



ATTACHMENT M

Hydrologic Points of Interest



Submitted January 13, 2016
(Updates Provided on July 21, 2016)

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ASAP STREAMS AND HYDROLOGIC POINTS OF INTEREST

A summary of probable centerline stream crossings was first reported to the Corps of Engineers in ASAP's 2010 Clean Water Act application leading up to the publication of the Project's Environmental Impact Statement in 2012. This list was developed by ASAP's engineering and wetlands teams through early desktop and field studies between 2009 and 2010 using the best available information at that time. Since then, changes in pipeline routing and the addition of new access roads and other facilities have occurred, and better desktop and field data for streams and wetlands have been collected.

ASAP's waterways engineering team and its wetlands delineation team played key roles in developing a list of field targets visited in 2014 and 2015 to best inform construction modes and methods through areas that could require special design. Many of these selected "stream targets" required on-site visits for engineering purposes to assess surface water features identified during desktop analysis.

ASAP's current design includes impacts to waterbodies identified by ASAP engineers and scientists as either streams or hydrologic points of interest (HPOI's). The HPOI features do not meet the criteria relative to possessing an ordinary high water mark defined in the USACE Regulatory Guidance Letter (RGL) 05-05, but are jurisdictional areas for which engineers may need to give special design consideration. From a wetlands perspective, a stream is defined as having seasonally flowing water (at least in most years), and by having bed and bank. The reason is that a riverine classification includes all habitats contained within a channel. These systems can be Relatively Permanent Waters (RPWs) (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally) or Non-RPWs. Channels are defined by overseeing agencies as displaying an ordinary high water mark, which refers to the line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider characteristics of a surrounding area.

Hydrologic features without an ordinary high water mark may be wetlands and may be important considerations for engineers, but these do not meet the wetlands definition for streams. The engineering definition of a stream crossing, either by the pipeline centerline or by an access road, is that there exists surface water that is likely to require application of a special design method or mode (whether meeting the wetlands definition of a stream or not). This includes areas of permanently-flooded emergent wetlands, which can convey water through the landscape and require special design.

In previous submittals, we have combined the engineering- and wetlands-identified streams into a single stream list. After review, however, many of the streams as determined by the engineering staff did not meet the wetlands stream definition and were removed from the stream list. The attached stream list is a complete list of features that meet the wetlands definition of a stream. The additional field targets that were identified by engineering but that do not meet the wetlands definition for a stream are now contained in a second list, termed "Hydrologic Points of Interest", or HPOI's.

The ASAP Project Footprint will directly impact waterbodies at 496 locations (317 stream locations, 179 HPOI locations), with the vast majority of these being temporary impacts. These direct impacts are attributed to activities resulting from 423 Mainline waterbody crossings (temporary impact only), 7

ASAP

Fairbanks Lateral waterbody crossings (temporary impact only), 61 access road waterbody crossings (permanent and temporary impact), and 5 in-river material site extraction locations at the Sag river to help meet North Slope gravel needs (temporary impact only). In total, ASAP will impact 71 anadromous waters¹ at 75 distinct locations.

¹ The 71 anadromous waters impacted by the total Project Footprint are the sum of impacts to waterbodies on the mainline (57 anadromous waters impacted), access roads (13 anadromous waters impacted), and at material extraction sites (1 anadromous water impacted). However, this is a conservative number because of some duplications between mainline crossings and access road crossings of the same stream.

