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2022 Dry Weather Screening Report

APDES Permit No. AKS052558

FINAL REPORT

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MUNICIPALITY OF ANCHORAGE

WATERSHED MANAGEMENT SERVICES

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1.0 Introduction

1.1 Background

The U.S. Environmental Protection Agency (EPA) issued the Municipality of Anchorage (MOA) and the Alaska Department of Transportation and Public Facilities (ADOT&PF) a Municipal Separate Storm Sewer System (MS4) permit under the National Pollutant Discharge Elimination System (NPDES) in 1999. To meet the requirements of the permit, the MOA Watershed Management Services (WMS) initiated a Dry Weather Screening (DWS) program to identify potential illicit discharges to the MS4. This program was conducted during the dry season (typically May through mid-July) each year through 2009.

The EPA re-issued the permit in 2009 prior to the State of Alaska receiving primacy to operate the NPDES program. The re-issued permit became effective February 1, 2010, under the administration of the Alaska Department of Environmental Conservation (ADEC) as an Alaska Pollutant Discharge Elimination System (APDES) MS4 permit. ADEC reissued APDES Permit No. AKS052558, with revisions, on August 1, 2015, and August 1, 2020. The expiration date of the current permit is July 31, 2025.

The APDES MS4 permit continues the requirement of dry weather screening and subsequent follow-up actions to identify illicit discharges and associated pollutants to the MS4. The 2022 program was completed in accordance with the *2021 Monitoring, Evaluation, and Quality Assurance Plan (QAP; MOA 2021a)*.

1.2 Problem Definition

Section 3.5 of the MS4 permit requires that the MOA implement an illicit discharge management program to reduce the unauthorized and illegal discharge of pollutants to the MS4. An illicit discharge is defined as any discharge to a MS4 that is not entirely composed of stormwater.¹ Illicit discharges, such as those from industrial process wastewater, domestic wastewater, car wash water, and other sources, can inadvertently introduce pollutants both directly and indirectly to the storm sewer system. Flow from storm drain outfalls during dry weather is generally an indicator of illicit discharges to the MS4.

1.3 Screening Program

Dry weather screening is conducted to identify and eliminate illicit discharges to the MS4 within the MOA. To identify potential illicit discharges, approved field screening and laboratory testing methods are used to identify pollutant concentrations of known parameters typically found in the illicit discharges described in Section 1.2. Guidance on illicit discharge screening identifies a list of 15 indicator parameters that can be used to confirm the presence of illicit discharges, noting that generally only three to five of these parameters need to be used to characterize the discharge for subsequent identification and elimination of the discharge (CWP and Pitt 2004).

¹ Excepting any discharges authorized under an NPDES permit and discharges resulting from fire-fighting activities (40 Code of Federal Regulations [CFR] §122.26(b)(2)).

Section 3.5.4 of the MS4 permit establishes minimum requirements for the DWS program. The QAP for the MS4 permit monitoring programs includes the full *DWS Monitoring Plan*. The QAP, including the DWS program methodology, was updated in 2021 to comply with the re-issued permit (MOA 2021a).

The MS4 permit requires the MOA to survey a minimum of 30 outfalls a year for illicit discharges. Surveyed outfalls must be geographically dispersed and represent all major land uses within the municipality. Monitoring of the following seven parameters must be conducted at outfalls where illicit discharges are suspected: pH; total chlorine; detergents; total copper; phenols; fecal coliform bacteria; and turbidity. Benchmark or threshold exceedances are used to trigger MOA investigative action and provide information to support that action.

2.0 Project Summary

2.1 Outfall Evaluation and Prioritization

The QAP requires that outfalls from the MS4 be evaluated and scored for monitoring under the DWS program at the beginning of the 5-year permit cycle. The QAP contains the full methodology for evaluating and prioritizing outfalls (MOA 2021a).

Before beginning field activities, HDR Engineering, Inc. (HDR) evaluated outfalls for suitability for inclusion in the DWS program in a geographic information system (GIS) using the MOA hydrography geodatabase (HGDB; MOA 2021b) and field observations on outfall condition and location made during previous years' monitoring programs. GIS evaluation consisted of reviewing the outfalls and drainageway network within each subbasin of the MS4 as mapped within the HGDB. Outfalls were considered not suitable for monitoring under the DWS program if the subbasin is not drained by closed conveyances that are part of the MS4 infrastructure owned and maintained by MOA and/or ADOT&PF (i.e., the subbasin is drained only by open conveyances such as drainage ditches or surface runoff or the HGDB does not show a mapped network of closed conveyances within the subbasin); if a segment of piped stream is co-routed with the MS4 through the subbasin; or if the outfall is located below a road or other infrastructure. Review of previous years' field observations identified additional outfalls that were excluded from the DWS program for reasons, including access constraints (private property, safety considerations), damage to the outfall that prevents monitoring or sampling, significant backwater flow into the outfall, the outfall is partially or fully submerged within a creek or waterbody, or inability to locate the outfall.

Once outfalls suitable for inclusion in the DWS program were identified, HDR scored and prioritized them for monitoring. Outfalls were given a numerical score based on factors that may contribute to the likelihood of illicit discharges within the outfall's contributing area (i.e., subbasin). The following datasets were used in GIS to score the outfalls according to the procedures in the QAP:

- 2021 HGDB (MOA 2021b)
- MOA zoning designations mapping (MOA 2021c)

- Urban impervious surface mapping from the National Land Cover Database (MRLC 2016)
- Previous threshold exceedances documented under the DWS program (MOA 2016b, 2017, 2018, 2019, 2020, 2021d)
- Previous reports to 2021 of illicit discharge investigated by WMS (MOA 2021e)²
- Alaska 303(d) Impaired Waters List (ADEC 2020)

HDR evaluated all 935 outfalls mapped in the HGDB for inclusion in the DWS program and determined 331 outfalls were suitable for monitoring under the DWS program and 7 would require field reconnaissance to confirm suitability for inclusion. An additional 14 outfalls that are not mapped in the HGDB but have been identified through GIS evaluation or field reconnaissance are also included. These 352 outfalls were scored and prioritized for the current 5-year permit cycle. The results of the outfall prioritization are included in Appendix A.

For the 2022 program, additional datasets were used in GIS to update the previous prioritization.

- 2022 HGDB (MOA 2022a)
- June 2021 to May 2022 illicit discharge reports investigated by WMS (MOA 2022b)²

2.2 Screening Locations

In 2022, field crews surveyed 30 outfalls and could not access or locate 10 targeted outfalls. Investigated outfalls are listed in Table 1 and shown on the maps included in Appendix B.

² Duplicate records or reports where no enforcement action or violation was substantiated were not included.



Table 1. Outfalls Investigated During 2022 DWS Program

Outfall Code	Latitude	Longitude	Prioritization Score	Location Description	Condition	Water flowing?
Chester Creek						
578-1	61.1855	-149.7925	7	Could not locate in 2022. Could not locate in 2016 during construction on Wesleyan Drive. Submerged in 2015.	Could not access/locate	-
683-1	61.1866	-149.7905	7	Could not locate in 2022. Could not locate in 2016 during construction on Wesleyan Drive. Submerged in 2015.	Could not access/locate	-
339-1	61.1854	-149.7925	7	Could not locate in 2022. Could not locate in 2016 during construction on Wesleyan Drive. Submerged in 2015.	Could not access/locate	-
Eagle River						
303-1	61.2980	-149.5348	7	Access from May Court, outfall on north bank.	Good, CMP, perched	Yes, medium flow, cascades onto rocks, suspected GW influence.
1375-1	61.3150	-149.5705	10	EOP between Vanover Circle and Meadow Creek Drive. Storm outfall in same headwall as stream crossing.	Fair, HDPE with thaw pipe. Some algae in DS channel. Trash and debris stuck in grate, needs to be cleaned out.	Yes, medium flow, suspected GW influence.
1390-2	61.3360	-149.5823	4	In backyard of residence on Rosenberg Circle. Drains from street down a moderate slope.	Good, HDPE. Some algae on collar, some debris in grate. Flowing water can be heard in culvert.	Yes, low, suspected GW influence.
1417-1	61.2986	-149.5136	10	North bank, south of Driftwood Bay Drive at Meadow Park Circle.	Good, HDPE with collar. Well defined flow path after EOP. Flowing water can be heard in culvert.	Yes, medium, suspected GW influence.
1450-2 (HDR)	61.3008	-149.4868	10	HDR ID of 1450-2. Located off end of Driftwood Bay Drive.	Good, HDPE, thaw pipe. Outfall has some sediment buildup.	Yes, medium.



Outfall Code	Latitude	Longitude	Prioritization Score	Location Description	Condition	Water flowing?
1451-1	61.2996	-149.5085	10	East side of bank, drainage for Riverside Drive.	Good, HDPE with collar. Riprap in downstream channel. Old carcass (beaver) in DS channel.	Yes, medium, suspected GW influence.
1455-1	61.3256	-149.5854	4	Unable to access, behind fence on JBER property.	No access	-
Fire Creek						
1392-1	61.3459	-149.5745	4	South bank, along Vasili Drive. Access between houses in drainage right-of-way.	Good, HDPE. Rocks, debris, and organics behind grate, possibly compromised pipe, needs maintenance.	No, stagnant water.
Fish Creek						
7-1	61.1880	-149.9352	18	At intersection of West 36th Avenue and East Turnagain Boulevard. ID FSH 7 in 2011. Flows directly into main channel's flow.	Good, smooth wall HDPE with collar.	Yes, significant amount of iron precipitate, suspected GW influence.
79-353	61.1649	-149.9374	7	Behind residences on 62nd Avenue.	Fair, CMP with collar and grate. Rust line at 1/4 of full pipe.	No, stagnant water
191-1	61.1834	-149.9142	6	Between residences on Jefferson Avenue.	Could not locate	-
264-1	61.1745	-149.9313	4	Access from corner of Klamath Drive and Kershner Avenue.	Fair, smooth, sliplined HDPE with collar, partially exposed. Soil build up in collar.	No
391-1	61.1821	-149.9347	14	Along Spenard Road, drains parking lot between Barbara Drive and East Turnagain Boulevard.	Could not locate	-
555-1	61.1610	-149.9651	7	Access from Delong Landing Circle, flows north into the sediment basin.	Good, smooth wall HDPE. Minimum sediment buildup. Riprap in downstream channel.	No



Outfall Code	Latitude	Longitude	Prioritization Score	Location Description	Condition	Water flowing?
573-48	61.1826	-149.8386	15	West side of intersection of West 42nd Avenue and Lake Otis Parkway. Corouted with stream.	Good. Small amount trash/debris in grate. Good, defined DS channel.	Yes, very low, orange colored water.
610-1	61.1789	-149.9337	4	Access on Iris Drive.	Could not locate pipe. Water found at mapped flow line.	-
661-26	61.1616	-149.9526	7	On Jewel Lake Road at Lakeway Drive, near multi-use paved trail.	Could not locate	-
684-1	61.2025	-149.9356	4	Access off of Lousaac Dr. behind residences.	Poor, unraveling and corroding. Drains directly to main stream. Assumed to be tidally influenced.	No
686-1	61.1821	-149.9348	14	Access from the intersection of West 42nd Avenue and East Turnagain Boulevard.	Fair, CMP with collar. Good channel to main stream.	Yes, low, backwatered.
686-167	61.1821	-149.9348	14	Access from the intersection of West 42nd Avenue and East Turnagain Boulevard.	Poor, CMP with collar, corroded bottom.	Yes, low, backwatered.
1003-1	61.1812	-149.9185	11	Access from Tudor Road.	Good, smooth, sliplined HDPE. Riprap in DS channel.	No, dry.
1054-1	61.1781	-149.9299	4	Access from multi-use trail off of 47th Avenue.	Fair, CMP with collar. Culvert has sediment build-up and some vegetation growing in the collar.	No, stagnant water
1278-1	61.1799	-149.9425	13	Access at Lake Hood, in small fenced area.	Good, CMP with collar. Visible rust line. Outfall has concrete DS apron, riprap, weir, and oil waddles outside of weir.	No, dry.
1310-201	61.1887	-149.9351	7	At intersection of McRae Road and East Turnagain Boulevard.	Fair, HDPE, 1/4 full of sediment. Flows directly to main stream.	No, dry.
Furrow Creek						
34-2	61.0986	-149.8617	7	Access from the end of Reef Place.	Poor, HDPE, 75% buried. Was hidden by tall grass.	No, dry.
216-10	61.1058	-149.8400	7	Between residences on Loren Circle.	Could not locate	-



Outfall Code	Latitude	Longitude	Prioritization Score	Location Description	Condition	Water flowing?
292-192	61.1142	-149.8505	18	On west side of Bowman Elementary School.	Good, CMP with collar, thaw pipe, grate has fallen off.	Yes, medium, 2" depth, some suds in DS channel.
293-1	61.1104	-149.8402	7	Between residences on Rainbow Avenue.	Could not locate	-
306-1	61.1081	-149.8644	10	Access near Old Seward Highway and Huffman Road roundabout. In same concrete headwall as the main stream.	Good, CMP with concrete headwall.	Yes, low, 1/4" depth, small organic scum/oily sheen.
332-1	61.1124	-149.8308	7	Along Woodway Cir. Some surface scum, debris in DS channel, and vegetation growth.	Good, CMP with collar and grate. Collar has vegetation growing in it.	Yes, very low, 2" depth, backwatered.
395-1	61.1044	-149.8881	7	Access from Pacific View Drive, down steep embankment, at base of hill.	Good, CMP with grate. Cleaned out organic debris in grate.	No, dry.
592-1	61.1085	-149.8683	7	Access at end of Beachcomber Drive, cleaned out channel to main stream.	Good, HDPE. Flows directly into main stream. Cleaned out channel.	Yes, low, 1.5" depth, orange/iron precipitant, organic surface scum.
617-1	61.1024	-149.8789	7	Access from intersection of Johns Road and High View Drive. Down steep embankment at base of hill.	Good, thick plastic. Outlet protected by gabion baskets.	No, dry.
634-1	61.1018	-149.8747	7	Access from Oceanview Drive, right below property line, culvert outfalls into open channel flume that runs down the steep embankment.	Good, CMP with flume down hillside.	No, dry.
1344-8	61.1157	-149.8463	4	On north side of Bowman Elementary School.	Fair, CMP with collar. Pipe has rust line.	Yes, very low, 0.5" depth
Rabbit Creek						
745-1	61.0792	-149.8300	16	Access along northbound Seward Highway, outfall located north of East 154th Avenue.	Good, CMP in concrete headwall. Some sediment buildup. DS channel full of tree branches/clippings.	Yes, low flow, slightly backwatered.



Outfall Code	Latitude	Longitude	Prioritization Score	Location Description	Condition	Water flowing?
745-86	61.0958	-149.8140	16	Access on Matthews Drive, series of cross drainages, multiple not mapped.	Good, HDPE with collar. Organic debris in culvert.	No, dry.

Note: CMP = corrugated metal pipe; EOP = end of pipe; GW = groundwater; HDPE = High-density polyethylene; DS = downstream

2.3 Screening Parameters

Table 2 lists the screening parameters required by the permit and the sampling methods, reporting ranges, and the program thresholds for each parameter. Appendix E, *DWS Monitoring Plan*, of the QAP (MOA 2021a) provides rationale for screening parameter thresholds. The thresholds for all parameters were maintained from the previous MS4 permit cycle (MOA 2016b). Thresholds are established at concentrations measurably distinct from authorized discharges to detect potential illicit discharges. In a guidance manual, the Center for Watershed Protection and Robert Pitt (2004) recommend benchmarks (thresholds) orders of magnitude higher than ambient stormwater quality to reduce the incidences of false positives. Thresholds in Table 2 were established based on available environmental data and field test kit specifications. Values below the threshold are considered to be within an acceptable range for background concentrations. Values at or above the threshold concentration for a parameter indicate that the parameter may be above background concentrations. Outfalls with results that exceeded the threshold (or are outside the pH range) for one or more of the pollutant indicators are targeted for follow-up action.

Table 2. Sampling Methods, Reporting Ranges, and Thresholds for Measured Parameters

Parameter	Method	Sensitivity	Reporting Range	Threshold
Turbidity	Hach 2100P Turbidimeter, EPA method 180.1 Rev 2.0	0.01 for 0 - 9.99 NTU 0.1 for 1 - 10 NTU 1 for 100 - 1000 NTU	0.1 - 1,000 NTU	≥ 250 NTU
Fecal Coliform	SM 9222D	1 cfu/100 mL	1 cfu/100 mL – too numerous to count	≥ 400 cfu/100 mL
Hach Stormwater Test Kit, Model SW-1 #2481300				
pH	Hach Pocket Pro pH Tester, ion selective electrode, EPA method 150.2	0.1 units	0 - 14 STD	≤ 4 or ≥ 9 STD
Total Chlorine	Hach Method 8167 ^a , DPD/Color Disc, SM 4500-Cl G	0.1 mg/L	0.1 – 3.4 mg/L	≥ 1.0 mg/L
Detergents	Hach Model DE-2, Tolidine Blue-O Chloroform Colorimetric (Analytical Chemistry #38-791)	0.05 mg/L	0.05 – 1.2 mg/L	≥ 1.0 mg/L
Total Copper	Hach Methods 8506 and 8026 ^a , Bicinchoninate/Color Disc, SM 3500-Cu C or E	0.1 mg/L	0.1 – 4.0 mg/L	≥ 1.0 mg/L
Total Phenols	Hach Method 8047 ^a : 4-Aminoantipyrine/Color Disc, EPA method 420.1	0.1 mg/L	0.1 - 5 mg/L	≥ 0.5 mg/L

Notes: NTU = nephelometric turbidity; SM = Standard Method; cfu = colony forming unit; mL = milliliters; STD = standard units; mg/L = milligrams per liter

^a Test kit uses equivalent or adapted method.

2.4 Monitoring Procedures

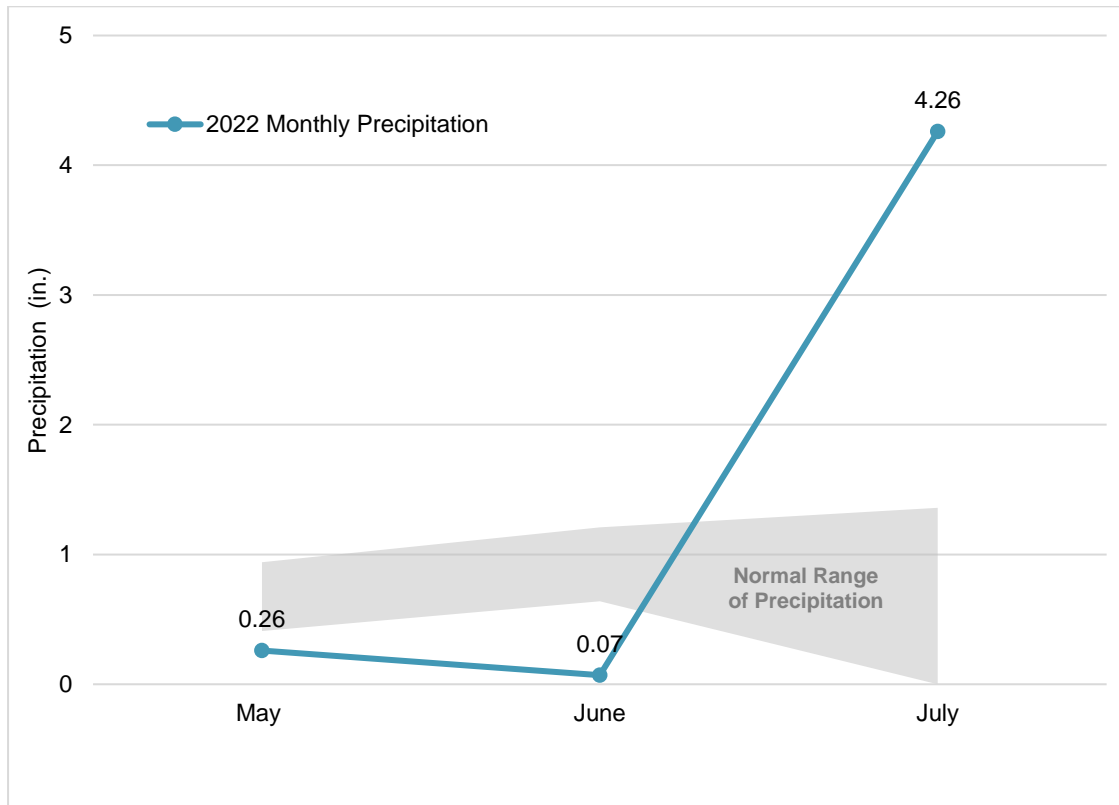
HDR conducted monitoring in accordance with monitoring procedures and methodology outlined in the QAP.

2.4.1 Field Preparation

The MS4 permit stipulates that dry weather screening should be conducted between June 1 and August 30 of each year, following at least 48 hours of dry weather after any storm event that created runoff in the MS4.³ Precipitation in the Anchorage area in summer 2022 was drier than normal in May and June and then significantly wetter than normal in July (Figure 1).

HDR conducted monitoring on three days in June, consulting recent precipitation recorded by the National Weather Service at the Ted Stevens Anchorage International Airport to determine appropriate monitoring timing, when necessary (NWS 2022a). Precipitation for the entire month of June was lower than normal, and monitoring was conducted before the fall storms commenced. Figure 2 shows the daily precipitation and 48 hour running total precipitation for summer 2022. The dates when sampling occurred are indicated by the black arrows.

Figure 1. Monthly Precipitation in Anchorage, Summer 2022

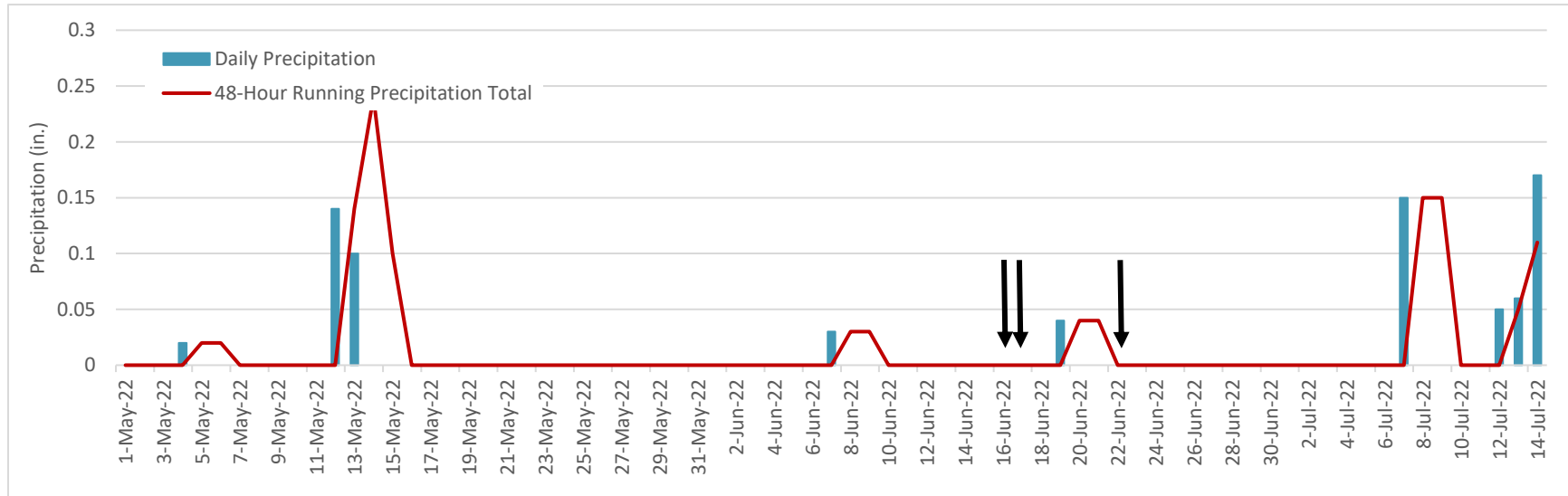


Notes: 2022 monthly precipitation data recorded at Ted Stevens International Airport. Source: NWS 2022b. Normal range of precipitation shown is the range between the 25th and 75th percentiles of monthly precipitation averages recorded at the Ted Stevens International Airport for the 30-year period from 1991 to 2010. Source: NOAA 2021.

