

APPENDIX S

Visual Resources

APPENDIX S: Visual Resources

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Acronyms and Abbreviations

Acronym	Definition
ADNR	Alaska Department of Natural Resources
AGDC	Alaska Gasline Development Corporation
BLM	Bureau of Land Management
CPP	Corridor Partnership Plan
DEM	Digital Elevation Model
DMT	directional micro-tunneling
DNPP	Denali National Park and Preserve
EIS	environmental impact statement
FERC	Federal Energy Regulatory Commission
GTP	Gas Treatment Plant
INHT	Iditarod National Historic Trail
KOP	key observation point
LNG	liquefied natural gas
MLV	Mainline valve
MP	milepost
NA	not applicable
NPS	National Park Service
NWR	National Wildlife Refuge
Parks Highway	George Parks Highway
Project	Alaska LNG Project
RST	Revised Statute 2477 Trail
SGR	State Game Refuge
SRR	State Recreation River
TAPS	Trans Alaska Pipeline System
VRI	visual resource inventory
VRM	(BLM) Visual Resource Management

APPENDIX S-1

Sensitive Visual Resource Areas Visible from the Project Area

APPENDIX S-1: Sensitive Visual Resource Areas Visible from the Project Area

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Sensitive Visual Resource Areas Visible from the Project Area						
Sensitive Visual Resource	Resource Type	Project Facility	Project Footprint Visible ^{a, b}	Milepost	Distance to Project Facility (miles)	Applicable Key Observation Points
Prudhoe Bay	City/Community	Mainline Facilities, Gas Treatment Facilities	Possibly	0.0–1.0	4.4	1
North Slope Area Special Use Lands	Special Use Land	Mainline Facilities, Gas Treatment Facilities	Yes ^c	0.0–182.5	0	1–7
James Dalton Highway Corridor	Scenic Byway	Mainline Facilities, Gas Treatment Facilities	Yes	0.0–401.0	0	1–15, A–I
Deadhorse	City/Community	Mainline Facilities, Gas Treatment Facilities	Possibly	7.0	4.1	1
RST 450 Hickel Highway	Trail	Mainline Facilities	Yes ^c	62.8	0	2
Sagavanirktok River Overlook	State Land	Mainline Facilities	Possibly	72.5	0.2	None
BLM Happy Valley Wayside	BLM Land	Mainline Facilities	No	85.7	0.6	None
BLM Galbraith Lake Campground	BLM Land	Mainline Facilities	Yes	142.9	2.0	3, 4
Arctic NWR	NWR	Mainline Facilities, Gas Treatment Facilities	Yes	144.1	4.3	3, 4
BLM Atigun Pass Wayside	BLM Land	Mainline Facilities	Yes	169.9	0	5
BLM Farthest North Spruce Wayside	BLM Land	Mainline Facilities	Yes	178.9	0	7
BLM Sukakpak Mountain Wayside	BLM Land	Mainline Facilities	Yes	212.5	0.1	None
RST 254 Wiseman-Chandalar	Trail	Mainline Facilities	Yes ^c	218.7	0	8
RST 899 Hammond River Trail	Trail	Mainline Facilities	Possibly	227.0–228.0	0.7	None
Wiseman	Community	Mainline Facilities	Possibly	230.1	0.5	None
BLM Marion Creek Campground	BLM Land	Mainline Facilities	Yes	236.7	0	9
RST 9 Coldfoot-Chandalar Lake	Trail	Mainline Facilities	Yes ^c	241.2	0.2	A, 10, 11
RST 591 Coldfoot-Junction #49 (east route)	Trail	Mainline Facilities	Yes ^c	241.3	0.2	A, 10, 11
RST 262 Caro-Coldfoot	Trail	Mainline Facilities	Yes ^c	241.5	0.2	A, 10, 11
RST 209 Bettles-Coldfoot	Trail	Mainline Facilities	Yes	249.5	0.2	None
RST 1611 Bergman - Cathedral Mountain	Trail	Mainline Facilities	Yes	249.9	0.4	None
RST 412 Slate Creek	Trail	Mainline Facilities	Yes ^c	255.5	0	None
BLM Grayling Lake Wayside	BLM Land	Mainline Facilities	Possibly	266.7	0.4	None

TABLE S-1 (cont'd)

Sensitive Visual Resource Areas Visible from the Project Area

Sensitive Visual Resource	Resource Type	Project Facility	Project Footprint Visible ^{a, b}	Milepost	Distance to Project Facility (miles)	Applicable Key Observation Points
BLM Gobblers Knob Wayside	BLM Land	Mainline Facilities	Possibly	282.0	0.7	B
BLM Arctic Circle Wayside	BLM Land	Mainline Facilities	No	297.8	2.2	C
BLM Finger Mountain Wayside	BLM Land	Mainline Facilities	Yes	314.8	0.1	D, E
BLM 86-Mile Wayside	BLM Land	Mainline Facilities	Yes	326.8	0.6	F
BLM 60-Mile Campground	BLM Land	Mainline Facilities	Possibly	352.6	0.2	None
BLM Visitor Contact Station and Yukon Crossing Wayside	BLM Land	Mainline Facilities	Possibly	356.5	0.7	None
RST 468 Hunter Creek-Livengood	Trail	Mainline Facilities	Yes ^c	400.6	0.2	15
Livengood	City/Community	Mainline Facilities	Possibly ^d	401.0	4.3	15
Tanana Valley State Forest	State Forest	Mainline Facilities	Yes	407.7–430.9 447.9–454.6	0	None
Minto Flats SGR	SGR	Mainline Facilities	Yes	430.9–441.1 454.6–468.5	0	None
RST 70 Ester-Dunbar	Trail	Camp/Pipe storage yard	Yes	454.6	1.7	None
RST 66 Dunbar-Brooks Terminal	Trail	Mainline Facilities	Yes ^c	454.6	0	15
RST 1595 Dunbar-Minto-Tolovana	Trail	Mainline Facilities	Yes ^c	455.9	0.3	None
Parks Highway	Scenic Byway	Mainline Facilities	Yes	471.0–472.2 498.5–675.5	0	16–35 37–40, 44, 45, J–Q, S–V
RST 152 Nenana-Tanana (Serum Run)	Trail	Mainline Facilities	Yes	471.6	0.2	18
RST 264 Old Mail Trail (Nenana-Minto)	Trail	Mainline Facilities	Yes	471.6	0.2	18
RST 346 Nenana-Kantishna	Trail	Mainline Facilities	Yes ^c	473.8	0.4	None
Nenana	City/Community	Mainline Facilities	Yes	473.4	0.7	19–22
RST 345 Kobi-McGrath (via Nikolai and Big River)	Trail	Mainline Facilities	Yes ^c	497.3	0.2	None
RST 119 Kobi-Bonnifield Trail to Tatlanika Creek	Trail	Mainline Facilities	Yes	497.5	1.4	None
RST 343 Kobi-Kantishna	Trail	Mainline Facilities	Yes ^c	498.1	0.3	None
RST 491 Rex-Roosevelt	Trail	Mainline Facilities	Yes ^c	498.1	0.3	None
RST 344 Lignite-Kantishna	Trail	Mainline Facilities	Yes ^c	523.1	0.2	None
RST 340 Lignite-Stampede	Trail	Mainline Facilities	Yes ^c	523.2	0.2	None

TABLE S-1 (cont'd)						
Sensitive Visual Resource Areas Visible from the Project Area						
Sensitive Visual Resource	Resource Type	Project Facility	Project Footprint Visible ^{a, b}	Milepost	Distance to Project Facility (miles)	Applicable Key Observation Points
Dry Creek Site	Interagency Land Management Area Park	Mainline Facilities	Yes	525.0	1.0	24, 25
RST 709 Healy-Diamond Coal Mine Dirt Road	Trail	Mainline Facilities	Yes ^c	527.0	0.1	27
Healy	City/Community	Mainline Facilities	Yes	524.5	1.9	24, 25
Healy	City/Community	Camp/Pipe storage yard	Yes	524.5	0.5	None
Garner	City/Community	Mainline Facilities	Yes	529.2	0.3	J
Nenana River Gorge and McKinley Village Special Use Area	Special Use Land	Mainline Facilities	Yes ^c	532.2–537.1	0	28, 29, K–M
Denali National Park and Preserve	National Park and Preserve	Mainline Facilities	Yes	537.1–543.1	0	28-30, K–M, 2018-8 through 2018-14,
RST 625 Cantwell Small Tracts Road (Lovers Lane)	Trail	Mainline Facilities	Yes ^c	566.5	0.2	34, 35
Cantwell	City/Community	Mainline, Facilities Camp/ Pipe storage yard	Yes	566.5	1.1	34, 35
RST 707 Windy Creek Trails (Cantwell)	Trail	Camp/Pipe storage yard	Yes	568.0	1.3	None
Summit	City/Community	Mainline Facilities	Yes	575.0	0.3	None
Broad Pass	City/Community	Mainline Facilities	Possibly	584.0	1.6	None
Denali State Park	State Park	Mainline Facilities	Yes	609.0–646.9	0	37, 38, O–S
Talkeetna Recreation River	SRR	Mainline Facilities	Possibly	663.0	4.2	42
RST 331 Talkeetna-Iron Creek	Trail	Mainline Facilities	Possibly	663.5	5.3	None
Sunshine	City/Community	Mainline Facilities, Pipe storage yard	Yes	677.0	4.2	None
RST 1691 Herning Trail-Question Creek	Trail	Mainline Facilities	Possibly	677.0	4.4	None
Kroto Creek and Moose Creek SRR	SRR	Mainline Facilities	Yes	703.9–707.4	0	None
Nancy Lake State Recreation Area	State Recreation Area	Mainline Facilities	Possibly	710.0	7.4	None
Little Susitna Recreation River	SRR	Mainline Facilities	Possibly	721.0	11.4	None

TABLE S-1 (cont'd)

Sensitive Visual Resource Areas Visible from the Project Area

Sensitive Visual Resource	Resource Type	Project Facility	Project Footprint Visible ^{a, b}	Milepost	Distance to Project Facility (miles)	Applicable Key Observation Points
RST 198 Susitna-McDougal	Trail	Mainline Facilities	Yes ^c	721.1	0.4	None
Iditarod National Historic Trail	National Historic Trail	Mainline Facilities	Yes	723.5	0	46, 47
RST 199 Knit-Sustina	Trail	Mainline Facilities	Yes ^c	723.5	0	46, 47
RST 149 Nancy Lake-Susitna	Trail	Mainline Facilities	Possibly	724.5	1.0	46, 47
Alexander Creek State Recreation River	SRR	Mainline Facilities	Yes	727.3–728.6	0	None
RST 126 Lakeview-McDougal	Trail	Mainline Facilities	No ^d	728.0	13.6	None
Susitna Flats SGR	SGR	Mainline Facilities	Yes	737.3–752.3	0	None
RST 1862 Beluga Indian Trail	Trail	Mainline Facilities	Yes ^c	751.5	0.5	None
RST 200 Susitna-Tyonek	Trail	Mainline Facilities	Yes ^c	766.2	0	None
Kenai NWR	NWR	Mainline Facilities, LNG Plant	Yes	793.3	5.1	None
Nikiski	City/Community	Mainline Facilities, LNG Plant	Yes	813.0	0.4	None
Kenai	City/Community	Mainline Facilities, LNG Plant	Possibly	818.0	9.3	52
Ridgeway	City/Community	Mainline Facilities, LNG Plant	Possibly	818.0	13.8	53
Salamatof	City/Community	Mainline Facilities, LNG Plant	Yes	818.0	4.5	None
The Pillars-Kenai River Special Management Area	Interagency Land Management Area Park	LNG Plant	Yes	818.0	13.3	None

BLM = Bureau of Land Management, NWR = National Wildlife Refuge; Parks Highway = George Parks Highway; RST = Revised Statute 2477 Trail; SGR = State Game Refuge; SRR = State Recreation River

^a Visibility based on the digital elevation model (DEM) does not account for vegetation present that could reduce visibility.

^b Visibility from the Project footprint, determined with line-of-sight analysis with ESRI ArcGIS desktop analysis in areas with sufficient DEM availability.

^c Recreational resource crosses or overlaps the Mainline Facilities.

^d DEM not complete from Project feature to community.

APPENDIX S-2a

Affected Environment, Impacts, and Mitigation Measures at Key Observation Points

APPENDIX S-2a: Affected Environment, Impacts, and Mitigation Measures at Key Observation Points

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(See appendix S-2b and S-2c)

S-2.1 AFFECTED ENVIRONMENT, IMPACTS, AND MITIGATION MEASURES AT KEY OBSERVATION POINTS

Appendix S-2a provides a detailed description of the view from, and visual resource management characteristics of, each key observation point (KOP) for the Alaska LNG Project (Project)—including scenic quality, visual sensitivity, and visual resource inventory (VRI) class—along with the components of each of these characteristics, such as form, line, color, and texture. The Alaska Gasline Development Corporation (AGDC) conducted field investigations in August 2015 and July 2016 to identify and describe potential KOPs using the Bureau of Land Management (BLM) Visual Resource Management (VRM) system.¹ As part of the visual analysis, AGDC representatives, accompanied by National Park Service (NPS) employees, also identified and conducted a VRI using NPS methodology for seven KOPs in the Denali National Park and Preserve (DNPP) in June and July 2018 (see appendix E of the environmental impact statement [EIS] for further discussion and the Project’s NPS VRI forms).² Section 4.10.1.2 of the EIS provides a detailed description of the BLM VRM system, while section 4.10.1.3 provides a detailed description of the NPS VRI system.

Appendix S-2b provides existing-conditions imagery and simulated views of future conditions from 30 KOPs. Appendix S-2a and S-2b do not include analyses, imagery, and simulations of KOPs 23, R, 46 and 48, which were not surveyed due to lack of accessibility.

Appendix S-3 includes a series of maps showing the locations of sensitive visual resource areas in the analysis area. These maps show Project elements, KOPs, and other relevant information. Potential visibility of the Project from sensitive visual resource areas was initially determined using line-of-sight analyses based on available Digital Elevation Model data, which took into account topography and distance to the Project features.

Descriptions of the proposed facilities and the planned construction schedule for the Project are provided in section 2.0 of the EIS.

In its comments on the draft EIS, the BLM requested that AGDC not introduce new vegetation that contrasts with existing conditions in areas where minimal or no vegetation currently exists, and that mitigation measures (such as those discussed in this appendix) should seek to blend in with the surrounding landscape and match color, form, line, and texture. In addition, the BLM requested that all permanent structures or facilities be painted a camouflaging color in accordance with the BLM’s VRM standards. AGDC would address these specific provisions during the BLM permitting process.

¹ The Project’s BLM VRI forms were provided in AGDC’s December 29, 2017 response to Federal Energy Regulatory Commission (FERC) information request No. 41 for Resource Report 8 dated July 28, 2017 (Accession No. 20171229-5207), available on the FERC website at <http://www.ferc.gov>. Using the “eLibrary” link, select “Advanced Search” from the eLibrary menu and enter 20171229-5207 in the “Numbers: Accession Number” field.

² Scenic quality, view importance, and scenic inventory value were determined by AGDC and DNPP personnel. These determinations were included as part of AGDC’s response to FERC information request No. 216 dated July 13, 2018 (Accession No. 20180713-5057), available on the FERC website at <http://www.ferc.gov>. Using the “eLibrary” link, select “Advanced Search” from the eLibrary menu and enter 20180713-5057 in the “Numbers: Accession Number” field.

S-2.1.1 GAS TREATMENT FACILITIES

S-2.1.1.1 KOP 1: Colleen Lake

Affected Visual Environment

KOP 1 (see table S-2-1) is in Deadhorse and is the view looking north across Colleen Lake near the northern terminus of the Dalton Highway at Airport Way (see figure S-2-1a). The flat, still waters of the lake mirror the colors of the sky. The lake and flat landforms contrast with the geometric forms of the industrial structures clustered irregularly along the distant lakeshore. Industrial structures in close proximity to the viewpoint reduce the scenic quality of the area. Vegetation consists of low plants in rough clumps. The dominant color in the area is provided by the vegetation, which ranges from green and brown with some seasonal yellows and reds. Nearby structures consist primarily of white, gray, and tan metal structures. No trees are visible from this KOP.

The Gas Treatment Facilities would be about 7.5 miles northwest of this KOP, which is the closest point in the area accessible to the public where Project facilities could be viewed. From this point, access to the Project occurs through the Prudhoe Bay Unit, which is largely secured as an area designated for oil and gas development. Visitors or individuals seeking recreational opportunities typically would not be permitted beyond this KOP.

Project Activities Generating Impacts

The Gas Treatment Facilities would be about 7.5 miles from KOP 1 on the opposite shore of Colleen Lake. Figures S-2-1b and S-2-1c show simulated future visual conditions from KOP 1.

TABLE S-2-1		
KOP 1: Colleen Lake		
KOP: 1		Date: 8/28/15
Visual Resource Inventory Class: III		
Location: Northing 7795319.096, Easting 672139.477		
Distance from nearest proposed Project element(s): about 7.5 miles from the Gas Treatment Facilities		
Approximate Pipeline Milepost: 10		
Ecoregion: Arctic Coastal Plain		
Scenic Quality Classification: C		Overall Sensitivity Rating: L
Landscape Description		
Landform/Water	Vegetation	Structure
Form: irregular, blocky foreground; low, flat background and water	Form: short, low, rough	Form: horizontal, vertical, circular, geometric
Line: curving, irregular, simple	Line: horizontal, continuous, simple, irregular	Line: horizontal, vertical, circular, geometric
Color: brown, gray	Color: some green, brown, seasonal yellow/red	Color: browns, grays
Texture: uneven, random	Texture: clumped, medium, patchy	Texture: clumped, smooth, ordered

Visual Impacts During Construction

Project construction would not create visible changes to the landform or water during construction. The landform is generally horizontal and flat; thus, Project construction would create no noticeable contrast. No changes to vegetation would be noticeable during construction due to the distance between the KOP and the Gas Treatment Facilities; therefore, construction would introduce weak to no contrast for

vegetation. As shown on figure S-2-1b, Gas Treatment Facilities construction would introduce some horizontal and vertical lines and rectilinear forms on the distant horizon, but at a distance of 7.5 miles, these lines and forms would introduce weak contrast. The Project's geometric forms visible from KOP 1 would be similar in size, scale, color, and texture to those found on the distant shorelines and those immediately adjacent to the KOP at the terminus of the Dalton Highway. Gas Treatment Facilities construction would introduce new sources of artificial nighttime light, but the industrial area surrounding the Gas Treatment Facilities has extensive existing lights, and the additional lights for the Gas Treatment Facilities would not add appreciably to the amount of lighting in the view. Although some tourists use the area, oil and gas industry workers are the primary viewers from this location. For these reasons, construction of the Gas Treatment Facilities would have low visual impacts at KOP 1.

Visual Impacts During Operation

Project operation would not create visible changes to the landform or water during operation. The landform is generally horizontal and flat; thus, Project operation would create no noticeable contrast. No changes to vegetation would be noticeable during operation due to the distance between the KOP and the Gas Treatment Facilities; therefore, contrast for vegetation would be weak to none. As shown on figure S-2-1c, Gas Treatment Facilities operation would introduce some horizontal and vertical lines and rectilinear forms on the distant horizon, but at a distance of 7.5 miles, these lines and forms would introduce weak contrast. The Gas Treatment Plant (GTP) would likely introduce tan and gray colors, which would be similar to the colors already visible on the landscape; therefore, operation of the GTP would introduce weak color contrast. The Project facilities visible from KOP 1 would have smooth textures. The existing horizon also appears smooth; therefore, Project operation would introduce weak texture contrast. The geometric forms of the Gas Treatment Facilities would be similar in size, scale, color, and texture to those found on the distant shorelines and those immediately adjacent to the KOP at the terminus of the Dalton Highway.

AGDC did not evaluate the potential size and frequency of visible condensation plumes from the Gas Treatment Facilities. In a study of plumes associated with compressor stations and heater stations, AGDC concluded that condensation plumes would be visible during 2 to 26 percent of daylight hours, with a maximum plume height of 130 to 430 feet (41 to 132 meters) and a maximum plume length of 130 to 1,540 feet (39 to 470 meters).³ Based on this information, we conclude that condensation plumes from the Liquefaction Facility would be potentially visible from KOP 1. These plumes would be similar in character to plumes generated by other oil and gas activity near Deadhorse.

The Gas Treatment Facilities would introduce new sources of artificial nighttime light, but the industrial area surrounding the GTP has extensive existing lights and the additional lights for the GTP would not add appreciably to the amount of lighting in the view. Although some tourists use the area, oil and gas industry workers are the primary viewers from this location. For these reasons, operation of the Gas Treatment Facilities would have low visual impacts at KOP 1.

Mitigation Measures

To reduce the impact of added artificial lighting and help minimize impacts on dark skies, lighting for the GTP would be the minimum required for safety and security for nighttime activities during construction and operation of the Gas Treatment Facilities. During operation of the GTP, AGDC would orient all permanent lighting downward; shield the lighting to eliminate off-site spill; and use timers or

³ Information can be found in AGDC's "Project Note: Analysis of Visible Condensation Plumes from Compressor and Heater Stations" (Accession No. 20170616-5204) on FERC's website at <http://www.ferc.gov>. Using the "eLibrary" link, select "Advanced Search" from the eLibrary menu and enter the 20170616-5204 in the "Numbers: Accession Number" field.

motion-activated sensors for all lighting. For all permanent buildings at the GTP, AGDC would minimize the use of smooth reflective surfaces and use non-contrasting colors.

S-2.1.2 POINT THOMSON UNIT GAS TRANSMISSION LINE

No KOPs have been identified for the Point Thomson Unit Gas Transmission Line because it would not be visible from any public viewing locations.

S-2.1.3 PRUDHOE BAY UNIT GAS TRANSMISSION LINE

No KOPs have been identified for the Prudhoe Bay Unit Gas Transmission Line because it would not be visible from any public viewing locations.

S-2.1.4 MAINLINE FACILITIES

S-2.1.4.1 KOP 2: Dalton Highway Wayside

Affected Visual Environment

KOP 2 (see table S-2-2) is at the 355-Mile Wayside on the Dalton Highway. The wayside consists of a gravel parking area, small bathroom, and informational panel (the latter two are at the west end of the parking area). The view is flattened looking southwest toward the gentle slope of the next ridge (see figure S-2-2a). Vegetation consists of brown, tan, and green grasses with visible seasonal reds. The rolling landforms block the views from the Dalton Highway. There are no structures or water present in the view from KOP 2, although the gravel parking area, restroom, and informational panel behind this viewpoint influence the scenery quality.

TABLE S-2-2		
KOP 2: Dalton Highway Wayside		
KOP: 2	Date: 8/28/15	
Visual Resource Inventory Class: III		
Location: Northing 7707328.445, Easting 668937.432		
Distance from proposed activity: about 0.7 mile from the Mainline Pipeline		
Approximate Milepost: 65		
Ecoregion/Subregion: Arctic Foothills		
Scenic Quality Classification: C	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: rolling foreground and background, regular, curving	Form: short, regular	Form: N/A
Line: soft, curving, horizontal, flowing	Line: soft, continuous	Line: N/A
Color: brown, tan, gray	Color: brown, tan, green; red and yellow seasonal	Color: N/A
Texture: medium to fine, patchy, spare	Texture: uniform, patchy by type	Texture: N/A
N/A = Not applicable		

Project Activities Generating Impacts

AGDC would install the Mainline Facilities belowground on a ridge about 0.7 mile east of KOP 2 using conventional cut and fill techniques. Mainline Pipeline construction in areas adjacent to this KOP would occur during the winter when the KOP experiences low public use. Due to fieldwork scheduling,

however, AGDC obtained baseline photography for KOP 2 during the summer, which is when public access is at its peak.

Visual Impacts during Construction

Project construction would introduce weak to no landform contrast, and would leave form, line, and color unchanged (see figure S-2-2b). Project construction could introduce some medium-rough textures during soil movement and the potential addition of granular fill over the cut. Project construction would result in weak changes in form, line, color, and vegetation texture due to the presence of horizontal forms and lines in vegetation from clearing, and the introduction of tan and light green horizontal lines following clearing. Changes in structure during construction would be short term and temporary. Due to the high sensitivity rating, Project construction would have moderate visual impacts at KOP 2.

Visual Impacts During Operation

Project operation would introduce weak to no landform contrast, and would leave form, line, and color unchanged (see figure S-2-2c). Project operation could introduce some medium-rough textures due to the potential addition of granular fill over the Mainline Pipeline right-of-way. Project operation would result in weak changes in form, line, color, and vegetation texture due to the presence of horizontal forms and lines in vegetation from clearing, and the introduction of tan and light green horizontal lines following clearing. Project operation would introduce no contrast in structure and would introduce some long-term to permanent vegetation contrast, although implementation of the Project Revegetation Plan would reduce this contrast. Recreational use of this area is somewhat low due to its far northern location, but due to the high sensitivity rating, Project operation would have moderate visual impacts at KOP 2.

Mitigation Measures

To minimize permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would use previously disturbed areas during construction and would implement the Project Revegetation Plan. Additionally, construction at this location in winter would avoid visual conflicts with tourists.

S-2.1.4.2 KOP 3: Galbraith Lake Campground (view north)

Affected Visual Environment

KOP 3 (see table S-2-3) is on the road to Galbraith Campground, looking northeast (see figure S-2-3a). The foreground is gently sloping and the horizon is almost horizontal to the north. To the northeast and east are jagged and irregular mountains. Vegetation is minimal and colors are light green and brown with seasonal yellows. At the time of the site visit, vegetation was sparse against the snow. The road to the campground slopes, curves, and disappears into the horizon.

Project Activities Generating Impacts

The Project includes a 120-bed work camp and pipe storage yard located about 0.4 mile north of KOP 3. The simulation of KOP 3 depicts the proposed work camp and pipe storage yard on the road to Galbraith Campground.

TABLE S-2-3		
KOP 3: Galbraith Lake Campground (view north)		
KOP: 3	Date: 8/28/15	
Visual Resource Inventory Class: III		
Location: Northing 7597685.66, Easting 643652.292		
Distance from proposed activity: about 0.4 mile from Galbraith Camp and the pipe storage yard		
Approximate Milepost: 144		
Ecoregion/Subregion: Arctic Foothills		
Scenic Quality Classification: A	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: sloping to flat middleground, rugged background	Form: little to none	Form: sloping, horizontal
Line: foreground smooth, background smooth to rugged	Line: simple	Line: regular
Color: browns, gray	Color: light green, brown, yellow seasonally	Color: brown, gray

Visual Impacts During Construction

Because the landform is flat in form and line, and no water is present, Project construction would create no contrast to the landform or water (see figure S-2-3b). Vegetation clearing for the work camp and pipe storage yard would introduce additional horizontal and linear forms, and the camp and yard would introduce contrasting structures, machinery, and equipment to the viewshed. Added forms would be geometric and cylindrical, adding horizontal and vertical lines, darker colors, and smooth textures to the view. Vegetation removal would not be noticeable from KOP 3, so the Project would introduce low to no visual contrast in vegetation. The new structures, machinery, and equipment would produce moderate to strong contrast.

Overall, the Project facilities would be a dominant element in the landscape and would introduce strong contrast during Project construction. The temporary work camp and pipe storage yard would be in place for more than 2 years. In addition, the facilities would be adjacent to the campground entry road, and would be highly noticeable to recreationists entering and leaving the campground. Although recreational use of this area is somewhat low due to its far northern location, recreationists would have long-duration views with strong contrast. Therefore, Project construction would have a high impact on visual resources at KOP 3.