A. Mainline Hydrologic Points of Interest

ID	Name	Crossing Method	Longitude	Latitude	Type
ST_8.1	Unnamed	OC	-148.6944	70.2195	HPOI
ST_8.8	Unnamed	OC	-148.6964	70.2095	HPOI
ST_21.3	Unnamed	OC	-148.7350	70.0323	HPOI
ST_35.1	Unnamed	OC	-148.7631	69.8385	HPOI
ST_39.5	Unnamed	OC	-148.7412	69.7750	HPOI
ST_39.8	Unnamed	OC	-148.7392	69.7709	HPOI
ST_40.3	Unnamed	OC	-148.7360	69.7643	HPOI
ST_40.9	Unnamed	OC	-148.7313	69.7547	HPOI
ST_67.2	Unnamed	OC	-148.7170	69.3943	HPOI
ST_74.3	Unnamed	OC	-148.7392	69.3056	HPOI
ST_90.1	Unnamed	OC	-148.8379	69.0964	HPOI
ST_92.9	Unnamed	IOC	-148.8304	69.0590	HPOI
ST_103.7	Unnamed	OC	-148.8940	68.9112	HPOI
ST_104.5	Unnamed	OC	-148.8914	68.8995	HPOI
ST_105	Unnamed	OC	-148.8901	68.8935	HPOI
ST_105.6	Unnamed	OC	-148.8882	68.8849	HPOI
ST_115.3	Unnamed	OC	-148.9099	68.7562	HPOI
ST_136.3	Unnamed	IOC	-149.4919	68.5620	HPOI
ST_136.6	Unnamed	IOC	-149.4971	68.5581	HPOI
ST_137.1	Unnamed	IOC	-149.4935	68.5513	HPOI
ST_137.6	Unnamed	IOC	-149.4899	68.5444	HPOI
ST_142.4	Unnamed	IOC	-149.4343	68.4805	HPOI
ST_142.8	Unnamed	OC	-149.4234	68.4765	HPOI
ST_143	Unnamed	IOC	-149.4173	68.4743	HPOI
ST_146.6	Unnamed	OC	-149.3501	68.4321	HPOI
ST_146.7	Unnamed	OC	-149.3492	68.4311	HPOI
ST_148.1_1	Unnamed	OC	-149.3287	68.4122	HPOI
ST_149.8	Unnamed	IOC	-149.3197	68.3878	HPOI
ST_152	Unnamed	IOC	-149.3251	68.3574	HPOI
ST_153.1	Unnamed	IOC	-149.3415	68.3429	HPOI
ST_153.5	Unnamed	IOC	-149.3476	68.3369	HPOI
ST_154	Unnamed	OC	-149.3513	68.3308	HPOI
ST_155	Unnamed	OC	-149.3524	68.3156	HPOI
ST_155.4	Unnamed	OC	-149.3553	68.3113	HPOI
ST_155.5_1	Unnamed	OC	-149.3563	68.3094	HPOI
ST_155.5_2	Unnamed	OC	-149.3567	68.3085	HPOI
ST_155.6	Unnamed	OC	-149.3570	68.3079	HPOI
ST_161.2	Unnamed	IOC	-149.4119	68.2330	HPOI