³ Precipitation greater than 0.1 inches typically generates runoff.



Figure 2. Daily Precipitation in Anchorage, Summer 2022



Notes: Daily precipitation data recorded at Ted Stevens International Airport. Source: NWS 2022c.
Black arrows indicate monitoring dates.

The field team conducted calibration and equipment blank analyses at the beginning of each day of sampling prior to entering the field. This equipment blank analysis examined each test kit by testing deionized water provided by SGS North America, Inc. (SGS), the laboratory conducting fecal coliform analysis. The calibration and field test kit equipment blank data were recorded on the field data forms and are provided in Appendix C.

Each day before departing for field sampling the field team conducted a safety briefing. The team took the following items into the field:

- List of targeted outfalls
- Global positioning system (GPS)-enabled iPad loaded with HGDB and aerial imagery
- Field forms with guidelines
- Water quality analysis protocols (included in the QAP)
- Field sampling supplies
- Personal protective equipment
- Hach Pocket Pro pH tester
- pH test strips
- Hach water quality field test kits
- Laboratory-supplied fecal coliform bottles
- Hach turbidimeter
- Job Hazard Analysis and Travel Safety Forms

2.4.2 Monitoring Activities

Monitoring activities conducted at each outfall consisted of recording visual observations about the condition of the outfall and the discharging water (if flowing), taking photographs of the outfall, measuring or qualitatively describing the flow of the discharging water. Observations were recorded on field data forms.

At outfalls that were flowing during dry weather conditions, field crews considered previous observations of dry weather flow from the outfall, if any had been documented, to determine whether the observed flow was consistent with baseline conditions that may originate from groundwater infiltration. Based on the visual observations and flow analysis, the field crew determined whether the dry weather flow from the outfall was suspected of being an illicit discharge. When an illicit discharge was suspected, field crews collected a sample for laboratory analysis of fecal coliform and two grab samples to measure all other parameters using field test kits or water quality meters. Detailed sampling methodology, including instructions for the field test kits, is included in the QAP (MOA 2021a).

The sample bottle for laboratory analysis of fecal coliform and grab samples for field test kits were filled directly from the outfall flow. Samples were collected using clean sample bottles as required by the QAP. Field test kits were recorded as soon as possible after sample collection, and field measurements were recorded and compared against the thresholds described in Table 2.

The field team conducted replicate sample analyses at a rate of at least 15 percent per day per parameter (minimum of one per day). The field team also collected replicate samples for the laboratory analysis of fecal coliform at a rate of 15 percent per day (minimum of one per day).

Completed data sheets are included as Appendix C, and photographs of sampled outfalls are included as Appendix D.

2.4.3 Follow-Up Activities

The QAP outlines notification procedures and follow-up activities to be performed when a sample exceeds the program threshold for any parameter (MOA 2021a). As an additional measure, HDR provided results of the field measurements to the MOA WMS immediately following every sampling day. SGS provided results of the fecal coliform analysis to HDR as soon as the results were available (typically within 24 hours), and HDR provided these results to the MOA WMS.

2.5 Chain of Custody Records

The field team leader completed a chain-of-custody record, which included each fecal coliform sample collected during a single field day for sample tracking. The original form was delivered with the samples to SGS. Copies of the chain-of-custody records are included in the laboratory analysis reports provided in Appendix E.

2.6 Laboratory Sampling Procedures

The field team collected fecal coliform samples in laboratory-supplied sample bottles, clearly marking each with the project name, sample ID, and sample date and time on the sample bottle labels. Samples were stored in a cooler with gel ice and a temperature blank while in the field. The samples were delivered to SGS within 6 hours to satisfy the short hold time of the fecal coliform samples. Fecal coliform was analyzed using standard method (SM) 9222D.

SGS provided results of the laboratory analysis to HDR via email or telephone immediately after the analysis was complete (typically within 24 hours). The expedited turn-around time allows for expedited follow-up sampling in the event of an exceedance of the fecal coliform threshold. SGS provided a full report of the analysis within a week.

3.0 Results

3.1 Screening Results

Field crews surveyed 30 outfalls in 2022. Flow from four outfalls was tested for indicators of illicit discharge. The sample results are provided in Table 3. Complete laboratory analysis reports are provided in Appendix E.



Table 3. Sample Results for Field Parameters and Laboratory Analyses

Watershed	Outfall ID	Date	Flow	pH	Total Chlorine (mg/L)	Detergents (mg/L)	Total Copper (mg/L)	Total Phenols (mg/L)	Turbidity (NTU)	Fecal Coliform (colonies/100mL)
Eagle River	1375-1	6/16/2022	Medium	8.4	<0.1	<0.05	<0.1	<0.1	0.63	1.7
Eagle River	1451-1	6/16/2022	Medium	7.8	<0.1	<0.05	<0.1	<0.1	1.49	1.7
				R = 7.7	R = <0.1	R = <0.05	R = <0.1	R = <0.1	R = 1.37	R = 1.67
Furrow Creek	292-192	6/17/2022	Medium	8.3	<0.1	<0.05	<0.1	<0.1	6.48	6.7
Furrow Creek	332-1	6/17/2022	Very Low	8.5	<0.1	<0.05	<0.1	<0.1	12.5	1.67
				R = 8.2	R = <0.1	R = <0.05	R = <0.1	R = <0.1	R = 11.3	R = 1.7

Notes: mg/L = milligram per liter; NTU = nephelometric turbidity; mL = milliliters; R = replicate sample;

Detection limit for fecal coliform is 1.67 col/100mL.

3.2 Quality Assurance and Quality Control

Field crews followed quality assurance and quality control (QA/QC) procedures according to the QAP (MOA 2021a). The procedures included analytical checks (field replicates, equipment blanks), instrument calibration, and procedures to assess data for precision, accuracy, representativeness, comparability, and completeness.

SGS is certified by the EPA and the Alaska Drinking Water Program and has an approved QA/QC program. Analytical methods and testing procedures were in adherence with the QAP (MOA 2021a) and standard methods (APHA 2005).

3.3 Data Validation

SGS conducted verification analyses for laboratory parameters. The data review was focused on criteria for the following QA/QC parameters and their overall effects on the data:

- Data validation
- Sample handling (chain of custody)
- Holding time compliance
- Field replicate comparison

Field crews collected samples from the water flowing from the end of pipe (EOP) at the outfall to avoid mixing with the stream water. Field analyses met the sensitivities prescribed in the QAP (MOA 2021a).

Field crews collected replicate samples at a rate of at least one per day or 15 percent to determine field precision and variability. For the field test kits, the QAP requires that the relative percent difference between primary and replicate samples is calculated. For the fecal coliform samples analyzed at the laboratory, the QAP requires that relative percent difference between the primary and replicate samples be within 60 percent. For turbidity, the QAP requires that the absolute difference between the primary and replicate samples be within 1 NTU. The variance between the primary and replicate samples are presented in Table 4. Additionally, the results of the primary and replicate samples need to be within the precision of the equipment used.



Table 4. Comparison of Replicate Samples to Primary Samples

Parameter		pH	Total Chlorine (mg/L)	Detergents (mg/L)	Total Copper (mg/L)	Total Phenols (mg/L)	Turbidity (NTU)	Fecal Coliform (colonies/100mL)
Units		pH Units	%	%	%	%	NTU	%
QAP standard		± 0.1	30%	30%	30%	30%	± 1 NTU	60%
Watershed	Outfall ID	pH Units	%	%	%	%	NTU	%
Eagle River	1451-1	± 0.1	-	-	-	-	0.1	^a
Furrow Creek	332-1	± 0.3	-	-	-	-	1.2	^a

Note: **Bold** values indicate replicate variance that exceeds the QAP standard.

¹ indicates that both the primary and replicate samples were below the method detection limit.

^a Either the primary or replicate sample was not detected at or above the method detection limit.

Furrow Creek outfall 332-1 slightly exceeded the variance threshold for turbidity. Variability in turbidity measurements can be expected due to the heterogeneous nature of flow from storm sewer outfalls. The primary and replicate samples for turbidity were below the exceedance threshold and these results were not flagged for follow-up action.

None of the other replicate samples exceeded QAP standards for allowable variation from the primary sample. Fecal coliform in either the primary or replicate sample was non-detect for both outfalls where replicate samples were taken.

Sample custody was adequately maintained for the samples. The coolers transporting the fecal coliform samples were chilled with gel ice to maintain temperatures of less than 8 degrees Celsius (°C). The holding times were met for all samples.

4.0 Discussion

Of the outfalls monitored under the 2022 DWS program, field teams observed 16 to be flowing during dry weather conditions. Of these, six outfalls were suspected to convey groundwater that infiltrates into the MS4. These outfalls have been observed to flow regularly during dry weather conditions in the previous 10 years of DWS program investigations, and/or exhibited other indicators of groundwater influence (i.e., iron oxide flocculation or staining). Field crews were either unable to access or locate 10 outfalls and investigated an additional 7 outfalls that were submerged in or backwatered by the receiving water or had standing water within the EOP.

Samples were collected at four outfalls where flow from the MS4 was suspected of being illicit discharge. Field crews documented cloudy or colored water, visible turbidity, surface scum, soapy suds, urban debris, and decaying matter at these outfalls. None of the outfalls sampled exceeded the threshold for any parameter. All six outfalls had been previously sampled during previous years' DWS programs and have never exceeded the threshold for any parameter.

Field crews also documented outfalls in poor condition or otherwise requiring maintenance during screening activities. These outfalls are noted in Table 1.

5.0 References

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Appendix A

Outfall Prioritization



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Table A-1. Outfall Prioritization for the 2021-2025 APDES Permit Cycle

Watershed	Outfall ID	Subbasin ID	Total Score
Campbell Creek	1488-1	1007	29
Chester Creek	489-2	523	25
Chester Creek	489-357	523	25
Campbell Creek	651-1	817	24
Fish Creek	1287-994	775	24
Chester Creek	654-1	594	23
Chester Creek	179-1	475	22
Fish Creek	388-197	1178	21
Fish Creek	388-201	1178	21
Fish Creek	682-1	772	21
Chester Creek	295-56	575	20
Campbell Creek	1454-1	1449	19
Campbell Creek	1454-2	1449	19
Ship Creek	<Null>	1001	19
Ship Creek	1338-1	999	19
Ship Creek	396-1	1001	19
Ship Creek	571-1	999	19
Ship Creek	96-2	998	19
Campbell Creek	105-1	1221	18
Campbell Creek	556-1	830	18
Eagle River	1335-1	1294	18
Fish Creek	7-1	1023	18
Furrow Creek	292-192	675	18
Ship Creek	71-1	979	18
Campbell Creek	579-1	804	17
Eagle River	1383-1	1147	17
Campbell Creek	207-3	805	16
Chester Creek	2-2	130	16
Chester Creek	4-1	1251	16
Chester Creek	464-1	616	16
Chester Creek	554-2	527	16
Rabbit Creek	745-1	701	16
Rabbit Creek	745-86	701	16
Chester Creek	299-20	133	15
Chester Creek	299-22	133	15
Chester Creek	484-1	133	15
Fish Creek	573-156	788	15
Fish Creek	573-48	788	15
Ship Creek	550-2	961	15
Campbell Creek	111-2	835	14
Campbell Creek	17-1	1372	14



Watershed	Outfall ID	Subbasin ID	Total Score
Campbell Creek	463-1	886	14
Campbell Creek	548-1	863	14
Chester Creek	3-1	598	14
Chester Creek	86-1	549	14
Fish Creek	391-1	1031	14
Fish Creek	686-1	1024	14
Fish Creek	686-167	1024	14
Furrow Creek	34-26	916	14
Furrow Creek	34-54	916	14
Campbell Creek	1001-16	1333	13
Campbell Creek	1478-1	1195	13
Campbell Creek	1493-1	1382	13
Campbell Creek	475-1	349	13
Campbell Creek	485-1	828	13
Campbell Creek	485-98	828	13
Campbell Creek	593-1	821	13
Chester Creek	1298-275	489	13
Chester Creek	25-1	492	13
Chester Creek	296-1	495	13
Chester Creek	549-1	555	13
Chester Creek	552-105	619	13
Chester Creek	553-1	513	13
Chester Creek	577-1	515	13
Eagle River	541-1	1295	13
Fish Creek	1278-1	1269	13
Ship Creek	436-1	978	13
Campbell Creek	569-1	811	12
Campbell Creek	675-1	250	12
Chester Creek	103-1	568	12
Chester Creek	30-1	127	12
Hood Creek	609-218	1011	12
Ship Creek	1414-1	976	12
Ship Creek	245-1	989	12
Campbell Creek	100-1	1224	11
Campbell Creek	1479-1	1222	11
Campbell Creek	271-1	1317	11
Campbell Creek	44-1	1194	11
Campbell Creek	468-1	1318	11
Chester Creek	1449-1	1459	11
Chester Creek	568-1	479	11
Chester Creek	884-1	597	11
Fish Creek	1003-1	1044	11



Watershed	Outfall ID	Subbasin ID	Total Score
Campbell Creek	1014-41	1235	10
Campbell Creek	1056-8	1217	10
Campbell Creek	1339-1	826	10
Campbell Creek	1339-38	826	10
Campbell Creek	1438-2	862	10
Campbell Creek	1494-1	1386	10
Campbell Creek	175-1	1375	10
Campbell Creek	18-107	299	10
Campbell Creek	279-1	878	10
Campbell Creek	279-55	878	10
Campbell Creek	383-1	323	10
Campbell Creek	400-1	864	10
Campbell Creek	435-9	1444	10
Campbell Creek	490-1	890	10
Campbell Creek	490-93	890	10
Campbell Creek	490-95	890	10
Campbell Creek	585-1	870	10
Campbell Creek	608-39	779	10
Campbell Creek	656-31	290	10
Chester Creek	188-1	494	10
Chester Creek	318-1	562	10
Chester Creek	347-1	505	10
Chester Creek	482-1	173	10
Chester Creek	645-1	623	10
Chester Creek	678-1	541	10
Eagle River	<Null>	1439	10
Eagle River	1336-1	1142	10
Eagle River	1375-1	752	10
Eagle River	1417-1	1425	10
Eagle River	1451-1	1439	10
Eagle River	1482-1	1347	10
Eagle River	1483-1	1346	10
Fish Creek	27-1	767	10
Fish Creek	462-1	773	10
Furrow Creek	1343-2	1396	10
Furrow Creek	281-1	177	10
Furrow Creek	306-1	1111	10
Furrow Creek	348-1	1103	10
Furrow Creek	407-1	184	10
Furrow Creek	407-2	177	10
Furrow Creek	407-24	184	10
Ship Creek	119-1	962	10



Watershed	Outfall ID	Subbasin ID	Total Score
Ship Creek	46-1	1437	10
Ship Creek	47-1	972	10
Ship Creek	491-1	963	10
Campbell Creek	1348-1	1196	9
Campbell Creek	1466-1	460	9
Campbell Creek	1466-17	460	9
Campbell Creek	300-1	462	9
Chester Creek	236-1	590	9
Chester Creek	282-1	496	9
Chester Creek	282-3	496	9
Chester Creek	499-1	132	9
Chester Creek	499-17	132	9
Chester Creek	527-1	506	9
Fish Creek	411-8	733	9
Furrow Creek	5-1	1104	9
Ship Creek	81-73	960	9
Campbell Creek	1489-1	1371	8
Campbell Creek	317-1	376	8
Campbell Creek	447-64	322	8
Campbell Creek	62-1	255	8
Campbell Creek	701-4	389	8
Campbell Creek	10-1	799	7
Campbell Creek	<Null>	1314	7
Campbell Creek	112-1	1202	7
Campbell Creek	113-1	785	7
Campbell Creek	120-13	1040	7
Campbell Creek	120-22	1040	7
Campbell Creek	122-1	884	7
Campbell Creek	1347-1	1314	7
Campbell Creek	1349-1	1223	7
Campbell Creek	1351-1	1384	7
Campbell Creek	1352-1	1385	7
Campbell Creek	1352-14	1385	7
Campbell Creek	1367-1	1369	7
Campbell Creek	1367-26	1369	7
Campbell Creek	1410-1	1456	7
Campbell Creek	1441-1	1441	7
Campbell Creek	1464-1	1313	7
Campbell Creek	1467-1	1442	7
Campbell Creek	1490-1	1378	7
Campbell Creek	1495-1	838	7
Campbell Creek	190-1	288	7



Watershed	Outfall ID	Subbasin ID	Total Score
Campbell Creek	21-1	737	7
Campbell Creek	219-1	887	7
Campbell Creek	220-1	855	7
Campbell Creek	243-24	268	7
Campbell Creek	297-1	854	7
Campbell Creek	305-1	824	7
Campbell Creek	320-5	324	7
Campbell Creek	401-1	876	7
Campbell Creek	417-1	877	7
Campbell Creek	474-1	815	7
Campbell Creek	495-1	853	7
Campbell Creek	496-1	365	7
Campbell Creek	500-1	1367	7
Campbell Creek	500-6	1367	7
Campbell Creek	506-1	881	7
Campbell Creek	546-2	1200	7
Campbell Creek	565-1	1198	7
Campbell Creek	581-1	843	7
Campbell Creek	588-1	259	7
Campbell Creek	602-1	794	7
Campbell Creek	616-1	837	7
Campbell Creek	642-1	866	7
Campbell Creek	673-1	883	7
Campbell Creek	673-16	883	7
Campbell Creek	84-1	896	7
Chester Creek	117-1	564	7
Chester Creek	1267-251	1248	7
Chester Creek	258-1	131	7
Chester Creek	302-2	554	7
Chester Creek	314-23	219	7
Chester Creek	339-1	586	7
Chester Creek	376-1	612	7
Chester Creek	399-1	521	7
Chester Creek	416-1	517	7
Chester Creek	418-1	560	7
Chester Creek	509-12	128	7
Chester Creek	519-1	599	7
Chester Creek	525-2	554	7
Chester Creek	53-1	129	7
Chester Creek	547-1	596	7
Chester Creek	578-1	499	7
Chester Creek	679-21	134	7



Watershed	Outfall ID	Subbasin ID	Total Score
Chester Creek	683-1	546	7
Chester Creek	700-10	584	7
Chester Creek	98-2	221	7
Eagle River	303-1	754	7
Fish Creek	1310-201	1278	7
Fish Creek	1312-19	1280	7
Fish Creek	137-1	1260	7
Fish Creek	228-1	1030	7
Fish Creek	234-1	867	7
Fish Creek	32-1	774	7
Fish Creek	37-1	1020	7
Fish Creek	429-1	761	7
Fish Creek	480-1	1018	7
Fish Creek	555-1	816	7
Fish Creek	584-1	782	7
Fish Creek	595-1	777	7
Fish Creek	595-8	777	7
Fish Creek	661-26	1273	7
Fish Creek	79-353	1267	7
Furrow Creek	1345-1	1102	7
Furrow Creek	216-10	1046	7
Furrow Creek	293-1	673	7
Furrow Creek	332-1	1050	7
Furrow Creek	34-2	915	7
Furrow Creek	395-1	1109	7
Furrow Creek	402-1	1051	7
Furrow Creek	592-1	725	7
Furrow Creek	617-1	905	7
Furrow Creek	634-1	1028	7
Furrow Creek	95-2	915	7
Hood Creek	502-16	1013	7
Ship Creek	1363-1	1335	7
Ship Creek	690-1	956	7
Chester Creek	574-1	490	6
Chester Creek	575-1	490	6
Fish Creek	191-1	783	6
Campbell Creek	<Null>	1331	5
Campbell Creek	1477-1	1201	5
Campbell Creek	65-2	410	5
Campbell Creek	685-1	875	5
Campbell Creek	685-7	875	5
Campbell Creek	703-1	1331	5



Watershed	Outfall ID	Subbasin ID	Total Score
Chester Creek	163-5	136	5
Chester Creek	244-2	136	5
Chester Creek	319-1	220	5
Chester Creek	321-1	557	5
Chester Creek	361-1	606	5
Fish Creek	1277-59	1279	5
Campbell Creek	<Null>	1443	4
Campbell Creek	1432-1	1432	4
Campbell Creek	1456-1	1433	4
Campbell Creek	1465-1	1377	4
Campbell Creek	1474-1	1311	4
Campbell Creek	181-1	836	4
Campbell Creek	285-1	1205	4
Campbell Creek	40-4	1310	4
Campbell Creek	405-1	849	4
Campbell Creek	408-1	326	4
Campbell Creek	433-1	844	4
Campbell Creek	433-14	844	4
Campbell Creek	446-1	1206	4
Campbell Creek	461-16	403	4
Campbell Creek	487-1	834	4
Campbell Creek	505-1	897	4
Campbell Creek	529-1	874	4
Campbell Creek	551-1	309	4
Campbell Creek	586-1	277	4
Campbell Creek	598-18	404	4
Campbell Creek	60-1	889	4
Campbell Creek	619-1	888	4
Campbell Creek	626-1	892	4
Campbell Creek	626-5	892	4
Campbell Creek	732-1	894	4
Campbell Creek	99-1	898	4
Chester Creek	115-1	486	4
Chester Creek	1265-40	1246	4
Chester Creek	139-1	565	4
Chester Creek	140-1	565	4
Chester Creek	1462-1	1458	4
Chester Creek	218-1	580	4
Chester Creek	259-1	615	4
Chester Creek	26-14	519	4
Chester Creek	301-1	174	4
Chester Creek	304-1	603	4



Watershed	Outfall ID	Subbasin ID	Total Score
Chester Creek	415-1	528	4
Chester Creek	419-6	510	4
Chester Creek	488-1	508	4
Chester Creek	492-1	545	4
Chester Creek	517-17	225	4
Chester Creek	587-1	168	4
Chester Creek	665-1	488	4
Chester Creek	889-1	617	4
Eagle River	1390-2	1297	4
Eagle River	1391-1	1298	4
Eagle River	1455-1	1287	4
Eagle River	646-71	1292	4
Fire Creek	1392-1	1299	4
Fire Creek	1393-1	1300	4
Fish Creek	1054-1	1190	4
Fish Creek	264-1	798	4
Fish Creek	494-1	762	4
Fish Creek	610-1	739	4
Fish Creek	684-1	759	4
Furrow Creek	1344-8	1393	4
Hood Creek	1264-37	1264	4
Hood Creek	142-1	768	4
Hood Creek	315-2	1014	4
Hood Creek	486-1	765	4
Ship Creek	1431-1	1436	4
Ship Creek	278-1	1250	4
Campbell Creek	1019-2	1352	2
Campbell Creek	155-3	1203	2
Campbell Creek	183-8	736	2
Campbell Creek	290-46	1324	2
Campbell Creek	364-1	296	2
Campbell Creek	427-2	163	2
Campbell Creek	501-4	1326	2
Campbell Creek	612-1	1204	2
Campbell Creek	74-2	1327	2
Chester Creek	125-1	529	2
Chester Creek	378-3	571	2
Chester Creek	387-1	620	2
Chester Creek	542-1	610	2
Chester Creek	580-11	622	2
Chester Creek	624-4	611	2
Hood Creek	249-1	781	2



Watershed	Outfall ID	Subbasin ID	Total Score
Campbell Creek	692-15 ^a	-	-
Campbell Creek	692-24 ^a	-	-
Glacier Creek	-. ^b	-	-

^a Outfalls 692-15 and 692-24 drain to Campbell Creek at E. 68th Ave. between Brayton Dr. and Meadow St. As of May 23, 2022, the HGDB does not have the subbasin that drains to the outfall mapped. The HGDB needs to be updated and the outfalls need to receive a prioritization score.