Visual Impacts During Operation

AGDC would remove the temporary facilities, revegetate, and regrade the site to natural contours with the exception of granular pads, which AGDC would leave in place (see figure S-2-3c). Post-construction revegetation of the work camp and pipe storage yard (outside of granular pads) could result in an increase in light green colors early in the operational period as vegetation grows back (i.e., in the first few years following the end of construction). Project operation would introduce weak contrast, except for the granular pad areas, which would introduce moderate contrast. Due to the permanent presence of granular pads, the visual sensitivity of recreationists, and the long duration of views (as described above for the construction phase), Project operation would have moderate visual impacts at KOP 3.

Mitigation Measures

AGDC would use fencing to screen the area (see figures S-2-3b and e) to minimize impacts on visitors to Galbraith Lake Campground. AGDC additionally would implement several measures to reduce the impact of added artificial lighting at the work camp and pipe storage yard and minimize impacts on

dark skies. AGDC would install the minimum lighting required for safety and security for nighttime activities during construction; orient all permanent lighting downward and shield it to eliminate off-site light spill; and use timers or motion-activated sensors for all lighting. Following construction, AGDC would remove the camp and pipe storage yard, and would restore the site (with the exception of granular pads, which would be left in place), thereby reducing visual impacts during operation.

S-2.1.4.3 KOP 4: Galbraith Lake Campground (view southeast)

Affected Visual Environment

KOP 4 (see table S-2-4) is on the road to Galbraith Campground, looking southeast. The foreground is gently sloping toward Galbraith Lake. The background is jagged and irregular. The minimal vegetation consists of low, light green and brown grasses with yellow occurring seasonally. The horizontal, regular forms of the campground structures create low contrast, while the jagged peaks contrast dramatically with the horizontal lake and flat landforms of the foreground. Other vertical forms in the distance consist of structures associated with the Trans Alaska Pipeline System (TAPS) Pump Station 4.

Project Activities Generating Impacts

Recreationists at the Galbraith Lake campground and travelers on the Dalton Highway frequently use the area near KOP 4. AGDC would install the Mainline Facilities in this area using various cut and fill techniques. The Mainline Facilities would be to the west, but east of the aboveground TAPS. In this location, TAPS is visible between KOP 4 and the Mainline Facilities. AGDC would build the Galbraith Lake Compressor Station about 3.5 miles southeast adjacent to the TAPS Pump Station 4. AGDC would also construct Mainline valve (MLV) 9 at milepost (MP) 146.2, north of the Galbraith Lake Compressor Station; TAPS is between KOP 4 and MLV 9.

TABLE S-2-4		
KOP 4: Galbraith Lake Campground (view southeast)		
KOP: 4	Date: 8/28/15	
Visual Resource Inventory Class: III		
Location: Northing 7597679.898, Easting 643653.898		
Distance from proposed activity: about 3.0 miles from the Mainline Pipeline, 3.5 miles from a compressor station, 3.0 miles from MLV 9		
Approximate Milepost: 144		
Ecoregion/Subregion: Arctic Foothills		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: sloping middleground and foreground; jagged, irregular background	Form: little to none	Form: sloping, horizontal
Line: foreground smooth, background rugged	Line: simple	Line: regular
Color: browns, gray	Color: light green, brown, yellow seasonally	Color: brown, gray
Texture: rough, coarse background, medium-rough foreground	Texture: sparse	Texture: uniform, medium smooth

Visual Impacts During Construction

Visitors to the campground and surrounding area could have views of compressor station construction. These activities would appear co-dominant with TAPS Pump Station 4. Intervening topography could partially screen views of compressor station construction. Compressor station

construction would therefore introduce small changes in landform, water, vegetation, and structure. Due to the presence of the aboveground TAPS through this area, Mainline Facilities construction would introduce weak contrast; therefore, Project construction would have low visual impacts at KOP 4.

Visual Impacts During Operation

During operation, the compressor station could be visible from the campground and surrounding area, but would be co-dominant with the TAPS Pump Station 4. Lighting emitted from the compressor station during operation would likely be visible. The compressor station would introduce a new source of artificial light in an area that currently has dark skies and very little lighting. Condensation plumes from the compressor station could also be visible under certain atmospheric conditions (see section S-2.1.1.1). These plumes would be similar in character to plumes generated by TAPS Pump Station 4. Intervening topography could partially screen views of the compressor station; therefore, the compressor station would introduce small changes in landform, water, vegetation, and structure, and present weak contrast. Due to the presence of the aboveground TAPS through this area, Mainline Facilities operation would introduce weak contrast; consequently, Project operation would have low visual impacts at KOP 4.

Mitigation Measures

While no specific mitigation was proposed for this KOP, AGDC would implement the Project Revegetation Plan to minimize visual impacts associated with right-of-way clearing and temporary impacts during the construction phase. To reduce impacts of nighttime lighting during operation, AGDC would orient all permanent lighting downward; shield it to eliminate off-site light spill; and use timers or motion-activated sensors for all lighting.

S-2.1.4.4 KOP 5: Atigun Pass

Affected Visual Environment

KOP 5 (see table S-2-5) includes the view from Atigun Pass, looking north. The landforms adjacent to the road are angular and rocky. The mountains in the middleground are jagged, slightly rounded, hard, and irregular. Vegetation (somewhat obscured by snow during the August 28, 2015 field visit) is sparse and scattered on the slopes. The Dalton Highway traverses the pass and is curving and steep in form. The regularity of the road contrasts with the rugged peaks and is remarkable for the steepness of the grade. KOP 5, at the top of Atigun Pass, is a frequent stop for tourists and recreationists using the Dalton Highway.

TABLE S-2-5		
KOP 5: Atigun Pass		
KOP: 5		Date: 8/28/15
Visual Resource Inventory Class: III		
Location: Northing 7561530.366, Easting 646245.237		
Distance from proposed activity: adjacent to Mainline Facilities construction		
Approximate Milepost: 170		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: jagged, slightly rounded, irregular	Form: few	Form: curving, rolling, steep, smooth
Line: broken, angular, rugged, hard	Line: simple	Line: curving, regular
Color: browns, grays	Color: light green to brown	Color: brown
Texture: rough, coarse, random	Texture: sparse, random	Texture: medium smooth, uniform

Project Activities Generating Impacts

AGDC would construct the Mainline Facilities in this area underground directly adjacent to TAPS and the Dalton Highway. Construction would use a variety of cut and fill and granular embankment fill techniques.

Visual Impacts During Construction

The Mainline Pipeline would introduce flat forms, horizontal lines, brown colors, and rough textures to the landform during construction. The contrast in landform would be less visible during the winter due to snow cover. Vegetation at this location is sparse and low; vegetation clearing would introduce horizontal forms and irregular lines. Construction would introduce geometric forms; additional horizontal and vertical lines; yellow, brown, and black colors; and smooth textures associated with equipment, materials, vehicles, and construction activities. These elements would produce strong contrast, but construction would occur for less than 2 years in this area. Accordingly, Project construction would have low visual impacts at KOP 5.

Visual Impacts During Operation

Vegetation regrowth in the first few years following construction would increase the light greens and smoother textures visible from KOP 5, generating weak to moderate initial contrast, gradually decreasing to no contrast as vegetation matures during operation. Because the pipeline would be underground, Project structures would create no contrast during operation. For these reasons, Project operation would introduce low to moderate visual impacts at KOP 5.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.5 KOP 6: Base of Atigun Pass

Affected Visual Environment

KOP 6 (see table S-2-6) is at a pullout just below Atigun Pass, facing southwest, where the current TAPS pipeline and proposed Mainline Pipeline route cross under the road, running northeast–southwest. Vegetation is sparse to none (mostly obscured by snow during the August 28, 2015, field visit). Landforms are flat in the foreground and jagged in the background. The Dalton Highway slopes and curves as it traverses Atigun Pass. The dark uniform surface contrasts with the bright, coarse textures of the adjacent mountain slopes.

Project Activities Generating Impacts

KOP 6 is at the base of Atigun Pass, a frequent stop for tourists and recreationists using the Dalton Highway. The Mainline Facilities would be constructed belowground, directly adjacent to TAPS and the Dalton Highway in this area. Construction would use a variety of cut and fill techniques in this area.

TABLE S-2-6		
KOP 6: Base of Atigun Pass		
KOP: 6		Date: 8/28/15
Visual Resource Inventory Class: III		
Location: Northing 7562344.975, Easting 647733.11		
Distance from proposed activity: adjacent to Mainline Facilities construction		
Approximate Milepost: 169		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: jagged, slightly rounded, irregular	Form: little to none	Form: sloping, curving
Line: broken, hard, angular, rugged	Line: simple	Line: regular, curving
Color: browns, grays	Color: light green/brown	Color: brown
Texture: striped, rough, coarse	Texture: sparse, random	Texture: uniform, medium-smooth

Visual Impacts During Construction

Construction of the Mainline Facilities underground adjacent to the road at KOP 6 would introduce flat forms, horizontal lines, brown colors, and rough textures. Landform contrast would be less visible during the winter due to snow cover. Clearing of existing sparse and low vegetation would add horizontal forms and irregular lines, while pipeline construction would introduce geometric forms; additional horizontal and vertical lines; yellow, brown, and black colors; and smooth textures associated with equipment, materials, vehicles, and construction activities. These elements would produce strong contrast during construction, although construction would occur for less than 2 years in this area. Accordingly, Project construction would have low visual impacts at KOP 6.

Visual Impacts During Operation

Vegetation regrowth in the first few years following construction would increase the light greens and smoother textures visible from KOP 6, initially generating moderate to high initial contrast but decreasing to weak contrast as vegetation matures during operation. Because the pipeline is proposed to be belowground, Project structures would create no contrast during operation. Therefore, Project operation would have low visual impacts at KOP 6.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.6 KOP 7: Atigun Pass Pullout

Affected Visual Environment

KOP 7 (see table S-2-7) is at a pullout along the Dalton Highway. The pullout is frequently used by Dalton Highway motorists (see figure S-2-4a). The pullout features a large dirt parking area, a restroom, and informational signs. These features are behind the viewpoint but influence the scenic quality in the area. The existing TAPS is visible on the east side of the road. The vegetation consists of low shrubs with some verticals from low deciduous trees, creating a patchy/irregular texture. The landform transitions from flat and horizontal in the foreground to a rolling, moderate middleground and a steep, jagged background.

Structures consist of the flat planes of the Dalton Highway. Vegetation provides contrast in form, line, color, and texture in the foreground with mountains in the middleground and background.

Project Activities Generating Impacts

The Mainline Facilities would cross the Dalton Highway about 0.2 mile south of KOP 7. Construction of the underground pipeline would use various cut and fill techniques in this area. Figure S-2-4b depicts the view after Mainline Pipeline construction.

Visual Impacts During Construction

Mainline Facilities construction would create strong contrast in landform, adding flat and horizontal forms, horizontal and irregular lines, tan and brown colors, and smooth textures (see figure S-2-4b). While the landform visible from KOP 7 is horizontal, excavation and grading for the Mainline Facilities would create additional or bolder lines and forms in the foreground. Grading and trenching would contrast with existing landforms. Clearing for the Mainline Facilities would create more linear forms and irregular lines in the foreground vegetation and eliminate many of the vertical lines created by the trees directly adjacent to the road, creating a smooth and patchy vegetative landscape rather than a linear one. Pipeline construction would eliminate many of the trees directly adjacent to the road, which supply a majority of the existing light green and yellow color. Shrub and grassland on the hills beyond is primarily dark green, brown, and yellow-to-red seasonally. Structures, machinery, and equipment associated with construction would introduce strong contrast; geometric, cylindrical, vertical, and horizontal forms; horizontal and vertical lines; and yellow, brown, and black colors and smooth textures, all of which would create strong contrast. Overall, Project construction would introduce strong contrast and high visual impact at KOP 7.

TABLE S-2-7		
KOP 7: Atigun Pass Pullout		
KOP: 7	Date: 8/28/15	
Visual Resource Inventory Class: III		
Location: Northing 7550408.27, Easting 639247.205		
Distance from proposed activity: about 0.2 mile from Mainline Facilities construction		
Approximate Milepost: 179		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: A	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal, flat foreground; rolling, moderate middlegrond; jagged, steep background	Form: gentle, curving foreground; irregular middlegrond and background	Form: flat, cylindrical
Line: horizontal, curving foreground; curving, converging middlegrond; diagonal, angular background	Line: vertical foreground, and middlegrond; patchy background	Line: horizontal, curving, cylindrical
Color: brown, gray foreground and middlegrond; black, gray, white background	Color: seasonal gold foreground; red, green seasonal middlegrond; red, green background	Color: gray, tan
Texture: smooth foreground; rough middlegrond; smooth background	Texture: ordered, medium-rough foreground; smooth, patchy middlegrond; smooth background	Texture: smooth, fine

Visual Impacts During Operation

During operation, the Mainline Facilities would create strong contrast in landform, adding flat and horizontal forms, horizontal and irregular lines, tan and brown colors, and smooth textures (see figure S-2-4c). Because the Mainline Facilities would be belowground, Project structures would create no

long-term contrast during operation. Clearing of the trees and other vegetation would result in strong contrast. Therefore, Project operation would introduce high visual impacts at KOP 7.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the approved construction footprint. AGDC would remove the camp and pipe storage yard, and would implement the Project Revegetation Plan to restore vegetation in the area. Additionally, construction in this area would occur during winter to minimize impacts on tourists and recreationists.

S-2.1.4.7 KOP 8: Wiseman-Chandalar Trail

Affected Visual Environment

KOP 8 (see table S-2-8) encompasses the view from Dalton Highway at the access to the Wiseman/Chandalar Trail looking east to the mountains. A band of dark green conifers is in the immediate foreground adjacent to the road. A horizontal plane used for gravel is in the middleground. This plane is dominated by the smoother textures of grasses and medium textures of gravels. A band of rough-textured conifers sits at the bottom of the mountains that rise gradually above the gravel storage area. The Dalton Highway and entrance road are regular, horizontal planes in the immediate foreground. The colors of the highway and entrance road are predominately grays and blacks. KOP 8 is adjacent to the Dalton Highway at the access for Revised Statute 2477 Trail 254. The area around KOP 8 is currently used for gravel storage.

TABLE S-2-8		
KOP 8: Wiseman-Chandalar Trail		
KOP: 8		Date: 8/27/15
Visual Resource Inventory Class: III		
Location: Northing 7492362.111, Easting 634415.365		
Distance from proposed activity: pipe storage yard 0.3 mile southeast, Mainline Pipeline 0.1 mile east		
Approximate Milepost: 219		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal foreground, moderate to rugged background, no water	Form: rough, vertical foreground; strips, dense	Form: flat, horizontal, curving (road)
Line: regular, straight, horizontal foreground; diagonal, angular, rugged background	Line: verticals, regular, continuous	Line: horizontal, curving
Color: gray, brown foreground; gray middleground; brown and blue background	Color: dark greens with seasonal yellows and reds, reds dominate hill	Color: gray, tan
Texture: smooth foreground, medium to rough background	Texture: rough foreground; smooth middleground; uniform, dense, rough background	Texture: medium, uniform

Project Activities Generating Impacts

The Project includes a pipe storage yard about 0.3 mile southeast of KOP 8, and the Mainline Pipeline, which would be belowground about 0.1 mile east of KOP 8. Due to thick vegetation and the pipe storage yard's location southeast of the entry road, the pipe storage yard would not be visible from this

location, but pipeline construction and the cleared Mainline Pipeline right-of-way would be visible from KOP 8.

Visual Impacts During Construction

The pipe storage yard would not create any contrasts to the landform since it would not be visible from KOP 8. Mainline Pipeline construction would introduce contrasting forms, lines, colors, and textures to the landscape. Grading would contribute geometric and horizontal forms, horizontal lines, brown and tan colors, and medium-rough textures to the landform, resulting in moderate contrast due to the horizontal qualities of the current landform and the dense vegetation adjacent to the road. Mainline Pipeline construction a short distance from the road would create contrast in vegetation, while vegetative clearing would introduce horizontal forms, irregular lines, light green colors, and patchy textures. Belowground construction of the Mainline Pipeline would require machinery and materials that would introduce rectangular and cylindrical forms; horizontal and irregular lines; yellow, brown, and gray colors; and smooth textures to the landscape. These activities would result in strong short-term contrast in form, line, color, and texture. Grading of the Mainline Pipeline right-of-way would introduce moderate landscape contrast, while clearing would result in strong vegetation contrast. Overall, equipment use and pipe storage during construction would create strong contrast. Although contrast during construction would be strong, Mainline Pipeline construction in this location would take less than 2 years. For these reasons, Project construction would have low visual impacts at KOP 8.

Visual Impacts During Operation

The pipe storage yard would not be visible from KOP 8 and therefore would not create any contrasts to the landform. During operation, the Mainline Pipeline would introduce contrasting forms, lines, colors, and textures to the landscape. The cleared Mainline Pipeline right-of-way a short distance from the road would create strong contrasts for vegetation. Grading for the Mainline Pipeline right-of-way would create moderate contrast to the landform. Due to the moderate contrast created by the landform changes and strong contrast produced by the cleared Mainline Pipeline right-of-way and permanent granular pad, Project operation would have high visual impacts at KOP 8.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan. Additionally, construction in this area would occur during winter to minimize impacts on recreationists and tourists.

S-2.1.4.8 KOP 9: Marion Creek Campground

Affected Visual Environment

KOP 9 (see table S-2-9) is at the entrance/exit of Marion Creek Campground, facing west toward the Dalton Highway (see figure S-2-5a). The campground is frequently used by recreationists and tourists on the Dalton Highway. The campground access road is a flat, horizontal plane bisected by the Dalton Highway. In the middleground, rolling hills frame the view of jagged, snow-covered peaks in the background. Colors in the area range from light to dark greens of the low shrubs interspersed by darker greens of the black spruce along the road. The strong verticals of the black spruce in the foreground and the jagged peaks in the background contrast with the smoother, horizontal forms of the road and valley floor.

Project Activities Generating Impacts

AGDC would install the Mainline Pipeline belowground across the campground entry road using conventional trenching. Figure S-2-5-b depicts the view during construction.

TABLE S-2-9		
KOP 9: Marion Creek Campground		
KOP: 9	Date: 8/27/15	
Visual Resource Inventory Class: III		
Location: Northing 7469553.603, Easting 622064.728		
Distance from proposed activity: adjacent to Mainline Facilities construction		
Approximate Milepost: 237		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: A	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal foreground; moderate, gentle middleground; rugged, bold, distinct background	Form: regular, vertical, diverse foreground; solid, vertical, middleground; sparse background	Form: flat, horizontal
Line: horizontal, simple foreground; angular, converging, complex middleground; jagged, angular, diagonal background	Line: vertical, regular foreground and middleground; smooth background	Line: horizontal, straight, hard, smooth
Color: browns, grays	Color: mostly dark green, some light green; red and yellow seasonally	Color: gray, brown
Texture: medium-grain foreground; coarse patches middleground; coarse, matte background	Texture: rough, clumped foreground; rough, continuous, dense middleground; stippled, sparse background	Texture: smooth, ordered, matte

Visual Impacts During Construction

Mainline Facilities construction would introduce moderate landform contrast. Grading would create more flat, horizontal forms and lines, and would add more brown colors and fine to smooth textures (see figure S-2-5b). Vegetation clearing would create linear forms and irregular lines. Construction equipment and machinery would create strong, short-term contrast for structures, adding geometric and cylindrical forms; vertical and horizontal lines; yellow, brown, and black colors; and smooth to coarse textures. Overall, Project construction would introduce moderate to strong contrast and high visual impacts at KOP 9.

Visual Impacts During Operation

Mainline Facilities operation would introduce flat, horizontal forms and lines, resulting in moderate contrast in landform (see figure S-2-5c). Right-of-way grading would result in some contrast to the existing landforms, but right-of-way vegetation maintenance would create long, linear forms and straight lines, creating strong contrast during operation. Vegetation regrowth following construction could initially add light green colors and patchier textures until vegetation matures. Because the cleared right-of-way would create strong contrast, be highly noticeable for sensitive viewers, and be permanent (i.e., the Project's operational life), Project operation would have high visual impacts at KOP 9.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation cutting to the approved construction footprint. AGDC would implement the Project Revegetation Plan to restore vegetation.

Additionally, construction in this area would occur during winter to minimize impacts on tourists and recreationists.

S-2.1.4.9 KOP 10: Arctic Interagency Visitor Center (view southeast)

Affected Visual Environment

KOP 10 (see table S-2-10) is in front of the Arctic Interagency Visitor Center, facing southeast. The foreground is a flat, horizontal plane covered with lighter-colored birches and darker-green conifers. In the middleground, rolling peaks have sparse outcroppings with seasonal red and gold colors. Jagged, dark blue/brown peaks rise in the background, contrasting with the smooth textures of the middleground. The parking lot with its flat, horizontal lines, smooth textures, and muted grays and browns contrasts with but does not dominate the landscape.

Project Activities Generating Impacts

AGDC would construct a camp and pipe storage yard in Coldfoot, about 0.4 mile southeast of KOP 10. AGDC would also construct the Coldfoot Compressor Station about 1.0 mile north of KOP 10, while the Mainline Pipeline would be built about 0.6 mile east of KOP 10. All Project facilities would be on the opposite side of the Dalton Highway from the Arctic Interagency Visitor Center.

TABLE S-2-10		
KOP 10: Arctic Interagency Visitor Center (view southeast)		
KOP: 10		Date: 8/27/15
Visual Resource Inventory Class: III		
Location: Northing 7462278.335, Easting 621362.935		
Distance from proposed activity: about 0.4 mile from the camp and pipe storage yard, about 0.8 mile from the Mainline Pipeline		
Approximate Milepost: 242		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, curving to jagged background	Form: diverse, numerous in foreground; low, regular background	Form: flat, curving
Line: regular, horizontal foreground; curving to rugged background	Line: vertical foreground; simple, flowing background	Line: horizontal, curving
Color: brown to blue	Color: light to dark green, brown to red seasonally	Color: brown, gray
Texture: medium, even foreground; sparse, rough background	Texture: rough, even, dense foreground; even, uniform, medium background	Texture: smooth, ordered

Visual Impacts During Construction and Operation

The curving entryway to the visitor center and existing dense vegetation would fully screen views of the camp, pipe storage yard, and Mainline Facilities from both the Dalton Highway and KOP 10; therefore, Project construction would introduce no contrast or changes to landform, water, vegetation, or structure. Lighting emitted from the compressor station during both construction and operation would likely be visible.

The compressor station would introduce a new source of artificial light, and could produce visible condensation plumes under certain atmospheric conditions (see section S-2.1.1.1) in an area that currently

has dark skies, very little lighting, and no facilities that produce plumes; therefore, Project construction and operation would have moderate visual impacts at KOP 10.

Mitigation Measures

To reduce the impact of lighting and minimize impacts on dark skies, lighting for construction and operation of the compressor station would be the minimum required for safety and security for nighttime activities. To reduce impacts of nighttime lighting during operation, AGDC would orient all permanent lighting downward, shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

S-2.1.4.10 KOP 11: Arctic Interagency Visitor Center (view northeast)

Affected Visual Environment

KOP 11 (see table S-2-11) is in front of the Arctic Interagency Visitor Center, facing east-northeast. The flatness of the parking lot contrasts with the rolling hills and angular, rugged background. Vegetation provides additional contrast in the foreground with regular verticals from black spruces and birches. The colors of the vegetation in the foreground and background are primarily light to dark green, with some seasonal yellow and red. The snow-covered peaks in the background bring additional variety to the viewshed in their form, color, and irregularity.

TABLE S-2-11		
KOP 11: Arctic Interagency Visitor Center (view northeast)		
KOP: 11	Date: 8/27/15	
Visual Resource Inventory Class: III		
Location: Northing 7462283.227, Easting 621366.801		
Distance from proposed activity: about 0.8 mile from a compressor station, about 1.0 mile from the Mainline Pipeline, about 0.8 mile from MLV 15 (at the compressor station)		
Approximate Milepost: 242		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, curving to angular/rugged background	Form: diverse, numerous foreground; low, solid to patchy background	Form: flat, curving
Line: horizontal, regular foreground; curving to rugged background	Line: vertical foreground, simple to broken background	Line: horizontal, curving
Color: browns and grays	Color: light to dark green, yellow to red seasonally	Color: brown, gray
Texture: uniform, medium foreground; patchy, rough background	Texture: random, dense, and medium-coarse to stippled and sparse	Texture: smooth, ordered

Project Activities Generating Impacts

AGDC would construct a camp and pipe storage yard in Coldfoot, about 0.4 mile southeast of KOP 10. AGDC would also construct the Coldfoot Compressor Station about 1.0 mile north of KOP 10, while the Mainline Pipeline would be built about 0.6 mile east of KOP 10. All Project facilities would be on the opposite side of the Dalton Highway from the Arctic Interagency Visitor Center.

Visual Impacts During Construction and Operation

The curving entryway to the visitor center and existing dense vegetation would fully screen views of the camp, pipe storage yard, and Mainline Facilities from both the Dalton Highway and KOP 10; therefore, Project construction would introduce no contrast or changes to landform, water, vegetation, or structure. Lighting emitted from the compressor station during both construction and operation would likely be visible. The compressor station would introduce a new source of artificial light in an area that currently has dark skies and very little lighting; therefore, Project operation would have moderate visual impacts at KOP 11.

Mitigation Measures

To reduce the impact of added artificial lighting and minimize impacts on dark skies, lighting for the compressor station would be the minimum required for safety and security for nighttime activities during compressor station construction and operation. To reduce impacts of nighttime lighting during operation, AGDC would orient all permanent lighting downward, shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

S-2.1.4.11 KOP A: Coldfoot Camp

Affected Visual Environment

KOP A (see table S-2-12) is at Coldfoot Camp facing east toward a proposed construction camp and pipe storage yard (see figure S-2-6a). Coldfoot Camp is one of a limited number of locations on the Dalton Highway that offers hotel rooms, meals, and gas. As a result, recreationists, tourists, truck drivers, and other workers traveling along the Dalton Scenic Highway frequently experience the view from KOP A. A majority of the foreground is a dirt parking area with dense vegetation lining the edges. A stream, which resembles a long pond from this vantage point, is on the right (southwest). The stream is surrounded by a grassy area, the south portion of which serves as a landing pad for helicopters. Due to the dense vegetation, no middleground is visible. Scenic, rugged mountains are visible to east and north-northwest.

TABLE S-2-12		
KOP A: Coldfoot Camp		
KOP: A		Date: 6/29/16
Visual Resource Inventory Class: III		
Location: Northing 7462189.4, Easting 621812.4		
Distance from proposed activity: 0.1 mile from camp and 0.1 mile from a pipe storage yard		
Approximate Milepost: 242		
Ecoregion/Subregion: Central and Eastern Brooks Range		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, rugged foreground; rugged, angular, and sloping background	Form: smooth strip of low vegetation, dense verticals at foreground; continuous, regular background	Form: flat, geometric
Line: horizontal foreground; curving to diagonal/angular background	Line: horizontals and curving; some verticals in foreground	Line: horizontal, geometric
Color: tan foreground, tan to brown background	Color: light to dark green	Color: tan, white, yellow, red, blue
Texture: smooth with some rough portions at foreground and background	Texture: smooth	Texture: smooth

Project Activities Generating Impacts

The work camp would be about 0.1 mile northeast, while the pipe storage yard would be about 0.1 mile southeast of KOP A. Figure S-2-6b depicts the camp during Project construction.

Visual Impacts During Construction

The camp would introduce weak contrast in landform and strong contrast in the form and line of vegetation and structures (see figure S-2-6b). Vegetation removal would create geometric and linear forms, irregular lines, and light greens in the existing vegetation. Project construction would add patchy texture, which would differ from the existing dense line of vegetation along the eastern edge of Coldfoot Camp. This would introduce moderate to strong contrast for vegetation form and line, including during winter (see figure S-2-6e). The pipe storage yard and camp would introduce horizontal and irregular forms and lines, brown to tan colors, and smooth textures to the current landform. The new camp features would be more dominant than the features of the existing Coldfoot structures, and the camp would introduce strong contrast in form, line, color, and texture. Construction equipment would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. These elements, along with construction vehicles, would introduce strong contrast for about 6 years, including construction of Mainline Pipeline Spread 2, as well as the Coldfoot Compressor Station; therefore, Project construction would have high visual impacts at KOP A.