ID	Name	Crossing Method	Longitude	Latitude	Type
ST_162.3	Unnamed	OC	-149.4082	68.2195	HPOI
ST_163	Unnamed	OC	-149.4139	68.2095	HPOI
ST_165	Unnamed	OC	-149.4250	68.1833	HPOI
ST_165.1	Unnamed	OC	-149.4269	68.1819	HPOI
ST_169.8	Unnamed	OC	-149.4848	68.1284	HPOI
ST_173.1_1	Unnamed	OC	-149.5490	68.0943	HPOI
ST_174	Unnamed	IOC	-149.5681	68.0830	HPOI
ST_175.4	Unnamed	IOC	-149.5992	68.0679	HPOI
ST_175.5	Unnamed	IOC	-149.6002	68.0669	HPOI
ST_182.5	Unnamed	OC	-149.7578	67.9956	HPOI
ST_183.3	Unnamed	OC	-149.7658	67.9853	HPOI
ST_183.4	Unnamed	IOC	-149.7629	67.9846	HPOI
ST_183.7	Unnamed	IOC	-149.7610	67.9800	HPOI
ST_188.9	Unnamed	IOC	-149.8189	67.9146	HPOI
ST_189	Unnamed	IOC	-149.8183	67.9126	HPOI
ST_198	Unnamed	IOC	-149.7968	67.7877	HPOI
ST_199.7	Unnamed	IOC	-149.7672	67.7649	HPOI
ST_200.4	Unnamed	OC	-149.7621	67.7553	HPOI
ST_200.8	Unnamed	IOC	-149.7597	67.7499	HPOI
ST_201.2	Unnamed	IOC	-149.7571	67.7452	HPOI
ST_202.7_2	Unnamed	OC	-149.7400	67.7247	HPOI
ST_203.2	Unnamed	OC	-149.7365	67.7187	HPOI
ST_203.3	Unnamed	IOC	-149.7350	67.7163	HPOI
ST_203.7	Unnamed	OC	-149.7321	67.7113	HPOI
ST_206.8	Unnamed	IOC	-149.7205	67.6679	HPOI
ST_210.5	Unnamed	IOC	-149.7838	67.6248	HPOI
ST_214.4	Unnamed	IOC	-149.8088	67.5715	HPOI
ST_219.4	Unnamed	IOC	-149.8545	67.5053	HPOI
ST_220	Unnamed	IOC	-149.8575	67.4967	HPOI
ST_223.1	Unnamed	IOC	-149.9335	67.4691	HPOI
ST_223.4	Unnamed	OC	-149.9445	67.4669	HPOI
ST_226	Unnamed	OC	-150.0346	67.4549	HPOI
ST_227.8	Unnamed	OC	-150.0708	67.4356	HPOI
ST_232.2	Unnamed	IOC	-150.1187	67.3760	HPOI
ST_232.4	Unnamed	IOC	-150.1212	67.3735	HPOI
ST_234	Unnamed	OC	-150.1349	67.3513	HPOI
ST_235.7	Unnamed	IOC	-150.1528	67.3271	HPOI
ST_237.3	Unnamed	IOC	-150.1646	67.3045	HPOI
ST_242.5	Unnamed	IOC	-150.1889	67.2365	HPOI
ST_247.6	Unnamed	IOC	-150.3000	67.1790	HPOI

ID	Name	Crossing Method	Longitude	Latitude	Type
ST_247.8	Unnamed	IOC	-150.3049	67.1772	HPOI
ST_249	Unnamed	IOC	-150.3387	67.1687	HPOI
ST_250.3	Unnamed	OC	-150.3489	67.1514	HPOI
ST_251.8	Unnamed	IOC	-150.3440	67.1295	HPOI
ST_253.3	Unnamed	IOC	-150.3440	67.1101	HPOI
ST_254.8	Unnamed	IOC	-150.3507	67.0879	HPOI
ST_255.5	Unnamed	IOC	-150.3511	67.0789	HPOI
ST_258.5	Unnamed	IOC	-150.3185	67.0434	HPOI
ST_260.8	Unnamed	IOC	-150.2821	67.0144	HPOI
ST_263.4	Unnamed	IOC	-150.3207	66.9813	HPOI
ST_265.7	Unnamed	IOC	-150.3755	66.9561	HPOI
ST_266.8	Unnamed	IOC	-150.4016	66.9454	HPOI
ST_268.3	Unnamed	IOC	-150.4289	66.9268	HPOI
ST_275.5	Unnamed	IOC	-150.5651	66.8416	HPOI
ST_280.5	Unnamed	OC	-150.6688	66.7879	HPOI
ST_285.8	Little Nasty Creek Tributary	IOC	-150.6534	66.7123	HPOI
ST_293.4	Unnamed	IOC	-150.6748	66.6098	HPOI
ST_296.9	Unnamed	IOC	-150.7346	66.5686	HPOI
ST_304.5	Unnamed	IOC	-150.6529	66.4724	HPOI
ST_304.9	Unnamed	IOC	-150.6459	66.4668	HPOI
ST_309.8	Unnamed	IOC	-150.5524	66.4097	HPOI
ST_312.4	Unnamed	OC	-150.5102	66.3824	HPOI
ST_312.8	Unnamed	IOC	-150.5020	66.3781	HPOI
ST_315.7	Unnamed	IOC	-150.4513	66.3411	HPOI
ST_316.2	Unnamed	IOC	-150.4446	66.3354	HPOI
ST_317	Unnamed	IOC	-150.4257	66.3258	HPOI
ST_318.6	Unnamed	IOC	-150.4024	66.3071	HPOI
ST_319.4	Unnamed	IOC	-150.3906	66.2970	HPOI
ST_325.4	Unnamed	IOC	-150.2746	66.2240	HPOI
ST_329	Unnamed	IOC	-150.2140	66.1803	HPOI
ST_337.2	Unnamed	OC	-150.1688	66.0691	HPOI
ST_341.4	Unnamed	OC	-150.0992	66.0184	HPOI
ST_343	Unnamed	OC	-150.0642	66.0021	HPOI
ST_344.4	Unnamed	IOC	-150.0232	65.9931	HPOI
ST_345.8	Unnamed	OC	-149.9955	65.9766	HPOI
ST_348.7	Unnamed	IOC	-149.9200	65.9484	HPOI
ST_349.2	Unnamed	OC	-149.9052	65.9446	HPOI
ST_350.9	Unnamed	OC	-149.8564	65.9314	HPOI
ST_354.3	Unnamed	IOC	-149.7718	65.8997	HPOI