^b An unnumbered outfall drains to Glacier Creek at Girdwood Pl. and Holmgren Pl. This outfall and the connected drainageways were added to the HGDB on August 20, 2020. As of May 23, 2022, a subbasin for this network has not delineated in the HGDB. The HGDB needs to be updated and the outfall needs to receive a prioritization score.

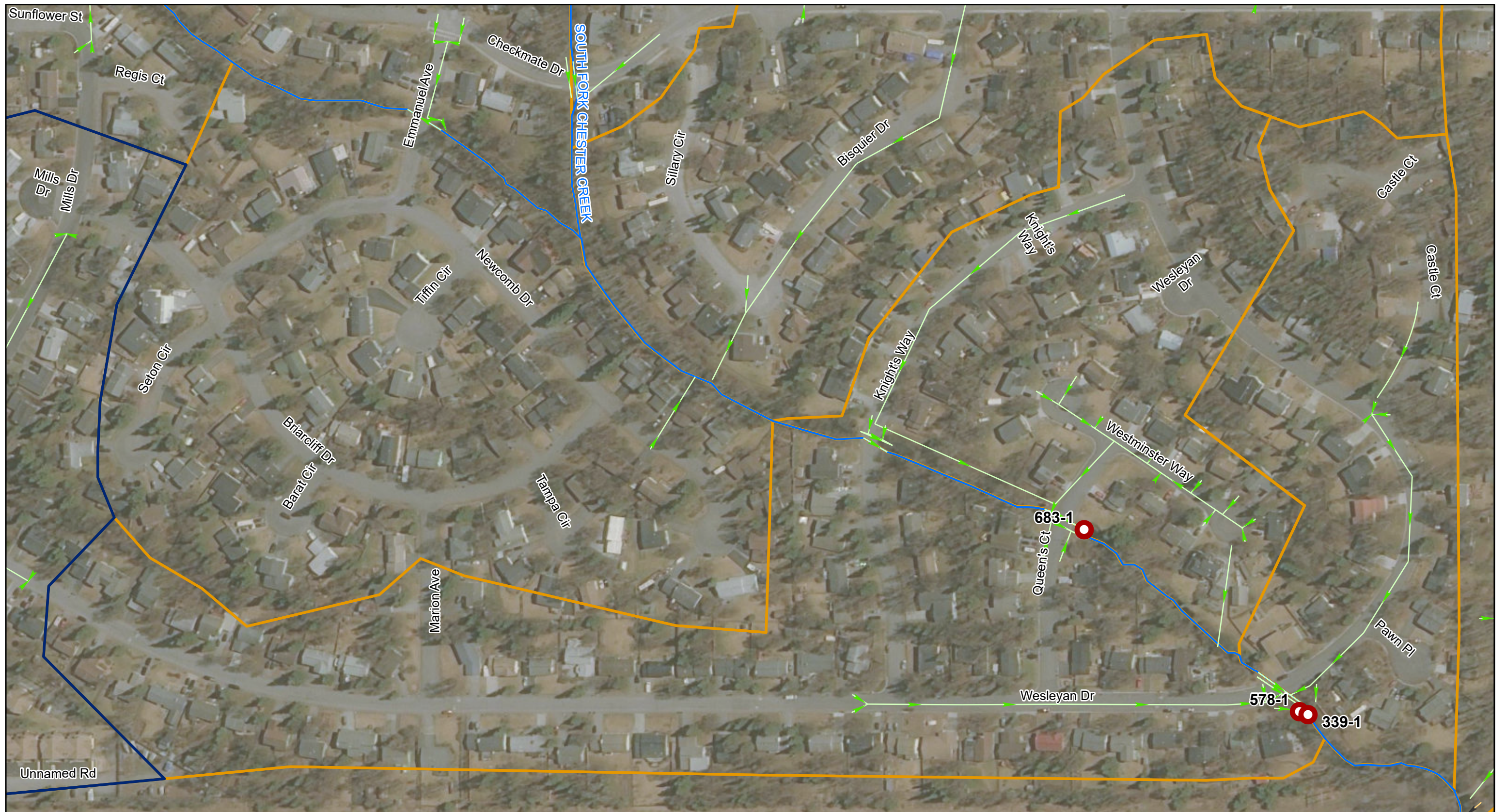


Appendix B

Watershed Maps



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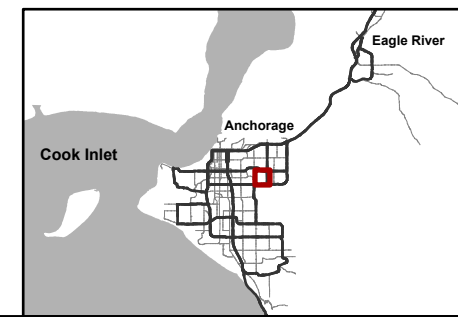


LEGEND

- Watershed
- MS4 Subbasin
- Stream

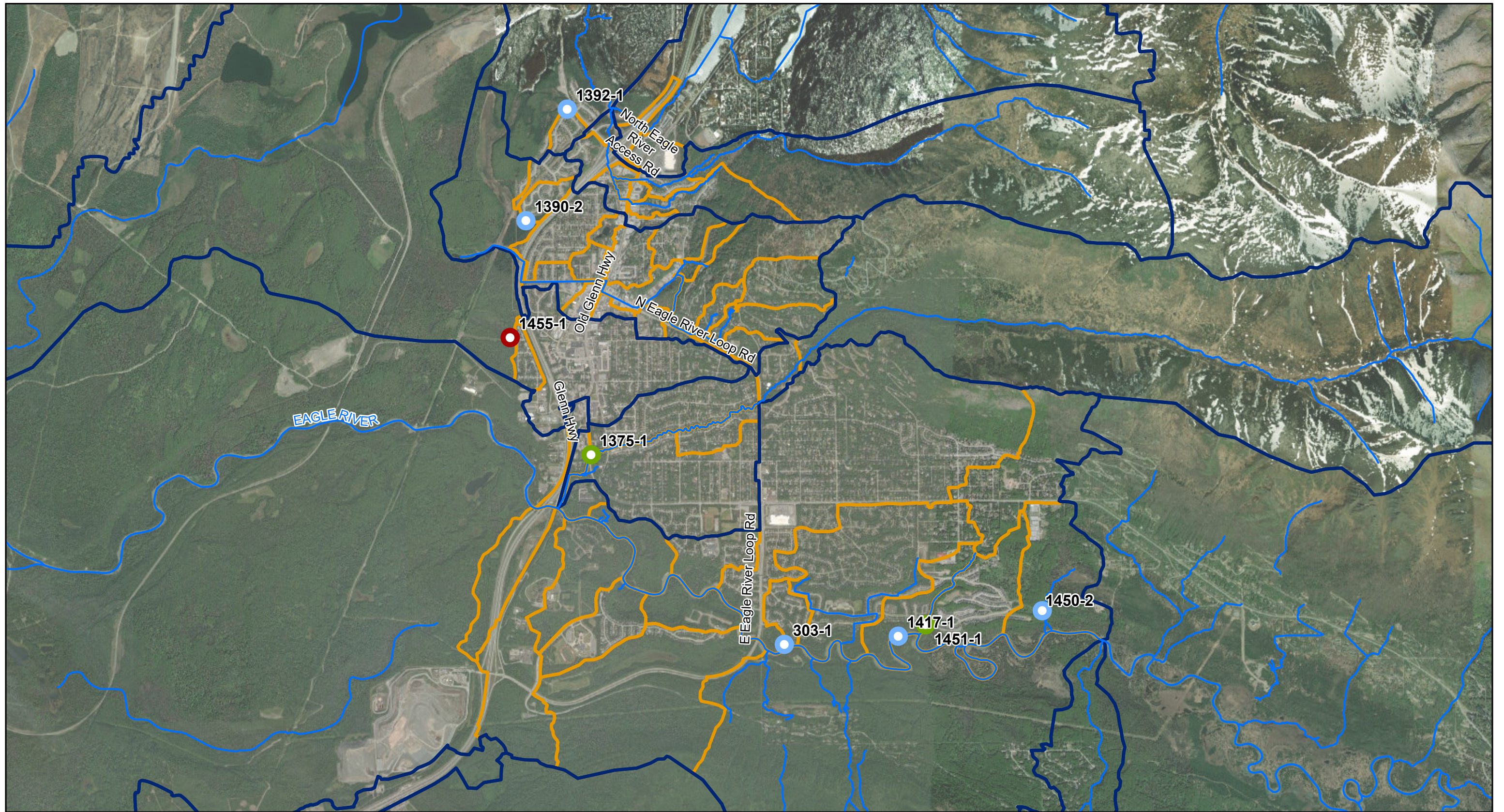
- 2022 Outfalls**
- Could not access/locate

- MS4 Drainageway**
- Closed
 - Open



Dry Weather Screening 2022
Chester Creek, Page 1 of 1
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022

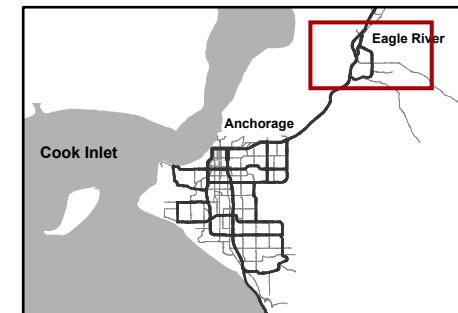
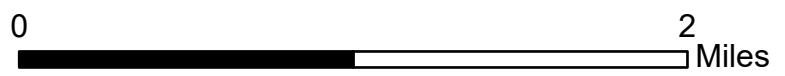




LEGEND

- Watershed
- MS4 Subbasin
- Stream

- 2022 Outfalls
- Screened
 - Sampled
 - Could not access/locate

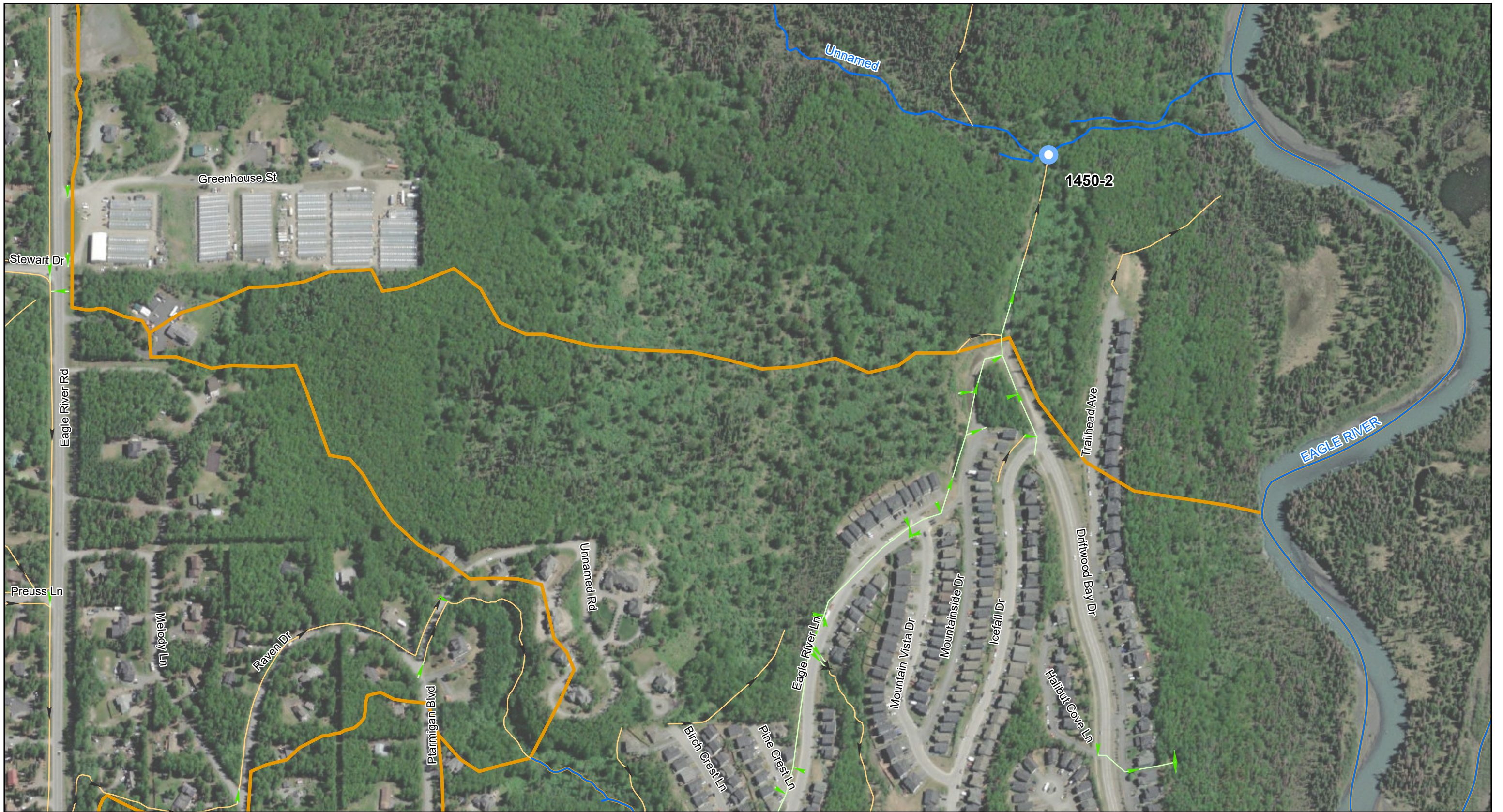


Dry Weather Screening 2022
Eagle River, Page 1 of 8







Attempted Outfall Locations

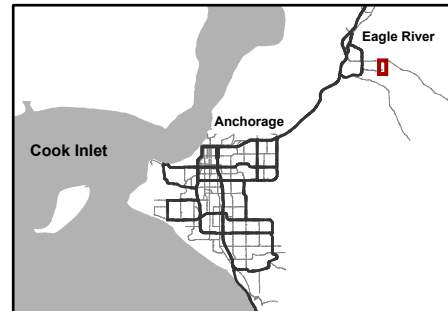
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Eagle River, Page 2 of 8

Attempted Outfall Locations

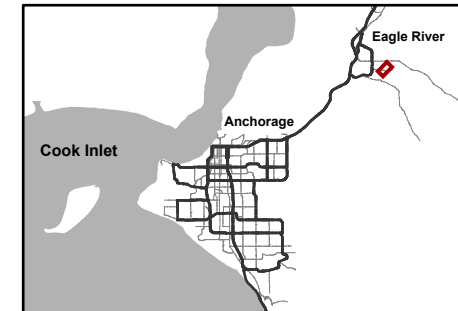
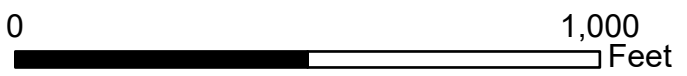
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

- | | | |
|--------------|----------------------|------------------------|
| Watershed | 2022 Outfalls | MS4 Drainageway |
| MS4 Subbasin | Screened | Closed |
| Stream | Sampled | Open |



Dry Weather Screening 2022
Eagle River, Page 3 of 8







Attempted Outfall Locations

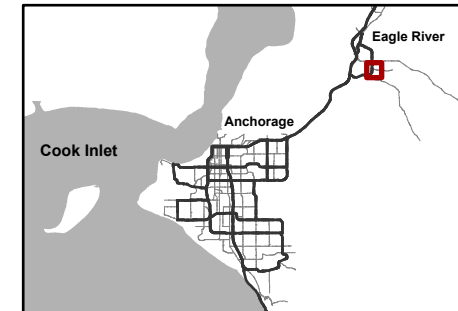
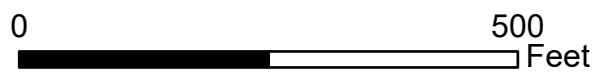
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Eagle River, Page 4 of 8







Attempted Outfall Locations

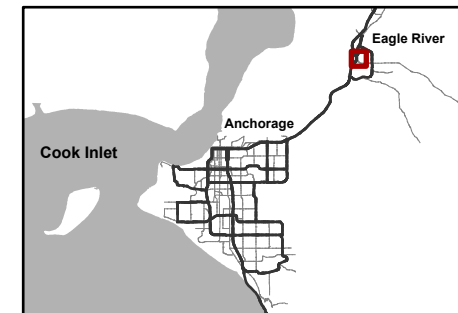
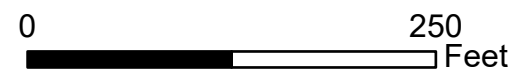
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Sampled
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Eagle River, Page 5 of 8



Attempted Outfall Locations


Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





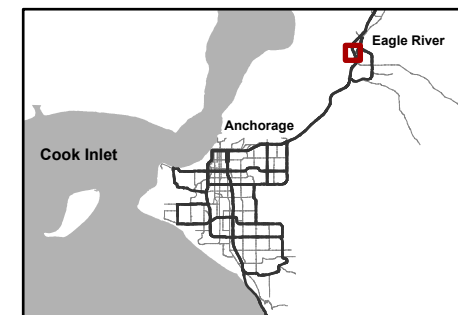


LEGEND

-  Watershed
-  MS4 Subbasin

- 2022 Outfalls
-  Could not access/locate

- MS4 Drainageway
-  Closed
 -  Open

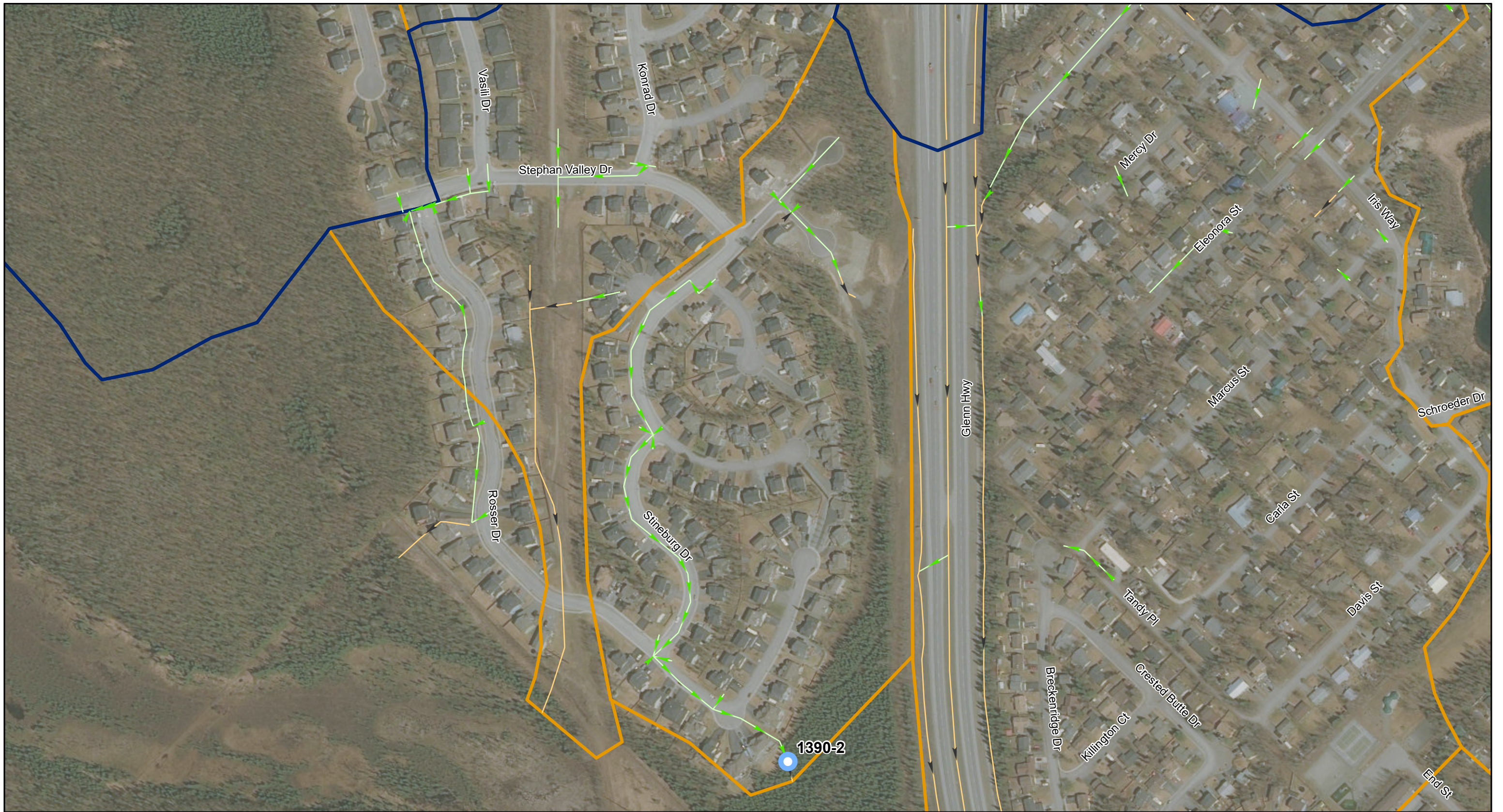


Dry Weather Screening 2022
Eagle River, Page 6 of 8



Attempted Outfall Locations


Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022





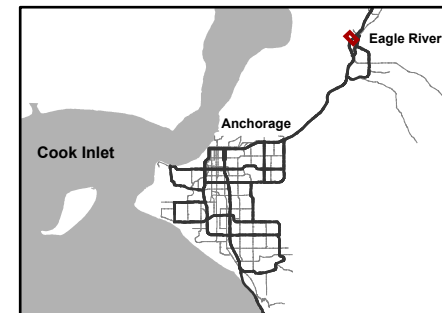


LEGEND

-  Watershed
-  MS4 Subbasin

- 2022 Outfalls**
-  Screened

- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Eagle River, Page 7 of 8





Attempted Outfall Locations

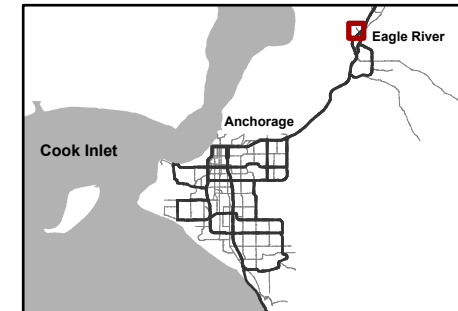
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  2022 Outfalls Screened
-  MS4 Drainageway Closed