Visual Impacts During Operation

Lighting emitted from the compressor station during operation would likely be visible. The compressor station would introduce a new source of artificial light in an area that currently has dark skies and very little lighting. In addition, condensation plumes from the compressor station could also be visible under certain atmospheric conditions (see section S-2.1.1.1) in an area where no such plumes exist. AGDC would remove the camp and pipe storage yard after construction, then regrade and restore vegetation at these sites except where granular pads were installed (see figure S-2-6c). Because the granular pads would continue to introduce strong contrast, Project operation would have high visual impacts at KOP A.

Mitigation Measures

Impacts from the addition of a camp and pipe storage yard would be minimized by using similar colors to those of the existing camp facilities (such as grays and tans) for materials, minimizing vegetation clearing, and restoring vegetation. To reduce the impact of added artificial lighting and minimize impacts on dark skies, AGDC would use the minimum lighting required for safety and security for nighttime activities at the work camp and pipe storage yard during construction. AGDC would remove the camp and pipe storage yard and would implement the Project Revegetation Plan to restore vegetation in the area.

S-2.1.4.12 KOP B: Gobblers Knob Rest Area

Affected Visual Environment

KOP B (see table S-2-13) is at the Gobblers Knob rest area, looking north toward Prospect Camp and the TAPS Pump Station 5. The view is down into the river valley with the highway and TAPS visible crossing the valley in the background. A low ridge in the middleground blocks some of the view into the valley. Due to the ridge, TAPS is not visible where it passes closer to the road (to the east and northeast) but is visible in the middleground moving into the background. Recreationists, tourists, truck drivers, and other workers traveling along the Dalton Highway would experience the view from KOP B.

Project Activities Generating Impacts

The Mainline Pipeline would be about 0.7 mile east of KOP B at its closest point, while a material site would be about 0.8 mile east of the KOP. The material site and closest portion of the Mainline Pipeline would not be visible due to intervening topography. The Mainline Pipeline would be visible about 2.5 miles north of the KOP where it crosses the valley near TAPS.

TABLE S-2-13		
KOP B: Gobblers Knob Rest Area		
KOP: B		Date: 6/29/16
Visual Resource Inventory Class: II		
Location: Northing 7405161.9, Easting 602029.4		
Distance from proposed activity: 0.7 mile from the Mainline Pipeline and 0.8 mile from a material site		
Approximate Milepost: 283		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: steep slope down in foreground; rolling, gradually sloping middleground; steep to sloping background	Form: regular vertical/horizontal foreground; continuous middleground and background	Form: horizontal, vertical, angular, geometric, linear
Line: horizontal, curving foreground and middleground; diagonals at background	Line: curves and verticals in foreground; short verticals in middleground; continuous background	Line: horizontal, vertical, diagonals, geometric forms
Color: tan foreground and middleground; tan to blue background	Color: light to dark green, brown, foreground and middleground; dark green to blue background	Color: tan, gray
Texture: smooth foreground, middleground, and background	Texture: smooth foreground and background; smooth to coarse middleground	Texture: smooth

Visual Impacts During Construction

Due to the distance between the Gobblers Knob rest area and the visible portion of the Mainline Pipeline, Project construction would introduce weak to no contrast in the landform. Mainline Pipeline right-of-way grading and vegetation clearing could introduce weak contrast in line, structure, color, and geometric and linear forms due to vegetation removal and the presence of vehicles and construction equipment. Overall, Project construction would introduce weak contrast and low visual impacts at KOP B.

Visual Impacts During Operation

Due to the distance between the Gobblers Knob rest area and the visible portion of the Mainline Pipeline, the Project would present weak to no contrast in landform. The cleared right-of-way for the Mainline Pipeline would introduce weak contrast for vegetation as well as some geometric and linear forms. Light green colors created by new growth in the right-of-way would be noticeable as a long, linear form with straight edges and be more apparent immediately following construction until vegetation matures. Overall, Project operation would introduce weak contrast and low visual impacts at KOP B.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.13 KOP C: Arctic Circle Campground

Affected Visual Environment

The Arctic Circle Campground (see table S-2-14) is 0.5 mile from the Dalton Highway and the Arctic Circle rest area and sign. Recreationists and tourists along the Dalton Highway frequently stop at the Arctic Circle sign, while the campground is popular among recreationists. The campground is within an area of dense vegetation that includes black spruce and birch. Both TAPS and the proposed Mainline Pipeline would be 1.5 miles east of the easternmost campsite and would not be visible from this location. The campground is secluded and consists of a dirt loop road with campsites arranged in a radial pattern off the road. The ground is mostly flat and even, with some small slopes that make the road bumpy in places. This KOP is on the northeast side of the campground at the parking area and campsite closest to TAPS and the Project.

TABLE S-2-14		
KOP C: Arctic Circle Campground		
KOP: C		Date: 6/29/16
Visual Resource Inventory Class: II		
Location: Northing 7383924, Easting 598077.8		
Distance from proposed activity: 1.5 miles from the Mainline Pipeline		
Approximate Milepost: 298		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal, regular, flat to gently sloping	Form: dense, regular, continuous	Form: horizontal, flat
Line: horizontal, linear	Line: vertical, horizontal	Line: horizontal
Color: tan, gray	Color: light to dark green	Color: gray, tan
Texture: flat, smooth	Texture: complex, smooth	Texture: smooth

Project Activities Generating Impacts

AGDC would construct the Mainline Pipeline about 1.5 miles from KOP C.

Visual Impacts During Construction and Operation

Due to distance and intervening vegetation, the Mainline Pipeline would not be visible from KOP C; therefore, Project construction and operation would have no visual impacts at KOP C.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.14 KOP D: Finger Mountain Wayside (view northwest)

Affected Visual Environment

KOP D (see table S-2-15) is at a pedestrian viewpoint at Finger Mountain Wayside. The Finger Mountain Wayside provides interpretive information and panoramic views of the surrounding region and is a popular stopping point for recreational travelers and truck drivers. It has several interpretive trails with signs, a substantial gravel parking area, and restrooms. The viewpoint is a short climb from the parking lot on a gravel trail and includes interpretive signs and an expansive view to the north. The topography consists of rolling hills and a broad river basin to the north where the Kanuti River is located. The highway curves

across the landscape on the west side of the basin. Many lakes and ponds are visible, but the river itself is hard to distinguish. TAPS is visible in the distance, with the two prominent parallel stripes of adjacent vegetation. The portion of TAPS closest to the KOP is not visible due to low continuous vegetation present across the landscape.

Project Activities Generating Impacts

AGDC would construct the Mainline Pipeline adjacent to the Dalton Highway near KOP D. The pipeline would be 0.1 mile southwest of KOP D at its closest point, although the pipeline segment beginning about 0.4 mile northwest would be more easily visible, due to topography.

TABLE S-2-15		
KOP D: Finger Mountain Wayside (view northwest)		
KOP: D		Date: 6/29/16
Visual Resource Inventory Class: II		
Location: Northing 7362247.2, Easting 613468		
Distance from proposed activity: 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 315		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: sloping foreground, rolling middleground and background	Form: low, numerous, regular vegetation	Form: flat and sloping
Line: curving diagonals at foreground, middleground, and background	Line: curving diagonals (following landform contours); linear along TAPS in middleground	Line: horizontal
Color: gray to tan foreground and middleground; tan to blue background	Color: light green with occasional dark green patches at middleground	Color: gray
Texture: smooth with rough and rugged patches in foreground and middleground	Texture: smooth with occasional rough patches	Texture: smooth

Visual Impacts During Construction

During construction, gray and brown colors of exposed earth in the Mainline Pipeline right-of-way would introduce weak contrast in landform with no contrast anticipated to the form, line, and texture of the landform. Vegetation removal would introduce linear forms, irregular lines, and patchy textures to the existing vegetation. Contrast for structures would be high due to construction equipment, materials, and vehicles that would introduce vertical, horizontal, and geometric forms, as well as vertical and horizontal lines. Although contrast for structures would be strong, construction in this area would take less than 2 years. For these reasons, visual impacts for KOP D during construction would be low.

Visual Impacts During Operation

Contrasts to landform during operation would be weak to nonexistent. The cleared right-of-way would appear as a long, linear element in the landscape. Vegetation removal would introduce linear forms, irregular lines, and patchy textures to the existing vegetation. Regrowth of vegetation following construction would result in an increase in light green colors producing strong contrast with the current vegetation. Other existing linear features, including TAPS and the Dalton Highway, would be more dominant and reduce the overall contrast of the Mainline Pipeline right-of-way. For these reasons, visual impacts for KOP D during operation would be low.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan. Additionally, construction in this area would occur during winter to minimize visual impacts on tourists and recreationists.

S-2.1.4.15 KOP E: Finger Mountain Wayside (view southeast)

Affected Visual Environment

KOP E (see table S-2-16) is at the turnoff for Finger Mountain Wayside looking southeast across the highway. The wayside, which is east of the KOP, includes a parking area, bathrooms, and a small trail with interpretive signage. The Finger Mountain Wayside is a popular stopping point for recreational travelers and truck drivers. The vegetation is low and continuous. Visibility is good in all directions except to the north, which is blocked by a rock outcrop. The landscape consists of rolling hills with large stones and boulders scattered throughout. TAPS is underground in this area and runs next to the highway on the east side. The proposed Mainline Pipeline would be on the west side of the highway and could be collocated with a fiber-optic line that currently runs underground. There are no visible changes in vegetation along the TAPS right-of-way.

Project Activities Generating Impacts

KOP E is at Finger Mountain Wayside about 0.1 mile east of the Mainline Pipeline.

TABLE S-2-16		
KOP E: Finger Mountain Wayside (view southeast)		
KOP: E	Date: 6/29/16	
Visual Resource Inventory Class: II		
Location: Northing 7362023.7, Easting 613525.4		
Distance from proposed activity: 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 315		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: B	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat to sloping foreground, rolling middleground and background	Form: low, numerous, regular	Form: flat and sloping
Line: horizontal foreground, horizontal to curving diagonal middleground and background	Line: curving diagonal	Line: horizontal
Color: gray and tan foreground and middleground, tan to blue background	Color: light green with dark green patches at middleground	Color: gray
Texture: smooth with rough patches in foreground, middleground, and background	Texture: smooth with rough patches	Texture: smooth

Visual Impacts During Construction

The gray and brown colors of exposed earth in the Mainline Pipeline right-of-way would introduce weak contrast to landform, line, and texture. Vegetation removal would introduce linear forms, irregular lines, and patchy textures; vertical, horizontal, and geometric forms; as well as vertical and horizontal lines due to construction equipment, materials, and vehicles. These construction activities would introduce

strong contrast for structures (i.e., construction equipment and material), but because construction in this area would take less than 2 years, Project construction would have low visual impacts at KOP D.

Visual Impacts During Operation

During operation, the cleared Mainline Pipeline right-of-way would introduce linear forms, irregular lines, and patchy textures and appear as a long, linear element in the landscape. The Mainline Pipeline would introduce weak to no contrast in landform, but would introduce strong contrast in color during the first few years following construction due to the presence of light green colors during vegetation regrowth. Other existing linear features, including TAPS and the Dalton Highway, would be more dominant and reduce the overall contrast of the Mainline Pipeline right-of-way; therefore, Project operation would have low visual impacts at KOP D.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan. Additionally, construction in this area would occur during winter to minimize impacts on recreationists and tourists.

S-2.1.4.16 KOP F: 86 Mile Overlook

Affected Visual Environment

KOP F (see table S-2-17) is located at approximately MP 86 of the Dalton Highway and Mainline Pipeline MP 327. This KOP is referred to by the BLM as the 86 Mile Overlook. The KOP is located on the eastern edge of an active material site and has interpretive signs on a wooden observation deck. The view to the east provides a sweeping vista of state land, as well as the western edge of the Yukon Flats National Wildlife Refuge (NWR), approximately 13 miles away (see figure S-2-7a). The natural landscape to the east is interrupted only by the Dalton Highway and TAPS.

TABLE S-2-17		
KOP F: 86 Mile Overlook		
KOP: F		
Visual Resource Inventory Class: III		
Location: Northing 7346686.8, Easting 623626.1		
Distance from proposed activity: 0.6 mile from the Mainline Pipeline		
Approximate Milepost: 327		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: steep slope down in foreground; rolling, gradually sloping middleground; steep to sloping background	Form: regular vertical/horizontal foreground; continuous middleground and background	Form: horizontal, vertical, angular, geometric, linear
Line: horizontal, curving foreground and middle ground; diagonal at background	Line: curves and verticals in foreground; short verticals in middleground; continuous background	Line: horizontal, vertical, diagonals, geometric forms
Color: tan foreground and middleground	Color: light to dark green, brown, gray foreground and middle ground; dark green to blue background	Color: tan, gray
Texture: smooth foreground, middleground, and background	Texture: smooth with rough patches	Texture: smooth

Project Activities Generating Impacts

The Mainline Pipeline would be visible from this KOP during construction and operation. In addition, the KOP is located within an active Alaska Department of Transportation and Public Facilities material site (behind or to the west of the viewer as they experience the east-facing vista). This material site would be used during Project construction. The material site itself, along with industrial equipment and entering and exiting trucks, would be visible during construction. Figure S-2-7b depicts the view during Project construction.

Visual Impact During Construction

During Project construction, vegetation removal would create geometric and linear forms, irregular lines, and tans in the existing vegetation (see figure S-2-7b). Project construction would also add patchy texture, which would differ from the existing dense line of vegetation. Equipment, trucks, and personnel would be visible during construction. This Project activity would be more common than, but similar in appearance to, existing Alaska Department of Transportation and Public Facilities activity. Tan colors created by Mainline Pipeline construction would be noticeable as a long, linear form with straight edges, and would be more apparent immediately following construction until vegetation matures. Overall, Project construction would introduce moderate contrast and low to moderate visual impacts at KOP F.

Visual Impact During Operation

During operation, contrasting tans would give way to light greens as vegetation regrows. These contrasts in color, linear forms, and lines could draw viewers' attention. The proposed route is collocated with the Dalton Highway and TAPS in this location, and these three linear features would likely be viewed collectively as one continuous, multi-part feature (see figure S-2-7c). As a result, visual contrast and impact during Project operation would be less than during construction. Project operation would therefore have weak contrast and low visual impact at KOP F.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.17 KOP 12: Yukon River Camp

Affected Visual Environment

KOP 12 (see table S-2-18) is at the northeast end of the Yukon River Camp parking area looking northwest. The foreground is flat with thick deciduous trees at the edge of the road and an unpaved parking lot and a field beyond. Low, rolling hills in the background are marked by the vertical lines of a conifer-dominated forest. The brighter greens and reds of the vegetation contrast with the tans and browns of the parking area and road. Although not visible in this direction, the industrial structures that comprise the Yukon River Camp affect the scenic quality in the area.

Project Activities Generating Impacts

KOP 12 is along the Dalton Highway just north of the Yukon River. Due to the distance and intervening vegetation, the Mainline Pipeline would not be visible from this location in the short or long term; therefore, there would be no contrast to landform, water, vegetation, or structure anticipated at KOP 12.

TABLE S-2-18		
KOP 12: Yukon River Camp		
KOP: 12		Date: 9/25/15
Visual Resource Inventory Class: III		
Location: Northing 7310696.754, Easting 649688.927		
Distance from proposed activity: about 3.0 miles from a pipe storage yard, about 1.0 mile from the Mainline Pipeline		
Approximate Milepost: 357		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, rolling background	Form: smooth foreground; rough, vertical background	Form: flat, smooth
Line: soft, straight, horizontal foreground, curving background	Line: soft, continuous foreground; vertical, rugged background	Line: regular, soft, horizontal
Color: browns	Color: light to dark green; yellow, orange, brown seasonally	Color: browns
Texture: smooth foreground and background	Texture: smooth, clumped foreground; coarse background	Texture: smooth, uniform

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 12 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.18 KOP 13: Yukon River

Affected Visual Environment

KOP 13 (see table S-2-19) is on the north bank of the Yukon River, looking southeast to southwest. The Dalton Highway Bridge, which also carries TAPS, is southeast and high above the beach/river access. The river is wide with milky gray swift moving water and moderately steep terrain on both sides. The north bank slope flattens out at the Yukon River Camp; the south bank slopes up to low mountains. Vegetation is a mix of predominantly dark green deciduous and conifer trees. Vegetation is patchy by type but dense overall. Although not visible when looking west (the direction of the KOP), the bridge creates a strong diagonal line with verticals to the southeast and influences the scenic quality in the area.

Project Activities Generating Impacts

KOP 13 is on the north bank of the Yukon River adjacent to the Yukon River Camp and looks west toward the proposed Yukon River crossing. The Mainline Pipeline would cross the Yukon River by means of directional micro-tunneling (DMT), the entry points for which would not be visible from this KOP due to both distance and intervening vegetation and terrain. Because the Mainline Pipeline would be belowground, the Project would create no noticeable contrast or changes to the site or area.

TABLE S-2-19		
KOP 13: Yukon River		
KOP: 13	Date: 8/27/15	
Visual Resource Inventory Class: III		
Location: Northing 7310318.693, Easting 649468.268		
Distance from proposed activity: adjacent to a DMT location along the Yukon River		
Approximate Milepost: 357		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: rounded, patches of rough but mostly smooth; water horizontal, curving, large volume	Form: patchy (by type of vegetation), solid	Form: vertical, horizontal, angular, geometric
Line: curving, diagonal, horizontal, smooth	Line: regular, continuous, soft, smooth	Line: horizontal, vertical, angular, geometric
Color: browns	Color: light to dark green, yellow and brown seasonally	Color: grays, browns
Texture: smooth, with one small rough patch (left by recent landslide)	Texture: smooth to medium-smooth, dense, clumped by type	Texture: smooth, ordered, directional

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts for KOP 13 during construction or operation.

Mitigation Measures

To ensure that no visual impacts occur for views from this area, AGDC would locate the DMT entry and exit points out of view from this KOP and minimize vegetation removal.

S-2.1.4.19 KOP 14: Five Mile Camp

Affected Visual Environment

KOP 14 (see table S-2-20) is on the Dalton Highway just north of Five Mile Camp looking northwest (see figure S-2-8a). Recreationists, tourists, truck drivers, and TAPS workers currently use this pullout. Topography in this location is mostly flat with dense vegetation consisting of birch and conifers on both sides of the road. Between the highway and dense vegetation is a strip containing grasses and low brush. The brown, flat stretch of the Dalton Highway dominates the view. Other industrial-style facilities associated with TAPS are visible nearby.

Project Activities Generating Impacts

KOP 14, on the east side of the Dalton Highway looking northwest, is about 0.2 mile from the Mainline Pipeline. A pipe storage yard and camp would be placed at the area adjacent to the Dalton Highway on the west side of the highway. The simulation for KOP 14 depicts the pipe storage yard during construction.

TABLE S-2-20		
KOP 14: Five Mile Camp		
KOP: 14		Date: 8/27/15
Visual Resource Inventory Class: III		
Location: Northing 7312549.027, Easting 647347.748		
Distance from proposed activity: adjacent to a pipe storage yard, 0.1 mile from Five Mile Camp, 0.2 mile from the Mainline Pipeline		
Approximate Milepost: 355		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, gentle, regular	Form: solid, regular, tall, vertical, strip	Form: flat, regular, linear, strip
Line: simple, regular, horizontal	Line: medium-soft, regular, continuous, horizontal, vertical	Line: horizontal, straight to curving
Color: browns	Color: light and dark greens, brown to cream (tree trunks), yellow and brown seasonally	Color: browns, yellows, blacks
Texture: smooth, uniform	Texture: medium-smooth, dense	Texture: smooth

Visual Impacts During Construction

Due to intervening vegetation and terrain, the Mainline Pipeline would not be visible from this KOP and would therefore produce no contrast (see figure S-2-8b). The landform is flat and no changes would be anticipated to form, line, color, or texture. The pipe storage yard and camp adjacent to the road would introduce strong contrast for vegetation and structure. Vegetation removal during construction of the storage yard and camp immediately adjacent to this KOP would create strong contrast to vegetation in form and line with geometric and linear forms. Due to clearing during construction, vegetation would be patchy in texture. The storage yard and camp would introduce strong contrast for forms, lines, colors, and textures to the views. Machinery, materials, and equipment would add geometric and cylindrical shapes, as well as vertical and horizontal lines. Contrasting colors in brown, black, gray, and yellow would be due to the presence of machinery, materials, and equipment. These elements, along with construction vehicles, would add substantially to the existing elements in the view and produce strong contrast during construction. Because AGDC anticipates that the pipe storage yard and camp would be in place about 4 years (the construction duration for Mainline Pipeline Spread 2), visual impacts of the pipe storage yard and camp in this location for views from KOP 14 would be high during construction.

Visual Impacts During Operation

If AGDC removes the pipe storage yard and camp after construction and the site is regraded to natural contours, contrast would be low for landform and structures (see figure S-2-8c). However, vegetation regrowth, especially for tall trees, would require a long time and contrast for vegetation would therefore remain strong well past construction completion. Therefore, visual impacts for KOP 14 would be high during operation.

Mitigation Measures

AGDC would minimize impacts from the pipe storage yard and camp by locating the storage yard and camp entrance at an angle to the road after accommodating state highway access requirements and minimizing vegetation removal. To reduce the impact of added artificial lighting and minimize impacts on dark skies, AGDC would use the minimum lighting required for safety and security for nighttime activities at the pipe storage yard and camp during construction. During construction, AGDC would orient all

lighting downward, shield the light to eliminate off-site light spill, and use timers or motion-activated sensors (where appropriate) for all lighting. Following construction, AGDC would remove the camp and pipe storage yard, and would implement the Project Revegetation Plan to restore vegetation in the area.

S-2.1.4.20 KOP G: Hess Creek Bridge

Affected Visual Environment

KOP G (see table S-2-21) is at Hess Creek Bridge looking out across Hess Creek. The bridge is about 20 feet above the water. Steep banks about 10 feet high are on both sides of the river, beyond which the land is flat to rolling with gentle hills in the background. The river, land, and road are mostly tan to brown in color. Due to the dense riverbank vegetation, visibility is low and the proposed material sites to the east and west would not be visible. Recreationists, truck drivers, and tourists driving the Dalton Highway most commonly see this view of Hess Creek. Because there is a gravel pullout and river access, anglers may also use this location.

Project Activities Generating Impacts

This KOP is where the Dalton Highway crosses Hess Creek, 0.3 mile east of material site 65-3-0142 FP1, 0.2 mile west of material site 65-3-014-2 FP2, and 0.8 mile from the Mainline Pipeline. Due to the distance and intervening vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-21		
KOP G: Hess Creek Bridge		
KOP: G	Date: 6/28/16	
Visual Resource Inventory Class: II		
Location: Northing 7284229.7, Easting 403607.3		
Distance from proposed activity: 0.3 mile from the west material site, 0.2 mile from the east material site, and 0.8 mile from the Mainline Pipeline		
Approximate Milepost: 382		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: A	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal foreground, vertical middleground, and continuous background	Form: horizontal foreground, vertical middleground	Form: horizontal, geometric, sloping
Line: horizontal foreground, horizontal to curving middleground and background	Line: mottled, broken foreground; continuous middleground and background	Line: horizontal and vertical
Color: tan to brown foreground, brown to blue middleground and background	Color: light green foreground, dark strip at middleground, light to dark green background	Color: tan, gray
Texture: smooth foreground, middleground, and background	Texture: smooth	Texture: smooth

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP G during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.21 KOP H: Hess Creek Pullout

Affected Visual Environment

KOP H (see table S-2-22) is at a pullout 2.2 miles south of Hess Creek on the east side of the Dalton Highway. Both recreational travelers and truck drivers stop along the Hess Creek Pullout, which has a gravel parking area but does not have a view or any amenities. Substantial rock walls surround the parking area, which has no view with the exception of the narrow area created by the road cut to the north. The rock walls are steep and exposed, showing a variety of layers and colors. The top of the rock wall is horizontal to sloping, and vegetation, consisting primarily of trees, is visible along the edge. There is no view in the direction of the proposed Mainline Pipeline; therefore, the Mainline Pipeline would not be visible.

Project Activities Generating Impacts

This KOP is at a pullout 2.2 miles south of Hess Creek and 0.1 mile west of the proposed Mainline Pipeline. Due to the distance and intervening vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-22		
KOP H: Hess Creek Pullout		
KOP: H		Date: 6/28/16
Visual Resource Inventory Class: IV		
Location: Northing 7281968.9, Easting 406432.3		
Distance from proposed activity: 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 384		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: C		Overall Sensitivity Rating: L
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; angular, irregular, and vertical middleground	Form: sparse, simple foreground; vertical, semi-regular middleground	Form: flat, semi-regular
Line: horizontal foreground; diagonal, vertical, horizontal middleground	Line: broken, irregular foreground; horizontal strip of verticals at middleground	Line: horizontal
Color: tan and gray foreground; white, tan, red, and brown middleground	Color: light green foreground, light to dark green and brown middleground	Color: tan to gray
Texture: smooth foreground; rough, rugged, and smooth middleground	Texture: smooth foreground; irregular, smooth middleground	Texture: smooth

Visual Impacts During Construction and Operation

Because the Mainline Pipeline would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP H during either construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.22 KOP I: Hess Creek Overlook

Affected Visual Environment

KOP I (see table S-2-23) is at the Hess Creek overlook. Both recreational travelers and truck drivers stop at this overlook as the gravel pullout is wide and offers interpretive signage. The overlook is on the west side of the Dalton Highway and looks west and northwest. The Mainline Pipeline would be north and east of the road and overlook. Due to a rise in the topography, the Mainline Pipeline would not be visible from this location. West of the road is an expanse of gravel fill that detracts from the directly adjacent scenery due to the lack of slope and vegetation. The gravel does open up the wider view, enabling visitors to see across the valleys below uninterrupted by vegetation.

Project Activities Generating Impacts

This KOP is at the Hess Creek overlook, 2.8 miles south of Hess Creek and 0.8 mile southwest of the Mainline Pipeline. Due to the distance and intervening vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-23		
KOP I: Hess Creek Overlook		
KOP: I		Date: 6/28/16
Visual Resource Inventory Class: III		
Location: Northing 7280717.7, Easting 406384.9		
Distance from proposed activity: 0.8 mile from the Mainline Pipeline		
Approximate Milepost: 385		
Ecoregion/Subregion: Kokrine-Hodzana Highlands		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: curving foreground, sloping middleground, and rolling background (to the left/northwest)	Form: mottled and continuous foreground, middleground, and background	Form: curving, horizontal
Line: diagonal to horizontal foreground, curving middleground and background	Line: horizontal foreground, vertical middleground, and continuous, rolling background	Line: horizontal to diagonal
Color: tan foreground, brown to blue background	Color: light green, yellow, and pink foreground; gray, light to dark green middleground and background	Color: gray, tan, yellow, and white
Texture: smooth and soft foreground, middleground, and background	Texture: soft foreground, textured (verticals) at middleground, smooth background	Texture: smooth

Visual Impacts During Construction and Operation

Because the Mainline Pipeline would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts for KOP I during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.23 KOP 15: Elliott Highway

Affected Visual Environment

KOP 15 (see table S-2-24) is just west of the intersection of the Elliott and Dalton Highways, looking north toward the proposed storage yard. Recreationists on the highway and tourists using nearby rivers and trails primarily experience this view. The land is flat, horizontal, brown, and smooth. The vegetation types are random and patchy, but as a whole, the vegetation is continuous, dense, and primarily green (with yellow, red, purple, and gray present seasonally). The only structure in the view is the horizontal, gray/brown, dirt road.