ID	Name	Crossing Method	Longitude	Latitude	Type
ST_365.4	Unnamed	IOC	-149.4991	65.8013	HPOI
ST_369.1	Unnamed	IOC	-149.4048	65.7695	HPOI
ST_370.7	Unnamed	IOC	-149.3608	65.7559	HPOI
ST_371.5	Unnamed	IOC	-149.3398	65.7480	HPOI
ST_375.9	Unnamed	IOC	-149.2096	65.7180	HPOI
ST_402.5	Unnamed	IOC	-148.6186	65.4451	HPOI
ST_407.8	Unnamed	OC	-148.6088	65.3694	HPOI
ST_425.2	Unnamed	OC	-148.6888	65.1548	HPOI
ST_451.1	Unnamed	OC	-148.7755	64.8090	HPOI
ST_493.7	Unnamed	OC	-149.3020	64.2726	HPOI
ST_493.8	Unnamed	OC	-149.3020	64.2708	HPOI
ST_494	Unnamed	OC	-149.3020	64.2683	HPOI
ST_504.1	Unnamed	IOC	-149.2453	64.1303	HPOI
ST_505.7	Unnamed	IOC	-149.2241	64.1084	HPOI
ST_506.5	Unnamed	OC	-149.2169	64.0976	HPOI
ST_518.2	Unnamed	OC	-149.1044	63.9413	HPOI
ST_519.3	Unnamed	IOC	-149.0887	63.9269	HPOI
ST_538.2	Unnamed	IOC	-148.8403	63.7152	HPOI
ST_539.5	Unnamed	IOC	-148.8132	63.7029	HPOI
ST_542.5	Unnamed	OC	-148.7638	63.6714	HPOI
ST_546.4	Unnamed	OC	-148.7579	63.6195	HPOI
ST_558.1	Unnamed	IOC	-148.8041	63.4632	HPOI
ST_559.1	Unnamed	IOC	-148.8106	63.4512	HPOI
ST_559.3	Unnamed	IOC	-148.8113	63.4478	HPOI
ST_559.4	Unnamed	IOC	-148.8128	63.4469	HPOI
ST_592.9	Unnamed	IOC	-149.4566	63.1134	HPOI
ST_601.5	Unnamed	IOC	-149.5526	63.0030	HPOI
ST_612.5	Unnamed	OC	-149.7800	62.8923	HPOI
ST_655.7	Unnamed	OC	-150.2636	62.4050	HPOI
ST_656.5	Unnamed	OC	-150.2648	62.3928	HPOI
ST_657.5	Unnamed	OC	-150.2693	62.3793	HPOI
ST_664	Unnamed	OC	-150.2582	62.2923	HPOI
ST_665.7	Unnamed	OC	-150.2492	62.2684	HPOI
ST_667.6	Sawmill Creek Tributary	OC	-150.2557	62.2420	HPOI
ST_679.5	Unnamed	OC	-150.0637	62.1156	HPOI
ST_680.9	Unnamed	IOC	-150.0608	62.1022	HPOI
ST_684	Unnamed	OC	-150.0618	62.0564	HPOI
ST_705.7	Unnamed	TD	-150.1241	61.7737	HPOI
ST_705.8	Unnamed	TD	-150.1244	61.7727	HPOI