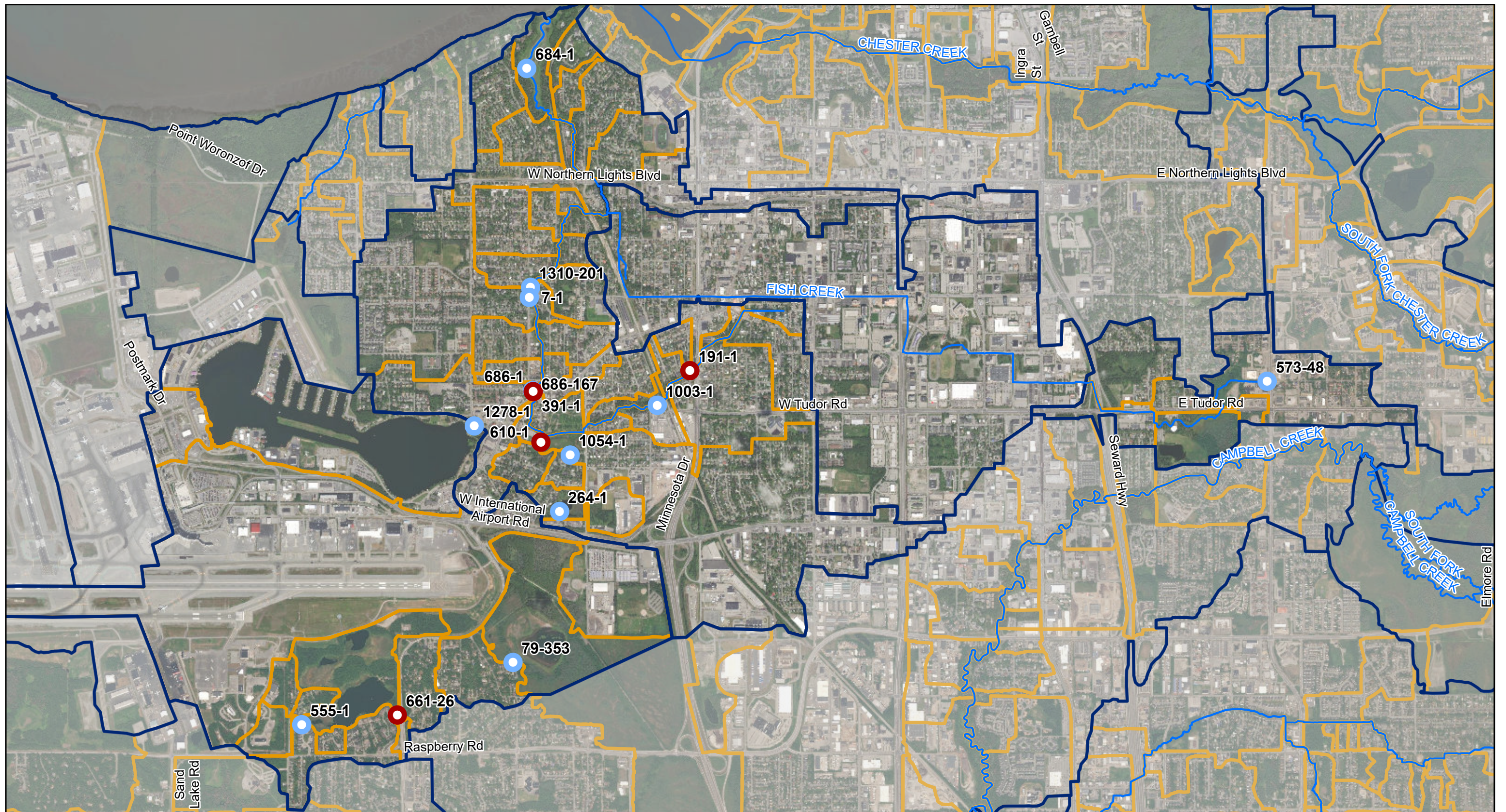


Dry Weather Screening 2022
Eagle River, Page 8 of 8

Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022

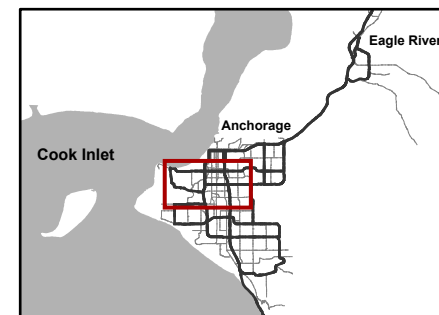




LEGEND

- Watershed
- MS4 Subbasin
- Stream

- 2022 Outfalls
- Screened
 - Could not access/locate

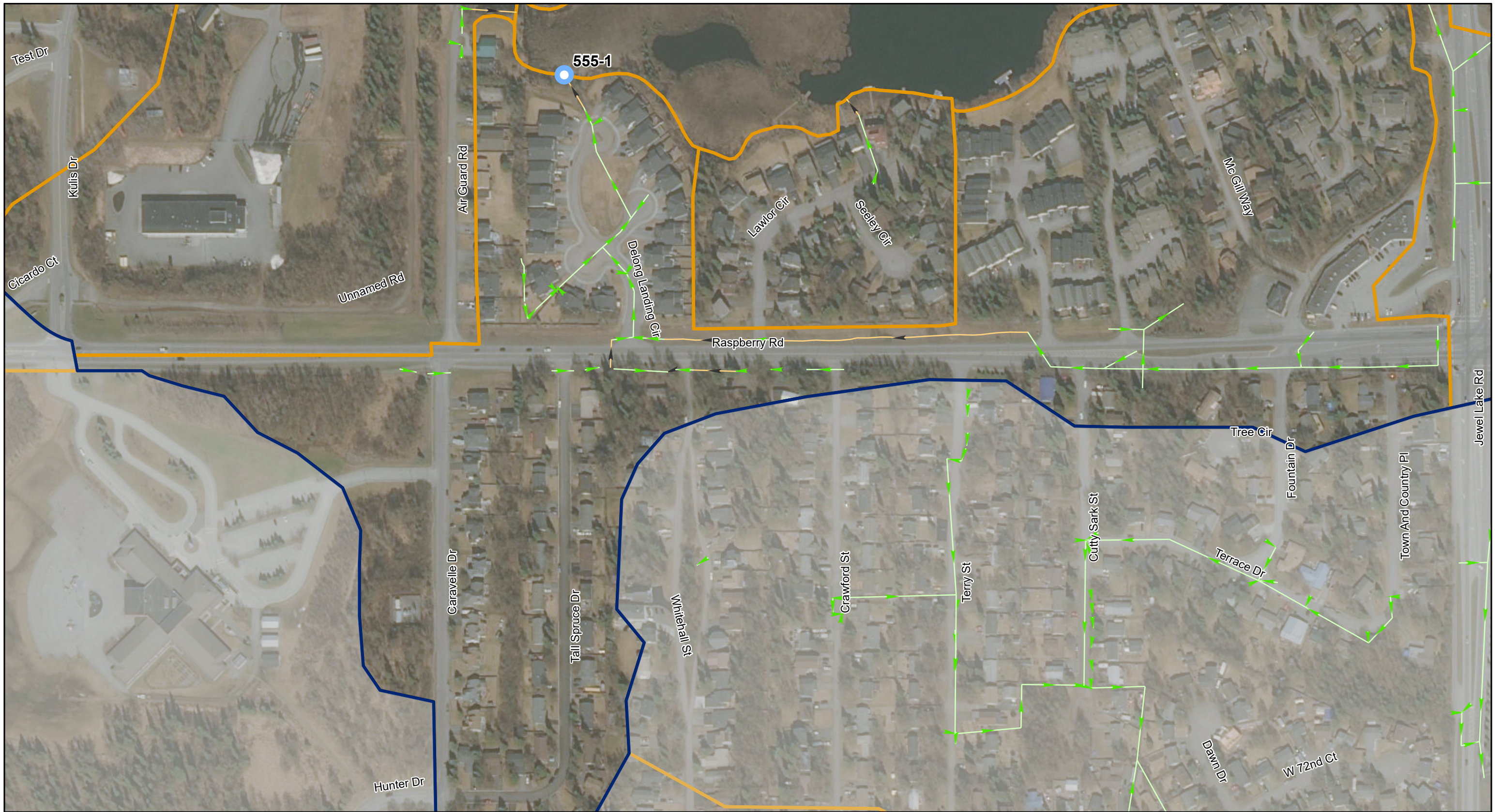


Dry Weather Screening 2022
Fish Creek, Page 1 of 15






Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



**Dry Weather Screening 2022
Fish Creek, Page 2 of 15**





Attempted Outfall Locations

Source: MOA HGDB 2021
Imagery: ESRI World Imagery
HDR Alaska, Inc.
7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  2022 Outfalls
Could not access/locate
-  MS4 Drainageway
Closed



Dry Weather Screening 2022
Fish Creek, Page 3 of 15






Attempted Outfall Locations

Source: MOA HGDB 2021
Imagery: ESRI World Imagery
HDR Alaska, Inc.
7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open








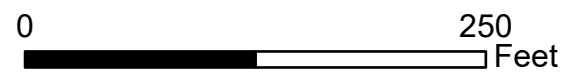
Dry Weather Screening 2022
Fish Creek, Page 4 of 15
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  2022 Outfalls
Screened
-  MS4 Drainageway
Closed
-  Open



Dry Weather Screening 2022
Fish Creek, Page 5 of 15






Attempted Outfall Locations

Source: MOA HGDB 2021
Imagery: ESRI World Imagery
HDR Alaska, Inc.
7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open

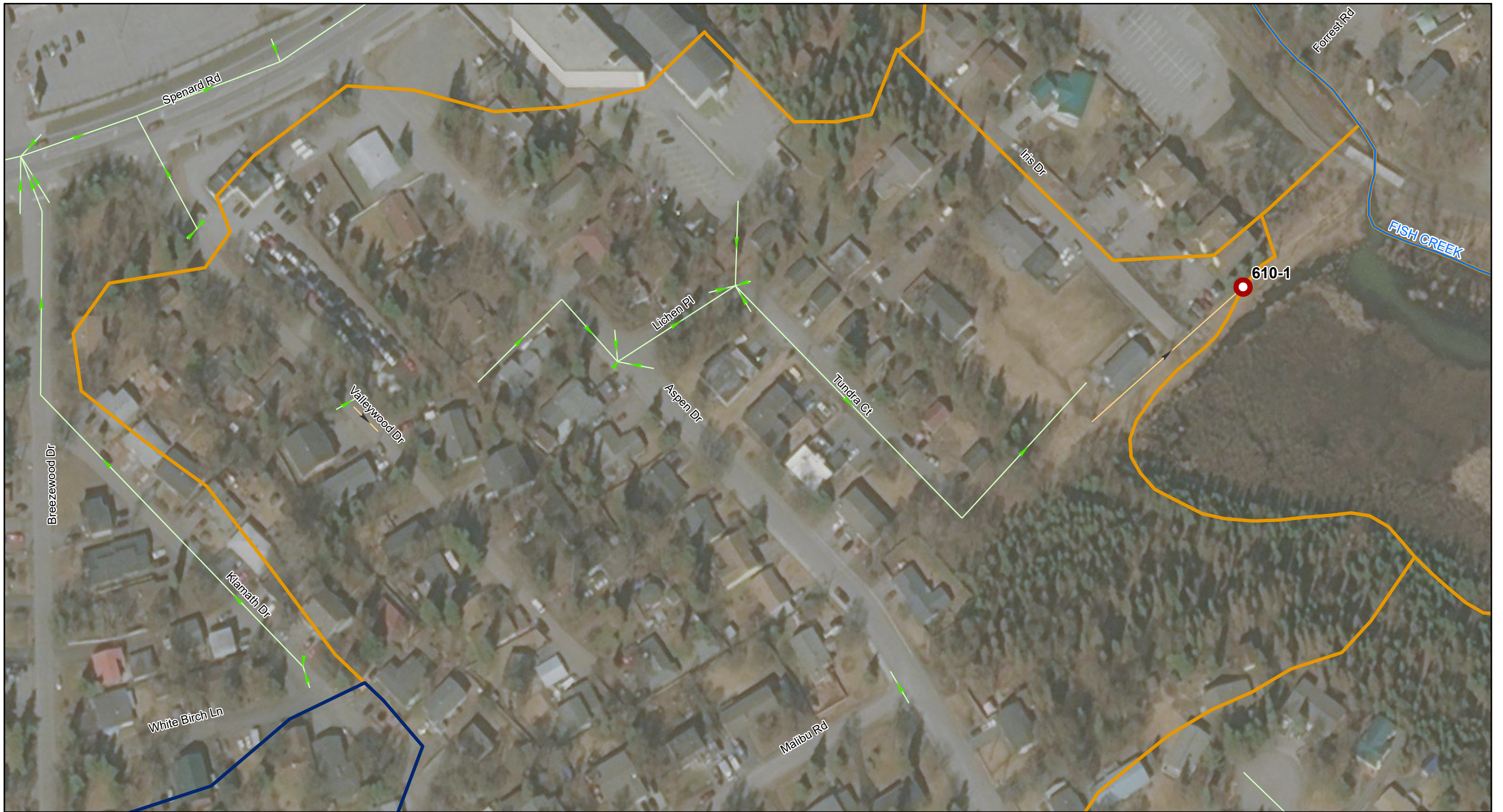


Dry Weather Screening 2022
Fish Creek, Page 6 of 15




Attempted Outfall Locations


Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022







LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream

- 2022 Outfalls
-  Could not access/locate

- MS4 Drainageway
-  Closed
 -  Open

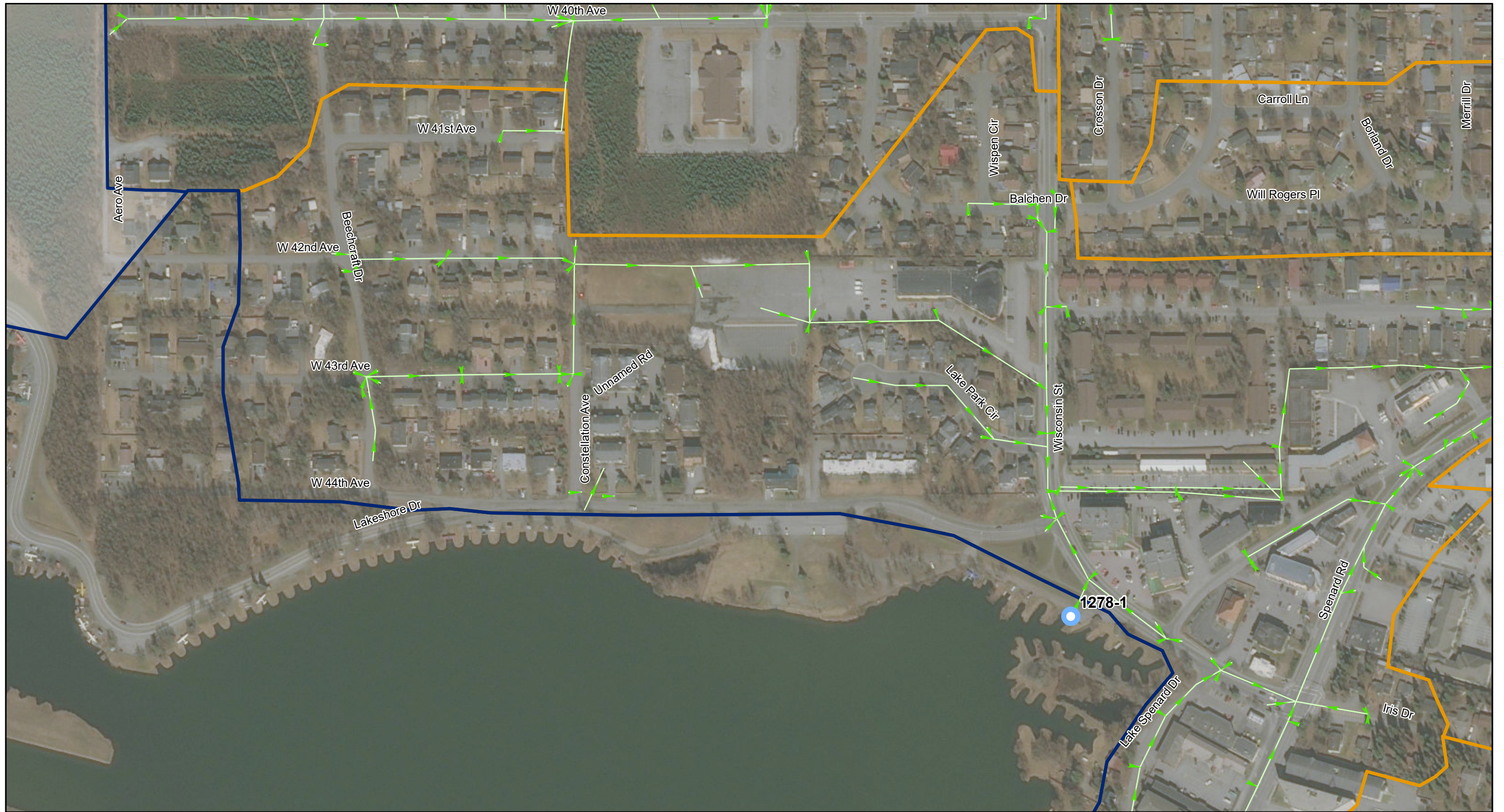


Dry Weather Screening 2022
Fish Creek, Page 7 of 15





Attempted Outfall Locations

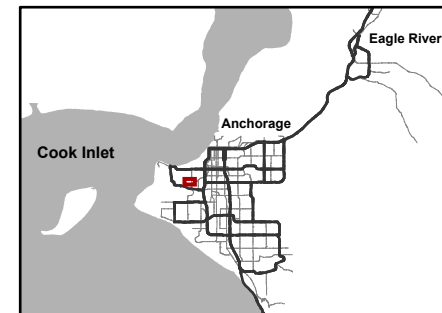
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  2022 Outfalls Screened
-  MS4 Drainageway Closed

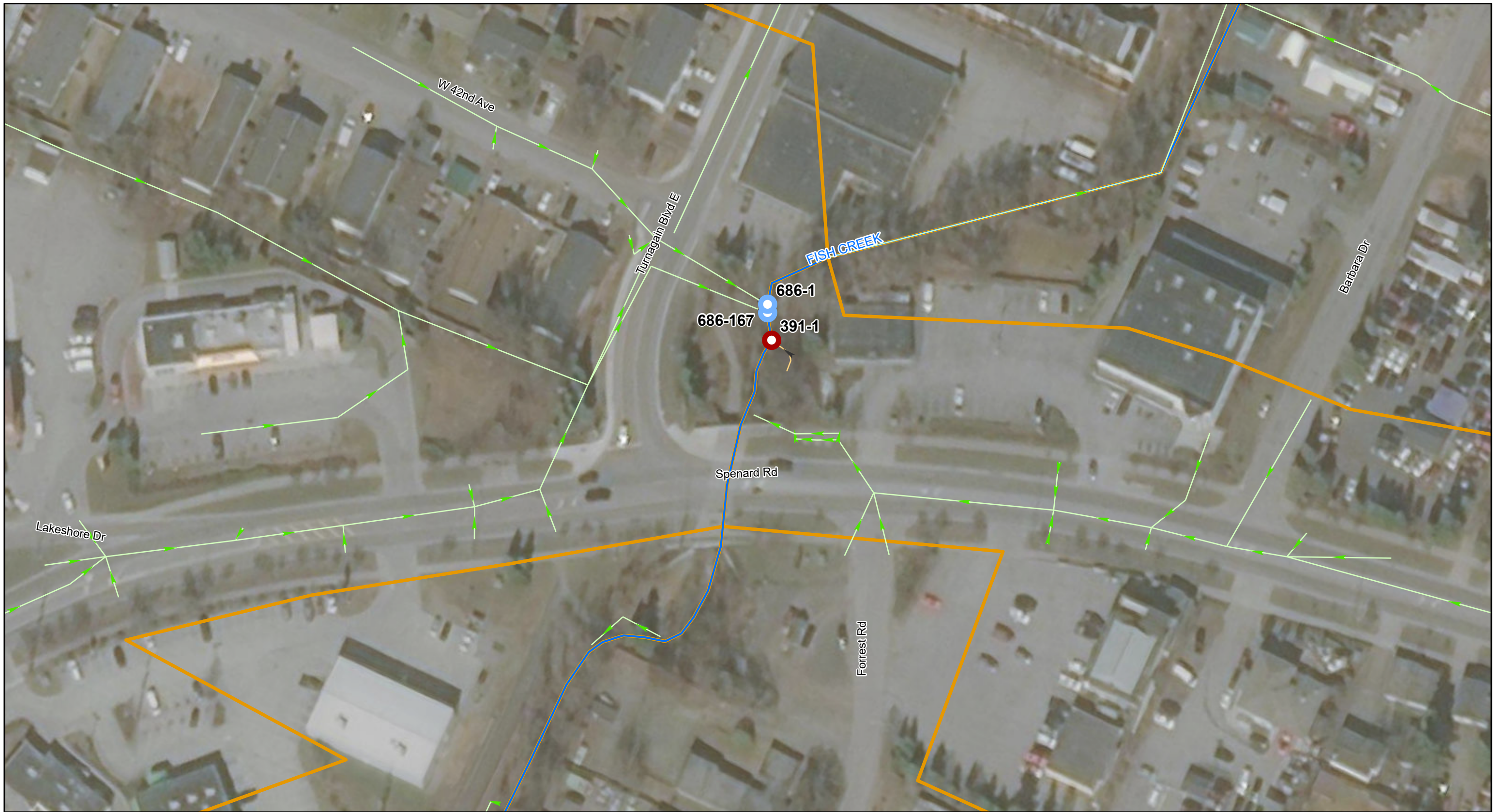


Dry Weather Screening 2022
Fish Creek, Page 8 of 15

Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022



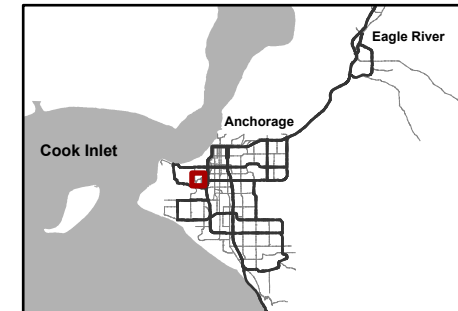


LEGEND

- Watershed
- MS4 Subbasin
- Stream

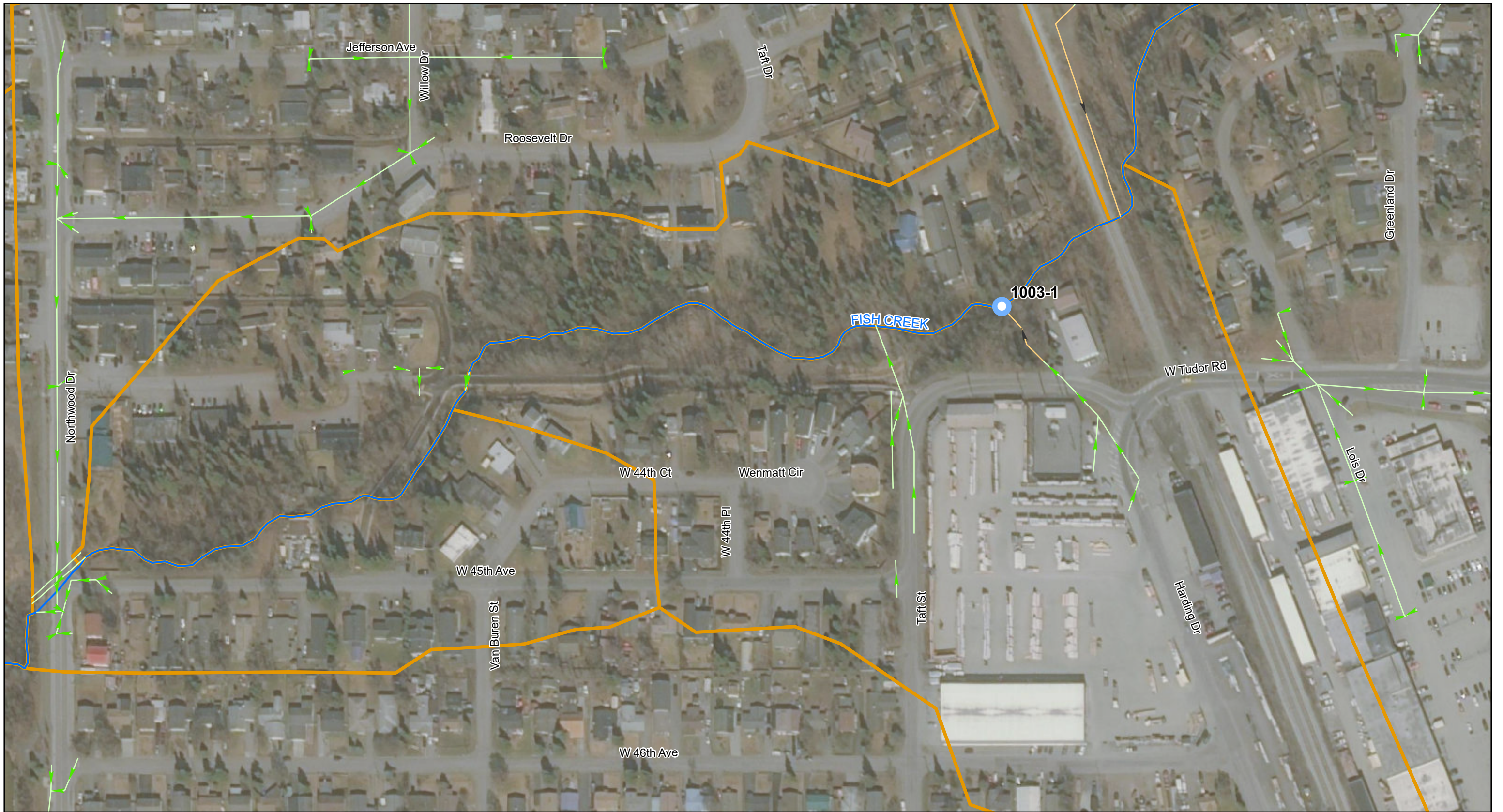
- 2022 Outfalls**
- Screened
 - Could not access/locate