Project Activities Generating Impacts

The area adjacent to Elliott Highway would be used for the construction of Livengood Camp (120 beds) and a pipe storage yard. The camp and pipe storage yard are far enough from the road that the dense vegetation would serve as a screen between the facilities and the highway. The Mainline Pipeline would be about 0.6 mile east of the KOP and would not be visible during construction or operation due to the dense vegetation. Due to the distance and intervening vegetation, the Mainline Pipeline and camp would not be anticipated to be noticeable from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-24		
KOP 15: Elliot Highway		
KOP: 15	Date: 8/26/15	
Visual Resource Inventory Class: III		
Location: Northing 7267478.481, Easting 700596.019		
Distance from proposed activity: about 0.3 mile from Livengood Camp and a pipe storage yard; 0.6 mile from the Mainline Pipeline		
Approximate Milepost: 401		
Ecoregion/Subregion: Yukon-Tanana Upland		
Scenic Quality Classification: B	Overall Sensitivity Rating: L	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal	Form: patchy (by type), solid (as a whole)	Form: horizontal
Line: horizontal, smooth	Line: verticals, soft	Line: horizontal
Color: brown	Color: greens, seasonal yellow, purple, red, gray	Color: gray, brown
Texture: smooth	Texture: even, random, continuous, dense	Texture: fine, continuous

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast. Lighting emitted from the camp and pipe storage yard during construction could be visible—either directly or as glare on the horizon—and would be a new source of artificial light. Project construction would therefore have low visual impacts, while Project operation would have no visual impacts on KOP 15.

Mitigation Measures

To ensure minimization of the impacts from the Mainline Pipeline and camp, AGDC would set these facilities away from the highway and maintain screening vegetation between the highway and facilities. AGDC would use dark colors such as dark browns and greens, minimize vegetation clearing, and employ best management practices described in the Project Revegetation Plan to restore vegetation. AGDC

would use the minimum lighting required for safety and security for nighttime activities at the work camp and pipe storage yard during construction. AGDC would orient all lighting downward, shield it to eliminate off-site light spill, and (where appropriate) use timers or motion-activated sensors for all lighting.

S-2.1.4.24 KOP 16: George Parks Highway Pullout

Affected Visual Environment

KOP 16 (see table S-2-25) is at a viewpoint pullout along the George Parks Highway (Parks Highway). Recreationists, tourists, and others traveling on the Parks Highway to Fairbanks experience this view. The George Parks Highway Scenic Byway Corridor Partnership Plan (CPP) identifies this area with a high scenic value (Alaska Department of Natural Resources [ADNR], 2008a). The viewpoint is on a ridge, and the foreground has a moderately steep slope down toward a broad, flat middleground. The background, far across the broad middleground, is asymmetrical and rolling. The middleground is spotted with lakes, ponds, and waterways that are flat, white/gray, and glossy. The vegetation is diverse and in strips with a rounded, patchy middleground. Vegetation types are smooth and scattered.

TABLE S-2-25		
KOP 16: George Parks Highway Pullout		
KOP: 16	Date: 8/26/15	
Visual Resource Inventory Class: II		
Location: Northing 7180827.353, Easting 698707.44		
Distance from proposed activity: immediately adjacent to a material site; about 3.0 miles from the Mainline Pipeline and MLV 29		
Approximate Milepost: 461		
Ecoregion/Subregion: Yukon-Tanana Upland		
Scenic Quality Classification: A	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: moderately steep foreground; flat middleground; asymmetrical, rolling background; glossy water	Form: diverse strip; rounded, patchy middleground	Form: N/A
Line: straight, curving, horizontal foreground and middleground; slightly angular, rolling background	Line: soft, irregular	Line: N/A
Color: brown, blue (far mountains), white/gray (water)	Color: light to dark green; red, yellow, brown seasonally	Color: N/A
Texture: smooth, uniform	Texture: smooth, patchy, scattered (different vegetation types)	Texture: N/A
N/A = Not applicable		

Project Activities Generating Impacts

The proposed underground Mainline Pipeline and MLV 29 (including associated aboveground appurtenances) would be constructed using frost packing/surface leveling about 3.0 miles from this KOP. Although the Project construction area for these facilities would be lower in elevation than the KOP, it is anticipated that neither the buried Mainline Pipeline nor MLV 29 appurtenances would be visible from the KOP in the short or long term due to the distance, intervening vegetation, and topographic features. There is no contrast anticipated for landform, water, vegetation, or structure due to the Mainline Pipeline or MLV. Material site Alt-37-1-038-2 FP, however, would be immediately adjacent to KOP 16.

Visual Impacts During Construction and Operation

The material site would be in use during construction and operation. Use of the material site at this location would introduce horizontal and irregular forms and lines, brown to tan colors, and smooth textures to the current landform, creating a strong contrast. Vegetation removal would expose bare earth and create geometric and linear forms, irregular lines, grays and browns of exposed earth, and patchy textures in existing vegetation. The contrast produced by removal would be strong for vegetation. Machinery, materials, equipment, and vehicles would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. These elements would create strong contrast for structures. A reduction of visual impacts for KOP 16 would occur due to the somewhat brief duration of views into the site by travelers on the Parks Highway. Therefore, visual impacts for KOP 16 would be moderate during construction and operation.

Mitigation Measures

While no specific mitigation was proposed for this KOP, AGDC would implement the Project Revegetation Plan to minimize visual impacts associated with right-of-way clearing and temporary impacts during the construction phase.

S-2.1.4.25 KOP 17: George Parks Highway (view north)

Affected Visual Environment

KOP 17 (see table S-2-26) is at the south side off Parks Highway looking north. Recreationists, tourists, and others traveling on the Parks Highway between Anchorage and Fairbanks experience this view. Dense, vertical, and regular vegetation contrasts with the flat, dark highway. The highway is along a ridge, and the land slopes up on the north side of the road at this location, blocking northerly views.

TABLE S-2-26		
KOP 17: George Parks Highway (view north)		
KOP: 17	Date: 8/26/15	
Visual Resource Inventory Class: II		
Location: Northing 7181980.624, Easting 701166.95		
Distance from proposed activity: about 3.6 miles south of the Mainline Pipeline, pipe storage yard, Dunbar Camp, and railroad work pad		
Approximate Milepost: 460		
Ecoregion/Subregion: Yukon-Tanana Upland		
Scenic Quality Classification: B	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, sloping	Form: dense, regular	Form: flat, horizontal
Line: horizontal, smooth	Line: soft, regular, vertical	Line: flat, horizontal
Color: brown	Color: light to dark green; red, yellow, brown seasonally	Color: gray, brown
Texture: smooth, uniform	Texture: smooth, patchy scattered	Texture: smooth

Project Activities Generating Impacts

The Mainline Pipeline, a pipe storage yard, Dunbar Camp (120 beds), and a railroad work pad would be constructed about 3.6 miles north of this KOP. These facilities are unlikely to be visible from this location during construction or operation due to distance, topography (which includes a ridge sloping

upward on the north side of the road), and dense vegetation. There is no contrast anticipated in landform, water, vegetation, or structure in the short or long term.

Visual Impacts During Construction and Operation

It is unlikely the project would be visible from this location; therefore, it would not produce any noticeable contrast. Lighting emitted from the camp and pipe storage yard during construction could be visible—either directly or as glare on the horizon—and would be a new source of artificial light. Project construction would therefore have low visual impacts, while Project operation would have no visual impacts on KOP 17.

Mitigation Measures

To ensure that impacts from the Mainline Pipeline, camp, storage yard, and railroad work pad would be minimized, these facilities would be set away from the highway and screening vegetation maintained between the highway and facilities. For any elements of the camp visible from the highway, visual impacts would be reduced by using dark colors such as dark browns and greens, minimizing vegetation clearing, and implementing the Project Revegetation Plan to restore vegetation. AGDC would use the minimum lighting required for safety and security for nighttime activities at the work camp and pipe storage yard during construction. AGDC would orient all lighting downward, shield it to eliminate off-site light spill, and (where appropriate) use timers or motion-activated sensors for all lighting. Following construction, AGDC would remove and restore the camp and pipe storage yard site, which would reduce visual impacts during operation.

S-2.1.4.26 KOP 18: George Parks Highway (view east)

Affected Visual Environment

KOP 18 (see table S-2-27) is on the Parks Highway, looking east toward the Mainline Pipeline and railroad spur. The George Parks Highway Scenic Byway CPP identifies this area with a low scenic value (ADNR, 2008a). Recreationists traveling on the Parks Highway, residents of the community of Nenana, and others using the Tanana River experience this view. While the Tanana River is nearby, it is not within view of this KOP. The foliage is low but dense in the foreground, with a general clearing adjacent to the road. Clumps of deciduous trees make visibility through the clearing difficult. A wooded area begins on the far side of the clearing. Dense trees continue and completely cover the hills.

Project Activities Generating Impacts

KOP 18 is a view east from the Parks Highway. Construction of the Mainline Pipeline would occur using conventional trenching. The pipeline would be adjacent to the proposed Nenana Railroad Spur about 0.3 mile to the southeast of the highway.

Visual Impacts During Construction

Construction of the Mainline Pipeline and Nenana Railroad Spur would produce weak to moderate contrast on the landform by introducing more horizontal forms and lines to the landscape. More tan and brown colors and smooth textures could be visible due to grading. Vegetation removal could lead to additional linear forms and lines and patchy textures, producing moderate to strong contrast. The presence of equipment during construction would create moderate contrast by introducing vertical, horizontal, and geometric forms; and vertical and horizontal lines. Machinery, materials, and equipment would introduce more tan, brown, yellow, and black colors; as well as smooth to rough textures, producing a strong contrast. Although contrast would be moderate to strong, construction would take less than 2 years in this area. For these reasons, visual impacts for KOP 9 during construction would be low.

TABLE S-2-27		
KOP 18: George Parks Highway (view east)		
KOP: 18		Date: 8/26/15
Visual Resource Inventory Class: IV		
Location: Northing 7167882.949, Easting 685763.873		
Distance from proposed activity: about 0.3 mile from Mainline Facilities construction		
Approximate Milepost: 472		
Ecoregion/Subregion: Tanana-Kuskokwim Lowland		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; moderate, rolling background	Form: smooth, low foreground; smooth, regular background; vertical middleground	Form: rectangular, geometric, linear (transmission lines)
Line: soft, horizontal foreground; curving background	Line: soft, horizontal, vertical, continuous	Line: horizontal, vertical, geometric
Color: browns	Color: light to medium green, yellow-green; pink, yellow, brown seasonally	Color: red, brown, blue
Texture: smooth, uniform, some patches of medium-fine texture visible at railroad cuts	Texture: smooth, ordered; scattered foreground	Texture: smooth, uniform

Visual Impacts During Operation

The Mainline Pipeline and Nenana Railroad Spur would produce weak to moderate contrast on the landform by introducing more horizontal forms and lines to the landscape. More tan and brown colors and smooth textures could be visible. Vegetation removal from the right-of-way would add linear forms, straight lines, and patchy textures; however, due to the distance and presence of some vegetation providing partial screening, contrast would be moderate. More light greens would be visible during the regrowth of vegetation following construction. Because the cleared right-of-way would create moderate contrast and be somewhat noticeable for sensitive viewers, visual impacts for KOP 18 during operation would be moderate.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.27 KOP 19: Tanana River (south)

Affected Visual Environment

KOP 19 (see table S-2-28) is just south of the Tanana River crossing north of the town of Nenana, looking south toward the river. The George Parks Highway Scenic Byway CPP identifies this area with a low to moderate scenic value with a higher capacity to absorb visual changes (ADNR, 2008a). Recreationists traveling on the Parks Highway, residents of the community of Nenana, and others using the Tanana River experience the view from KOP 19. Vegetation next to the Parks Highway is low but dense with limited visibility of the river. Tall conifers are present on the opposite riverbank. Mountains were not visible from the KOP at the time of the field visit, but this took place on a rainy, low-visibility day. The landform is flat and horizontal, with a gentle slope down toward the smooth, gray Tanana River.

Project Activities Generating Impacts

KOP 19 is a view west from the Parks Highway. AGDC would construct the proposed Nenana pipe storage yard about 0.9 mile south of this KOP. The Mainline Pipeline would be about 0.1 mile west of this location, below the Tanana River, and not visible from KOP 19.

TABLE S-2-28		
KOP 19: Tanana River (north)		
KOP: 19	Date: 8/26/15	
Visual Resource Inventory Class: IV		
Location: Northing 7166372.408, Easting 685985.229		
Distance from proposed activity: about 0.9 mile from the pipe storage yard, about 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 473		
Ecoregion/Subregion: Tanana-Kuskokwim Lowland		
Scenic Quality Classification: A	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, gentle slope; horizontal	Form: low strips in foreground and background; angular background	Form: horizontal, rectangular, geometric
Line: horizontal	Line: regular, soft foreground; angular background	Line: horizontal, curve, geometric
Color: brown, gray	Color: light green foreground, dark green background, seasonal yellow, red	Color: grays
Texture: smooth	Texture: smooth foreground; medium-coarse background	Texture: smooth

Visual Impacts During Construction

During construction, there is the potential for weak contrast of landform with the introduction of flat forms, horizontal lines, brown and gray colors, and smooth textures. Vegetation removal would introduce linear forms, irregular lines, and patchy textures. The contrast in form, line, color, and texture for vegetation would be weak. Contrast for structures would include the presence of machinery, materials, and equipment that add vertical, horizontal, and geometric forms; vertical and horizontal lines; tan, brown, and yellow colors; and smooth to rough textures. The contrast for form and line would be moderate, while the contrast for color and texture would be weak. Construction would occur for less than 2 years in this location, and visual impacts for KOP 19 during construction would be low.

Visual Impacts During Operation

Potential contrast for landform would be weak, consisting of the introduction of flat forms, horizontal lines, brown and gray colors, and smooth textures. Vegetation removal would introduce linear forms, irregular lines, and patchy textures. More light greens would be visible as vegetation grows back following clearing. The contrast in form, line, color, and texture would be weak in the long term and there would be no long-term contrast in structure. Because the cleared Mainline Pipeline right-of-way and pipe storage yard would produce weak contrast, visual impacts for KOP 19 during operation would be low.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.28 KOP 20: Tanana River (north)

Affected Visual Environment

KOP 20 (see table S-2-29) provides a view of the Tanana River north of the Parks Highway Bridge, looking west to the river. The George Parks Highway Scenic Byway CPP identifies this area with a low to moderate scenic value, with a higher capacity to absorb visual changes (ADNR, 2008a). Recreationists traveling on the Parks Highway, residents of the community of Nenana, and others using the Tanana River experience this view. The river is flat, horizontal, flowing, and gray with brightly colored green vegetation on both banks. Vegetation has seasonal yellows and reds. Tall, dark conifers form a dense screen on the opposite bank.

Project Activities Generating Impacts

KOP 20 is a view south from the Parks Highway. The Tanana River crossing would be constructed adjacent to this KOP via DMT.

Visual Impacts During Construction

Contrast for the landform and water would include flat forms, horizontal lines, brown and gray colors, and smooth textures at the DMT sites, and would be weak to moderate. The cleared Mainline Pipeline right-of-way (outside the DMT crossing) would introduce linear forms, straight lines, and patchy textures for vegetation. Regrowth of vegetation following construction would result in an increase in light green colors. Because similar elements already dominate the landscape, the overall anticipated contrast is weak; therefore, contrast would be weak and visual impacts for KOP 20 would be low during construction.

TABLE S-2-29		
KOP 20: Tanana River (south)		
KOP: 20		Date: 8/26/15
Visual Resource Inventory Class: IV		
Location: Northing 7166599.889, Easting 685865.221		
Distance from proposed activity: adjacent to the Tanana River crossing; adjacent to the Parks Highway crossing		
Approximate Milepost: 473		
Ecoregion/Subregion: Tanana-Kuskokwim Lowland		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, gentle slope; horizontal, flowing water	Form: low strips in the foreground; angular background	Form: N/A
Line: horizontal, curving	Line: regular, soft foreground; angular background	Line: N/A
Color: brown, gray	Color: light green foreground; dark green background; seasonal yellow and red	Color: N/A
Texture: smooth	Texture: smooth foreground, medium-coarse background	Texture: N/A
N/A = Not applicable		

Visual Impacts During Operation

Contrast for landform and water would include flat forms, horizontal lines, brown and gray colors, and smooth textures, and would be weak to moderate. The cleared Mainline Pipeline right-of-way (outside the DMT) would introduce linear forms, straight lines, and patchy textures for vegetation. Regrowth of vegetation following construction would result in an increase in light green colors. Because similar

elements already dominate the landscape, the overall anticipated contrast would be weak; therefore, visual impacts for KOP 20 would be low during operation.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.29 KOP 21: Nenana City School (view northwest)

Affected Visual Environment

KOP 21 (see table S-2-30) is on the corner of Second Ave and C Street in front of Nenana City School, looking northwest. Employees, students, and parents at the Nenana City School primarily experience this view. Residential structures dominate the foreground, with views of moderate rolling hills visible in the background. The grays and browns of the land, road, and structures contrast with the light greens, seasonal yellows, and darker greens in the background.

Project Activities Generating Impacts

Construction of the Mainline Pipeline would be about 0.9 mile northwest of the school. Due to the distance between the KOP and the Project location, as well as the existing surrounding environment of buildings and vegetation, the Mainline Pipeline would not be visible from this KOP in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structures.

TABLE S-2-30		
KOP 21: Nenana City School (view northwest)		
KOP: 21	Date: 8/26/15	
Visual Resource Inventory Class: IV		
Location: Northing 7165450.012, Easting 687310.562		
Distance from proposed activity: about 0.9 mile from Mainline Pipeline construction		
Approximate Milepost: 474		
Ecoregion/Subregion: Tanana-Kuskokwim Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; moderate, rolling background	Form: soft foreground; regular, solid background	Form: rectangular, geometric, regular in form, contrasting with vegetation
Line: horizontal foreground; flowing, curving, soft background	Line: vertical, irregular foreground; continuous background	Line: horizontal, vertical, smooth, geometric
Color: gray, brown	Color: light green foreground, dark green background, seasonal yellow	Color: tan, green, brown
Texture: smooth	Texture: glossy, smooth, clumped foreground; medium-rough, continuous background	Texture: smooth, patchy

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 21 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.30 KOP 22: Nenana City School (view southwest)

Affected Visual Environment

KOP 22 (see table S-2-31) is on the corner of Second Ave and C Street in front of Nenana City School looking southwest. Employees, students, and parents at the Nenana City School primarily experience this view. The view in the foreground is dominated by the rectangular form of a basketball court and medium rough textures of a chain-link fence. The browns, grays, blue, and whites of the land, playground structures, and residences contrast with the light greens of the vegetation. The land is flat and horizontal, with some verticals created by the playground structures and vegetation.

Project Activities Generating Impacts

AGDC has proposed construction of the Nenana Pipe Storage Yard about 0.5 mile southwest of the school. Due to the distance and the surrounding existing environment of buildings and vegetation, the Nenana Pipe Storage Yard would not be visible from KOP 22 in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-31		
KOP 22: Nenana City School (view southwest)		
KOP: 22		Date: 8/26/15
Visual Resource Inventory Class: IV		
Location: Northing 7165451.834, Easting 687311.733		
Distance from proposed activity: about 0.5 mile from the pipe storage yard		
Approximate Milepost: 474		
Ecoregion/Subregion: Tanana-Kuskokwim Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat	Form: soft	Form: vertical, rectangles, geometric, cylindrical
Line: horizontal, soft	Line: vertical, irregular, soft	Line: vertical, horizontal, geometric
Color: brown	Color: light green	Color: gray, brown, blue, white
Texture: smooth	Texture: smooth; clumped (trees)	Texture: smooth, rough (poles), ordered, medium-rough (fence)

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 22 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.31 KOP 23: Dry Creek Site

Affected Visual Environment

AGDC did not survey KOP 23 (see table S-2-32), located at the Dry Creek Site near MP 525 along the Mainline Pipeline, during the field visits for the Project due to lack of accessibility. The location of KOP 23 is provided in appendix S-1.

TABLE S-2-32	
KOP 23: Dry Creek Site	
KOP: 23	
Visual Resource Inventory Class: II	
Location: Northing 7595661.9, Easting 397845.8	
Distance from proposed activity: about 0.9 mile from the Mainline Pipeline	
Approximate Milepost: 525	
Ecoregion/Subregion: Alaska Range	

S-2.1.4.32 KOP 24: Tri-Valley School (view southwest)

Affected Visual Environment

KOP 24 (see table S-2-33) is at the south side of Tri-Valley School in a gravel parking lot, looking to the west/southwest. Employees, students, and visitors of the Tri-Valley School primarily experience this view. Dense foliage consisting of light green grasses, green shrubs, and dark green conifers borders the parking lot. There are limited mountain views in some directions but trees mostly block these views.

TABLE S-2-33		
KOP 24: Tri-Valley School (view southwest)		
KOP: 24		Date: 8/25/15
Visual Resource Inventory Class: III		
Location: Northing 7088881.44, Easting 695737.871		
Distance from proposed activity: about 2.0 miles from the Mainline Pipeline		
Approximate Milepost: 525		
Ecoregion/Subregion: Northern Foothills		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, regular	Form: regular, linear	Form: flat, horizontal
Line: horizontal, continuous, smooth	Line: regular, continuous, vertical	Line: regular, horizontal
Color: brown	Color: light to dark green, seasonal yellows and reds	Color: brown gray
Texture: even	Texture: dense, coarse	Texture: medium, smooth

Project Activities Generating Impacts

AGDC would construct the Mainline Pipeline about 2.0 miles west of the school. Due to the distance and thick vegetation between the school and the Project, the Mainline Pipeline would not be visible from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts for KOP 24 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.33 KOP 25: Tri-Valley School (view south)

Affected Visual Environment

KOP 25 (see table S-2-34) is at the south side of Tri-Valley School in a gravel parking lot looking south. Employees, students, and visitors of the Tri-Valley School primarily experience the view. Dense foliage consisting of light green grasses, green shrubs, and dark green conifers borders the parking lot. There are limited mountain views in some directions but trees mostly block the views.

Project Activities Generating Impacts

AGDC would construct the Mainline Pipeline about 2.0 miles west of the school. Due to the distance and thick vegetation between the school and proposed Mainline Pipeline, the Project would not be visible from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-34		
KOP 25: Tri-Valley School (view south)		
KOP: 25	Date: 8/25/15	
Visual Resource Inventory Class: III		
Location: Northing 7088875.384, Easting 695743.916		
Distance from proposed activity: about 0.7 mile north of a material site,1.4 miles north of Healy Camp and pipe storage yard		
Approximate Milepost: 525		
Ecoregion/Subregion: Northern Foothills		
Scenic Quality Classification: C	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, rough, regular (mountains not visible above trees)	Form: numerous, vertical strips	Form: N/A
Line: straight, continuous, horizontal	Line: regular, continuous, vertical, horizontal	Line: N/A
Color: gray	Color: light to dark green; yellow, brown seasonally	Color: N/A
Texture: medium-coarse, continuous	Texture: Not specified	Texture: N/A
N/A = Not applicable		

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 24 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.34 KOP 26: Otto Lake

Affected Visual Environment

KOP 26 (see table S-2-35) is on the north shore of Otto Lake, looking south (see figure S-2-9a). The foreground is a grassy park with scattered conifers. Recreationists using the lake, including travelers on the Parks Highway, primarily experience this view. The George Parks Highway Scenic Byway CPP identifies this area along the highway with a high scenic value (ADNR, 2008a). Shrubs and tall grasses are along the lakeshore. Dense, deciduous trees and conifers are present on all sides of the lake except the south side. On the south side, vegetation is low and grassy with a few scattered conifers. Mountains slope up from the south lakeshore. The closer mountains are smoother, with some rugged outcrops; the far mountain range is jagged with scattered, rough vegetation.

Project Activities Generating Impacts

KOP 26 is a view looking south from the north shore of Otto Lake. AGDC would construct the Mainline Pipeline about 1.2 miles to the south across Otto Lake. The simulation for KOP 26 depicts the Mainline Pipeline right-of-way following construction (see figure S-2-9b).

TABLE S-2-35		
KOP 26: Otto Lake		
KOP: 26	Date: 8/25/15	
Visual Resource Inventory Class: II		
Location: Northing 7086132.488, Easting 694827.42		
Distance from proposed activity: about 1.2 miles from Mainline Pipeline construction		
Approximate Milepost: 528		
Ecoregion/Subregion: Northern Foothills		
Scenic Quality Classification: A	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal foreground and water; jagged, rugged, bold background	Form: rough strips in foreground; sparse background	Form: N/A
Line: horizontal, flowing foreground; jagged, rugged, broken background	Line: soft, irregular foreground; hard, broken, angular background	Line: N/A
Color: brown foreground; blue, white, brown background	Color: light to dark green foreground; dark green background; seasonal yellow and brown	Color: N/A
Texture: medium-smooth foreground; rough, non-directional background	Texture: uniform, dense foreground; scattered, rough background	Texture: N/A
N/A = Not applicable		

Visual Impacts During Construction

As shown on figure S-2-9b, clearing vegetation and grading the Mainline Pipeline right-of-way would introduce a strong horizontal line across the slope south of the lake with visible cut and fill slopes. Changes to landform would be noticeable as brown and gray colors of the cut and fill slopes, and contrast for landform would be strong. Vegetation clearing would expose bare soils and introduce linear, horizontal forms and lines. Due to the construction of the Mainline Pipeline, rough textures would result, creating a

visible line across the hillside during construction. Views of equipment, vehicles, and materials during construction would produce strong contrast for structures; however, the contrast for structures would be temporary, lasting less than 2 years. Overall, contrast during construction would be strong due to noticeable changes to the vegetation and landform; therefore, Project construction would have moderate visual impacts on KOP 26.

Visual Impacts During Operation

As depicted on figure S-2-9c, cleared vegetation and grading would introduce a strong horizontal line across the slope south of the lake with visible cut and fill slopes. Changes to landform would be noticeable as brown and gray colors of the cut and fill slopes and contrast for landform would be strong. Vegetation removal would introduce strong linear, horizontal forms and lines. More light greens could be visible as vegetation grows back following construction. The Mainline Pipeline would appear as a noticeable horizontal line across the hillside during operation. Overall, contrast during operation would be strong due to noticeable changes to the vegetation and landform; therefore, Project operation would have moderate visual impacts on KOP 26.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan. Additionally, construction in this area would occur during winter to minimize impacts on tourists and recreationists.

S-2.1.4.35 KOP 27: Otto Lake Road

Affected Visual Environment

KOP 27 (see table S-2-36) is on the north shore of Otto Lake on Otto Lake Road. The view from KOP 27 would be experienced by recreationists and others traveling to Otto Lake from the Parks Highway. The George Parks Highway Scenic Byway CPP identifies this area along the highway with a high scenic value (ADNR, 2008a). Conifers frame the view to the Parks Highway, and dark, rugged peaks are visible in the background. Colors range from dark green to light green with seasonal yellow. The flat road dominates the view with adjacent trees and mountains providing layers of contrasting forms and textures.

TABLE S-2-36		
KOP 27: Otto Lake Road		
KOP: 27	Date: 8/25/15	
Visual Resource Inventory Class: II		
Location: Northing 7086197.487, Easting 694828.848		
Distance from proposed activity: about 0.7 mile from Healy Camp and the pipe storage yard		
Approximate Milepost: 528		
Ecoregion/Subregion: Northern Foothills		
Scenic Quality Classification: B	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, rolling (distant)	Form: vertical, regular	Form: flat, horizontal
Line: horizontal, flat, straight	Line: vertical, parallel	Line: straight, horizontal
Color: browns, dark purple	Color: light to dark greens	Color: gray, black
Texture: medium-rough	Texture: dense, ordered	Texture: uniform, directional, matte

Project Activities Generating Impacts

AGDC would construct a pipe storage yard and work camp about 0.7 mile east of this KOP. Due to the distance, intervening terrain, and dense vegetation, the proposed pipe storage yard and work camp would not be visible from this location. Therefore, there is no contrast anticipated to this view.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 27 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.36 KOP J: Denali RV Park and Motel

Affected Visual Environment

KOP J (see table S-2-37) is at the entrance of the Denali RV Park and Motel, looking toward the proposed material site that would be across the Parks Highway (see figure S-2-10a). The highway is flat and straight at this location with dense vegetation immediately next to the road on both sides, except for the stretch of road in front of the Denali RV Park and Motel. The vegetation consists primarily of deciduous undergrowth and black spruce. Rugged mountains make up the background with vegetation covering most slopes with more exposed rock at the mountain peaks. Some small patches of snow were visible at the mountaintops during the July 2016 field visit.

