutanesulfonic acid (PFBS), perfluorodecanoic acid (PFDA), perfluorododecanoic acid (PFDoA), perfluoroheptanoic acid (PFHpA), perfluorohexanoic acid (PFHxA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorotridecanoic acid (PFTriA), perfluorotetradecanoic acid (PFTeA), perfluoroundecanoic acid (PFUnA), hexafluoropropylene oxide dimer acid (HFPO-DA), 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS), 9-chlorohexadecafluoro-3-oxanonane-1sulfonic acid (9Cl-PF3ONS), and 4,8-dioxa-3H-perfluorononanoic acid (ADONA).

Analytical laboratory contact and shipping information are included in the following table.

ANALYTICAL LABORATORY CONTACT INFORMATION

Laboratory Name	Shipping Address	Contact Name / Phone Number

MODIFICATION 2 – QUALIFIED ENVIRONMENTAL PROFESSIONALS AND/OR QUALIFIED SAMPLERS

PROPOSED FIELD PERSONNEL AND QUALIFICATIONS

Name / Role	Qualifications
Primary(s)	
Alternate(s)	