- MS4 Drainageway**
- Closed
 - Open









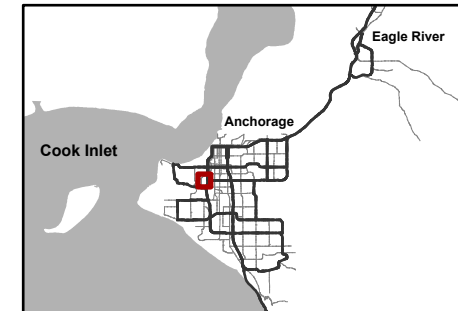
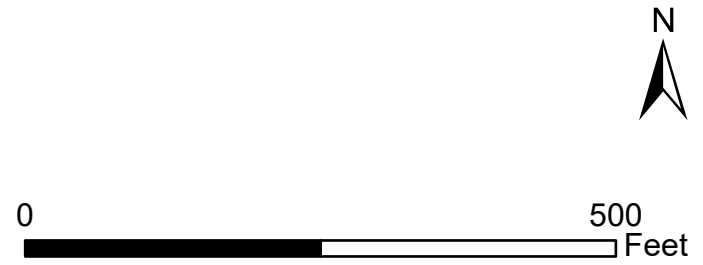
Dry Weather Screening 2022
Fish Creek, Page 9 of 15
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Fish Creek, Page 10 of 15
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022



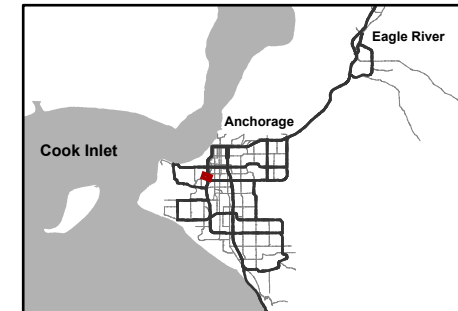
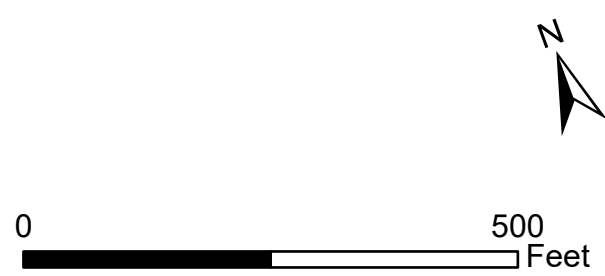


LEGEND

- Watershed
- MS4 Subbasin
- Stream

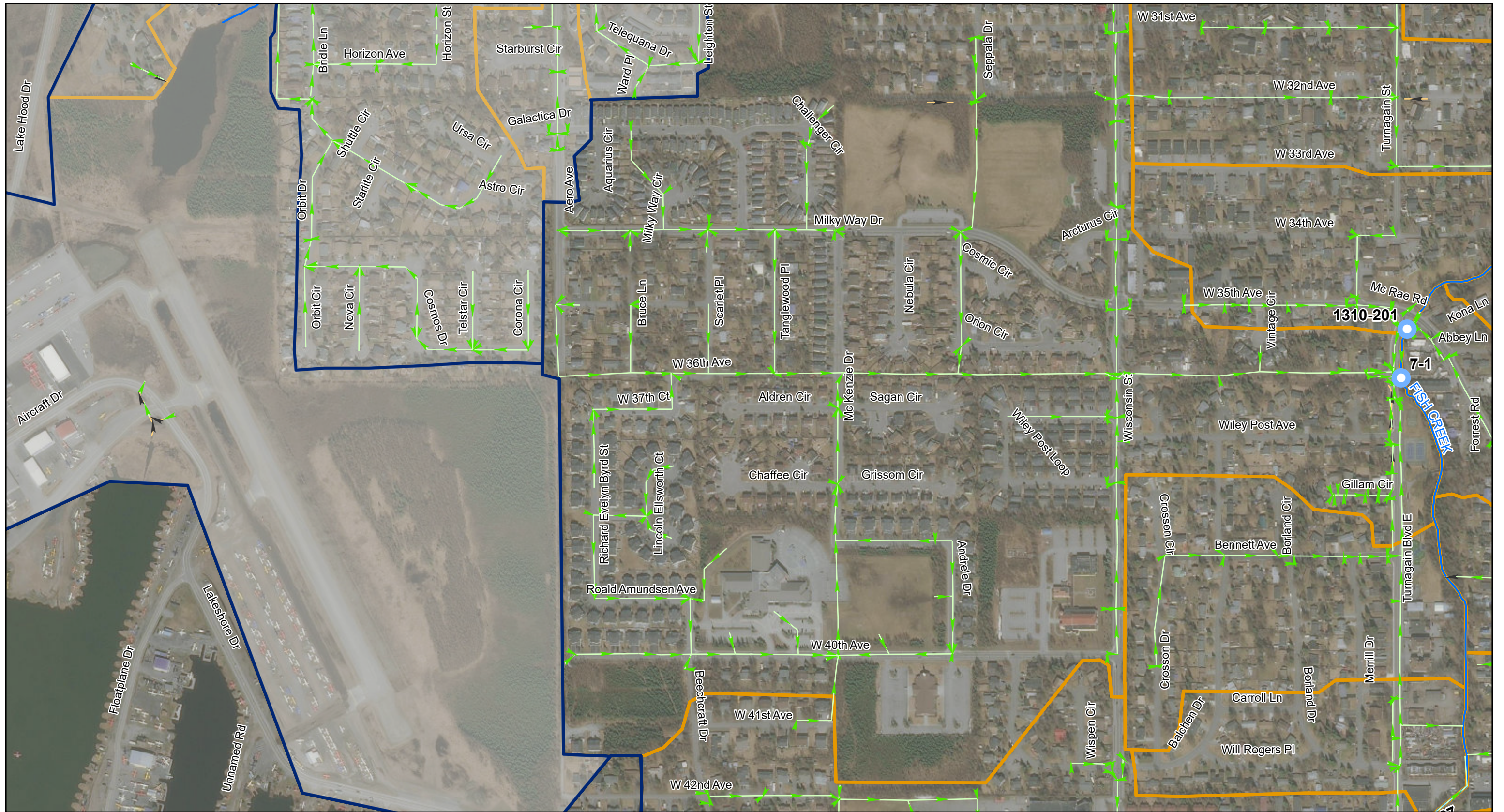
- 2022 Outfalls
- Could not access/locate

- MS4 Drainageway
- Closed
 - Open









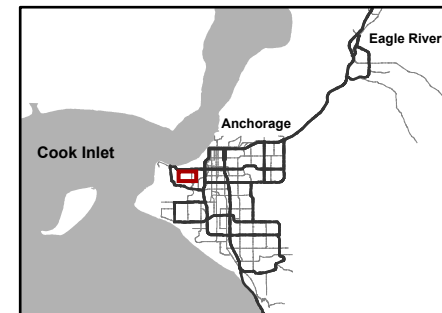
Dry Weather Screening 2022
Fish Creek, Page 11 of 15
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open

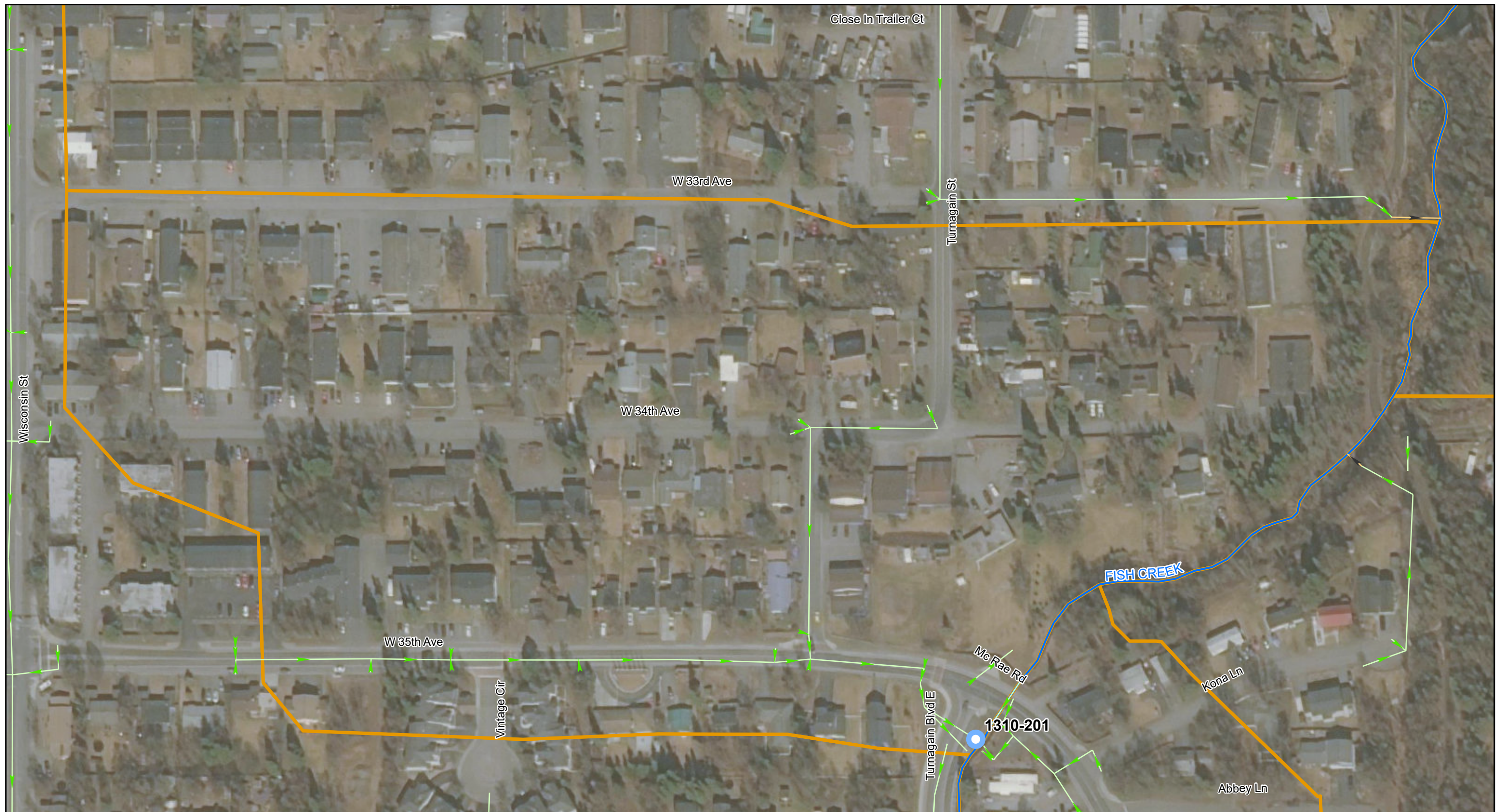


**Dry Weather Screening 2022
Fish Creek, Page 12 of 15**







Attempted Outfall Locations

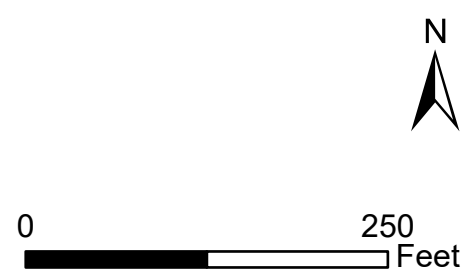
Source: MOA HGDB 2021
Imagery: ESRI World Imagery
HDR Alaska, Inc.
7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Fish Creek, Page 13 of 15







Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open

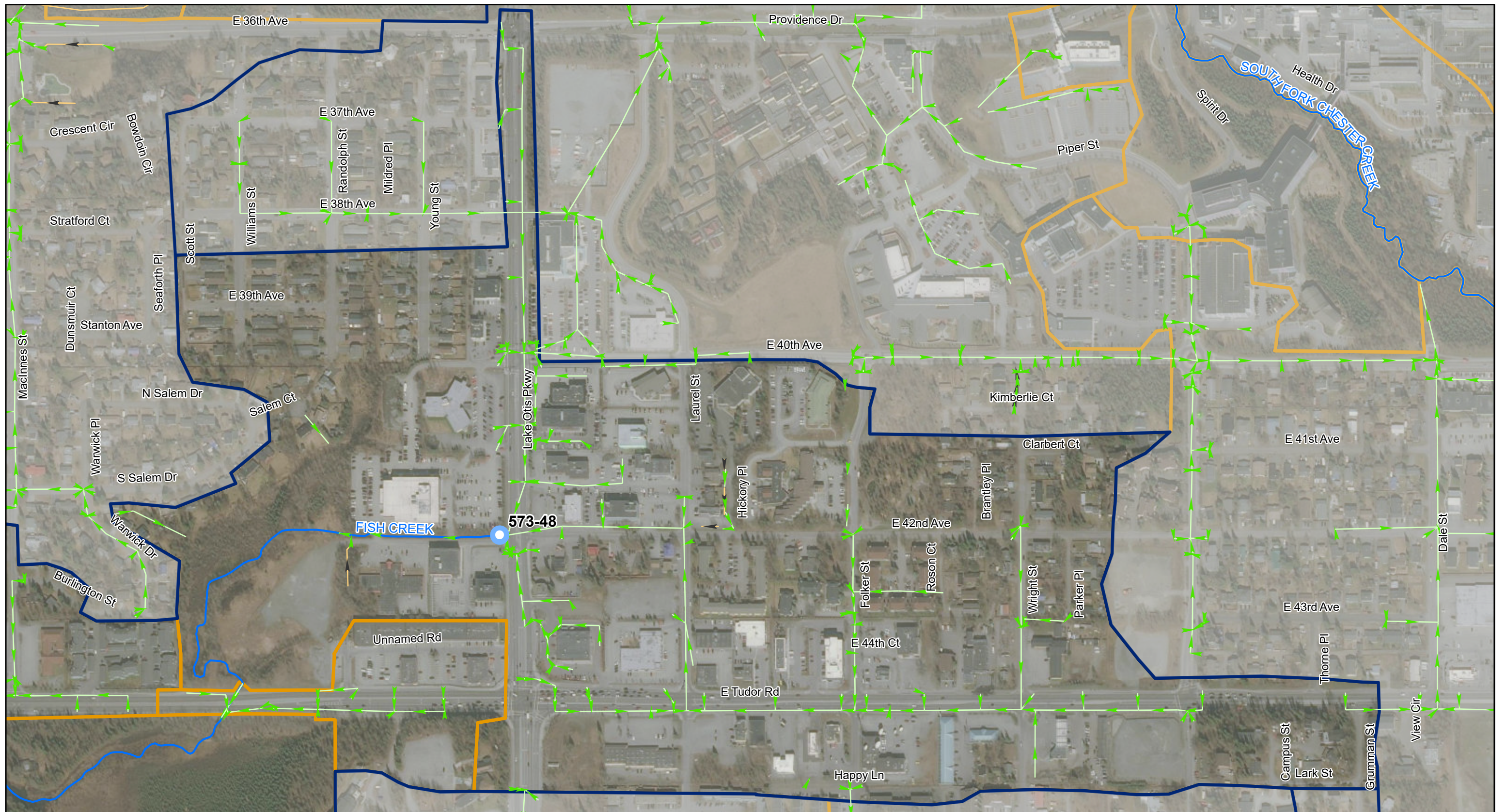


Dry Weather Screening 2022
Fish Creek, Page 14 of 15







Attempted Outfall Locations

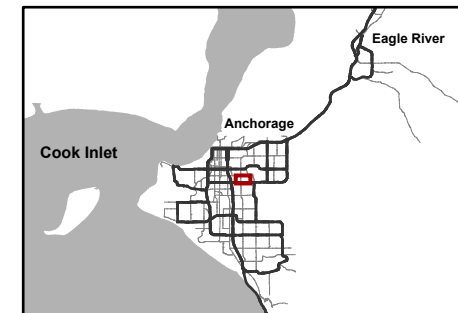
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 HDR Alaska, Inc.
 7/20/2022





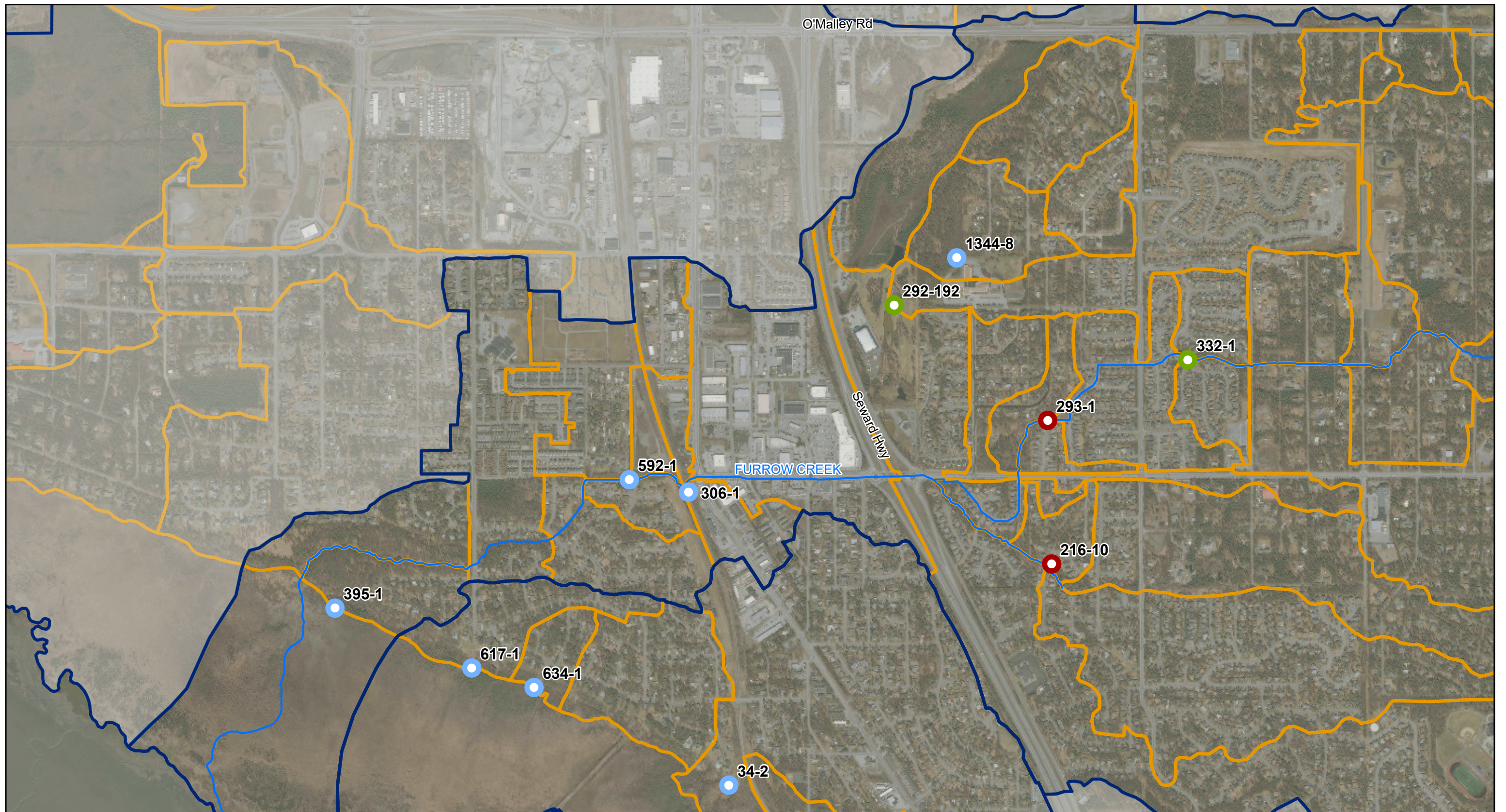
LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Fish Creek, Page 15 of 15
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022

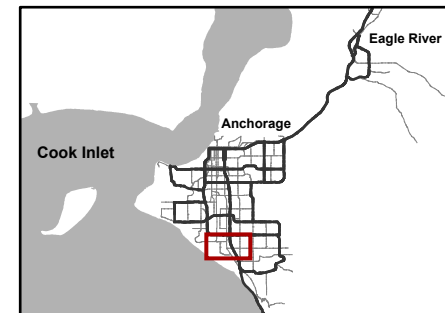
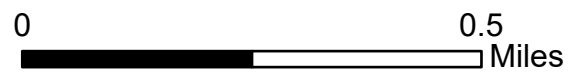