TABLE S-2-37		
KOP J: Denali RV Park and Motel		
KOP: J	Date: 6/28/16	
Visual Resource Inventory Class: II		
Location: Northing 7078602.9, Easting 402225.3		
Distance from proposed activity: less than 0.1 mile from a material site, 0.2 mile from the Mainline Pipeline		
Approximate Milepost: 530		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: B	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal foreground; rugged, angular background	Form: numerous, continuous foreground; mottled background	Form: flat
Line: horizontal foreground; diagonal, jagged background	Line: horizontal strip at foreground; continuous, patchy background	Line: horizontal
Color: gray, tan foreground; light to dark brown background	Color: light green foreground, light to dark green background	Color: gray, black, yellow, white
Texture: smooth foreground, rough background	Texture: smooth foreground and background	Texture: smooth

Project Activities Generating Impacts

KOP J is along the Parks Highway at the Denali RV Park and Motel, less than 0.1 mile west of a proposed material site and 0.2 mile east of the Mainline Pipeline. The Mainline Pipeline right-of-way would not be visible due to screening by existing vegetation at this location. The simulation for KOP J depicts the material site that would be next to the Parks Highway across the road (southeast) from this KOP.

Visual Impacts During Construction

As shown on figure S-2-10b, the material site would introduce rounded and rectilinear forms, horizontal and curved lines, brown and gray colors of exposed earth, and smooth to coarse textures. The material site would introduce strong contrast to the landform, which is naturally flat and horizontal in this location. Vegetation removal would create linear forms and irregular lines, with light greens and patchy textures compared to the existing vegetation. The patchy texture created in vegetation would be a strong contrast to the existing dense vegetation. Machinery and equipment would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. These elements would create strong contrast in structure. Overall, the material site would introduce strong contrast for landform, vegetation, and structures during construction. Although construction would take less than 2 years in this area, the cleared material site would create strong contrast and be highly noticeable for sensitive viewers. Therefore, visual impacts for KOP J during construction would be high.

Visual Impacts During Operation

The material site would remain noticeable in immediate foreground views from the Denali RV Park and Motel and scenic highway after completion of construction in this area, due to the time required for vegetation regrowth (see figure S-2-10c). The material site would introduce rounded and rectilinear forms, horizontal and curved lines, brown and gray colors of exposed earth, and smooth to coarse textures. Because the landform is naturally flat and horizontal in this location, the material site would introduce strong contrast to the landform during operation. Vegetation removal would create linear forms and irregular lines, with light greens and patchy textures compared to the existing vegetation. Revegetation would take time, and the contrast between existing and new vegetation could be noticeable for decades. The patchy texture created in vegetation would be a strong contrast to the existing dense vegetation. Overall, the material site would introduce strong contrast for the landform and vegetation during operation. Because the cleared material site would create strong contrast and be highly noticeable for sensitive viewers, KOP J would have high visual impacts during operation.

Mitigation Measures

To minimize visual impacts associated with the material sites, AGDC would locate the material site entry at an angle to the road, maintain screening vegetation between the highway and site, limit vegetation clearing to the approved footprint, screen equipment and vehicles from view from the highway, and implement the Project Revegetation Plan. AGDC would minimize the use of smooth, reflective surfaces and use non-contrasting colors in the facility design. AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward, shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

S-2.1.4.37 KOP 28: Nenana River Bridge

Affected Visual Environment

KOP 28 (see table S-2-38) provides a view of the Nenana River crossing from the existing Nenana River Bridge (see figure S-2-11a). The foreground view looks out over the gorge with the river below. Recreationists, tourists, and others traveling along the highway and railroad, and recreationists boating, fishing, or otherwise using the river, experience the view in this area. The river is prominent and flowing, bounded by the rougher textures on the steep slopes. The George Parks Highway Scenic Byway CPP identifies this area with a high scenic value (ADNR, 2008a). Vegetation ranges from light green and gold on the riverbanks to rough, dark green conifers on the slopes of the canyon and the moderately sloped mountains in the background. Additional analysis of visual impacts on the Parks Highway area, including

views to the east, are addressed in sections S-2.1.4.73 through S-2.1.4.79 (KOPs 2018-8 through 2018-14). KOPs within the DNPP were developed by AGDC in close coordination with NPS representatives from the DNPP to evaluate the Project's visual impacts in this area.

TABLE S-2-38		
KOP 28: Nenana River Bridge		
KOP: 28	Date: 8/25/15	
Visual Resource Inventory Class: I		
Location: Northing 7081419.048, Easting 700197.418		
Distance from proposed activity: about 0.1 mile from the Mainline Pipeline and aerial pipe bridge at the Nenana River		
Approximate Milepost: 532		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: A	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: complex, triangular, steep, rounded, vertical; water curving and prominent	Form: verticals, rough, dense	Form: smooth, horizontal, linear, vertical
Line: flowing, undulating, angular	Line: conifers and birches create strong verticals; background is more even and continuous	Line: straight, vertical
Color: brown, gray, tan	Color: light to dark green, seasonal yellow	Color: gray
Texture: medium-smooth landform, rough water	Texture: rough	Texture: smooth

Project Activities Generating Impacts

KOP 28 is the view looking south from the Parks Highway where it crosses over the Nenana River and Alaska Railroad. The Mainline Pipeline would cross the Nenana River on an aerial bridge crossing. The simulation for KOP 28 depicts the view following construction of the proposed Nenana River crossing.

Visual Impacts During Construction

Construction of the proposed aerial bridge crossing of the Mainline Pipeline would introduce areas of vegetation clearing, some landform changes, and a new structure to views in this area (see figure S-2-11b). Vegetation removal at both ends of the crossing would create geometric and irregular lines and forms that would contrast with the existing vegetation patterns. Additionally, it would create contrasting patchy textures and expose rock and bare earth with gray and brown colors that would contrast with the existing colors in the landscape. Cleared vegetation below the Mainline Pipeline crossing would create a strong, straight line that would contrast strongly with the existing vegetation patterns. Changes to landform due to excavation and grading at both ends of the river crossing would produce moderate contrast. Construction activities and the presence of construction equipment and materials would introduce new structures into the views that would be noticeable and produce strong contrast. The introduction of the new aerial crossing structure would partially block views and produce strong contrast in form, line, color, and texture. The presence of the existing highway bridge would partially, but not completely, offset the strong contrast due to difference in appearance between the structures. Therefore, visual impacts for KOP 28 during construction would be moderate.

Visual Impacts During Operation

Introduction of the proposed aerial Mainline Pipeline crossing would create areas of vegetation clearing, some landform changes, and a new structure to the view in this area (see figure S-2-11c). Vegetation removal at both ends of the crossing would create geometric and irregular lines and forms that would contrast with the existing vegetation patterns. Clearing would also create contrasting patchy textures

and expose rock and bare earth with gray and brown colors that would contrast with the existing colors in the landscape. Cleared vegetation below the Mainline Pipeline crossing would create a strong, straight line that would contrast strongly with the existing vegetation patterns. Light greens would become more dominant following construction as vegetation grows back. Changes to landform due to excavation and grading at both ends of the crossing structure would produce moderate contrast. Introduction of the new aerial crossing structure would partially block views and produce strong contrast in form, line, color, and texture with its geometric and cylindrical forms, straight horizontal lines, metallic finish, and smooth texture. The shiny metallic finish would create glare that would attract viewers' attention and further increase the strong contrast of the structure. The presence of the existing highway bridge nearby would partially, but not completely, offset the strong contrast due to the difference in appearance between the structures. Overall, operation of the aerial Mainline Pipeline crossing at this location would result in strong contrast in this highly scenic area. Because the aerial Mainline Pipeline crossing would create strong contrast and be highly noticeable for sensitive viewers, KOP 28 would have high visual impacts during operation.

Mitigation Measures

To reduce visual impacts of the aerial Mainline Pipeline crossing, AGDC would locate the aerial Mainline Pipeline bridge close to the highway bridge to help visually blend the two structures. AGDC would construct a pedestrian walkway across the pipe bridge to conceal the pipe. AGDC additionally would use dark colors and dull finishes on the aerial bridge, minimize vegetation clearing at both ends and below the aerial bridge, and implement the Project Revegetation Plan to restore the original contours and restore vegetation in the area following construction.

S-2.1.4.38 KOP 29: Fox Creek Crossing

KOP 29 (see table S-2-39) is the crossing of Fox Creek, as viewed from the Parks Highway (see figure S-2-12a). The land rises steeply above the small, rapidly flowing creek. Landforms are rugged verticals in the narrow canyon. Conifers are rough with patchy areas. Cultural modifications are present in the form of the roadway and bridge guardrail but do not dominate the view.

TABLE S-2-39		
KOP 29: Fox Creek Crossing		
KOP: 29		Date: 6/28/16
Visual Resource Inventory Class: I		
Location: Northing 7078975.60, Easting 701529.12		
Distance from proposed activity: about 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 534		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: rugged, steep, high, jagged, irregular; narrow water	Form: smooth in foreground, background vertical, rough	Form: horizontals punctuated by verticals
Line: bold, angular, vertical, rugged; flowing water	Line: vertical, broken, rugged; soft background	Line: continuous, horizontal, geometric
Color: browns, reds; gray, white, tan, water	Color: light to dark green	Color: gray
Texture: coarse, patchy, rough land; rough, glossy water	Texture: rough, coarse, patchy	Texture: smooth, continuous

Project Activities Generating Impacts

AGDC has determined that the crossing method for Fox Creek would be open cut, which differs from the aerial crossing evaluated in AGDC's initial simulations and visual impact analysis. The KOP is immediately adjacent to the Parks Highway. Figure S-2-12b depicts the view during Project construction.

Visual Impacts During Construction

There is potential for strong visual contrast during construction and immediately after construction of the Mainline Pipeline (see figure S-2-12b). Project activities would demand attention on the Parks Highway, would not be overlooked, and would be dominant in the view at this location. Project equipment, trucks, and personnel during construction in this area would be new and contrasting features. Immediately after construction, the strong lines, lack of vegetation, and visible soils created by clearing the right-of-way could draw viewers' attention, even in the presence of other man-made features. Therefore, visual impacts would be high during construction.

Visual Impacts During Operation

There is potential for moderate visual impacts during operation. Mitigation would greatly reduce the visual contrast in landform (see figure S-2-12c). The strong lines would be reduced compared to the contrast present during construction, and individuals would be less distracted from the view as they pass this location. Therefore, visual impacts would be moderate during operation.

Mitigation Measures

To reduce visual impacts associated with Project construction and operation, AGDC would implement the Project Revegetation Plan to restore vegetation following construction. Once complete, revegetation would greatly reduce the visual contrast of the Mainline Pipeline at this location (see figure S-2-12c).

S-2.1.4.39 KOP K: McKinley Chalet Resort

Affected Visual Environment

KOP K (see table S-2-40) is at the entrance of the front parking lot of the McKinley Chalet Resort (see figure S-2-13a). The McKinley Chalet Resort is the northernmost in a cluster of hotels on the Parks Highway near the entrance to the DNPP. Recreationists, tourists, and others traveling on the Parks Highway, as well as tourists staying at hotels, shopping, and eating at developed tourism facilities near the entrance to the DNPP, would primarily experience this view. In this location, the highway slopes gradually down as it heads into the steep-sided river valley to the north. The mountains of the Alaska Range are considered distinctive and scenic. The slopes along the east side of the roadway are steep with exposed rock in grays, tans, and browns. Dense vegetation covers areas where the slope is less steep and consists of low shrub-like trees, vertical lines of black spruce, and deciduous trees with lighter-colored trunks.

Project Activities Generating Impacts

KOP K is less than 0.1 mile from where the proposed Mainline Pipeline would be installed along the northern side of the highway. The KOP K simulation (see figure S-2-13) depicts the Mainline Pipeline along the highway and to the right (east) of the viewer.

TABLE S-2-40		
KOP K: McKinley Chalet Resort		
KOP: K		Date: 6/28/16
Visual Resource Inventory Class: II		
Location: Northing 7070576.8, Easting 406258.6		
Distance from proposed activity: less than 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 536		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: Gently sloping foreground; steep, angular middleground and background	Form: smooth foreground, curving strip at middleground, continuous background	Form: smooth, curving horizontal, occasional verticals
Line: horizontal, sloping foreground; diagonal to vertical middleground and background	Line: horizontal foreground, vertical and mottled middleground and background	Line: horizontal, vertical
Color: gray, tan, brown	Color: light green foreground, light to dark green middleground and background	Color: gray, brown, red (light posts)
Texture: smooth foreground; rough, rugged, coarse middleground and background	Texture: smooth foreground and background, smooth to coarse middleground	Texture: smooth

Visual Impacts During Construction

The contrast introduced for the landform would be strong due to excavation and grading, which would create linear and geometric forms and straight lines and expose bare soil and rock containing lighter colors and coarse texture (see figure S-2-13b). Vegetation removal would also expose bare soil and rock with lighter colors and produce geometric forms and straight lines in the landscape. Contrast for vegetation would be moderate to strong. Machinery, equipment, vehicles, and construction activities would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors in views from the scenic highway. Contrast for structures would be strong. Due to the Mainline Pipeline's close proximity to the highway, these elements would be highly noticeable. Therefore, visual impacts for KOP K during construction would be high.

Visual Impacts During Operation

The contrast introduced for landform alterations would be moderate to strong due to the linear and geometric forms and straight lines (see figure S-2-13c). Cleared vegetation would be noticeable with lighter colors and straight lines in the landscape. Light greens and rough textures introduced by regrowth would create moderate contrast. As vegetation grows back, contrast in form, color, and texture would be reduced in the long term. Contrast for structures would be weak to nonexistent because the Mainline Pipeline would be underground and no aboveground structures would be visible from this KOP. Overall, contrast would be moderate for views from KOP K. For these reasons, visual impacts for KOP K during operation would be moderate.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan to return the area to its original contours and restore vegetation in the area. AGDC would also evaluate the Project construction schedule with the objective of limiting the size of construction crews to reduce visual contrast during construction.

S-2.1.4.40 KOP L: Denali Princess Wilderness Lodge

Affected Visual Environment

KOP L (see table S-2-41) is at the entrance to the Denali Princess Wilderness Lodge, looking east at the ridge. The Denali Princess Wilderness Lodge is in the middle of a cluster of hotels on the Parks Highway near the entrance to the DNPP. Tourists staying at the hotels and eating at the restaurants near the entrance to the DNPP primarily experience this view. Motorists on the Parks Highway also experience the view. The highway curves slightly downward in both directions. A row of shops, restaurants, and hotels is on the opposite side of the road, all with wood façades and green metal roofs.

TABLE S-2-41		
KOP L: Denali Princess Wilderness Lodge		
KOP: L		Date: 6/28/16
Visual Resource Inventory Class: II		
Location: Northing 7070177.6, Easting 406198.0		
Distance from proposed activity: less than 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 536		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; rolling to rugged middleground; steep, jagged background	Form: sparse foreground; numerous, regular middleground and background	Form: flat, curved road; geometric, angular buildings
Line: horizontal foreground, angular middleground and background	Line: vertical background and middleground	Line: horizontal road; diagonal, vertical, horizontal buildings
Color: gray, tan foreground and middleground	Color: light green foreground, light to dark green middleground and background	Color: gray, black road; brown, green white buildings
Texture: coarse to smooth foreground; rugged, coarse middleground and background	Texture: soft, broken foreground; textured, regular middleground; smooth, continuous background	Texture: smooth road; smooth buildings with some texture from signs/fonts

Project Activities Generating Impacts

This KOP is in the parking lot between the Parks Highway and the Denali Princess Wilderness Lodge and would be less than 0.1 mile west of the Mainline Pipeline.

Visual Impacts During Construction and Operation

Impacts would be similar to those for KOP K; see discussion above in section S-2.1.4.39.

Mitigation Measures

Mitigation would be similar to that for KOP K; see discussion above in section S-2.1.4.39.

S-2.1.4.41 KOP M: Grande Denali Lodge

Affected Visual Environment

KOP M (see table S-2-42) is at the Grande Denali Lodge looking up the hill from the parking area and back toward the entrance road. The Grande Denali Lodge is on the southwest side of a cluster of hotels on the Parks Highway near the entrance to the DNPP. The lodge is up a steep slope from the highway and accessed by a road with several switchbacks. Tourists visiting the DNPP and staying at or visiting the

Grande Denali Lodge primarily experience this view. There is a steep slope up the east side of the road and down on the west side. A ravine and ridgeline are visible to the southeast above the road. The ravine, while narrow, provides deeper visibility than the steep, rough-faced eastern view from farther north along the parking lot. Vegetation is dense where not deterred by steep, exposed rock faces.

TABLE S-2-42		
KOP M: Grand Denali Lodge		
KOP: M		Date: 6/28/16
Visual Resource Inventory Class: III		
Location: Northing 7069756.7, Easting 406910.8		
Distance from proposed activity: 0.2 mile from the Mainline Pipeline		
Approximate Milepost: 537		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, rolling middleground; angular background	Form: diverse, irregular foreground, middleground, and background	Form: horizontal, flat
Line: horizontal foreground, curved middleground, angular/diagonal background	Line: solid, continuous foreground, middleground, and background	Line: horizontal
Color: tan foreground and middleground, brown background	Color: light to dark green foreground and middleground; background light green speckled with dark green	Color: tan
Texture: coarse foreground, smooth to coarse middleground, coarse background	Texture: smooth to patchy	Texture: coarse

Project Activities Generating Impacts

This KOP is in the parking lot near the front entrance of the Grande Denali Hotel, 0.2 mile east of the proposed Mainline Pipeline. Due to intervening topography and dense vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP M during construction or operation.

Mitigation Measures

AGDC has not proposed the mitigation for this KOP.

S-2.1.4.42 KOP 30: Denali National Park and Preserve Wilderness Access Center

Affected Visual Environment

KOP 30 (see table S-2-43) is in the DNPP in front of the DNPP Wilderness Access Center facing the parking lot to the southeast. Recreationists and tourists visiting the Wilderness Center experience this view. The foreground is primarily paved with sections of dirt planted with conifers and deciduous trees (primarily birch). The background is angular and rugged, with solid vegetation that varies from rough to smooth.

TABLE S-2-43		
KOP 30: Denali National Park and Preserve Wilderness Access Center		
KOP: 30		Date: 8/25/15
Visual Resource Inventory Class: I		
Location: Northing 7074155.346, Easting 702468.499		
Distance from proposed activity: about 0.7 mile from Mainline Pipeline construction		
Approximate Milepost: 538		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, angular and rugged background	Form: vertical, patchy foreground; solid background	Form: flat, rectangular, regular, horizontal
Line: rugged; hard, horizontal foreground	Line: vertical foreground; irregular to regular, curving background	Line: horizontal, continuous, smooth, regular
Color: brown foreground; brown upper background	Color: light to dark green; yellow, red seasonally	Color: gray, brown
Texture: smooth to rough	Texture: rough to smooth	Texture: smooth

Project Activities Generating Impacts

KOP 30 is the view from the entry to the DNPP Wilderness Center. AGDC would construct the Mainline Pipeline about 0.3 mile east of this KOP. The Mainline Pipeline would not be noticeable from the Wilderness Center entrance, but could be noticeable from parts of the parking area and paths and trails in the immediate vicinity of the Wilderness Center.

Visual Impacts During Construction

Where visible, vegetation removal and grading would introduce a strong horizontal line adjacent to the Parks Highway. Vegetation clearing would expose bare soils and introduce linear, horizontal forms and lines, and brown and gray colors along the right-of-way. Contrast for landform would be moderate due to the presence of the strong linear feature of the Parks Highway, Nenana River pedestrian bridge, and pedestrian path. During construction, views of equipment, vehicles, and materials would produce moderate to strong contrast for structures, but the contrast for structures would be temporary. Overall, contrast during construction would be moderate due to noticeable changes to vegetation and landform adjacent to existing road and pedestrian infrastructure. Construction would take less than 2 years in this area; therefore, visual impacts for KOP 30 during construction would be low.

Visual Impacts During Operation

Changes to the landform would initially be noticeable as brown and gray colors of the exposed right-of-way. During revegetation, these visible portions of the right-of-way would appear as a flat area adjacent to the edge of the Parks Highway, with herbaceous vegetation similar to the vegetation already present, with more light greens visible. Cleared vegetation would introduce moderate linear horizontal forms and lines. The Mainline Pipeline would appear as an extension of the open land currently present at the edge of the Parks Highway. Overall, contrast during operation would be moderate due to the introduction of additional herbaceous vegetation. For these reasons, the visual impact of the Project during operation would be moderate.

Mitigation Measures

Construction in this area would occur during winter to minimize impacts on tourists and recreationists. AGDC would also minimize vegetation clearing, grading, and the use of cut and fill slopes, and implement the Project Revegetation Plan to restore disturbed areas. Revegetation would be done in consultation with the NPS, following additional guidelines and specifications detailed in the NPS's *Management Policies* (2006c) and *Native Plant Revegetation Manual for Denali National Park and Preserve* (Densmore et al., 2000).

S-2.1.4.43 KOP 31: George Parks Highway-Carlo Creek

Affected Visual Environment

KOP 31 (see table S-2-44) is just north of Carlo Creek looking northeast (see figure S-2-14a). Recreationists and tourists using the DNPP and Denali State Park, other motorists on the Parks Highway, and guests at the nearby restaurants and motels primarily experience this view. The George Parks Highway Scenic Byway CPP identifies this area with a moderate scenic value. The foreground includes foliage and a small, gravel parking lot in front of a café. Foliage quickly graduates from low, light green to dark green (conifers). Angular mountains in background are diagonal in line and covered by dark green, smooth vegetation. Cultural modifications, including the parking lot, restaurant, and motel, dominate the view. The simulation for KOP 31 depicts the view of the proposed material site and pipe storage yard from the Parks Highway during construction.

TABLE S-2-44		
KOP 31: George Parks Highway – Carlo Creek		
KOP: 31		Date: 8/25/15
Visual Resource Inventory Class: II		
Location: Northing 7055458.545, Easting 707681.638		
Distance from proposed activity: about 0.3 mile from a material site and 0.5 mile from a pipe storage yard		
Approximate Milepost: 553		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat to rolling; angular background	Form: verticals, horizontal, clustered	Form: geometric, ordered, medium, vertical
Line: horizontal, diagonal	Line: vertical, horizontal, linear	Line: regular horizontals and verticals, geometric
Color: gray brown, green in the distance	Color: light green foreground; dark green middleground and background; brown, yellow, seasonal	Color: brown, red, tan, gray, white (roof)
Texture: medium-coarse	Texture: coarse middleground, smooth foreground and background	Texture: smooth

Project Activities Generating Impacts

KOP 31 is the view north from near Carlo Creek along the Parks Highway. AGDC is proposing to construct the Mainline Pipeline adjacent to the Parks Highway corridor using conventional cut and fill. A material site would be about 0.3 mile north, and a pipe storage yard would be about 0.5 mile north.

Visual Impacts During Construction

The material site would introduce rounded and rectilinear forms, horizontal and curved lines, brown and gray colors of exposed earth, and smooth to coarse textures. Because the landform is gently sloped and uniform in this location, the material site would introduce strong contrast to the landform (see figure S-2-14b). The Mainline Pipeline adjacent to the road would introduce strong rectilinear forms and straight lines. Vegetation removal would create linear forms and irregular lines, light greens, and patchy textures compared to the existing vegetation. The patchy texture created in the vegetation would be a strong contrast to the existing dense vegetation. Machinery and equipment would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. These elements would create strong contrast in structure. Overall, the pipe storage yard, material site, and Mainline Pipeline right-of-way would introduce strong contrast for landform, vegetation, and structures during construction. For these reasons, visual impacts for KOP 31 during construction would be high.

Visual Impacts During Operation

The material site and Mainline Pipeline right-of-way would be noticeable in immediate foreground views from this KOP after completion of construction in this area due to the time required for vegetation regrowth (see figure S-2-14c). The material site would introduce rounded and rectilinear forms, horizontal and curved lines, brown and gray colors of exposed earth, and smooth to coarse textures. The Mainline Pipeline would appear as a strong rectilinear element with long, straight lines. Because the landform is gently sloped and uniform in this location, both the material site and Mainline Pipeline would introduce strong contrast to the landform during operation. Vegetation removal would create linear forms and irregular lines, light greens, and patchy textures compared to the existing vegetation. Although restoration would occur at the pipe storage yard and material site, revegetation would take time and could be noticeable for decades. The linear form of the Mainline Pipeline would also be highly noticeable adjacent to the road. The patchy texture created in the vegetation would be a strong contrast to the existing dense vegetation. Overall, the material site and Mainline Pipeline would introduce strong contrast for the landform and vegetation during operation. Because the cleared material site and Mainline Pipeline would create strong contrast and be highly noticeable for sensitive viewers, visual impacts for KOP 31 during operation would be high.

Mitigation Measures

To reduce visual impacts associated with the material site and pipe storage yard, AGDC would minimize vegetation clearing and implement the Project Revegetation Plan to restore vegetation following construction. During construction, AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward, shield it to eliminate off-site light spill, and (where appropriate) use timers or motion-activated sensors for all lighting.

S-2.1.4.44 KOP 32: Nenana River (view east)

Affected Visual Environment

KOP 32 (see table S-2-45) contains the view from the Parks Highway looking east across the Nenana River. Recreationists, tourists, and others on the Parks Highway and recreational users of the Nenana River experience this view. The George Parks Highway Scenic Byway CPP identifies this area with a high scenic value (ADNR, 2008a). The flat, brown, curving plane of the river contrasts with the brighter colors in the foreground and dark green conifers in the middleground. The view encompasses a variety of forms including the strong, continuous band of conifers on the opposite river bank; smooth, rolling hills in the middleground; and rugged, rolling hills in the distance.

TABLE S-2-45		
KOP 32: Nenana River (view east)		
KOP: 32		Date: 8/25/15
Visual Resource Inventory Class: I		
Location: Northing 7043247.027, Easting 709033.201		
Distance from proposed activity: about 1.0 mile upstream of the Mainline Pipeline river crossing		
Approximate Milepost: 560		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, steep foreground, water; angular background	Form: smooth foreground; striped, solid middleground; rough, asymmetrical background	Form: linear, diagonal, vertical (transmission line)
Line: irregular, complex, curving, jagged	Line: complex, continuous, horizontal, vertical	Line: continuous, horizontal
Color: gray water; brown, gray land	Color: light to dark green; brown, yellow, red seasonally	Color: brown, gray
Texture: smoother water, coarse foreground, medium to fine middleground, medium to coarse background	Texture: smooth foreground, coarse middleground, matte background	Texture: smooth

Project Activities Generating Impacts

The Mainline Pipeline would cross the Nenana River about 1.0 mile downstream (southeast) of the KOP. Due to the distance and intervening terrain and vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and therefore have no visual impacts for KOP 32 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.45 KOP 33: Nenana River (view south)

Affected Visual Environment

KOP 33 (see table S-2-46) is a view from the Parks Highway back (south) along the Nenana River. Recreationists, tourists, and others on the Parks Highway and recreational users of the Nenana River experience this view. The George Parks Highway Scenic Byway CPP identifies this area with a high scenic value (ADNR, 2008a). The foreground consists of steep gravel slanting down toward the Nenana River. The river is greenish gray, smooth, and curving. The background is angular, irregular, and coarse, with rough, matte vegetation. In the foreground and middleground, the vegetation is complex, horizontal/vertical, dominantly light green (particularly at the riverbanks), and smooth.