ID	Name	Crossing Method	Longitude	Latitude	Type
ST_708.5	Unnamed	IOC	-150.1592	61.7398	HPOI
ST_731.3	Little Susitna River Tributary	IOC	-150.1148	61.4455	HPOI

Note: HPOI IDs correspond to v6.1 Mainline mileposts; impacts to anadromous waters are denoted in the ASAP EFH Report; HPOI impacts / fill are reported in the summaries of overall acreage impacts to wetlands

Key: IOC = Isolated Open Cut; OC = Open Cut; TD = Trenchless Drilling; HPOI = Hydrologic Point of Interest

B. Fairbanks Lateral Hydrologic Points of Interest

(None)

C. Access Road Hydrologic Points of Interest

ID	Name	Crossing Method	Type	Longitude	Latitude	Type
0089-01/ MP40.2	Unnamed	Culvert	Perm.	-148.7334	69.7656	HPOI
0212-02 / MP90.6	Unnamed	Culvert	Perm.	-148.8008	69.0912	HPOI
0235-01/ MP109.5	Unnamed	Culvert	Temp.	-148.8279	68.8324	HPOI
0360-01/ MP162.8	Unnamed	Culvert	Perm.	-149.4128	68.2129	HPOI
0572-01/ MP206.2	Unnamed	Culvert	Perm.	-149.7272	67.6756	HPOI
0730-01/ MP255.2	Unnamed	Bridge	Perm.	-150.3825	67.0811	HPOI
0780-02/ MP276.1	Unnamed	Culvert	Perm.	-150.5973	66.8365	HPOI
0788-01/ MP277.8	Unnamed	Culvert	Perm.	-150.6332	66.8229	HPOI
0872-02/ MP312.2	Unnamed	Culvert	Perm.	-150.5144	66.3841	HPOI
0929-02/ MP343.8	Unnamed	Culvert	Perm.	-150.0025	65.9971	HPOI
1020-06/ MP389.2	Unnamed	Culvert	Perm.	-148.9357	65.5731	HPOI
1049-02/ MP401.6	Unnamed	Culvert	Perm.	-148.6608	65.4599	HPOI
1049-03/ MP401.6	Unnamed	Culvert	Perm.	-148.6576	65.4597	HPOI
1135-05/ MP477.9	Unnamed	Culvert	Temp.	-149.1526	64.4883	HPOI
1321-07/ MP538.4	Unnamed	Culvert	Perm.	-148.8364	63.7151	HPOI
1321-02/ MP542.3	Unnamed	Culvert	Perm.	-148.7696	63.6735	HPOI
1392-01/ MP571.8	Unnamed	Culvert	Perm.	-149.0932	63.3424	HPOI
1410-01/ MP580.7	Unnamed	Culvert	Perm.	-149.2662	63.2515	HPOI
1485-02/ MP599.5	Unnamed	Culvert	Perm.	-149.5684	63.0283	HPOI
1636-02/ MP689.5	Unnamed	Culvert	Perm.	-150.0616	61.9868	HPOI
1695-03/ MP721.7	Unnamed	Culvert	Perm.	-150.1379	61.5699	HPOI

Note: HPOI IDs correspond to v6.1 Mainline mileposts; impacts to anadromous waters are denoted in the ASAP EFH Report; HPOI impacts / fill are reported in the summaries of overall acreage impacts to wetlands

Key: HPOI = Hydrologic Point of Interest; MP = milepost; Perm. = Permanent; Temp. = Temporary