LEGEND

- Watershed
- MS4 Subbasin
- Stream

- 2022 Outfalls
- Screened
 - Sampled
 - Could not access/locate

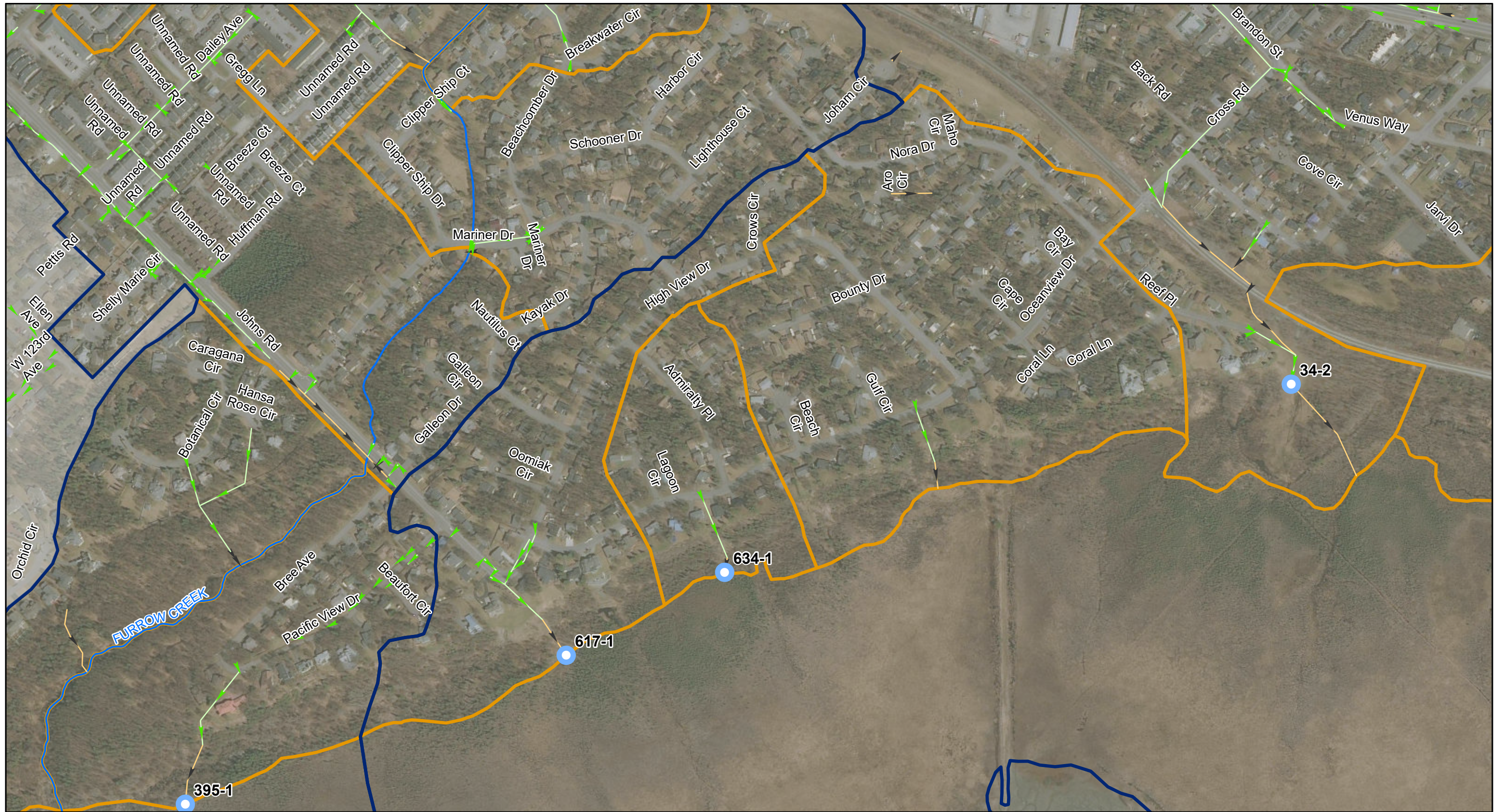


Dry Weather Screening 2022
Furrow Creek, Page 1 of 9







Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/14/2022





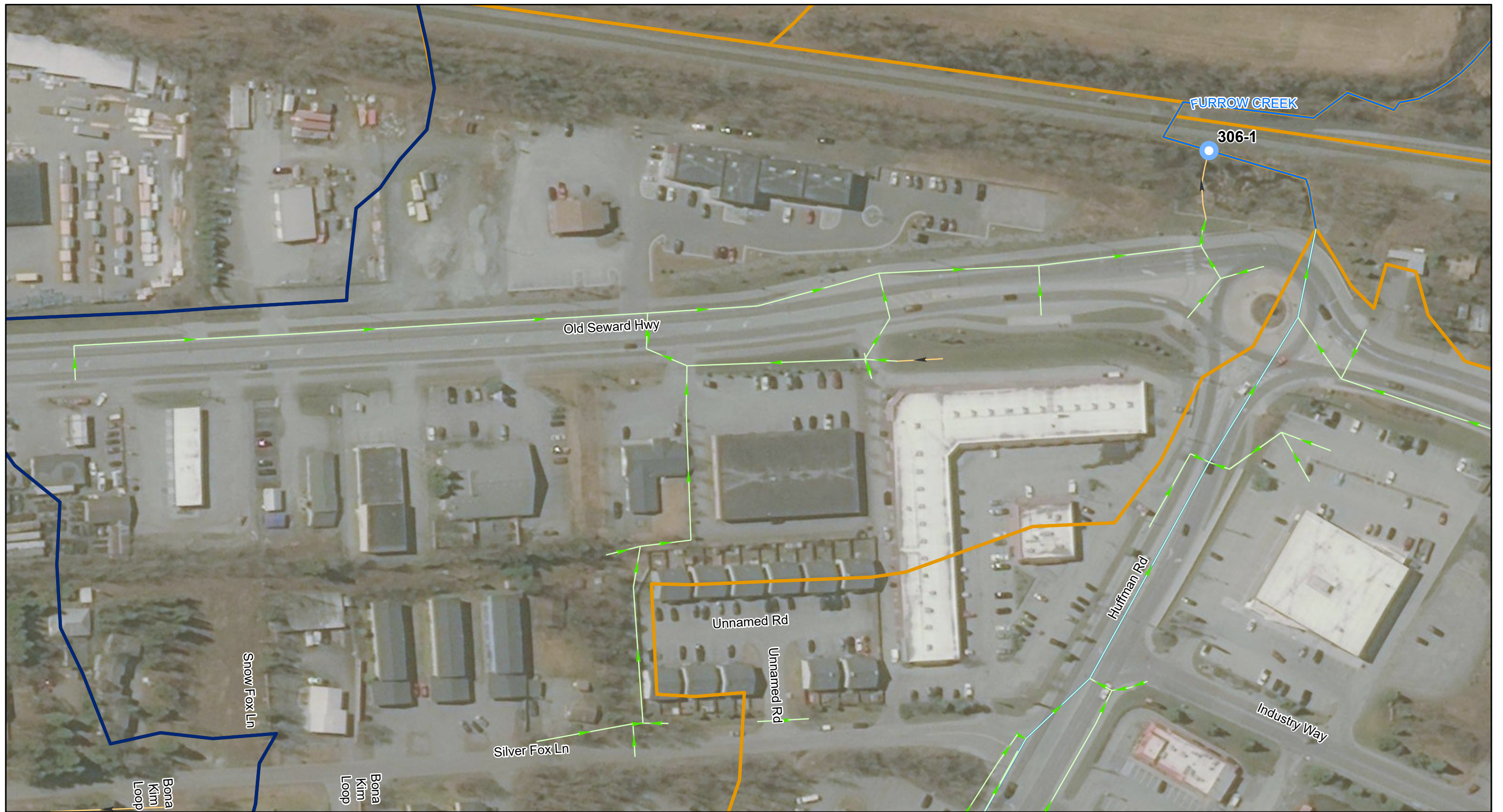
LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open









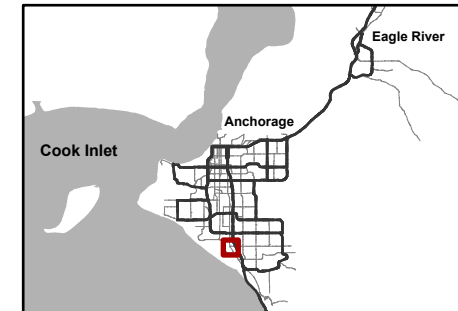
Dry Weather Screening 2022
Furrow Creek, Page 2 of 9
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/14/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Furrow Creek, Page 3 of 9







Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Furrow Creek, Page 4 of 9
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/20/2022





LEGEND

- Watershed
- MS4 Subbasin
- Stream

- 2022 Outfalls
- Could not access/locate

- MS4 Drainageway
- Closed
 - Open



Dry Weather Screening 2022
Furrow Creek, Page 5 of 9







Attempted Outfall Locations

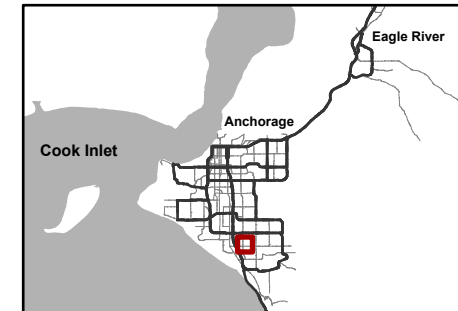
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/14/2022





LEGEND

- | | | |
|--|---|--|
|  Watershed | 2022 Outfalls | MS4 Drainageway |
|  MS4 Subbasin |  Sampled |  Closed |
|  Stream | |  Open |

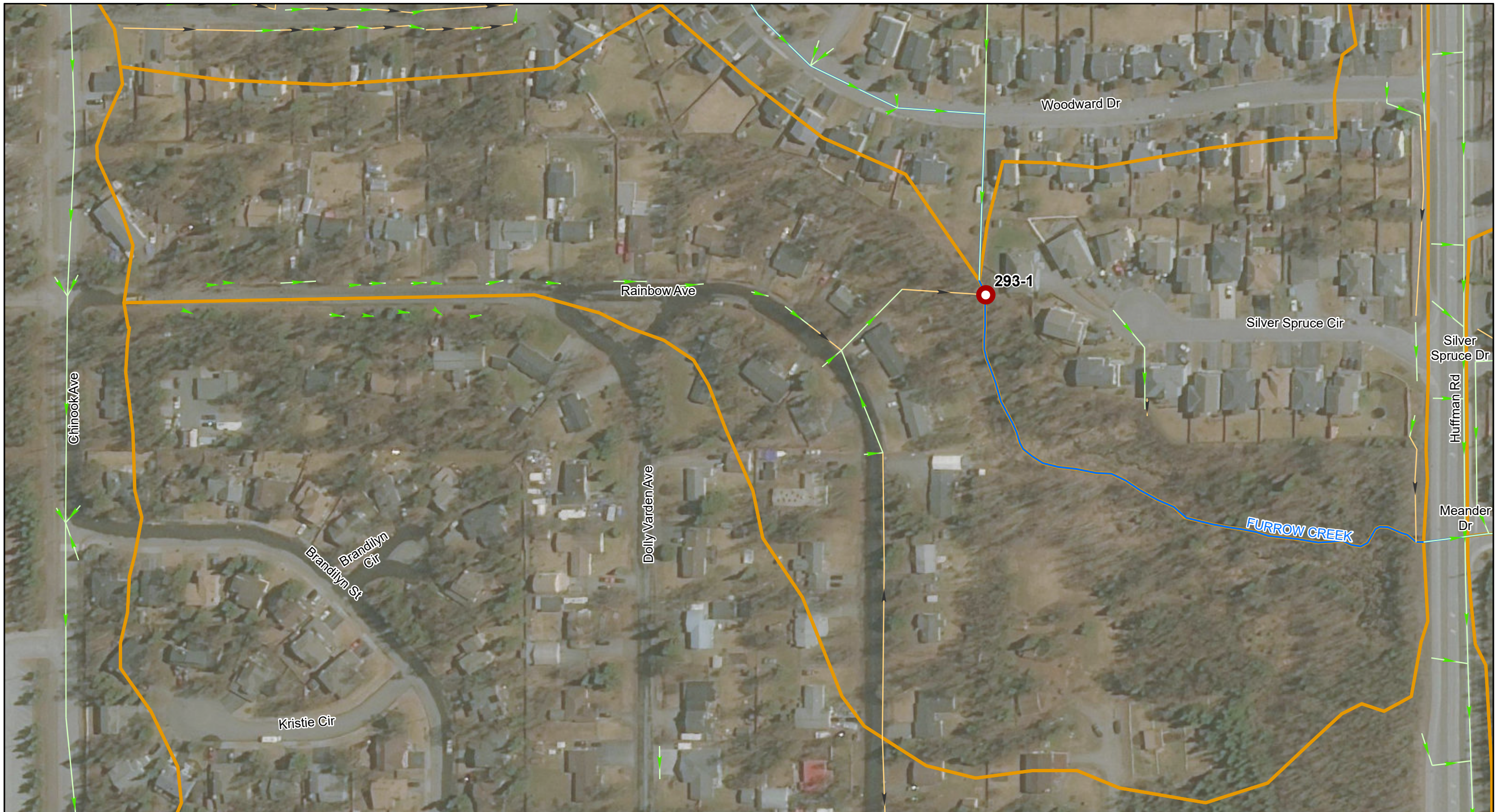


Dry Weather Screening 2022
Furrow Creek, Page 6 of 9

Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/14/2022





LEGEND

- Watershed
- MS4 Subbasin
- Stream

- 2022 Outfalls**
- Could not access/locate

- MS4 Drainageway**
- Closed
 - Open



Dry Weather Screening 2022
Furrow Creek, Page 7 of 9

Attempted Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/14/2022





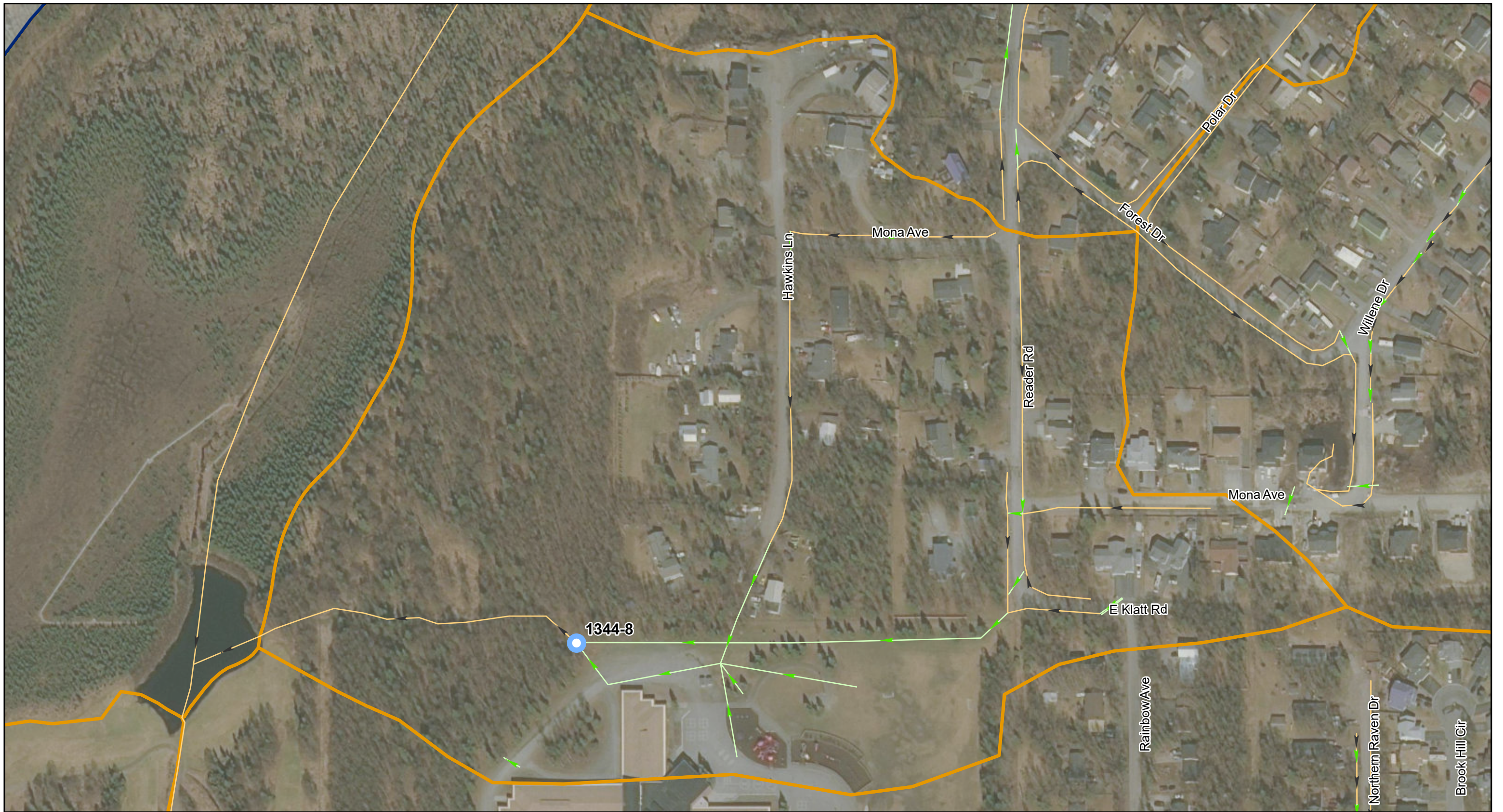
LEGEND

- | | | |
|--------------|----------------------|------------------------|
| Watershed | 2022 Outfalls | MS4 Drainageway |
| MS4 Subbasin | Screened | Closed |
| | Sampled | Open |



Dry Weather Screening 2022
Furrow Creek, Page 8 of 9
 Attempted Outfall Locations
 Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/14/2022





LEGEND

- Watershed
- MS4 Subbasin

- 2022 Outfalls
- Screened

- MS4 Drainageway
- Closed
 - Open

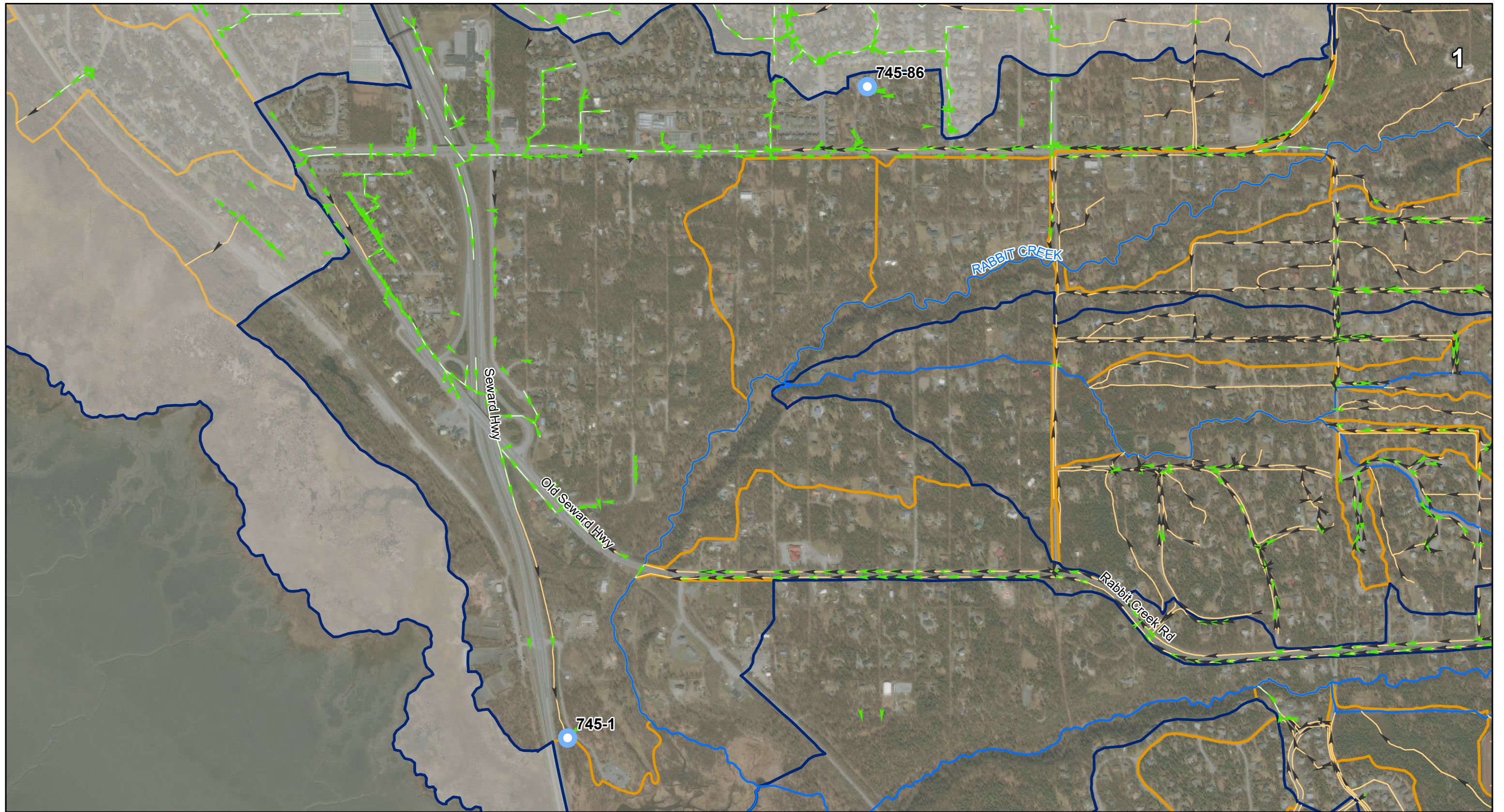


Dry Weather Screening 2022
Furrow Creek, Page 9 of 9







Attempted Outfall Locations

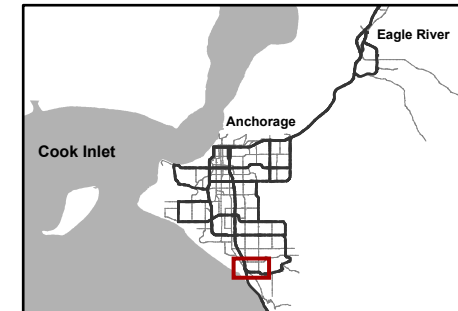
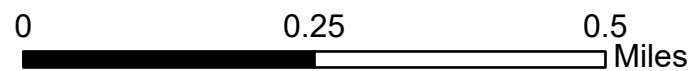
Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/14/2022





LEGEND

-  Watershed
-  MS4 Subbasin
-  Stream
- 2022 Outfalls**
-  Screened
- MS4 Drainageway**
-  Closed
-  Open



Dry Weather Screening 2022
Rabbit Creek, Page 1 of 1

Screened Outfall Locations

Source: MOA HGDB 2021
 Imagery: ESRI World Imagery
 HDR Alaska, Inc.
 7/15/2022





Appendix C

Field Data Forms



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Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 7

Watershed: ER

Outfall Number: 303-1

Part 1. General Information.

1. Date 6-16-2022 Time 10:10
2. Field Crew KG, MA Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event - inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 20" 7. Structural Condition: Good, cmp
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes Good flow
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored _____

Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? Similar flow and water characteristics
16. Is an illicit discharge suspected at the outfall? No Yes from observations in 2020

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>8.3</u> units	<u>8.2</u> units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Outfalls onto rock. Is perched ~5ft
Access via May court.

PS 10

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: ER

Outfall Number: 1375-1

Part 1. General Information.

1. Date 6-16-2022 Time 12:51
2. Field Crew KG, MA Water quality analyses conducted by KG, MA
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 24" 7. Structural Condition: Good, HDPE
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes sample-able flow.
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1/2"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored

Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none.
16. Is an illicit discharge suspected at the outfall? No Yes Outfall is full of trash

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>8.4</u> units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	<u>0</u> mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	<u>0</u> mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	<u>VF 0 / TO</u> mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	<u>0</u> mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	<u>0.63</u> NTU	NTU	NTU	≥ 250 NTU

Temp
13.6°C

Part 4. Comments

Thaw pipe
 Same head wall as stream.
 Green algae downstream
 Outfall grate full of trash. Report to maintenance.
 Not at the end of Baranof, closer to Meadow Creek

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS: 4

Watershed: ER

Outfall Number: 1390-2

Part 1. General Information.

1. Date 10-16-2022 Time 13:55
 2. Field Crew KG, MA Water quality analyses conducted by —
 3. Time since last rain event More than 48 hours Less than 48 hours
 4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 12" 7. Structural Condition: Good, HDPE
 8. Photographs (include camera name/#) 1 Pad
 9. Suitable for sampling under DWS Program? No Yes
 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1/4"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
 Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored
 Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
 12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
 15. Previous observations of baseline dry weather flow? Similar to previous investigation
 16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes DNV

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Some green algae on collar
 Sprinkler on in neighborhood, curb flowing into drain.
 Some debris in grate.
 Water/Flow sound in culvert, assumed to be due to pipe slope
 or ground water infiltration.

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: ER

Outfall Number: 1417-1

Part 1. General Information.

1. Date 6/16/2022 Time 11:25
 2. Field Crew KG, MA Water quality analyses conducted by N/A
 3. Time since last rain event More than 48 hours Less than 48 hours
 4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 12" 7. Structural Condition: Good, HDPE w/ collar
 8. Photographs (include camera name/#) iPad
 9. Suitable for sampling under DWS Program? No Yes
 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 4"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored
 Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
 15. Previous observations of baseline dry weather flow? none
 16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>7.4</u> units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

11.5

Part 4. Comments

Some surface scum downstream, organic.
 Good defined downstream channel
 possible ground water infiltration (sounds in pipe)

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 10

Watershed: ER

Outfall Number: (HDR) 1450-2

Part 1. General Information.

1. Date 6-16-2022 Time 11:39
2. Field Crew KG, MA Water quality analyses conducted by —
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Int'l. Airport

Part 2. Visual Observations

6. End of pipe diameter 30" 7. Structural Condition: Good, HDPE
8. Photographs (include camera name/#) 1 Pad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1.75"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none.
16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.*
17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>7.9</u> units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

12.4°C

Part 4. Comments

Thaw pipe.
 Outfall has some sediment buildup
 Muddy downstream channel

PS 10

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: ER

Outfall Number: 1451-1

Part 1. General Information.

1. Date 10-16-2022 Time 10:40
2. Field Crew KG MA Water quality analyses conducted by KG, MA
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 20" 7. Structural Condition: Good, HDPE w/ collar
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1/4"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored

Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes Animal carcass down stream.