TABLE S-2-46		
KOP 33: Nenana River (view south)		
KOP: 33	Date: 8/25/15	
Visual Resource Inventory Class: I		
Location: Northing 7043253.344, Easting 709037.603		
Distance from proposed activity: about 1.0 mile upstream of the Mainline Pipeline river crossing		
Approximate Milepost: 560		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: A	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat water; steep, gravel foreground; angular background	Form: smooth foreground, linear middleground, rough background	Form: rectangular, geometric
Line: irregular, complex; curving river	Line: complex, horizontal, vertical	Line: horizontal and vertical, geometric
Color: brown, gray; green, gray water	Color: light green dominant in middleground; dark green; brown, yellow seasonally especially in background	Color: gray, green, brown
Texture: coarse foreground, coarse middleground, medium-coarse background, smooth water	Texture: smooth foreground and middleground, matte background	Texture: random, patchy

Project Activities Generating Impacts

The proposed Mainline Pipeline would cross the river about 1.0 mile downstream (southeast) of this KOP. Due to the distance and intervening terrain and vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impact on KOP 33 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.46 KOP 34: Cantwell School (east)

Affected Visual Environment

KOP 34 (see table S-2-47) is on Second Avenue in front of the Cantwell School. Students, employees, and visitors to the Cantwell School primarily experience this view. The KOP view looks into dense trees on the east side of the road. Cantwell School is on the west side with a playground and gravel parking lot in front. Vegetation is thick with predominately conifer trees. Angular peaks are visible in the distance. The road detracts from the scenic quality with its darker colors and linear form.

Project Activities Generating Impacts

The Mainline Pipeline would be about 0.5 mile east of the Cantwell School and this KOP. Due to the distance and intervening terrain and vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. There is no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-47		
KOP 34: Cantwell School (east)		
KOP: 34		Date: 8/25/15
Visual Resource Inventory Class: II		
Location: Northing 7035870.895, Easting 705071.911		
Distance from proposed activity: about 0.5 mile from Mainline Pipeline construction		
Approximate Milepost: 568		
Ecoregion/Subregion: Broad Pass Depression		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; rugged, angular background; no water	Form: prominent, rough	Form: flat, linear, horizontal
Line: straight, regular foreground; diagonal, complex, background	Line: linear, horizontal, vertical, regular	Line: regular, straight, horizontal
Color: brown patches foreground, purple-blue background, white seasonal	Color: dark green, light green; yellow, red, brown seasonally	Color: black, gray
Texture: sparse, medium	Texture: continuous band with clumps; dense	Texture: smooth (road), handed with medium-coarse

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 34 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.47 KOP 35: Cantwell School (south)

Affected Visual Environment

KOP 35 (see table S-2-48) is on a gravel service drive on the south side of Cantwell School. Students, employees, and visitors to the Cantwell School primarily experience this view. Some windows on the school face this direction and a majority of the parking lot is visible to the northeast. Two outbuildings are west of the KOP. Vegetation runs along the south side of the gravel drive, cut through by a transmission line (running east to west) on the southwest side.

Project Activities Generating Impacts

The Mainline Pipeline and pipe storage yard would be about 1.7 miles southwest of the school, and Cantwell Camp would be about 1.0 mile south of the school. Due to the distance and intervening terrain and vegetation, the Mainline Pipeline, pipe storage yard, and Cantwell Camp would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impact on KOP 35 during construction or operation.

TABLE S-2-48		
KOP 35: Cantwell School (south)		
KOP: 35		Date: 8/25/15
Visual Resource Inventory Class: II		
Location: Northing 7035849.364, Easting 704996.299		
Distance from proposed activity: about 1.7 miles from the Mainline Pipeline and pipe storage yard; about 1.0 mile from the Cantwell Camp		
Approximate Milepost: 568		
Ecoregion/Subregion: Broad Pass Depression		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, no water	Form: strips	Form: rectangular
Line: horizontal	Line: horizontal, vertical	Line: horizontal, vertical
Color: gray	Color: light to dark green, predominately dark; red, yellow seasonally	Color: gray, blue, white, green
Texture: rough, coarse but even	Texture: medium density; even but random in distribution, rough	Texture: smooth

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.48 KOP 36: Windy Creek Trail

Affected Visual Environment

KOP 36 (see table S-2-49) looks out on a distinct foreground, middleground, and background. Recreationists accessing the trail and users of the airport facilities primarily experience this view. The foreground is flat, straight, and smooth with soft, scattered vegetation. The middleground is rolling, curving, and smooth with large amounts of distinct, vertical vegetation. The background is angular, jagged, and rough with smooth vegetation. Cultural modifications from the existing airport facilities dominate the view.

TABLE S-2-49		
KOP 36: Windy Creek Trail		
KOP: 36		Date: 8/25/15
Visual Resource Inventory Class: III		
Location: Northing 7035738.813, Easting 702161.406		
Distance from proposed activity: about 0.1 mile from the Cantwell pipe storage yard		
Approximate Milepost: 569		
Ecoregion/Subregion: Broad Pass Depression		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, rolling middleground, angular background	Form: patchy, distinct, numerous	Form: rectangles, geometric, horizontal
Line: straight foreground; band, curving middleground; angular, jagged background	Line: soft foreground, vertical middleground, smooth background	Line: horizontal, vertical
Color: gray foreground; blue, gray, brown back	Color: green; seasonal red, yellow; dark green in middleground	Color: tan, red, blue, gray
Texture: smooth, clumped foreground; smooth middleground; rough background	Texture: scattered foreground	Texture: smooth

Project Activities Generating Impacts

AGDC has proposed a pipe storage yard about 0.1 mile south of this KOP. Due to the short distance and lack of tall vegetation separating the trail from the camp and pipe storage yard, these facilities would be highly noticeable from the KOP.

Visual Impacts During Construction

The landform in this location is already relatively flat with prominent horizontal lines, brown color, and smooth textures. Grading for the proposed pipe storage yard would introduce flat forms, horizontal lines, brown to black colors, and fine to smooth textures, similar to the existing condition. Therefore, contrast for landform would be weak. Currently, a railroad storage area occupies this area, so very little vegetation would be removed for the proposed facilities and contrast for vegetation would be weak. The presence of a camp and pipe storage yard would introduce additional equipment, materials, and vehicles to views with rectangular, cylindrical, and geometric forms; horizontal and vertical lines; brown, gray, and tan colors; and smooth textures. Although these elements would add somewhat to the existing railroad and storage area, they would be similar in form, line, and color; therefore, texture and contrast for structures would be weak. The pipe storage yard and could introduce new sources of artificial light. In addition, construction would occur for less than 2 years in this area; therefore, visual impacts during construction would be low.

Visual Impacts During Operation

Following construction, AGDC would remove the camp and pipe storage yard, restore the site to its original contours, and revegetate the area. Although some changes to the site would be noticeable in the short term, the contrast for landform, vegetation, and structures would be weak in the long term during operation. The presence of the existing railroad and storage area would be more noticeable and dominant than the changes from the proposed Project in this location. Therefore, visual impacts for KOP 36 would be low during operation.

Mitigation Measures

AGDC would minimize vegetation removal during construction and would implement the Project Revegetation Plan to restore vegetation and contours to reduce visual impacts during operation. To reduce the impact of added artificial lighting and minimize impacts on dark skies during construction, AGDC would use the minimum lighting required for safety and security for nighttime activities at the work camp and pipe storage yard during construction. During construction, AGDC would orient the lighting downward, shield it to eliminate off-site light spill, and (where appropriate) use timers or motion-activated sensors (where appropriate) for all lighting.

S-2.1.4.49 KOP N: George Parks Highway-MP 170.8

Affected Visual Environment

KOP N (see table S-2-50) is on the Parks Highway between two proposed material sites. The view at the KOP is from the highway looking towards proposed material sites. The highway in this area is straight, with curves moving out of the field of view in both directions. There is a slight slope on both sides of the road, after which the landscape is flat. The middle ground drops out of view and is blocked by foreground vegetation. Angular mountains are visible in the background on both sides of the road. There

are two dirt roads off the highway near the KOP, one on the east side where the material site would be and one on the west side just past the material site. No public pullouts or parking areas are nearby.

TABLE S-2-50		
KOP N: George Parks Highway – MP 170.8		
KOP: N		Date: 6/27/16
Visual Resource Inventory Class: II		
Location: Northing 6985554.8, Easting 366632.4		
Distance from proposed activity: less than 0.1 mile from material site 35-4-025-1 FP2 and material site 35-4-025-2 FP3, and 0.1 mile from material site 35-4-025-2 FP1		
Approximate Milepost: 607		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, angular to jagged background	Form: regular, continuous foreground	Form: flat, straight to curving foreground; vertical, angular at middleground
Line: horizontal foreground; diagonal, angular background	Line: horizontal with occasional verticals at foreground, continuous background	Line: horizontal foreground; vertical, diagonal at middleground
Color: tan foreground; brown, blue background	Color: light to dark green, lightest at low foreground	Color: gray, black, yellow, white foreground; gray middleground
Texture: smooth to coarse foreground, smooth background	Texture: complex foreground, smooth background	Texture: smooth foreground and middleground

Project Activities Generating Impacts

This KOP is on the Parks Highway less than 0.1 mile from material sites 35-4-025-1 FP2 and 35-4-025-2 FP3, and about 0.1 mile from material site 35-4-025-2 FP1. The Mainline Pipeline would be constructed belowground and would not be visible at this location. The material sites would be in use beyond Mainline Pipeline construction.

Visual Impacts During Construction

The construction of three material sites near this KOP would introduce flat forms, horizontal lines, brown colors, and smooth textures. The material sites would introduce a weak to moderate contrast in landform, compared to the naturally flat and horizontal existing landform. Vegetation removal for the material sites would expose bare earth, create linear forms and irregular lines, gray and brown colors, and patchy textures that would contrast with the existing vegetation, creating a strong contrast for vegetation. Machinery, materials, equipment, and vehicles would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. These elements would create strong contrast for structures. Because these material sites would likely be in use for the entire 3-year construction period for Mainline Pipeline Spreads 3 and 4, and contrast would be moderate to strong, visual impacts for KOP N would be moderate to high during construction.

Visual Impacts During Operation

The operation of three material sites near this KOP would introduce flat forms, horizontal lines, brown colors, and smooth textures beyond construction. The material sites would introduce a weak to moderate contrast in landform, compared to the naturally flat and horizontal existing landform. Vegetation removal for the material sites would expose bare earth, create linear forms and irregular lines, gray and brown colors, and patchy textures that would contrast with the existing vegetation, creating a strong contrast in vegetation. Machinery, materials, equipment, and vehicles present during operation would introduce

geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. These elements would create strong contrast for structures. Because these material sites would be in use during operation and contrast would be moderate to strong, visual impacts for KOP N would be moderate to high during operation.

Mitigation Measures

To minimize visual impacts associated with the material sites, AGDC would set the disturbed areas away from the highway and maintain screening vegetation between the highway and sites. Additionally, AGDC would minimize vegetation clearing on the sites, screen equipment and vehicles from view from the highway, and implement the Project Revegetation Plan to restore vegetation.

S-2.1.4.50 KOP O: Upper Troublesome Creek Trailhead

Affected Visual Environment

KOP O (see table S-2-51) is at the Upper Troublesome Creek trailhead, just off the Parks Highway about 0.3 mile north of Troublesome Creek. To access the trailhead, users travel on a 0.2-mile-long gravel road from the highway turnoff to the far end of the parking area. The road forms a u-shape with the gravel parking area at the far end surrounded by dense vegetation on all sides. The parking area is secluded and not visible from the highway. No middleground or background is visible in any direction due to the vegetation. The immediate topography is flat.

Project Activities Generating Impacts

This KOP is at the Upper Troublesome Creek trailhead about 0.1 mile south of the Mainline Pipeline. Recreationists primarily use this area. Due to the dense intervening vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

TABLE S-2-51		
KOP O: Upper Troublesome Creek Trailhead		
KOP: O	Date: 7/1/16	
Visual Resource Inventory Class: II		
Location: Northing 6947499.5, Easting 642250.3		
Distance from proposed activity: 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 640		
Ecoregion/Subregions: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, regular	Form: dense, regular, continuous	Form: flat, horizontal
Line: horizontal, linear, continuous	Line: horizontal, vertical	Line: horizontal
Color: gray, tan	Color: light to dark green	Color: gray
Texture: flat, smooth	Texture: complex, smooth	Texture: smooth

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP O during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.51 KOP P: Lower Troublesome Creek Trailhead

Affected Visual Environment

KOP P (see table S-2-52) is at the Lower Troublesome Creek Campground (see figure S-2-15a). Recreationists using the campground facilities, and recreationists and others traveling on the Parks Highway experience this view. The Lower Troublesome Creek Campground receives a high number of visitors due to its easy access from the highway and its amenities, which include camping areas, picnic tables, public bathrooms, and river access by trail. The simulation for KOP P depicts the view of the proposed access road from the campground parking lot. The KOP looks west down the trail through the campsites with dense foreground vegetation. The trail provides a view into middleground vegetation where the brown vertical lines of tree trunks are prominent. The trail is mostly straight with some gentle curves. The trail turns to the left/southwest and is out of view after about 125 feet. Due to dense vegetation, no background is visible.

Project Activities Generating Impacts

KOP P is at the edge of the parking lot for the Lower Troublesome Creek Campground along a proposed access road for the Project and about 0.1 mile east of the Mainline Pipeline. Although the Mainline Pipeline could be somewhat noticeable from this location, construction of an access road through the campground and picnic area would be highly noticeable for sensitive viewers.

TABLE S-2-52		
KOP P: Lower Troublesome Creek Trailhead		
KOP: P		Date: 7/1/16
Visual Resource Inventory Class: II		
Location: Northing 6946884.3, Easting 642189.4		
Distance from proposed activity: adjacent to the access road, 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 641		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, regular, slight downward slope	Form: dense, regular, continuous	Form: flat, horizontal, curving, verticals, geometric shapes
Line: horizontal, linear, continuous	Line: verticals prominent in middleground, horizontals	Line: geometric, horizontal, vertical
Color: gray to brown	Color: light to dark green, brown	Color: gray and brown
Texture: flat, smooth	Texture: complex, smooth	Texture: smooth

Visual Impacts During Construction

Grading to improve the existing path to create the proposed access road would create new wider rectilinear forms and slightly curving lines and substantially expand the area of gray color for the roadway, creating a strong contrast for the landform (see figure S-2-15b). Vegetation clearing to expand the existing path into an access road would remove a substantial amount of vegetation and create strong contrast in form, line, color, and texture for vegetation. Due to the presence of construction vehicles and equipment using the access road, contrast in form, line, color, and texture for structures would also be strong. Although

contrast would be strong, construction would take less than 2 years in this area. For these reasons, visual impacts for KOP P during construction would be low.

Visual Impacts During Operation

Assuming the access road would remain in place and continue to be used to access the Mainline Pipeline right-of-way following construction, the wide access road would appear as a rectilinear form with slightly curving lines and gray color for the roadway (see figure S-2-15c). Contrast for the landform would be strong. Cleared vegetation for the access road would create strong contrast in form, line, color, and texture for vegetation. Restored vegetation may occur along the road edges, but it would require a number of years to reach heights and densities similar to the surrounding vegetation, and contrast would remain strong for the long term. Because maintenance vehicles using the access road would only be present occasionally, they would create weak contrast in form, line, color, and texture for structures. Because contrast would be strong for vegetation and landform during operation, visual impacts for KOP P from Project operation would be high.

Mitigation Measures

To minimize visual impacts associated with the access road, AGDC would maintain screening vegetation between the access road and site, minimize vegetation clearing for the access road, and implement the Project Revegetation Plan to restore vegetation along the edges of the access road.

S-2.1.4.52 KOP 37: Mt. McKinley Princess Wilderness Lodge (view southwest)

Affected Visual Environment

KOP 37 (see table S-2-53) consists of the view from the Mt. McKinley Princess Wilderness Lodge, looking southwest from a flat terrace. Recreationists and tourists staying at the lodge primarily use this area. The foreground is a flat, horizontal, black/gray asphalt parking lot. Brown, wood structures stand in the foreground with dense, ordered vegetation in both the foreground and middleground. Denali and the Chulitna River are visible from this location; however, the KOP faces the opposite direction of the Project facilities.

TABLE S-2-53		
KOP 37: Mt. McKinley Princess Wilderness Lodge (view southwest)		
KOP: 37		Date: 9/25/15
Visual Resource Inventory Class: I		
Location: Northing 6939357.951, Easting 642360.333		
Distance from proposed activity: about 1.4 miles from the construction right-of-way and 3.1 miles from the Chulitna Camp and pipe storage yard		
Approximate Milepost: 645		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal, planar; distant jagged peaks	Form: smooth, linear	Form: horizontal
Line: horizontal, linear	Line: verticals, horizontals, dense	Line: flat, horizontal, vertical
Color: brown, gray, blue	Color: light to dark green	Color: black, gray (parking lot); brown (wood)
Texture: smooth	Texture: rough background, medium-coarse in foreground	Texture: smooth (asphalt), rough (wood)

Project Activities Generating Impacts

KOP 37 is the view from the Mt. McKinley Princess Wilderness Lodge looking southwest. The Mainline Pipeline would be 1.4 miles west and southwest of this KOP. The Chulitna Camp and pipe storage yard would be about 3.1 miles to the south. A ridge southwest of the lodge blocks views in the direction of the Project. Due to distance and intervening dense vegetation and terrain, the Mainline Pipeline, camp, and pipe storage yard would not be visible from this location. There would be no contrast anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 37 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.53 KOP 38: Denali State Park Viewpoint

Affected Visual Environment

KOP 38 (see table S-2-54) is at the Denali State Park viewpoint on the west side of the highway. Recreationists and tourists visiting Denali State Park and the DNPP and travelers on the Parks Highway primarily experience this view. The KOP features interpretive signage, public restrooms, and paved camping areas for recreational vehicles and trailers. A concrete viewing area is near the edge of a bluff, looking northwest. The river below is visible, but the center of the view is Denali and associated mountains. Vegetation consists of dense, dark green conifers. Gravel bars in the river and riverbanks are brown and tan, contrasting with the brighter green and gold of the vegetation in the foreground on the east bank of the river.

TABLE S-2-54		
KOP 38: Denali State Park Viewpoint		
KOP: 38	Date: 8/24/15	
Visual Resource Inventory Class: I		
Location: Northing 6943252.2, Easting 641674.393		
Distance from proposed activity: about 1.7 miles from the Mainline Pipeline; about 1.8 miles from the Chulitna River crossing		
Approximate Milepost: 644		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: A	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: foreground not visible (slope down); horizontal middlegrond; jagged, angular, tall background	Form: vertical foreground; vertical, patchy middlegrond; background not visible (due to distance)	Form: N/A
Line: vertical, horizontal, complex	Line: vertical foreground; vertical, complex middlegrond	Line: N/A
Color: brown, black	Color: light to dark green	Color: N/A
Texture: rough foreground and middlegrond	Texture: rough	Texture: N/A
N/A = Not applicable		

Project Activities Generating Impacts

KOP 38 is the view looking north toward the Chulitna River and Denali from a developed viewpoint west of the Parks Highway. The Mainline Pipeline would be 1.7 miles west of this KOP. The Chulitna River crossing would be 1.8 miles north of this KOP. AGDC is not proposing an aerial pipe bridge for this crossing. Due to the distance and intervening terrain and vegetation, neither the Mainline Pipeline nor the river crossing location would be visible from this location in the short or long term. There would be no contrast anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 38 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.54 KOP Q: Denali State Park Viewpoint South

Affected Visual Environment

KOP Q (see table S-2-55) is on a gravel-viewing pad on the edge of the bluff a short walk north from the Denali Viewpoint South parking lot. Recreationists and tourists visiting Denali State Park and the DNPP primarily experience this view. Accessed from Denali Viewpoint South, and frequented by travelers on the Parks Highway, this KOP features interpretive signage, public restrooms, and paved camping areas for recreational vehicles and trailers. The viewer sensitivity at this location is high. The view is across the Chulitna River toward Denali and the Alaska Range. The Chulitna River is a braided river about 0.5 mile wide in the view to the north. The river takes up a majority of the middleground; beyond the river, the middleground is sloping to horizontal. The mountains in the background are steep and jagged and, on a clear day, include Denali. The viewing pad, accessed by an approximately 984-foot-long (300-meter-long) gravel path, has a gravel surface with a railing of square wood posts and cylindrical metal handrails. A wood structure is on the northeast side of the granular pad. The wood structure has cylindrical wood posts at the corners and a wood-shingled gable roof overgrown with plants. Interpretive materials and signs are located within the shelter.

Project Activities Generating Impacts

KOP Q is the view looking northwest from a gravel viewing pad about 985 feet north of the Denali Viewpoint South, about 1.0 mile west of the proposed Mainline Pipeline, and 1.7 miles south of where the Mainline Pipeline would cross the Chulitna River. Due to the distance and intervening terrain and vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP Q during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

TABLE S-2-55		
KOP Q: Denali State Park Viewpoint South		
KOP: Q		Date: 6/27/16
Visual Resource Inventory Class: II		
Location: Northing 6943523.3, Easting 641660.4		
Distance from proposed activity: 1.0 mile from Mainline Pipeline, 1.7 miles from the Chulitna River crossing		
Approximate Milepost: 644		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: steep foreground; flat to rolling middleground; jagged, steep background	Form: soft, complex, irregular foreground; smooth, regular, middleground and background	Form: horizontal, vertical, columns and lines
Line: angular, steep foreground; curving middleground; jagged background	Line: soft, curving foreground and middleground; soft, continuous background	Line: horizontal, vertical
Color: gray foreground and middleground; gray, blue background	Color: light to dark green foreground and middleground, dark green background	Color: gray, brown
Texture: rough foreground; broken, smooth middleground; hard, broken, rugged background	Texture: soft, complex foreground; repetitive, soft middleground and background	Texture: coarse

S-2.1.4.55 KOP R: Denali State Park Visitor Center

Affected Visual Environment

AGDC did not survey KOP R (see table S-2-56) during field visits for the Project due to lack of accessibility. At the time of survey, there was no access road to the site.

TABLE S-2-56	
KOP R: Denali State Park Visitor Center	
KOP: R	
Visual Resource Inventory Class: not determined for this KOP	
Location: Northing 6943449.4, Easting 644609.7	
Distance from proposed activity: 2.9 miles from the Mainline Pipeline, 2.8 miles from the Chulitna River crossing	
Approximate Milepost: 648	
Ecoregion/Subregion: Cook Inlet-Susitna Lowland	

S-2.1.4.56 KOP S: Mt. McKinley Princess Wilderness Lodge (view northwest)

Affected Visual Environment

KOP S (see table S-2-57) is at the back deck of the Mt. McKinley Princess Wilderness Lodge looking toward Denali and the Alaska Range. Hotel guests at the Mt. McKinley Princess Wilderness Lodge and diners at the associated restaurant primarily experience this view. The foreground slopes down toward the river, but the river is not visible from this location due to the topography and dense vegetation. The middleground is rolling. The far background, which consists of mountains in the Alaska Range, is rugged and jagged. In the foreground are two cultural modifications: the deck and a strip of pavement below. Constructed of darker wood with a railing, the deck consists of square wood posts and black metal balusters. The pavement is wide enough to allow one or two vehicles through but serves only as a back access to the hotel and is not a road. Dense vegetation begins about 1 foot after the pavement ends (gravel and dirt are found between). Denali is visible from the deck on clear days.

Project Activities Generating Impacts

KOP S is the view looking northwest from the back deck of the Mt. McKinley Princess Wilderness Lodge, about 1.2 miles east of the proposed Mainline Pipeline and 4.3 miles south of where the Mainline Pipeline would cross the Chulitna River. Due to the distance and intervening terrain and vegetation, the Project would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP S during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

TABLE S-2-57		
KOP S: Mt. McKinley Princess Wilderness Lodge (view northwest)		
KOP: S		Date: 6/27/16
Visual Resource Inventory Class: II		
Location: Northing 6939436.1, Easting 642386.1		
Distance from proposed activity: 1.2 miles from the Mainline Pipeline, 4.3 miles from the Chulitna River crossing		
Approximate Milepost: 647		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, rolling middleground, jagged and angular background	Form: organic shapes, continuous, regular; patchy background	Form: flat, geometric shapes
Line: horizontal foreground, curving middleground, diagonal/angular background	Line: low verticals at foreground; curving with some verticals in foreground and middleground	Line: horizontal, vertical, geometric
Color: tan/gray foreground, tan to blue background	Color: light green with some dark green foreground and middleground; dark green, blue background	Color: gray, brown
Texture: smooth foreground, middleground, and background	Texture: generally smooth foreground, middleground, and background; some rough patches at foreground	Texture: smooth

S-2.1.4.57 KOP 39: George Parks Highway-MP 131.2

Affected Visual Environment

KOP 39 (see table S-2-58) is a view from the Parks Highway facing north. The Parks Highway Scenic Byway CPP identifies this area as having medium visual sensitivity. As proposed, the Mainline Pipeline roughly parallels the Parks Highway west of this KOP beyond the tree line. The road curves but is otherwise flat and horizontal. Dense rows of conifers line the road, providing a strong contrast with the road. There are rolling, moderately sloped mountains in the background. Views of Denali are present in the vicinity but not at this location.

TABLE S-2-58		
KOP 39: George Parks Highway – MP 131.2		
KOP: 39		Date: 8/24/15
Visual Resource Inventory Class: II		
Location: Northing 6937283.39, Easting 642118.225		
Distance from proposed activity: about 0.3 mile from the Mainline Pipeline, Chulitna Camp, and pipe storage yard		
Approximate Milepost: 648		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: B		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; rolling, smooth hills background	Form: stripes, band	Form: horizontal
Line: linear, horizontal	Line: horizontal, vertical, bands, dense	Line: rectangular, linear, curving
Color: brown, tan	Color: light to dark green	Color: black, gray
Texture: smooth	Texture: smooth, dappled, medium-coarse	Texture: smooth (road)

Project Activities Generating Impacts

KOP 39 is the view looking north from Parks Highway MP 131.2. The Mainline Pipeline, Chulitna Camp, and a pipe storage yard would be about 0.3 mile north of this KOP. Due to the distance and intervening dense vegetation, the Mainline Pipeline, camp, and storage yard would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 39 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.58 KOP 40: George Parks Highway-MP 131

Affected Visual Environment

KOP 40 (see table S-2-59) contains the view of a current storage and work area facing west (see figure S-2-16a) from the Parks Highway. A flat, horizontal dirt and gravel road divides the dense vegetation on either side of the work area. The smoother road contrasts with the roughness of the adjacent vegetation and creates a harder edge. The browns and gray of the road create additional contrast with the brighter colors of the vegetation.

Project Activities Generating Impacts

KOP 40 is near Parks Highway MP 131. A proposed material site is about 0.2 mile northwest of the KOP while the Mainline Pipeline, Chulitna Camp, and pipe storage yard are about 0.2 mile west of the KOP. KOP 40 is within an area identified in the Parks Highway Scenic Byway CPP with a moderate scenic value (ADNR, 2008a). Due to the distance and intervening dense vegetation, the Mainline Pipeline, Chulitna Camp, and pipe storage yard would not be visible from this KOP. The material site, however, would be visible at the entrance road off Parks Highway. The simulation for KOP 40 depicts the proposed material site.

TABLE S-2-59		
KOP 40: George Parks Highway – MP 131		
KOP: 40		Date: 8/24/15
Visual Resource Inventory Class: III		
Location: Northing 6937607.855, Easting 642168.722		
Distance from proposed activity: adjacent to material site; about 0.2 mile from the Chulitna Camp and pipe storage yard		
Approximate Milepost: 648		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal	Form: dense, vertical	Form: flat, horizontal
Line: flat, horizontal	Line: vertical, continuous	Line: flat, horizontal, straight
Color: brown, gray	Color: light to dark green	Color: brown, gray
Texture: smooth	Texture: glossy, dense	Texture: medium-smooth

Visual Impacts During Construction

The material site would introduce horizontal and irregular forms and lines, brown to tan colors, and smooth textures to the current landform (see figure S-2-16b). Colors and textures of exposed earth would be similar to but more expansive than the existing exposed earth, creating a strong contrast for landform. The removal of vegetation would create geometric and linear forms; irregular lines, grays, and browns of exposed earth; and patchy textures in the existing vegetation. Vegetation removal would create a strong contrast for vegetation. Construction equipment and vehicles would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. The site is set back from the highway, and most travelers on the scenic highway would have brief views of the site, but the visible elements of the material site would still create strong contrast during construction. For all these reasons, visual impacts for KOP 40 would be high during construction.

Visual Impacts During Operation

The material site would be in use during operation. Use of the material site at this location would introduce horizontal and irregular forms and lines, brown to tan colors, and smooth textures to the current landform (see figure S-2-16c). Colors and textures of exposed earth would be similar to but more expansive than the existing exposed earth, creating a strong contrast for landform. The removal of vegetation would expose bare earth and create geometric and linear forms; irregular lines, grays, and browns of exposed earth; and patchy textures in existing vegetation. Vegetation removal would create a strong contrast for vegetation. Machinery, materials, equipment, and vehicles present during operation would introduce geometric and linear forms, vertical and horizontal lines, smooth textures, and yellow, brown, and gray colors. These elements would create strong contrast for structures. A reduction in visual impacts for KOP 40 would occur by the somewhat brief duration of views into the site by travelers on the scenic highway. For all these reasons, visual impacts for KOP 40 would be moderate during operation.

Mitigation Measures

To reduce visual impacts associated with the material site, AGDC would minimize vegetation removal and maintain a vegetation screen at the Mainline Pipeline's intersection with the Parks Highway to the extent practicable. AGDC would locate structures at an angle to the road opening (after accommodating state requirements for highway access). Additionally, AGDC would implement the Project Revegetation Plan to restore vegetation and minimize the use of smooth, reflective surfaces. During

construction, AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward and shield it to eliminate off-site light spill, and (where appropriate) use timers or motion-activated sensors for all lighting.

S-2.1.4.59 KOP T: George Parks Highway-MP 130.6

Affected Visual Environment

KOP T (see table S-2-60) is on the Parks Highway where the Mainline Pipeline would cross the highway. Recreationists, tourists, and others traveling on the Parks Highway primarily experience this view. There is no public pullout or parking area near this location. The road is lined with vegetation consisting of dense underbrush immediately adjacent to the road and dense trees and underbrush 30 to 50 feet from the road on both sides. The edges of mountains are visible to the north behind the treetops; other than that, no middleground or background is visible.

TABLE S-2-60		
KOP T: George Parks Highway – MP 130.6		
KOP: T		Date: 6/27/16
Visual Resource Inventory Class: II		
Location: Northing 6936951.2, Easting 642224.9		
Distance from proposed activity: Adjacent to the Mainline Pipeline		
Approximate Milepost: 649		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, moderate slope at sides of road, regular	Form: regular, continuous, dense	Form: flat, curving/turning
Line: horizontal, rolling, linear	Line: vertical, horizontal	Line: horizontal
Color: gray	Color: light to dark green	Color: gray, black, yellow, white
Texture: flat, smooth	Texture: complex, smooth	Texture: smooth

Project Activities Generating Impacts

KOP T is at MP 130.6 of the Parks Highway within the proposed Mainline Pipeline right-of-way. The Mainline Pipeline would cross the Parks Highway at this location belowground and perpendicular to the highway.

Visual Impacts During Construction

Grading would introduce some noticeable changes to the landform in form, line, color, and texture, but the existing landform is flat and contrast for landform would be weak. The removal of vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared right-of-way, creating a strong contrast for vegetation. Materials and equipment would introduce moderate to strong contrast in structure. Overall, contrast would be moderate to strong during construction. Construction would take less than 2 years and views of the cleared right-of-way crossing perpendicular to the highway would be brief for most travelers on the highway. For these reasons, visual impacts for KOP T would be low during construction.

Visual Impacts During Operation

Grading of the Mainline Pipeline right-of-way would introduce some noticeable changes to the landform in form, line, color, and texture, but the existing landform is flat and contrast for landform would be weak. The removal of vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared right-of-way. Although some revegetation would occur along the edges, it would take multiple years to become similar in height and density to the existing vegetation, and contrast for vegetation would remain strong. Overall, contrast would be moderate to strong during operation. The duration of views of the cleared right-of-way perpendicular to the highway would be brief for most travelers on the highway. For these reasons, visual impacts for KOP T would be low during operation.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan.

S-2.1.4.60 KOP U: George Parks Highway-MP 121.7

Affected Visual Environment

KOP U (see table S-2-61) is on the Parks Highway about 0.5 mile north of a public parking area (see figure S-2-17a). Recreationists and others traveling on the Parks Highway primarily experience this view. The Mainline Pipeline would cross the Parks Highway at this location. Low vegetation directly adjacent to the highway forms a 32.8- to 49.2-foot-wide (10- to 15-meter-wide) strip. This low vegetation is primarily grasses, brush, and wildflowers (including dense fireweed). Beyond the row of low vegetation is a wall of dense, tall vegetation that includes both trees and underbrush and hides both the middleground and background. Some background is visible to the north along the highway but no background is visible in the direction of the KOP.

TABLE S-2-61		
KOP U: George Parks Highway – MP 121.7		
KOP: U		Date: 6/27/16
Visual Resource Inventory Class: II		
Location: Northing 6923318.1, Easting 641541.4		
Distance from proposed activity: Adjacent to the Mainline Pipeline		
Approximate Milepost: 658		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, gentle slope at sides of road, regular	Form: regular, continuous, dense	Form: flat
Line: horizontal, linear	Line: vertical, horizontal	Line: horizontal
Color: gray, tan	Color: light to dark green, seasonal pink (fireweed)	Color: gray, black, yellow, white
Texture: flat and smooth	Texture: complex, smooth	Texture: smooth

Project Activities Generating Impacts

KOP U is at MP 121.7 of the Parks Highway within the proposed Mainline Pipeline right-of-way. The Mainline Pipeline would cross the Parks Highway belowground and nearly perpendicular to the

highway at this location. The simulation for KOP U depicts the view along the proposed Mainline Pipeline right-of-way from the shoulder of the Parks Highway.

Visual Impacts During Construction

Grading would introduce some noticeable changes to the landform in form, line, color, and texture, but the existing landform is fairly flat and contrast for landform would be weak (see figure S-2-17b). Vegetation clearing would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared right-of-way, creating a strong contrast for vegetation. Materials and equipment would introduce moderate to strong contrast in structure. Overall, contrast would be moderate to strong during construction. Views of the cleared right-of-way nearly perpendicular to the highway would be brief for most travelers on the highway. For these reasons, visual impacts for KOP U would be moderate during construction.

Visual Impacts During Operation

Grading of the Mainline Pipeline right-of-way would introduce some noticeable changes to the landform in form, line, color, and texture, but the existing landform is fairly flat and contrast for landform would be weak (see figure S-2-17c). Cleared vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared right-of-way. Although some regrowth of vegetation would occur along the edges, it would take multiple years before it would be similar in height and density to the existing vegetation; therefore, contrast for vegetation in the cleared right-of-way would remain strong. Overall, contrast would be moderate to strong during operation. The duration of views of the cleared right-of-way, nearly perpendicular to the highway, would be brief for most travelers on the highway. For all these reasons, visual impacts for KOP U would be moderate during operation.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan to restore vegetation.

S-2.1.4.61 KOP V: Petersville Road

Affected Visual Environment

KOP V (see table S-2-62) is where the Mainline Pipeline would cross Petersville Road. Recreationists, local residents, and others driving on Petersville Road primarily experience this view. This KOP, which is near the community of Trapper Creek, is about 1.0 mile from the intersection of the Parks Highway and Petersville Road. There are two layers of foreground visible from this KOP: the lower vegetation close to the road and the higher vegetation about 12 feet back. This is particularly the case on the south side of the road, where a transmission line runs parallel to the road but with an intervening screen of lower vegetation about 30 feet wide. The vegetation mostly obscures the transmission line from view. Due to the flat topography and dense vegetation, no middleground is visible. A small portion of background is visible to the east due to the road, but there is no visible background in the direction of the KOP.

Project Activities Generating Impacts

KOP V is where the Mainline Pipeline would cross Petersville Road about 1.0 mile west of its intersection with the Parks Highway near the community of Trapper Creek. The Mainline Pipeline would cross Petersville Road belowground at this location.

Visual Impacts During Construction

Grading would introduce some noticeable changes to the landform in form, line, color, and texture, but the existing landform is flat and contrast for landform would be weak. The removal of vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared right-of-way, creating a strong contrast for vegetation. Materials and equipment would introduce moderate to strong contrast in structure. Overall, contrast would be moderate to strong during construction. Construction would take less than 2 years in this area, and views of the cleared right-of-way perpendicular to the road would be brief for most travelers. For these reasons, visual impacts for KOP V would be moderate during construction.

TABLE S-2-62		
KOP V: Petersville Road		
KOP: V		Date: 6/27/16
Visual Resource Inventory Class: III		
Location: Northing 6912400.8, Easting 641392		
Distance from proposed activity: Adjacent to the Mainline Pipeline		
Approximate Milepost: 665		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat to gently rolling foreground, obscured by vegetation	Form: complex, repetitive, regular, continuous, soft	Form: flat to rolling/curving, continuous, straight
Line: horizontal to curving	Line: mottled, vertical and horizontal, linear	Line: horizontal, vertical linear
Color: gray, tan	Color: light to dark green	Color: gray, black, yellow, white, brown

Visual Impacts During Operation

Grading of the Mainline Pipeline right-of-way would introduce some noticeable changes to the landform in form, line, color, and texture, but the existing landform is flat and contrast for landform would be weak. The removal of vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared right-of-way. Although some regrowth of vegetation would occur along the edges, it would take years for it to be similar in height and density to the existing vegetation and, therefore, contrast for vegetation would remain strong. Overall, contrast would be moderate to strong during operation. The duration of views of the cleared right-of-way perpendicular to the road would be brief for most travelers. For these reasons, visual impacts for KOP V would be moderate during operation.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would implement the Project Revegetation Plan to restore vegetation.

S-2.1.4.62 KOP 41: Talkeetna Railroad Depot

Affected Visual Environment

KOP 41 (see table S-2-63) is near the Susitna River in the town of Talkeetna. The KOP is near the old railroad depot looking southwest/west into the grassy park that functions as the town square. The structures adjacent to the park provide verticals and horizontals that contrast with the flat plane of the park.

Colors are lively, ranging from brightly colored buildings to the greens of the foliage. The vegetation and the structures create strong verticals.

Project Activities Generating Impacts

KOP 41 is the view southwest–west from the Talkeetna Railroad Depot. This KOP is a popular tourist stop along the railroad, which carries visitors to and from the DNPP. The KOP is 5.3 miles east of the Mainline Pipeline. Due to the distance, as well as intervening terrain, vegetation, and buildings, the Mainline Pipeline would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

TABLE S-2-63		
KOP 41: Talkeetna Railroad Depot		
KOP: 41	Date: 8/24/15	
Visual Resource Inventory Class: III		
Location: Northing 6913594.158, Easting 649626.004		
Distance from proposed activity: about 5.3 miles from the Mainline Pipeline		
Approximate Milepost: 665		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat	Form: patchy, compatible	Form: square, rectangular, numerous
Line: straight, horizontal	Line: soft, irregular, broken	Line: bold, horizontal, vertical, geometric
Color: green, brown	Color: light to dark green, gray	Color: blue, yellow, brown, gray (gravel)
Texture: smooth	Texture: smooth to coarse	Texture: smooth to rough

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 41 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.63 KOP 42: Susitna and Talkeetna Rivers

Affected Visual Environment

KOP 42 (see table S-2-64) is at the west end of the town of Talkeetna just south of the junction of the Talkeetna and Susitna Rivers. The Talkeetna River, an east-west–trending river, joins the north-to-south–flowing Susitna River just north of this riverbank. The Susitna River sweeps past the rough, gravel bank. Vegetation on both shores is thick, and there are low conifers and deciduous trees with gravel banks on all river edges. The river is fast-flowing and cloudy gray/blue/tan. Denali and accompanying mountain ranges are in clear view to the north. Tourists frequent this stretch of the river.

Project Activities Generating Impacts

KOP 42 is the view looking west from the west side of the Talkeetna River, about 4.8 miles east of the proposed Mainline Pipeline right-of-way. Due to the distance, as well as intervening terrain, vegetation,

and buildings, the Mainline Pipeline would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 42 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

TABLE S-2-64		
KOP 42: Susitna and Talkeetna Rivers		
KOP: 42	Date: 8/24/15	
Visual Resource Inventory Class: I		
Location: Northing 6913464.552, Easting 649114.154		
Distance from proposed activity: about 4.8 miles from the Mainline Pipeline		
Approximate Milepost: 665		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: A	Overall Sensitivity Rating: H	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; distant view of rugged peaks and Denali, angular	Form: gnarled, linear trees	Form: N/A
Line: curving, irregular, bold, hard, diagonal foreground; jagged, irregular, bold, hard, diagonal background	Line: vertical, soft, horizontal, broken	Line: N/A
Color: gray, blue, tan water; green, yellow, brown; harmonious; blue, white, cream background	Color: dark and light green	Color: N/A
Texture: fine grain, glossy, contrasting	Texture: medium, clumped	Texture: N/A
N/A = Not applicable		

S-2.1.4.64 KOP 43: Alaska Railroad

Affected Visual Environment

KOP 43 (see table S-2-65) is in the town of Talkeetna off Woodpecker Road. It includes the view from the railroad looking west toward the Susitna River. A band of deciduous trees blocks the view of the river. The flat topography and vegetation present at this KOP is common in the region. A view of the mountain peak to the north is visible from the KOP, but the mountain peak would not be seen from the train on the railroad.

Project Activities Generating Impacts

KOP 43 is the view looking west from a location along the railroad about 3.0 miles south of the town of Talkeetna. The proposed Mainline Pipeline would be about 4.6 miles west of this location. The Alaska Railroad carries visitors to and from the DNPP and other places in the region. Due to the distance, as well as intervening terrain and vegetation, the Mainline Pipeline would not be visible from this location in the short or long term. There would be no contrast anticipated for landform, water, vegetation, or structure.

TABLE S-2-65		
KOP 43: Alaska Railroad		
KOP: 43		Date: 8/24/15
Visual Resource Inventory Class: III		
Location: Northing 6908542.248, Easting 650081.818		
Distance from proposed activity: about 4.6 miles from the Mainline Pipeline		
Approximate Milepost: 665		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat terrain, no water	Form: tall, solid strip	Form: flat, linear, narrow (road to railroad), vertical (transmission poles)
Line: straight, regular, geometric, horizontal	Line: soft, vertical, somewhat broken	Line: straight, regular, geometric, horizontal
Color: brown, tan, muted	Color: light to dark green, harmonious	Color: gray, brown, muted
Texture: fine, smooth, uniform	Texture: glossy, smooth, continuous	Texture: coarse (gravel), smooth (tracks), continuous

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 43 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.65 KOP 44: Susitna Valley High School (view north)

Affected Visual Environment

At the back of Susitna Valley High School, KOP 44 (see table S-2-66) looks largely out on the artificial turf field behind the school. Beyond the grass to the west is a dense but low coniferous and deciduous forest. In the foreground is a paved road, small parking area, and partially finished chain-link fence. A shipping container and metal shed make up the human-made structures in this direction (the school is behind and to the east). The scenery is largely modified by the school and related structures.

Project Activities Generating Impacts

KOP 44 is the view looking north from the Susitna Valley High School. AGDC has proposed construction of the Sunshine Railroad Spur and work pad about 2.1 miles north of the school. Due to the distance, as well as intervening terrain, vegetation, and structures, the Sunshine Railroad Spur and work pad would not be visible from this location in the short or long term. No contrast is anticipated for landform, water, vegetation, or structure.

TABLE S-2-66		
KOP 44: Susitna Valley High School (view north)		
KOP: 44		Date: 8/24/15
Visual Resource Inventory Class: III		
Location: Northing 6892335.692, Easting 654053.125		
Distance from proposed activity: about 2.1 miles from Sunshine Railroad Spur and work pad		
Approximate Milepost: 677		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, cleared field	Form: verticals	Form: flat, graded, cleared rectangles
Line: horizontal lines	Line: regular (field), distinct edges	Line: horizontal, vertical
Color: gray, tan	Color: greens	Color: tan, gray
Texture: smooth	Texture: smooth	Texture: even

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 44 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.4.66 KOP 45: Susitna Valley High School (view west)

Affected Visual Environment

KOP 45 (see table S-2-67) is at the Susitna Valley High School looking west. The parking surface is smooth with a screen of deciduous trees. The screen of trees is similar to what is found in the surrounding area. The scenery is modified and dominated by the existing school structures and parking facility.

Project Activities Generating Impacts

KOP 45 is the view looking west from the Susitna Valley High School. The Mainline Pipeline would be about 5.5 miles west of the school and this KOP. Due to the distance, as well as intervening terrain, vegetation, and structures, the Mainline Pipeline would not be visible from this location in the short or long term. There would be no contrast anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 45 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

TABLE S-2-67		
KOP 45: Susitna Valley High School (view west)		
KOP: 45		Date: 8/24/15
Visual Resource Inventory Class: III		
Location: Northing 6892338.042, Easting 654056.248		
Distance from proposed activity: about 5.5 miles from the Mainline Pipeline		
Approximate Milepost: 677		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, graded, rectangular	Form: simple forms created by trees, circles	Form: flat, graded, cleared, rectangles
Line: horizontal lines	Line: verticals from trees are unified	Line: strong horizontals
Color: brown	Color: greens	Color: black, tan, gray
Texture: even	Texture: medium grain, even in both foreground grass and background trees	Texture: smooth

S-2.1.4.67 KOP 2019-1: Iditarod National Historic Trail

Affected Visual Environment

KOP 2019-1 (see table S-2-68) is located on the bank of the Yentna River where the Mainline Pipeline crosses the Iditarod National Historic Trail (INHT). The view is looking south along the Mainline Pipeline route (see figure S-2-18). The Yentna River is a popular route for snow machines, mushers, and the official Iditarod Trail Sled Dog Race in the winter, as well as boats that pass through this area to fish for salmon on the Yentna and Skwentna Rivers or their many tributaries in the summer.

TABLE S-2-68		
KOP 2019-1: Iditarod National Historic Trail		
KOP: 2019-1		
Visual Resource Inventory Class: III		
Location: Northing 6827375.4, Easting 631127.8		
Distance from proposed activity: adjacent to the Mainline Pipeline on the southeast		
Approximate Milepost: 719		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: A		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal foreground and water; jagged, rugged, bold background	Form: rough strips in foreground; sparse background	Form: N/A
Line: horizontal, flowing foreground; jagged, rugged, broken background	Line: soft, irregular foreground; hard, broken, full background	Line: N/A
Color: brown foreground; blue, white, brown background	Color: light to dark green middle ground	Color: N/A
Texture: medium-smooth foreground; rough, non-directional background	Texture: uniform, dense middle ground	Texture: N/A
N/A = Not applicable		

Project Activities Generating Impacts

KOP 2019-1 is immediately adjacent to the Mainline Pipeline crossing of the INHT (i.e., the Yentna River). Due to the close proximity and clearing of vegetation in the right-of-way, Project impacts would be noticeable from the KOP.

Visual Impacts During Construction

There is potential for moderate visual contrast during construction and immediately after construction of the Mainline Pipeline. This contrast would begin to attract attention and dominate the characteristic landscape (see figure S-2-18b). Project equipment, trucks, and personnel during construction in this area would be new and contrasting features. Immediately after construction, the strong lines and contrast between vegetation and soil color created by clearing the right-of-way could draw viewers' attention as they pass by this location in summer. Winter contrast would be weak during high use periods of the trail when snow is present (see figure S-2-18e).

Visual Impacts During Operation

There is potential for moderate visual impacts during operation. Mitigation would greatly reduce the visual contrast in landform compared to the contrast present during construction (see figure S-2-18c). The strong lines would be reduced, and individuals would be less distracted from the view as they pass this location. Due to high use periods of the INHT occurring in the winter when contrast is reduced, visual impacts during operation would be moderate at this KOP.

Mitigation Measures

To reduce visual impacts associated with Project construction and operation, AGDC would implement the Project Revegetation Plan to restore vegetation following construction. Once complete, revegetation would greatly reduce the visual contrast of the Mainline Pipeline right-of-way at this location (see figure S-2-18c).

S-2.1.4.68 KOP 46: Susitna-Rainy Pass Trail

Affected Visual Environment

AGDC did not survey KOP 46 (see table S-2-69), the Susitna-Rainy Pass trail, during the field visits for the Project due to lack of accessibility.

TABLE S-2-69	
KOP 46: Susitna – Rainy Pass Trail	
KOP: 46	
Visual Resource Inventory Class: not determined for this KOP	
Location: Northing 6827375.4, Easting 631127.8	
Distance from proposed activity: about 2.0 miles south of the Mainline Pipeline	
Approximate Milepost: 723	
Ecoregion/Subregion: Cook Inlet-Susitna Lowland	

S-2.1.4.69 KOP 47: Iditarod National Historic Trail

Affected Visual Environment

KOP 47 (see table S-2-70) is located where the Mainline Pipeline crosses the INHT. The view is looking north along the Mainline Pipeline route (see figure S-2-19). This section of the INHT is not accessed by the public during the summer and is only present in the winter, used only by participants and active mushers of an organized event, such as the official Iditarod Trail Sled Dog Race. The general public and participants of the organized race most often use the portion of the trail along the Yentna River about 3 miles to the north (see the description of KOP 2019-1, provided above).

TABLE S-2-70		
KOP 47: Iditarod National Historic Trail		
KOP: 47		
Visual Resource Inventory Class: III		
Location: Northing 6827375.4, Easting 631127.8		
Distance from proposed activity: adjacent to the Mainline Pipeline on the southeast		
Approximate Milepost: 723		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: moderate slope, rolling in the foreground	Form: regular, continuous, dense	Form: N/A
Line: horizontal, rolling, linear	Line: vertical, horizontal	Line: N/A
Color: brown	Color: light to dark green	Color: N/A
Texture: flat, smooth	Texture: complex, smooth	Texture: N/A
N/A = Not applicable		

Project Activities Generating Impacts

KOP 47 is immediately adjacent to the Mainline Pipeline crossing of the INHT. Due to the close proximity and clearing of vegetation in the right-of-way, Project impacts would be noticeable from the KOP.

Visual Impacts During Construction

There is potential for moderate visual contrast during construction and immediately after construction of the Mainline Pipeline (see figure S-2-19b), defined as beginning to attract attention and beginning to dominate the characteristic landscape. The presence of equipment, trucks, and personnel in this area would increase during construction; however, the KOP is located in a remote area with very few users of the trail. Immediately after construction, the strong lines and contrast between vegetation and soil color created by clearing the right-of-way could draw viewers' attention as they pass by this location and create high visual impacts. Winter contrast would be weak during high use periods of the trail (see figure S-2-19e). Therefore, visual impacts would be moderate during construction.

Visual Impacts During Operation

There is potential for moderate visual impacts during operation. Mitigation would greatly reduce the visual contrast in landform (see figure S-2-19c). The strong lines would be reduced compared to the contrast present during construction, and individuals would be less distracted from the view as they pass

this location. Due to high use periods of the INHT occurring in the winter when contrast is reduced, visual impacts during operation would be moderate at this KOP.

Mitigation Measures

To reduce visual impacts associated with Project construction and operation, AGDC would implement the Project Revegetation Plan to restore vegetation following construction. Once complete, revegetation would greatly reduce the visual contrast of the Mainline Pipeline right-of-way at this location (see figure S-2-19c).

S-2.1.4.70 KOP 2018-1: Healy Compressor Station

Affected Visual Environment

KOP 2018-1 (see table S-2-71) is on the Parks Highway north of the town of Healy looking down and toward the river (see figure S-2-20a). The highway is flat and curvilinear at this location. The foreground slopes down toward the river and a broad, flat, middleground, with a gradual slope toward the background. The background is asymmetrical and rolling. Some vegetation is immediately next to the road. The vegetation consists of various deciduous undergrowth and black spruce. The hills and mountain in the background have vegetation covering most slopes. Residents, truck drivers, and tourists primarily experience this view.

Project Activities Generating Impacts

KOP 2018-1 is the view looking northeast onto the proposed site of the Healy Compressor Station. The compressor station would be visible from the roadway.

TABLE S-2-71		
KOP 2018-1: Healy Compressor Station		
KOP: 2018-1		Date: 8/15/2018
Visual Resource Inventory Class: III		
Location: Northing 7094290.55, Easting 395992.92		
Distance from proposed activity: adjacent to Healy Compressor Station		
Approximate Milepost: 517.6		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal foreground; rugged, angular background	Form: numerous, continuous foreground; mottled background	Form: flat
Line: horizontal foreground; horizontal raised background	Line: horizontal strip at foreground; continuous, patchy background	Line: horizontal (road)
Color: gray, tan foreground; light to dark brown background	Color: light green foreground, light to dark green background	Color: gray, black, yellow, white
Texture: smooth foreground, smooth background	Texture: smooth foreground and background	Texture: smooth

Visual Impacts During Construction

Land clearance and grading would introduce some noticeable changes to the landform in color and texture, but the existing landform is flat, creating a weak contrast for landform (see figure S-2-20b). The

removal of vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared workspace. There would be moderate contrast to vegetation, and the materials and equipment used for construction would introduce moderate contrast in structure. Overall, contrast would be moderate during construction. Due to the high use of the Parks Highway, the Project would be visible to a large number of travelers, although the average viewer would see this view for a brief period. For these reasons, visual impacts for KOP 2018-1 would be moderate during construction.

Visual Impacts During Operation

Due to the high use of the Parks Highway, the Project would be visible to a large number of travelers, although the average viewer would see this view for a brief period (see figure S-2-20c). Condensation plumes from the compressor station could also be visible under certain atmospheric conditions (see section S-2.1.1.1) in an area where no such plumes exist. Overall contrast would be moderate to strong, and visual impacts during operation would be moderate.

Mitigation Measures

To reduce the impact of added roadway and aboveground facilities, AGDC would maintain existing vegetation where practicable and would minimize the use of smooth, reflective surfaces and use non-contrasting colors. During construction, AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward and shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting (see figures S-2-20f and g). Additionally, AGDC would develop a site-specific lighting plan for the Healy Compressor Station to ensure that the facility's lighting conforms to International Dark-Sky Association guidelines.

S-2.1.4.71 KOP 2018-2: Ray River Compressor Station

Affected Visual Environment

KOP 2018-2 (see table S-2-72) is along the Parks Highway near highway MP 256.1 (see figure S-2-21a). Topography at this location is mostly flat. Forest vegetation, dominated by birch and conifers, is dense on both sides of the road. A strip of grasses and low brush is directly adjacent to the road. The brown, flat stretch of the Dalton Highway dominates the view to the south. The view to the west is low, rolling hills in the background marked by vertical lines of a conifer-dominated forest. The browns and greens do not contrast with the tans and browns of the road and right-of-way. Residents, truck drivers, and tourists primarily experience the view from KOP 2018-2.