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>7.8</u> units	<u>7.7</u> units	— units	≤ 4.0 or ≥ 9.0
Total chlorine	<u>0</u> mg/L	<u>0</u> mg/L	<u>0</u> mg/L	≥ 1.0 mg/L
Detergents	<u>0</u> mg/L	<u>0</u> mg/L	<u>0</u> mg/L	≥ 1.0 mg/L
Total copper	<u>F:0 / T:0</u> mg/L	<u>F:0 / T:0</u> mg/L	<u>F:0 / T:0</u> mg/L	≥ 1.0 mg/L
Total phenols	<u>0</u> mg/L	<u>0</u> mg/L	<u>0</u> mg/L	≥ 0.5 mg/L
Turbidity	<u>1.49</u> NTU	<u>1.37</u> NTU	<u>0.52</u> NTU	≥ 250 NTU

Temp
9.4°C

Part 4. Comments

Riprap in downstream channel.
Beaver carcass found beside streambed, appears to be old.

ER1455-1 is on JBER property, could not access.

PS 4

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: EHRE

Outfall Number: 1392-1

Part 1. General Information.

- 1. Date 6-16-2022 Time 13:40
- 2. Field Crew KG, MA Water quality analyses conducted by —
- 3. Time since last rain event More than 48 hours Less than 48 hours
- 4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

- 6. End of pipe diameter 12" 7. Structural Condition: Good, HDPE
- 8. Photographs (include camera name/#) 1 Pad
- 9. Suitable for sampling under DWS Program? No Yes Some stagnant water
- 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 2 in

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

- 11. Does the discharging water exhibit any of the following (if yes, describe in comments):
 Odors? No Yes Color? N/A Clear Cloudy/Muddy Clarity? Clear Colored N/A
 Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
 12. Vegetation — 13. Biology —

Part 3. Field Analyses

- 14. Flow — gal/min OR Low Medium High none
 - 15. Previous observations of baseline dry weather flow? none
 - 16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.
- 17. Water Quality Analyses Duplicate sample collected? No Yes none

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Debris, organics, and rocks stuck in outfall, Maintenance needed
 Concrete in downstream channel
 Can access between houses along drainage row

PS:18

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 7-1

Part 1. General Information.

- 1. Date 6/22/22 Time 14:00
- 2. Field Crew KG JD Water quality analyses conducted by N/A
- 3. Time since last rain event More than 48 hours Less than 48 hours
- 4. Size of last rain event 0.03 inches 6/20/22, 3:00am
- 5. Measured at weather station Ted Stevens Int'l Airport

Part 2. Visual Observations

- 6. End of pipe diameter 16 in
- 7. Structural Condition: good, (see comments)
- 8. Photographs (include camera name/#) ipad
- 9. Suitable for sampling under DWS Program? No Yes
- 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 7.5"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

- 11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
- 12. Vegetation — 13. Biology —

Part 3. Field Analyses

- 14. Flow gal/min OR Low Medium High
- 15. Previous observations of baseline dry weather flow? 2019, 2021, large amount of iron precipitate/flocculant.
- 16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

HDPE smooth wall w/ collar. flows into main channel / orange iron flocc. flocc flows downstream into main channel

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 79-353

Part 1. General Information.

1. Date 6/22/22 Time 13:16
2. Field Crew KG JB Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches 5. Measured at weather station Ted Stevens Intl. Airport
6/20/22, 3:00 AM

Part 2. Visual Observations

6. End of pipe diameter 48 in 7. Structural Condition: fair (see comments)
8. Photographs (include camera name/#) ipad
9. Suitable for sampling under DWS Program? No Yes no flow
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 7 in

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? N/A Clear Cloudy/Muddy Clarity? N/A Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation — 13. Biology —

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High None
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.*
17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

rust line 1/4 of the way up. pipe shielded by grate (rebar) w/ collar. grass at end of collar.

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS: 4

Watershed: ESH

Outfall Number: 264-1

Part 1. General Information.

1. Date 6/22/22 Time 09:23
2. Field Crew KG JB Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches 6/20/22, 3:00 AM 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 10 in 7. Structural Condition: Fair, thin plastic w/ collar
8. Photographs (include camera name/#) ipad
9. Suitable for sampling under DWS Program? No Yes no flow
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe —

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? N/A Clear Cloudy/Muddy Clarity? N/A Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation — 13. Biology —

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High None
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.*
17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Soil buildup in collar HDPE pipe, partially exposed, possibly sliplined

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 555-1

Part 1. General Information.

- 1. Date 6/22/22 Time 13:43
- 2. Field Crew KG JB Water quality analyses conducted by N/A
- 3. Time since last rain event More than 48 hours Less than 48 hours
- 4. Size of last rain event 0.03 inches 6/20/22, 3:00am 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

- 6. End of pipe diameter 18 7. Structural Condition: good (see comments)
- 8. Photographs (include camera name/#) IPAD
- 9. Suitable for sampling under DWS Program? No Yes no flow
- 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe —

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

- 11. Does the discharging water exhibit any of the following (if yes, describe in comments):
 - Odors? No Yes Color? N/A Clear Cloudy/Muddy Clarity? N/A Clear Colored
 - Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
- 12. Vegetation — 13. Biology —

Part 3. Field Analyses

- 14. Flow — gal/min OR Low Medium High None
- 15. Previous observations of baseline dry weather flow? none
- 16. Is an illicit discharge suspected at the outfall? No Yes
- 17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments minimal sediment buildup. HDPE smooth wall. rip rap in downstream channel

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 573-48

Part 1. General Information.

1. Date 10-16-2022 Time 9:25am
 2. Field Crew K.G., M.A. Water quality analyses conducted by _____
 3. Time since last rain event More than 48 hours Less than 48 hours
 4. Size of last rain event _____ inches 5. Measured at weather station Ted Stevens Int. Airport

Part 2. Visual Observations

6. End of pipe diameter 36" 7. Structural Condition: Good
 8. Photographs (include camera name/#) iPad
 9. Suitable for sampling under DWS Program? No Yes Sample at end of grate
 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe immeasurable.

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
 Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored Orange
 Floatables? None Moving oily sheen Surface scum Behind grate organic Soapy suds Debris Other (describe)
 12. Vegetation Orange algae 13. Biology None

Part 3. Field Analyses

14. Flow Very Low gal/min OR Low Medium High
 15. Previous observations of baseline dry weather flow? None
 16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Grate on outlet. Small amount of trash/debris in grate. Good, defined DS channel

PS: 4

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: ~~160041~~ 684-1

Part 1. General Information.

1. Date 6/22/22 Time 12:01
2. Field Crew KG JB Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches 5. Measured at weather station Ted Stevens Intl. Airport
6/20/22, 3:00 AM

Part 2. Visual Observations

6. End of pipe diameter 10 in 7. Structural Condition: poor (see comments)
8. Photographs (include camera name/#) ipad
9. Suitable for sampling under DWS Program? No Yes no flow
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe —

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? N/A Clear Cloudy/Muddy Clarity? N/A Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation — 13. Biology —

Part 3. Field Analyses

14. Flow — gal/min OR Low Medium High or no flow
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.
17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

CMP - corroding on bottom. culvert unraveling downstream organic bubbles and stream not coming out of pipe. 2 inch depth at pipe access behind corner road house.

PS 14

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 686-1

Part 1. General Information.

- 1. Date 6/22/22 Time 10:29
- 2. Field Crew KG JB Water quality analyses conducted by N/A
- 3. Time since last rain event More than 48 hours Less than 48 hours
- 4. Size of last rain event 0.03 inches 5. Measured at weather station Ted Stevens Intl. Airport
6/20/22, 3:00am

Part 2. Visual Observations

- 6. End of pipe diameter 18 in 7. Structural Condition: Fair CMP w/ collar
- 8. Photographs (include camera name/#) ipad
- 9. Suitable for sampling under DWS Program? No Yes backwatered
- 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 10 in

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

- 11. Does the discharging water exhibit any of the following (if yes, describe in comments):
 Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored brown
 Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
 12. Vegetation — 13. Biology —

Part 3. Field Analyses

- 14. Flow — gal/min OR Low Medium High
- 15. Previous observations of baseline dry weather flow? 2019, backwatered from creek.
- 16. Is an illicit discharge suspected at the outfall? No Yes
- 17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

CMP w collar 18 in buildup in collar backwatered
good channel to main stream

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 14

Watershed: FSH

Outfall Number: 686-167

Part 1. General Information.

1. Date 6/22/22 Time 10:21
2. Field Crew KG JB Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches Measured at weather station Ted Stevens Intl Airport
6/20/22, 3:00 AM

Part 2. Visual Observations

6. End of pipe diameter 30 in. 7. Structural Condition: poor, CMP w/ collar
8. Photographs (include camera name/#) ipad
9. Suitable for sampling under DWS Program? No Yes backwatered
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 9 in

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored _____
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation _____ 13. Biology _____

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? None
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

culvert backwatered. culvert dia: 30 in. water depth: 9 in
rusted bottom. visible rustline. collar. no illicit discharge
good channel to main stream

PS: 11

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 1003-1

Part 1. General Information.

1. Date 6/22/22 Time 11:47
2. Field Crew KG JS Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches 6/20/22, 3:00 AM 5. Measured at weather station Ted Stevens Int'l Airport

Part 2. Visual Observations

6. End of pipe diameter 18 in 7. Structural Condition: good (see comments)
8. Photographs (include camera name/#) ipad
9. Suitable for sampling under DWS Program? No Yes Dry
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe —

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes Color? Clear Cloudy/Muddy N/A Clarity? Clear Colored N/A
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation — 13. Biology —

Part 3. Field Analyses

14. Flow — gal/min OR Low Medium High none
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments 18 in HDPE smooth slipping. rip wrap in ground outlet

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FS+1

Outfall Number: 1054-1

Part 1. General Information.

1. Date 6/22/22 Time 9:38
2. Field Crew KG JB Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches 6/20/22, 3:00 AM 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 20 in 7. Structural Condition: Fair, CMP w/ collar
8. Photographs (include camera name/#) IPAD
9. Suitable for sampling under DWS Program? No Yes Stagnant water
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1 in

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? N/A Clear Cloudy/Muddy Clarity? N/A Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation _____ 13. Biology _____

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High none
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.*
17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Sediment buildup, vegetation growing in collar, stagnant water, can access from bike trail

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 1278-1

Part 1. General Information.

1. Date 6/22/22 Time 10:04
2. Field Crew KG JB Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches 6/20/22 3:04 AM 5. Measured at weather station Ted Stevens Intl Airport

Part 2. Visual Observations

6. End of pipe diameter 23 7. Structural Condition: good (see comments)
8. Photographs (include camera name/#) ipad
9. Suitable for sampling under DWS Program? No Yes Dry
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe —

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? N/A Clear Cloudy/Muddy Clarity? N/A Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation — 13. Biology —

Part 3. Field Analyses

14. Flow — gal/min OR Low Medium High none
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.*
17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

visible restline CMP w/ collar outfalls into weir system with waddles on outside (in lake) side of weir. Kipwrap.

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FSH

Outfall Number: 1310-201

Part 1. General Information.

1. Date 6/22/22 Time 12:57
2. Field Crew KG, JB Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event 0.03 inches 6/20/22, 9:00 AM 5. Measured at weather station Ted Stevens Intl Airport

Part 2. Visual Observations

6. End of pipe diameter 18 in 7. Structural Condition: fair (see comments)
8. Photographs (include camera name/#) ipad
9. Suitable for sampling under DWS Program? No Yes Dry
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe —

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Color? Clear Cloudy/Muddy N/A Clarity? Clear Colored N/A
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation — 13. Biology —

Part 3. Field Analyses

14. Flow — gal/min OR Low Medium High none
15. Previous observations of baseline dry weather flow? —
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

HDPE. 1/4 full of sediment outfall directly to marsh creek.

PS 7

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FUR

Outfall Number: 34-2

Part 1. General Information.

1. Date 6/17/2022 Time 14:45
2. Field Crew KG MA Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event - inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter ~12" 7. Structural Condition: HDPE, Poor 3/4 buried
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes Dry, 3/4 buried
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe -

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes N/A Color? Clear Cloudy/Muddy N/A Clarity? Clear Colored N/A
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow None gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none.
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

3/4 the way buried and hidden by tall grass

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FUR

Outfall Number: 292-192

Part 1. General Information.

1. Date 6-17-2022 Time 11:53
2. Field Crew KG, MA Water quality analyses conducted by KG, MA
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event - inches
5. Measured at weather station Ted Stevens Intl Airport

Part 2. Visual Observations

6. End of pipe diameter 48"
7. Structural Condition: Good, CMP w/ collar
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 2"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds ^(DS) Debris Other (describe)

12. Vegetation Brown and green algae
13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>8.3</u> units	/	/	≤ 4.0 or ≥ 9.0
Total chlorine	<u>0</u> mg/L	/	/	≥ 1.0 mg/L
Detergents	<u>0</u> mg/L	/	/	≥ 1.0 mg/L
Total copper	<u>F:0 / T:0</u> mg/L	/	/	≥ 1.0 mg/L
Total phenols	<u>0</u> mg/L	/	/	≥ 0.5 mg/L
Turbidity	<u>6.48</u> NTU	/	/	≥ 250 NTU

T
12.6°C

Part 4. Comments

Thaw pipe
Grate has fallen off
suds collecting in DS pool

PS: 10

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FUR

Outfall Number: 306-1

Part 1. General Information.

1. Date 6-17-2022 Time 13:23
2. Field Crew KG, MA Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl Airport

Part 2. Visual Observations

6. End of pipe diameter 36" 7. Structural Condition: Good, CMP w/ concrete headwall
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1/4"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow — gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>7.6</u> units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

T (°C)
14.6

Part 4. Comments

Suds from water dripping off culvert perch. Downstream small organic scum/oily sheen.

PS 7

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: FUR

Outfall Number: 332-1

Part 1. General Information.

- 1. Date 6-17-2022 Time 10:56
- 2. Field Crew KG, MA Water quality analyses conducted by KG, MA
- 3. Time since last rain event More than 48 hours Less than 48 hours
- 4. Size of last rain event - inches 5. Measured at weather station Ted Stevens Intl Airport

Part 2. Visual Observations

- 6. End of pipe diameter 10" 7. Structural Condition: Good cmp w/ collar & grate
- 8. Photographs (include camera name/#) 1 Pad
- 9. Suitable for sampling under DWS Program? No Yes
- 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 2"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored Slightly yellow
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris (downstream) Other (describe)

- 12. Vegetation Algae growth 13. Biology None

Part 3. Field Analyses

- 14. Flow Very Low gal/min OR Low Medium High
- 15. Previous observations of baseline dry weather flow? 2019 mud in grate, 6" water slightly backwatered.
- 16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	8.5 units	8.2 units	— units	≤ 4.0 or ≥ 9.0
Total chlorine	0 mg/L	0 mg/L	0 mg/L	≥ 1.0 mg/L
Detergents	0 mg/L	0 mg/L	0 mg/L	≥ 1.0 mg/L
Total copper	F: 0 / T: 0 mg/L	0 mg/L	F: 0 / T: 0 mg/L	≥ 1.0 mg/L
Total phenols	0 mg/L	0 mg/L	0 mg/L	≥ 0.5 mg/L
Turbidity	12.5 NTU	11.3 NTU	0.31 NTU	≥ 250 NTU

T
15.0 /
14.3 °C

Part 4. Comments

Collar has vegetation growing in it (Ericetum), and is backwatered

Dry Weather Screening Field Data Form
Municipality of Anchorage APDES Monitoring Program

Watershed: FUR

Outfall Number: 395-1

Part 1. General Information.

1. Date 6-17-2022 Time 14:10
 2. Field Crew KG, MA Water quality analyses conducted by N/A
 3. Time since last rain event More than 48 hours Less than 48 hours
 4. Size of last rain event - inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 1 1/2" 7. Structural Condition: Good, CMP w/grate
 8. Photographs (include camera name/#) Pad
 9. Suitable for sampling under DWS Program? No Yes
 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe _____

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
 Odors? No Yes N/A Color? Clear Cloudy/Muddy N/A Clarity? Clear Colored N/A
 Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe) N/A
 12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High None
 15. Previous observations of baseline dry weather flow? none
 16. Is an illicit discharge suspected at the outfall? No Yes
If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.
 17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Cleaned out organic debris in grate.
Accessible down steep embankment

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 1

Watershed: FUR

Outfall Number: 592-1

Part 1. General Information.

1. Date 6-17-2022 Time 13:41
2. Field Crew KG. MA Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 12" 7. Structural Condition: Good, HDPE
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1 1/2"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes Iron smell Color? Clear Cloudy/Muddy Clarity? Clear Colored Slightly yellow
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow _____ gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>7.1</u> units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

T(°C) 14.5

Part 4. Comments

Orange/copper precipitant in downstream channel.
 Some surface scum breaks up, organic bits cleaned out.
 Possible laptop downstream blocking flow.
 Culvert is slightly backwatered. Flow into mainstream.
 Cleaned out channel, no surface scum now present.

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 7

Watershed: FUR

Outfall Number: 617-1

Part 1. General Information.

1. Date 6/17/2022 Time 15:09
2. Field Crew KG, MA Water quality analyses conducted by NA
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 24" 7. Structural Condition: Good, Thick plastic
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe —

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

Odors? No Yes N/A Color? Clear Cloudy/Muddy N/A Clarity? Clear Colored N/A

Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow None gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	/	/	/	≤ 4.0 or ≥ 9.0
Total chlorine	/	/	/	≥ 1.0 mg/L
Detergents	/	/	/	≥ 1.0 mg/L
Total copper	/	/	/	≥ 1.0 mg/L
Total phenols	/	/	/	≥ 0.5 mg/L
Turbidity	/	/	/	≥ 250 NTU

Part 4. Comments

Outlet protected with gabion baskets
 Riprap protection up steep hill.
 Located at bottom of hill below mapping

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 7

Watershed: FUR

Outfall Number: 634-1

Part 1. General Information.

1. Date 6/17/2022 Time 14:28
2. Field Crew KG, MA Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event — inches 5. Measured at weather station Ted Stevens Intl. Airport

Part 2. Visual Observations

6. End of pipe diameter 1/2 18" 7. Structural Condition: Good, CMP
8. Photographs (include camera name/#) 1 Pad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe _____
- If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.*
11. Does the discharging water exhibit any of the following (if yes, describe in comments):
- Odors? No Yes N/A Color? Clear Cloudy/Muddy N/A Clarity? Clear Colored N/A
- Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe) N/A
12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow None gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes
- If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.*
17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	/ units	/ units	/ units	≤ 4.0 or ≥ 9.0
Total chlorine	/ mg/L	/ mg/L	/ mg/L	≥ 1.0 mg/L
Detergents	/ mg/L	/ mg/L	/ mg/L	≥ 1.0 mg/L
Total copper	/ mg/L	/ mg/L	/ mg/L	≥ 1.0 mg/L
Total phenols	/ mg/L	/ mg/L	/ mg/L	≥ 0.5 mg/L
Turbidity	/ NTU	/ NTU	/ NTU	≥ 250 NTU

Part 4. Comments

1/2 CMP pipe flume down hillside

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 4

Watershed: FUR

Outfall Number: 1344-8

Part 1. General Information.

1. Date 6-17-2022 Time 12:48
2. Field Crew KG, MA Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event - inches 5. Measured at weather station Ted Stevens Int'l Airport

Part 2. Visual Observations

6. End of pipe diameter 16" 7. Structural Condition: Fair, CMP w/ grate & collar
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe Standing water, 1/2"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):

- Odors? No Yes Slightly musty Color? Clear Cloudy/Muddy Clarity? Clear Colored
Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)

12. Vegetation Green moss 13. Biology None

Part 3. Field Analyses

14. Flow very slow gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? none
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	<u>7.8</u> units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

11.2°C

Part 4. Comments

Pipe has rust line
Culvert next to 16" culvert is 24" CMP w/ grate and collar, dry, rust line 1/3 way in

PS 112

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

Watershed: RAB

Outfall Number: 745-1

Part 1. General Information.

- 1. Date 6/17/22 Time 9:50
- 2. Field Crew KG, MA Water quality analyses conducted by N/A
- 3. Time since last rain event More than 48 hours Less than 48 hours
- 4. Size of last rain event - inches 5. Measured at weather station Ted Stevens Intl Airport

Part 2. Visual Observations

- 6. End of pipe diameter 48" 7. Structural Condition: Good, CMP in concrete headwall
- 8. Photographs (include camera name/#) IPad
- 9. Suitable for sampling under DWS Program? No Yes
- 10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe 1/2"

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

- 11. Does the discharging water exhibit any of the following (if yes, describe in comments):
 Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored _____
 Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe) small organic floatable
- 12. Vegetation None 13. Biology None

Part 3. Field Analyses

- 14. Flow _____ gal/min OR Low Medium High
- 15. Previous observations of baseline dry weather flow? none
- 16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

- 17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Slightly backwatered. Some sediment buildup
Downstream channel full of tree branches / clippings

Dry Weather Screening Field Data Form

Municipality of Anchorage APDES Monitoring Program

PS 16

Watershed: RAB

Outfall Number: 745-86

Part 1. General Information.

1. Date 6-17-2022 Time 10:17
2. Field Crew KG, MA Water quality analyses conducted by N/A
3. Time since last rain event More than 48 hours Less than 48 hours
4. Size of last rain event - inches 5. Measured at weather station Ted Stevens Intl Airport

Part 2. Visual Observations

6. End of pipe diameter 12" w/ collar 7. Structural Condition: Good, HDPE w/ collar
8. Photographs (include camera name/#) IPad
9. Suitable for sampling under DWS Program? No Yes surface convergence, dry
10. Water flowing from end of pipe? No Yes If yes, depth of water in end of pipe -

If No, take photographs of outfall and record any pertinent observations in comments. If Yes, continue.

11. Does the discharging water exhibit any of the following (if yes, describe in comments):
Odors? No Yes Color? Clear Cloudy/Muddy Clarity? Clear Colored N/A
Floatables? None Moving oily sheen Surface scum Soapy suds Debris Other (describe)
12. Vegetation None 13. Biology None

Part 3. Field Analyses

14. Flow N/A gal/min OR Low Medium High
15. Previous observations of baseline dry weather flow? _____
16. Is an illicit discharge suspected at the outfall? No Yes

If No, proceed to next outfall. If Yes, continue. Describe any additional monitoring recommendations in comments.

17. Water Quality Analyses Duplicate sample collected? No Yes N/A

Parameter	Primary Sample	Duplicate Sample	Equipment Blank	Program Threshold
pH	units	units	units	≤ 4.0 or ≥ 9.0
Total chlorine	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Detergents	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total copper	mg/L	mg/L	mg/L	≥ 1.0 mg/L
Total phenols	mg/L	mg/L	mg/L	≥ 0.5 mg/L
Turbidity	NTU	NTU	NTU	≥ 250 NTU

Part 4. Comments

Series of cross drainages. Multiple not mapped
Organic debris in culvert

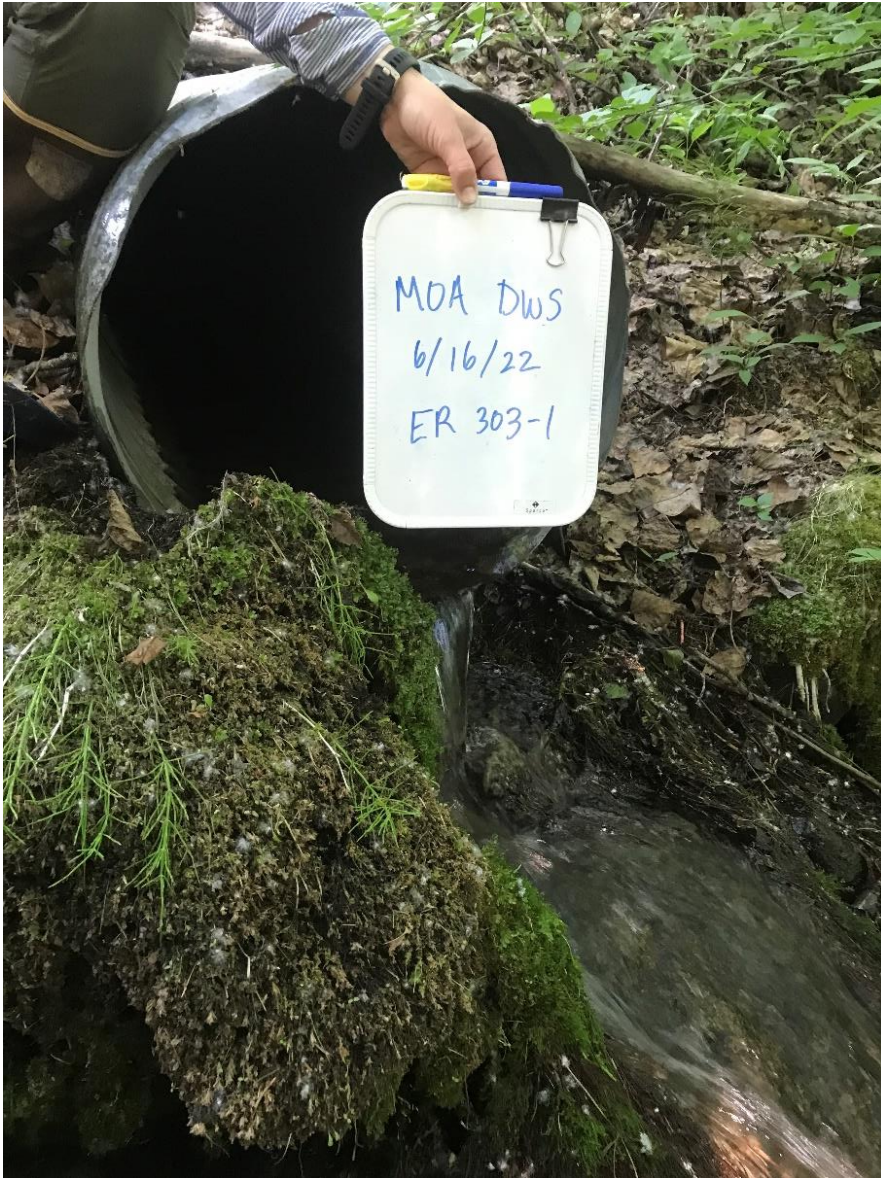


Appendix D

Outfall Sampling Photographs



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Eagle River 303-1. June 16, 2022.



Eagle River 1375-1. June 16, 2022.



Eagle River 1390-2. June 16, 2022.



Eagle River 1417-1. June 16, 2022.



Eagle River 1450-2. June 16, 2022.



Eagle River 1451-1. June 16, 2022.



Eagle River 1455-1. June 16, 2022.



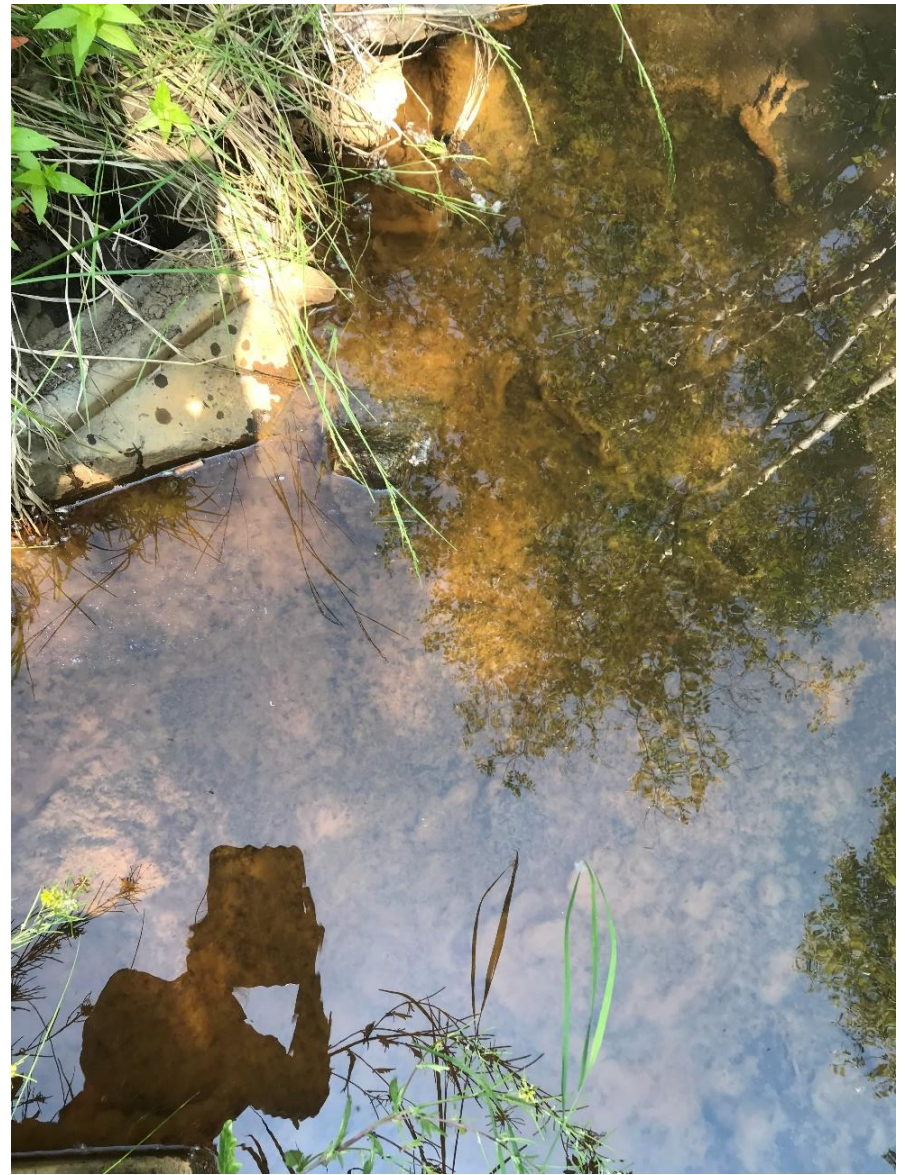
Fire 1392-1. June 16, 2022.



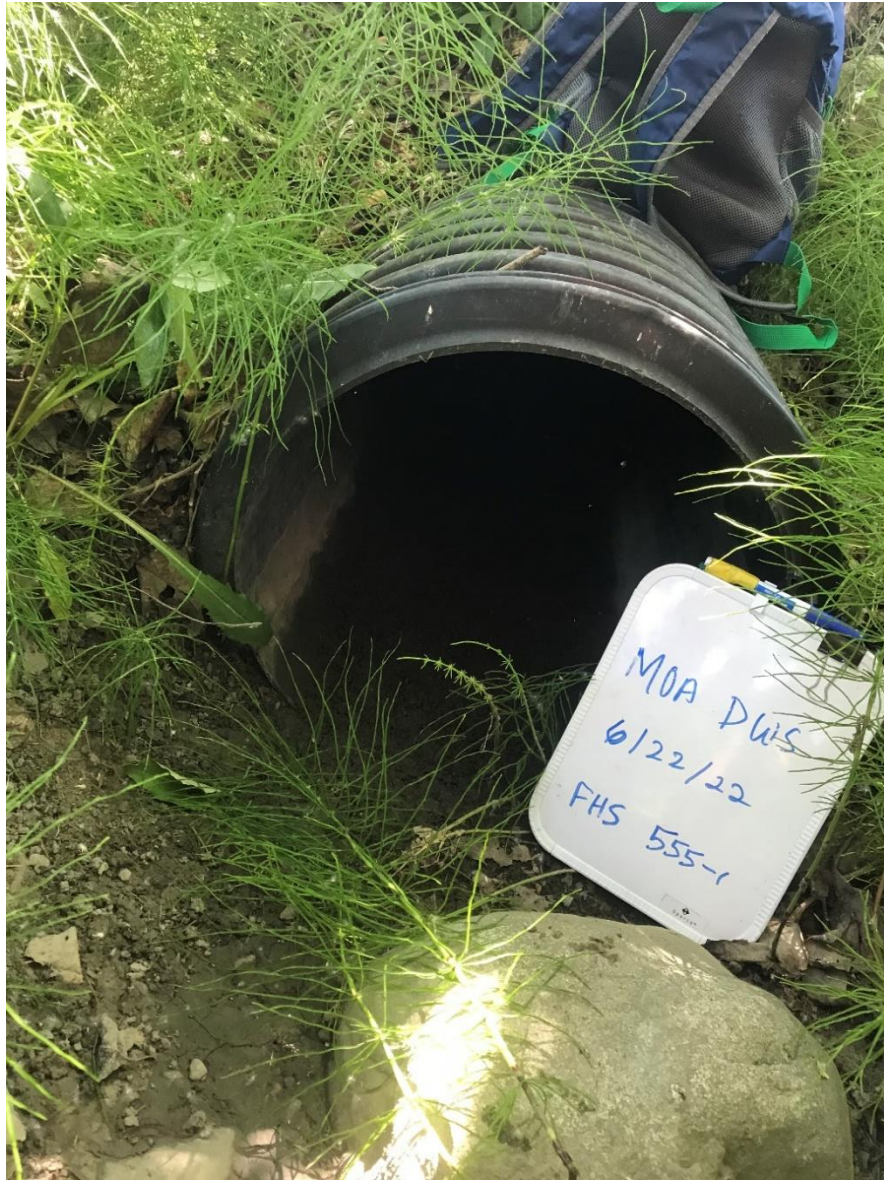
Fish Creek 7-1. June 22, 2022.



Fish Creek 79-353. June 22, 2022.



Fish Creek 264-1 June 22, 2022.



Fish Creek 555-1. June 22, 2022



Fish 573-48. June 16, 2022.



Fish Creek 610-1. June 22, 2022.



Fish Creek 684-1. June 22, 2022.



Fish Creek 686-1. June 22, 2022.



Fish Creek 686-167. June 22, 2022.



Fish Creek 1003-1. June 22, 2022.



Fish Creek 1054-1. June 22, 2022.



Fish Creek 1277-1. No Safe Access. June 22, 2022.



Fish Creek 1278-1. June 22, 2022.



Fish Creek 1310-201. June 22, 2022.



Furrow 34-2. June 17, 20



Furrow 216-10. June 17, 2022.



Furrow 292-192. June 17, 2022.



Furrow 306-1. June 17, 2022.



Furrow 332-1. June 17, 2022.



Furrow 395-1. June 17, 2022.



Furrow 592-1. June 17, 2022.



Furrow 617-1. June 17, 2022.



Furrow 634-1. June 17, 2022.



Furrow 1344-8. June 17, 2022.



Rabbit Creek 745-1. June 17, 2022.



Appendix E

Laboratory Analysis Reports



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Laboratory Report of Analysis

To: HDR Alaska, Inc.

Report Number: **1223175**

Client Project: **Dry Weather Screening**

Dear Alena Gerlek,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Alexandra at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Alexandra Lambe
Project Manager
Alexandra.Lambe@sgs.com

Date

Case Narrative

SGS Client: **HDR Alaska, Inc.**
SGS Project: **1223175**
Project Name/Site: **Dry Weather Screening**
Project Contact: **Alena Gerlek**

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 06/23/2022 2:07:52PM

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 DW Chemistry (Provisionally Certified as of 05/31/2022 for Nitrate as N by SM 4500NO3-F) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
ER 1451-1	1223175001	06/16/2022	06/16/2022	Water (Surface, Eff., Ground)
ER 1451-1 Dup	1223175002	06/16/2022	06/16/2022	Water (Surface, Eff., Ground)
ER 1375-1	1223175003	06/16/2022	06/16/2022	Water (Surface, Eff., Ground)

<u>Method</u>	<u>Method Description</u>
SM21 9222D	Fecal Coliform (MF)

Print Date: 06/23/2022 2:07:55PM

Detectable Results Summary

Client Sample ID: **ER 1451-1**

Lab Sample ID: 1223175001

Microbiology Laboratory

Parameter

Fecal Coliform

Result

1.7

Units

col/100mL

Client Sample ID: **ER 1375-1**

Lab Sample ID: 1223175003

Microbiology Laboratory

Parameter

Fecal Coliform

Result

1.7

Units

col/100mL



Results of ER 1451-1

Client Sample ID: ER 1451-1
Client Project ID: Dry Weather Screening
Lab Sample ID: 1223175001
Lab Project ID: 1223175

Collection Date: 06/16/22 10:40
Received Date: 06/16/22 15:21
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Microbiology Laboratory

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Fecal Coliform	1.7	1.67	1.67	col/100mL	1		06/16/22 15:50

Batch Information

Analytical Batch: BTF19616
Analytical Method: SM21 9222D
Analyst: NRZ
Analytical Date/Time: 06/16/22 15:50
Container ID: 1223175001-A



Results of ER 1451-1 Dup

Client Sample ID: **ER 1451-1 Dup**
Client Project ID: **Dry Weather Screening**
Lab Sample ID: 1223175002
Lab Project ID: 1223175

Collection Date: 06/16/22 10:45
Received Date: 06/16/22 15:21
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Microbiology Laboratory

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Fecal Coliform	1.67 U	1.67	1.67	col/100mL	1		06/16/22 15:50

Batch Information

Analytical Batch: BTF19616
Analytical Method: SM21 9222D
Analyst: NRZ
Analytical Date/Time: 06/16/22 15:50
Container ID: 1223175002-A



Results of ER 1375-1

Client Sample ID: **ER 1375-1**
Client Project ID: **Dry Weather Screening**
Lab Sample ID: 1223175003
Lab Project ID: 1223175

Collection Date: 06/16/22 12:51
Received Date: 06/16/22 15:21
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Microbiology Laboratory

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Fecal Coliform	1.7	1.67	1.67	col/100mL	1		06/16/22 15:50

Batch Information

Analytical Batch: BTF19616
Analytical Method: SM21 9222D
Analyst: NRZ
Analytical Date/Time: 06/16/22 15:50
Container ID: 1223175003-A



Method Blank

Blank ID: MB for HBN 1838061 [BTF/19616]

Blank Lab ID: 1668626

QC for Samples:

1223175001, 1223175002, 1223175003

Matrix: Water (Surface, Eff., Ground)

Results by SM21 9222D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Fecal Coliform	1.00U	1.00	1.00	col/100mL

Batch Information

Analytical Batch: BTF19616

Analytical Method: SM21 9222D

Instrument:

Analyst: NRZ

Analytical Date/Time: 6/16/2022 8:35:00PM

Print Date: 06/23/2022 2:07:59PM



Method Blank

Blank ID: MB for HBN 1838061 [BTF/19616]

Blank Lab ID: 1668628

QC for Samples:

1223175001, 1223175002, 1223175003

Matrix: Water (Surface, Eff., Ground)

Results by SM21 9222D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Fecal Coliform	1.00U	1.00	1.00	col/100mL

Batch Information

Analytical Batch: BTF19616

Analytical Method: SM21 9222D

Instrument:

Analyst: NRZ

Analytical Date/Time: 6/16/2022 5:21:00PM

Print Date: 06/23/2022 2:07:59PM



CLIENT: HDR Inc.					Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.										Page ____ of ____					
CONTACT: Cindy Helmericks					PHONE #: 907-231-9305					Section 3		Preservative								
PROJECT NAME: Dry Weather Screening					PROJECT/PWSID/PERMIT#:					# C O N T A I N E R S		Analysis*					NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS			
REPORTS TO: Cindy Helmericks					E-MAIL: cindy.helmericks@hdrinc.com														Comp	
INVOICE TO: HDR					QUOTE #:														Grab	
P.O. #: Dry weather screening					MI (Multi-incremental)														MI	
RESERVED for lab use	SAMPLE IDENTIFICATION		DATE mm/dd/yy		TIME HH:MM		MATRIX/MATRIX CODE				Fecal Coliform				REMARKS/LOC ID					
IA	ER 1451-1		06/16/22		10:40		H ₂ O		1 G		X									
QA	ER 1451-1 DUP		06/16/22		10:45		H ₂ O		1 G		X									
JA	ER 1375-1		06/16/22		12:51		H ₂ O		1 G		X									
Relinquished By: (1) 			Date 6/16/22		Time 15:16		Received By: 					Section 4 DOD Project? Yes <input checked="" type="checkbox"/>		Data Deliverable Requirements:						
Relinquished By: (2)			Date		Time		Received By:					Cooler ID:								
Relinquished By: (3)			Date		Time		Received By:					Requested Turnaround Time and/or Special Instructions: Please contact Cindy by phone w/ preliminary results as soon as possible available 24 HRS								
Relinquished By: (4) 			Date 6/16/22		Time 15:21		Received For Laboratory By: 					Temp Blank °C: 6.1 D59		Chain of Custody Seal: (Circle) INTACT BROKEN <u>ABSENT</u>						
Delivery Method: Hand Delivery [] Commercial Delivery []																				



SGS Workorder #:

1223175

1223175

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
-----------------	--------------------------	------------------------

Chain of Custody / Temperature Requirements		<i>Note: Temperature and COC seal information is found on the chain of custody form</i>
--	--	---

DOD only: Did all sample coolers have a corresponding COC?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note containers received with ice:		
Identify any containers received at non-compliant temperature: (Use form FS-0029 if more space is needed)		

Holding Time / Documentation / Sample Condition Requirement		<i>Note: Refer to form F-083 "Sample Guide" for specific holding times and sample containers.</i>
--	--	---

Were samples received within analytical holding time?	Yes	
Do sample labels match COC? Record discrepancies.	Yes	
<i>Note: If information on containers differs from COC, default to COC information for login. If times differ <1hr, record details & login per COC.</i>		
Were analytical requests clear? <i>(i.e. method is specified for analyses with multiple option for method (Eg, BTEX 8021 vs 8260, Metals 6020 vs 200.8)</i>	Yes	
Were proper containers (type/mass/volume/preservative)used? Note: Exemption for metals analysis by 200.8/6020 in water.	Yes	

Volatile Analysis Requirements (VOC, GRO, LL-Hg, etc.)		
---	--	--

Were all soil VOAs received with a corresponding % solids container?	N/A	
Were Trip Blanks (e.g., VOAs, LL-Hg) in cooler with samples?	N/A	
Were all water VOA vials free of headspace (e.g., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with Methanol+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):		
--	--	--

Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1223175001-A	Na2S2O3 for Chlorine Redu	OK			
1223175002-A	Na2S2O3 for Chlorine Redu	OK			
1223175003-A	Na2S2O3 for Chlorine Redu	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

Laboratory Report of Analysis

To: HDR Alaska, Inc.

Report Number: **1223197**

Client Project: **Dry Weather Screening**

Dear Alena Gerlek,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Alexandra at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Alexandra Lambe
Project Manager
Alexandra.Lambe@sgs.com

Date

Case Narrative

SGS Client: **HDR Alaska, Inc.**
SGS Project: **1223197**
Project Name/Site: **Dry Weather Screening**
Project Contact: **Alena Gerlek**

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 06/22/2022 8:40:59AM

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 DW Chemistry (Provisionally Certified as of 05/31/2022 for Fluoride by EPA 300.0 and Nitrate as N by SM 4500NO3-F) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
FVR 332-1	1223197001	06/17/2022	06/17/2022	Water (Surface, Eff., Ground)
FVR 332-1 Dup	1223197002	06/17/2022	06/17/2022	Water (Surface, Eff., Ground)
FVR 292-192	1223197003	06/17/2022	06/17/2022	Water (Surface, Eff., Ground)

<u>Method</u>	<u>Method Description</u>
SM21 9222D	Fecal Coliform (MF)

Print Date: 06/22/2022 8:41:02AM

Detectable Results Summary

Client Sample ID: **FVR 332-1 Dup**

Lab Sample ID: 1223197002

Microbiology Laboratory

Parameter

Fecal Coliform

Result

1.7

Units

col/100mL

Client Sample ID: **FVR 292-192**

Lab Sample ID: 1223197003

Microbiology Laboratory

Parameter

Fecal Coliform

Result

6.7

Units

col/100mL



Results of FVR 332-1

Client Sample ID: **FVR 332-1**
Client Project ID: **Dry Weather Screening**
Lab Sample ID: 1223197001
Lab Project ID: 1223197

Collection Date: 06/17/22 11:00
Received Date: 06/17/22 15:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Microbiology Laboratory

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Fecal Coliform	1.67 U	1.67	1.67	col/100mL	1		06/17/22 17:43

Batch Information

Analytical Batch: BTF19618
Analytical Method: SM21 9222D
Analyst: NRZ
Analytical Date/Time: 06/17/22 17:43
Container ID: 1223197001-A



Results of FVR 332-1 Dup

Client Sample ID: **FVR 332-1 Dup**
Client Project ID: **Dry Weather Screening**
Lab Sample ID: 1223197002
Lab Project ID: 1223197

Collection Date: 06/17/22 11:05
Received Date: 06/17/22 15:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Microbiology Laboratory

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Fecal Coliform	1.7	1.67	1.67	col/100mL	1		06/17/22 17:43

Batch Information

Analytical Batch: BTF19618
Analytical Method: SM21 9222D
Analyst: NRZ
Analytical Date/Time: 06/17/22 17:43
Container ID: 1223197002-A



Results of FVR 292-192

Client Sample ID: **FVR 292-192**
Client Project ID: **Dry Weather Screening**
Lab Sample ID: 1223197003
Lab Project ID: 1223197

Collection Date: 06/17/22 12:02
Received Date: 06/17/22 15:42
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Microbiology Laboratory

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Fecal Coliform	6.7	1.67	1.67	col/100mL	1		06/17/22 17:43

Batch Information

Analytical Batch: BTF19618
Analytical Method: SM21 9222D
Analyst: NRZ
Analytical Date/Time: 06/17/22 17:43
Container ID: 1223197003-A



Method Blank

Blank ID: MB for HBN 1838188 [BTF/19618]

Blank Lab ID: 1668921

QC for Samples:

1223197001, 1223197002, 1223197003

Matrix: Water (Surface, Eff., Ground)

Results by SM21 9222D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Fecal Coliform	1.00U	1.00	1.00	col/100mL

Batch Information

Analytical Batch: BTF19618

Analytical Method: SM21 9222D

Instrument:

Analyst: NRZ

Analytical Date/Time: 6/17/2022 5:43:00PM

Print Date: 06/22/2022 8:41:06AM



SGS Workorder #:

1223197

1223197

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
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Chain of Custody / Temperature Requirements

Note: Temperature and COC seal information is found on the chain of custody form

DOD only: Did all sample coolers have a corresponding COC?

If <0°C, were sample containers ice free?

Note containers received with ice:

Identify any containers received at non-compliant temperature:

(Use form FS-0029 if more space is needed)

Holding Time / Documentation / Sample Condition Requirement

Note: Refer to form F-083 "Sample Guide" for specific holding times and sample containers.

Were samples received within analytical holding time?

Do sample labels match COC? Record discrepancies.

Note: If information on containers differs from COC, default to COC information for login. If times differ <1hr, record details & login per COC.

Were analytical requests clear?

(i.e. method is specified for analyses with multiple option for method (Eg, BTEX 8021 vs 8260, Metals 6020 vs 200.8)

Were proper containers (type/mass/volume/preservative) used?

Note: Exemption for metals analysis by 200.8/6020 in water.

Volatile Analysis Requirements (VOC, GRO, LL-Hg, etc.)

Were all soil VOAs received with a corresponding % solids container?

Were Trip Blanks (e.g., VOAs, LL-Hg) in cooler with samples?

Were all water VOA vials free of headspace (e.g., bubbles ≤ 6mm)?

Were all soil VOAs field extracted with Methanol+BFB?

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1223197001-A	Na2S2O3 for Chlorine Redu	OK			
1223197002-A	Na2S2O3 for Chlorine Redu	OK			
1223197003-A	Na2S2O3 for Chlorine Redu	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.