Project Activities Generating Impacts

KOP 2018-2 is the view looking west near Dalton Highway MP 86.0 and is adjacent to the proposed Ray River Compressor Station site. The Compressor Station would be directly visible from this KOP.

Visual Impacts During Construction

Land clearance and grading would introduce some noticeable changes to the landform in color and texture, but the existing landform is flat and contrast for landform would be weak (see figure S-2-21b). The removal of vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared workspace. Contrast for vegetation would be moderate, and the materials and equipment used for construction would introduce moderate contrast in structure. Overall, contrast would be moderate during construction. Due to the high use of the Parks Highway, the Project would be visible to a large number of travelers, although the average viewer would see this view for a brief period. For these reasons, visual impacts for KOP 2018-1 would be moderate during construction.

TABLE S-2-72		
KOP 2018-2: Ray River Compressor Station		
KOP: 2018-2		Date: 08/15/2018
Visual Resource Inventory Class: III		
Location: Northing 7338177.85, Easting 627634.98		
Distance from proposed activity: adjacent to Ray River Compressor Station		
Approximate Milepost: 332.6		
Ecoregion/Subregion: Ray River		
Scenic Quality Classification: B		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground, rolling background	Form: smooth foreground, rough, vertical background	Form: flat, smooth
Line: soft, straight, horizontal foreground, curving background	Line: soft, continuous foreground; vertical, rugged background	Line: regular, soft, horizontal
Color: browns	Color: light to dark green; yellow, orange, brown seasonally	Color: browns
Texture: smooth foreground and background	Texture: smooth, clumped foreground; coarse background	Texture: smooth, uniform

Visual Impacts During Operation

Due to the high use of the Parks Highway, the compressor station would be visible to a large number of travelers, although the average viewer would see this view for a brief period (see figures S-2-21c, S-2-21f, and S-2-21g). Condensation plumes from the compressor station could also be visible under certain atmospheric conditions (see section S-2.1.1.1) in an area where no such plumes exist. Overall, contrast would be moderate to strong and visual impacts during operation would be moderate.

Mitigation Measures

To reduce the impact of added roadway and aboveground facilities, AGDC would minimize the use of smooth, reflective surfaces and use non-contrasting colors in facility design. AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward and shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

S-2.1.4.72 KOPs 2018-3 Through 2018-7: George Parks Highway Crossings 1–5

Affected Visual Environment

The foreground and middleground for KOPs 2018-3, 2018-4, 2018-5, 2018-6, and 2018-7 (see table S-2-73) are generally smooth and gray, with seasonally colorful vegetation along the sides (see figures S-2-22a through S-2-26a). Residents, tourists, truck drivers, and others traveling on the Parks Highway primarily experience these views. The background also includes seasonally colorful vegetation with some jagged structures in the distance. The colors are gray and green, with seasonal yellows and reds from vegetation. There are no existing visible structures in the area.

Project Activities Generating Impacts

The Mainline Facilities would cross the Parks Highway belowground at KOPs 2018-3 through 2018-7. Crossings would occur at oblique angles to the highway. Because the Parks Highway is heavily traveled, the crossings would be visible to a large number of travelers. The absence of public pullout or parking areas near these KOPs (except KOP 2018-3), would make views of each crossing location brief.

TABLE S-2-73		
KOP 2018-3 Through 2018-7: George Parks Highway Crossings 1-5		
KOP: 2018-3 through 2018-7		Date: 08/15/2018
Visual Resource Inventory Class: III		
Location: KOP 2018-3: Northing 362015.37, Easting 362015.37 KOP 2018-4: Northing 347332.13, Easting 6966360.07 KOP 2018-5: Northing 647147.69, Easting 647147.69 KOP 2018-6: Northing 645712.10, Easting 645712.10 KOP 2018-7: Northing 642100.93, Easting 6947595.21		
Distance from proposed activity: KOPs 2018-3 through 2018-7 are at the Mainline Pipeline crossing of the Parks Highway		
Approximate Mainline Pipeline Mileposts: KOP 2018-3: 612.6 (George Parks Highway MP 165.4) KOP 2018-4: 625.1 (George Parks Highway MP 152.8) KOP 2018-5: 630.2 (George Parks Highway MP 147.7) KOP 2018-6: 632.6 (George Parks Highway MP 146.4) KOP 2018-7: 640.5 (George Parks Highway MP 137.6)		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat to gently rolling foreground, mountainous background	Form: trees and grasses—complex, repetitive, regular, continuous soft	Form: road—flat to rolling/curving continuous, straight
Line: horizontal to curving	Line: mottled, vertical and horizontal, linear	Line: horizontal, vertical linear
Color: gray, tan	Color: light to dark green, some yellow, red, and brown	Color: gray, black, yellow, white, brown
Texture: smooth foreground, jagged background	Texture: soft, complex	Texture: smooth

Visual Impacts During Construction

Machinery and equipment would present the greatest contrast during construction. Grading would introduce some noticeable changes to the landform in form, line, color, and texture (see figures S-2-22b through S-2-26b). The removal of vegetation would create rectilinear forms and straight vertical and horizontal lines along the edges of the cleared right-of-way. Overall, contrast would be moderate during construction. Construction would take less than 2 years in this area. As a result, visual impacts for KOPs 2018-3 through 2018-7 would be moderate during construction.

Visual Impacts During Operation

Although some regrowth of vegetation would occur along the edges, new vegetation would take multiple years to become similar in height and density to the existing vegetation (see figures S-2-22c through S-2-26c). Contrast for vegetation would therefore remain strong. Overall, contrast would be moderate, and the duration of views of the cleared right-of-way crossing would be brief for most travelers on the highway. For these reasons, visual impacts for KOPs 2018-3 through 2018-7 would be moderate during operation.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the construction

footprint only, maintain a vegetation screen at the Mainline Pipeline's intersection with the Parks Highway to the extent practicable, and implement the Project Revegetation Plan.

S-2.1.4.73 KOP 2018-8: Denali Park Road

Affected Visual Environment

KOP 2018-8 (see table S-2-74) is in the DNPP at Parks Highway MP 237.3 and is the view from the Parks Highway junction with Denali Park Road, as seen from the multiuse trail adjacent to the Parks Highway (see figure S-2-27a). Residents, tourists, truck drivers, and others traveling on the Parks Highway primarily experience this view. This view faces east and includes Sugar Loaf Mountain, Mt. Fellows, and other distant mountains. The viewshed is mostly vegetated and green in color with some grays from the existing Parks Highway and Park Road crossing. Nearly all DNPP visitors pass this junction during their visit. The location is thus well known but not for its scenery, and most visitors do not linger at this viewpoint. Pedestrian use on the trail typically consists of visitors passing through to other locations within the DNPP.

Project Activities Generating Impacts

AGDC would construct the Mainline Facilities, including the aboveground crossing of the Park Road fault, parallel to and on the east side of the Parks Highway. At its nearest point, the Mainline Facilities would be about 0.1 mile from the KOP; however, the nearest visible segment of the Mainline Facilities would be about 0.3 mile south of the KOP. Right-of-way clearing and related activities, traffic controls, and construction equipment and workers would be visible from KOP 2018-8 during construction.

TABLE S-2-74		
KOP 2018-8: Denali Park Road		
KOP: 2018-8	Date: 08/15/2018	
Visual Resource Inventory Class: not determined for this KOP		
Location: Northing 406876.61, Easting 7068202.92		
Distance from proposed activity: about 0.1 mile from the Mainline Pipeline		
Approximate Milepost: 538.0		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Rating: C	View Importance Rating: 4	Scenic Inventory Value: Low
Landscape Description: Natural; some vegetation and roadways		
Landform/Water	Vegetation	Structure
Form: N/A	Form: trees, shrubs, grasses	Form: mountains, human-made
Line: N/A	Line: vertical	Line: vertical, horizontal
Color: N/A	Color: green, yellow	Color: tan, brown, gray, blue
Texture: N/A	Texture: rough	Texture: smooth, rough
N/A = Not applicable		

Visual Impacts During Construction

The strong lines and contrast between vegetation and soil color created by clearing the right-of-way could draw viewer attention and potentially detract from the natural elements (see figure S-2-27b). The Mainline Facilities would only be partially visible from this location, and only at the southernmost portion of the view. The aboveground crossing of the Park Road fault would not be visible due to topography. Viewers generally do not spend extensive time at this location due to the absence of

interpretive materials or prominent features in the view. As a result, visual impacts during construction would be low at this KOP.

Visual Impacts During Operation

Although some vegetative regrowth would occur along the edges, new vegetation would take multiple years to become similar in height and density to the existing vegetation (see figure S-2-27c). A reduction in vegetation contrast compared to construction would occur. Accordingly, the visual impacts for this KOP would be low during operation.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the construction footprint only and implement the Project Revegetation Plan. Revegetation would be done in consultation with the NPS, following additional guidelines and specifications detailed in the NPS's *Management Policies* (2006c) and *Native Plant Revegetation Manual for Denali National Park and Preserve* (Densmore et al., 2000).

S-2.1.4.74 KOP 2018-9: Government Hill

Affected Visual Environment

KOP 2018-9 (see table S-2-75), within the DNPP, is the view looking out at Government Hill from Sugar Loaf Mountain to the descending slope of Erratic Ridge (see figure S-2-28a). Tourists and workers within the DNPP primarily experience this view. This is a popular location for viewing the historic train trestle over Riley Creek, as well as fall colors on the mountains and in the aspen trees below the park road. The view is familiar among photographers and train enthusiasts, is included in NPS marketing materials, and is informally promoted as a scenic overlook by bus drivers and DNPP staff. Proposed DNPP management actions at this location would further promote it for viewing. These include clearing trees and potentially widening the informal pullout. Most visitors only stop briefly, due in part to the absence of a formal pullout (only a narrow shoulder is available), although photographers wait long periods at this location for the train to cross the trestle.

TABLE S-2-75		
KOP 2018-9: Government Hill		
KOP: 2018-9		Date: 07/18/2018
Visual Resource Inventory Class: not determined for this KOP		
Location: 404386.88 Northing, 7067797.11 Easting		
Distance from proposed activity: about 1.4 miles from the Mainline Pipeline		
Approximate Milepost: 537.2		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Rating: A	View Importance Rating: 3	Scenic Inventory Value: Very High
Landscape Description		
Landform/Water	Vegetation	Structure
Form: creek	Form: trees, shrubs	Form: mountains
Line: horizontal	Line: vertical	Line: horizontal
Color: gray, blue	Color: green, seasonal yellow, brown, red, green	Color: gray, brown
Texture: smooth	Texture: rough, jagged	Texture: rugged, jagged edges

Project Activities Generating Impacts

AGDC would construct the Mainline Facilities, including the aboveground crossing of the Park Road fault, parallel to and on the east side of the Parks Highway. The visible portions of the Mainline Facilities would be about 1.4 miles east of KOP 2018-9. Right-of-way clearing and related activities and equipment would be visible from the KOP during construction.

Visual Impacts During Construction

The strong lines and contrast between vegetation and soil color created by clearing the Mainline Pipeline right-of-way could draw viewers' attention and potentially detract from the natural elements (see figure S-2-28b). The prominent existing features of this view (the bridge and Riley Creek) would remain the focal point, but the Mainline Pipeline right-of-way on the left side of the view would attract attention. The aboveground crossing of the Park Road fault would also be visible and would incrementally contribute to the contrast created by Mainline Pipeline construction. Overall, Project construction would result in low visual contrast and corresponding low visual impacts at this location.

Visual Impacts During Operation

While no formal pullout currently exists, the DNPP management activities described above would likely increase the number of viewers and the length of the typical viewer stay at this location (see figure S-2-28c). Following construction, some vegetative regrowth would occur along the edges of the right-of-way, but new vegetation would take multiple years to become similar in height and density to adjacent, existing vegetation. As a result, contrast for vegetation and soil color would be reduced over time compared to construction. The aboveground crossing of the Park Road fault would also be visible and would incrementally contribute to the contrast created by the Mainline Pipeline right-of-way. Overall, Project operation would result in low visual contrast and low visual impacts at this location.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the construction footprint only and implement the Project Revegetation Plan. Revegetation would be done in consultation with the NPS, following additional guidelines and specifications detailed in the NPS's *Management Policies* (2006c) and *Native Plant Revegetation Manual for Denali National Park and Preserve* (Densmore et al., 2000). AGDC would also consider construction schedule and traffic control planning that would reduce the size of crews.

S-2.1.4.75 KOP 2018-10: Alaska Railroad Above Horseshoe Lake

Affected Visual Environment

KOP 2018-10 (see table S-2-76), which is near Mainline Pipeline MP 536.2 in the DNPP, looks out from the bluff edge just above the railroad tracks above Horseshoe Lake, approximating the "gateway" view of DNPP visitors arriving from the north on the Alaska Railroad (see figure S-2-29a). Alaska Railroad passengers, including DNPP visitors and through passengers, primarily experience this view. In addition to Horseshoe Lake, the view includes entrance area developments, Sugar Loaf Mountain, and Mt. Fellows.

TABLE S-2-76		
KOP 2018-10: Railroad Above Horseshoe Lake		
KOP: 2018-10		Date: 07/18/2018
Visual Resource Inventory Class: not determined for this KOP		
Location: 405527.23 Northing, 7069568.9 Easting		
Distance from proposed activity: about 0.6 mile from the Mainline Pipeline		
Approximate Milepost: 536.2		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Rating: B	View Importance Rating: 4	Scenic Inventory Value: Moderate
Landscape Description		
Landform/Water	Vegetation	Structure
Form: lakes	Form: trees	Form: mountains, human-made features
Line: horizontal	Line: horizontal	Line: horizontal
Color: blue, green, dark gray	Color: green, black	Color: gray, black, red/orange (roofs)
Texture: smooth	Texture: rough, smooth	Texture: jagged

Project Activities Generating Impacts

AGDC would construct the Mainline Facilities parallel to and east of the Parks Highway. At its nearest point, where it crosses through McKinley Village, the Mainline Facilities would be about 0.6 mile from KOP 2018-10.

Visual Impacts During Construction

Vegetation clearing for the creation of the Mainline Pipeline right-of-way would create contrast that would be visible to viewers, even in the presence of contrast from other human-made features within the view (see figures S-2-29b and c). This location is only visible to passengers on the Alaska Railroad. As a result, Project construction would have low visual impacts.

Visual Impacts During Operation

Mitigation measures such as revegetation (where appropriate) would reduce contrast during operation. Cleared vegetation would take several years to regrow, but would result in low visual impacts at this location during Project operation.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the construction footprint only and implement the Project Revegetation Plan. Revegetation would be done in consultation with the NPS, following additional guidelines and specifications detailed in the NPS's *Management Policies* (2006c) and *Native Plant Revegetation Manual for Denali National Park and Preserve* (Densmore et al., 2000). AGDC would also consider construction schedule and traffic control planning that would reduce the size of crews.

S-2.1.4.76 KOP 2018-11: Mt. Healy Overlook Trail Summit

Affected Visual Environment

KOP 2018-11 (see table S-2-77) is the view from the summit of the Mt. Healy Overlook Trail in the DNPP (see figure S-2-30a). Hikers of this trail experience the view. Due to its elevation, the KOP

provides an expansive view from the north end of Sugar Loaf Mountain to the east, south, and southwest to the adjacent peak where the DNPP's radio repeater antenna is installed. Dominating this view are ridgelines, the Nenana River and valley, DNPP structures, and natural landscapes.

TABLE S-2-77		
KOP 2018-11: Mt. Healy Overlook Trail Summit		
KOP: 2018-11	Date: 07/18/2018	
Visual Resource Inventory Class: not determined for this KOP		
Location: 403593.23 Northing, 7069786.56 Easting		
Distance from proposed activity: about 1.7 miles from the Mainline Pipeline		
Approximate Milepost: 536.1		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Rating: B	View Importance Rating: 2	Scenic Inventory Value: Very High
Landscape Description		
Landform/Water	Vegetation	Structure
Form: river	Form: trees	Form: mountains
Line: horizontal	Line: horizontal	Line: horizontal
Color: blue, gray	Color: green	Color: gray, brown
Texture: smooth	Texture: smooth	Texture: jagged, peaks

Project Activities Generating Impacts

AGDC would construct the Mainline Facilities, including the aboveground crossing of the Park Road fault, parallel to and east of the Parks Highway. At its nearest point, where it crosses through McKinley Village, the Mainline Facilities would be about 1.7 miles from KOP 2018-11.

Visual Impacts During Construction

The Mainline Pipeline right-of-way would be visible throughout the view from the high vantage point of this KOP, and would extend essentially in line with the view (see figure S-2-30b). The strong lines and contrast between vegetation and soil color created by clearing the right-of-way could draw viewers' attention and potentially detract from the natural elements. The aboveground crossing of the Park Road fault would also be visible and would incrementally contribute to the contrast created by Mainline Pipeline construction. Overall, Project construction would have a moderate visual impact.

Visual Impacts During Operation

While new vegetation would reduce the strength of the Project's linear forms, the new vegetation would take multiple years to become similar in height and density to the adjacent, existing vegetation (see figure S-2-30c). As a result, the permanent right-of-way would continue to introduce contrast for vegetation, although less than during construction. The aboveground crossing of the Park Road fault would also be visible and would incrementally contribute to the contrast created by the Mainline Pipeline right-of-way. Therefore, Project operation would have low visual impacts at this location.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the construction footprint and implement the Project Revegetation Plan. Revegetation would be done in consultation with the NPS, following additional guidelines and specifications detailed in the NPS's *Management Policies* (2006c) and *Native Plant Revegetation Manual for Denali National Park and Preserve* (Densmore

et al., 2000). Even with these mitigation efforts, a clear view of the right-of-way would still exist, especially during winter (see figure S-2-30e), because the new vegetation would be shorter than the surrounding areas. AGDC would also consider construction schedule and traffic control planning that would reduce the size of crews.

S-2.1.4.77 KOP 2018-12: Triple Lakes Trail

Affected Visual Environment

KOP 2018-12 (see table S-2-78) provides a view from the Triple Lakes Trail in the DNPP, approximately 0.4 mile from the southern trailhead (see figure S-2-31a). Residents, tourists, truck drivers, and others traveling on the Parks Highway primarily experience this view. The view includes Mt. Fellows, Sugar Loaf Mountain, and the Nenana River below. Hikers pause briefly where the vegetation opens naturally. Ridgelines, peaks, cut banks, bluffs, and the river add interest to the view. The trail is well publicized in park publications with some commercial guided hiking. Less than one-third of DNPP visitors hike to this viewpoint.

TABLE S-2-78		
KOP 2018-12: Triple Lakes Trail		
KOP: 2018-12	Date: 07/18/2018	
Visual Resource Inventory Class: not determined for this KOP		
Location: 406563.67 Northing, 7059727.01 Easting		
Distance from proposed activity: about 2.9 miles from the Mainline Pipeline		
Approximate Milepost: 543.4		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Rating: B	View Importance Rating: 3	Scenic Inventory Value: High
Landscape Description		
Landform/Water	Vegetation	Structure
Form: river	Form: trees, bushed	Form: mountains, peaks, bluffs
Line: flat	Line: vertical	Line: horizontal
Color: blue, white	Color: light and dark greens, seasonal colors	Color: gray, brown, black
Texture: rough, some rapids	Texture:	Texture: rough, jagged

Project Activities Generating Impacts

AGDC would construct the Mainline Facilities parallel to and east of the Parks Highway. At its nearest point, the Mainline Facilities would be about 2.9 miles from KOP 2018-12.

Visual Impacts During Construction and Operation

The Mainline Pipeline would not be visible from this location; therefore, Project construction and operation would have no visual contrast and no visual impact from this location (see figure S-2-31b).

Mitigation Measures

No mitigation measures are proposed for this KOP.

S-2.1.4.78 KOP 2018-13: Nenana River Pedestrian Bridge

Affected Visual Environment

KOP 2018-13 (see table S-2-79) is the view looking northwest, north, east, and south from the trail leading to the Nenana River pedestrian bridge north of the DNPP entrance (see figure S-2-32a). Residents, tourists, truck drivers, and others traveling on the Parks Highway primarily experience this view. The view includes Healy Ridge; the Nenana River; surrounding hills, hotels, and businesses in McKinley Village; and the Parks Highway vehicle bridge over the Nenana River. Mountains, the river, and some human-made features add interest to the view. All DNPP visitors from the north pass through this area by foot, bicycle, or vehicle; some stop for the view from the bridge or nearby benches.

TABLE S-2-79		
KOP 2018-13: Nenana River Pedestrian Bridge		
KOP: 2018-13	Date: 07/18/2018	
Visual Resource Inventory Class: Not determined for this KOP		
Location: 406870.73 Northing, 7069022.43 Easting		
Distance from proposed activity: about 0.0 miles from the Mainline Pipeline		
Approximate Milepost: 537.2		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Rating: C	View Importance Rating: 4	Scenic Inventory Value: Low
Landscape Description		
Landform/Water	Vegetation	Structure
Form: river	Form: trees, shrubs	Form: mountains, human-made structures
Line: vertical	Line: horizontal, vertical	Line: vertical
Color: blue, white	Color: green	Color: gray, silver, brown
Texture: smooth	Texture: jagged, rough	Texture: rough peaks, uneven

Project Activities Generating Impacts

AGDC would construct the Mainline Pipeline underneath the pedestrian bridge and adjacent to the pedestrian path on both sides of the Nenana River. The removal of trees and vegetation to construct the right-of-way and relocate or redesign the multi-use trail would affect the view at this location. Right-of-way clearing and related activities, traffic controls, and construction equipment and workers would be visible from KOP 2018-13 during construction.

Visual Impacts During Construction

This KOP is located inside the Project right-of-way (see figure S-2-32b). As a result, Project construction would have high contrast and high visual impacts at this KOP.

Visual Impacts During Operation

Contrast during operation would be high due to modification of the multi-use trail and maintenance of right-of-way vegetation. Mitigation measures would reduce visual contrast due to revegetation and restore the multi-use trail (see figure S-2-32c). Project operation would therefore have moderate visual impacts at this KOP.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the construction footprint and implement the Project Revegetation Plan. AGDC would also consider construction schedule and traffic control planning that would reduce the size of crews.

S-2.1.4.79 KOP 2018-14: South of Parks Highway MP 236

Affected Visual Environment

KOP 2018-14 (see table S-2-80) is the view from the Parks Highway in the DNPP south of MP 236 where the railroad tracks are very close to the highway (see figure S-2-33a). Residents, tourists, truck drivers, and others traveling on the Parks Highway primarily experience this view. The view includes Mt. Healy, Sugar Loaf Mountain, Mount Fellows, Pyramid Mountain, and distant peaks, as well as the tree line, ridgelines, and escarpments. Park visitors pass this location on the Parks Highway or the railroad.

TABLE S-2-80		
KOP 2018-14: South of Parks Highway – MP 236		
KOP: 2018-14	Date: 07/18/2018	
Visual Resource Inventory Class: not determined for this KOP		
Location: 406751.05 Northing, 7066071.84 Easting		
Distance from proposed activity: about 0.0 miles from the Mainline Pipeline		
Approximate Milepost: 538.8		
Ecoregion/Subregion: Alaska Range		
Scenic Quality Rating: B	View Importance Rating: 4	Scenic Inventory Value: Moderate
Landscape Description		
Landform/Water	Vegetation	Structure
Form: river	Form: trees, shrubs	Form: mountains, peaks
Line: horizontal	Line: vertical	Line: horizontal
Color: white	Color: light and dark green	Color: gray, black
Texture: smooth	Texture: jagged	Texture: rough, jagged

Project Activities Generating Impacts

AGDC would construct the Mainline Facilities parallel to and east of the Parks Highway, immediately adjacent to KOP 2018-14.

Visual Impacts During Construction

The strong lines and contrast between vegetation and soil color created by clearing the right-of-way could draw viewers' attention at this KOP and potentially detract from the natural elements (see figure S-2-33b). Accordingly, Project construction would introduce moderate visual contrast. Viewers do not spend a lot of time at this location and there are no prominent features in the view. Therefore, Project construction would have moderate visual impacts at this KOP.

Visual Impacts During Operation

New vegetation would reduce the strength of the Project's linear forms over time (see figure S-2-33c). Contrast during operation would be reduced by mitigation measures, but the cleared right-

of-way would still be visible. Accordingly, Project operation would have moderate visual impacts at this KOP.

Mitigation Measures

To minimize long-term or permanent visual impacts associated with right-of-way clearing and temporary impacts during the construction phase, AGDC would limit vegetation clearing to the construction footprint only and implement the Project Revegetation Plan. Revegetation would be done in consultation with the NPS, following additional guidelines and specifications detailed in the NPS's *Management Policies* (2006c) and *Native Plant Revegetation Manual for Denali National Park and Preserve* (Densmore et al., 2000). AGDC would also consider construction schedule and traffic control planning that would reduce the size of crews.

S-2.1.5 LIQUEFACTION FACILITIES

S-2.1.5.1 KOP 48: Trading Bay Beach

Affected Visual Environment

KOP 48 (see table S-2-81) is at Trading Bay Beach within the Trading Bay Scenic Game Refuge. This KOP was not surveyed during the field visits for this report due to lack of accessibility.

TABLE S-2-81	
KOP 48: Trading Bay Beach	
KOP: 48	
Visual Resource Inventory Class: not determined for this KOP	
Location: Northing 6715961.8, Easting 594383.7	
Distance from proposed activity: about 13.6 miles from the Liquefaction Facility (across Cook Inlet)	
Approximate Milepost: N/A	
Ecoregion/Subregion: Cook Inlet-Susitna Lowland	
N/A = Not applicable	

S-2.1.5.2 KOP 49: Nikiski North Star Elementary School (view north)

Affected Visual Environment

KOP 49 (see table S-2-82) is in front of Nikiski North Star Elementary looking north on Emerald Street (the school is on Holt Lamplight Road, which is perpendicular to Emerald Street). Residents of Nikiski and employees and students at the school primarily see this view. The landform is flat, horizontal, and smooth, with medium-coarse to smooth texture. The vegetation is primarily light green. Structures include street signs, transmission poles, transmission lines, and roads. Emerald Street is a dirt road and Holt Lamplight Road is paved.

Project Activities Generating Impacts

KOP 49 is the view looking north from the Nikiski North Star Elementary School (i.e., not toward the Liquefaction Facilities). AGDC would construct the Mainline Pipeline about 5.5 miles northwest of the school, while the Liquefaction Facilities would be about 1.5 miles west of the school. Due to the distance and generally flat terrain with tall, dense vegetation, the Mainline Pipeline and Liquefaction

Facilities would not be visible from this location in the short or long term. There would be no contrast anticipated for landform, water, vegetation, or structure for the Mainline Pipeline or Liquefaction Facilities.

TABLE S-2-82		
KOP 49: Nikiski North Star Elementary School (view north)		
KOP: 49	Date: 9/1/15	
Visual Resource Inventory Class: IV		
Location: Northing 6726247.646, Easting 593353.842		
Distance from proposed activity: about 5.5 miles from the Mainline Pipeline; about 1.5 miles from the Liquefaction Facility		
Approximate Milepost: N/A		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C	Overall Sensitivity Rating: M	
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, smooth	Form: regular, solid, vertical	Form: horizontal, vertical, linear, geometric, angular
Line: horizontal, straight, continuous	Line: parallel, vertical	Line: horizontal, straight
Color: brown, gray	Color: light green; yellow, pink seasonal	Color: gray, silver, brown
Texture: medium-coarse to smooth	Texture: soft, glossy	Texture: medium-rough, coarse
N/A = Not applicable		

Visual Impacts During Construction and Operation

Because the Mainline Pipeline and Liquefaction Facilities would not be visible from this location, it would not produce any noticeable contrast and would therefore have no visual impacts on KOP 49 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.5.3 KOP 50: Nikiski North Star Elementary School (view west)

Affected Visual Environment

KOP 50 (see table S-2-83) is in front of Nikiski North Star Elementary School looking west along Holt Lamplight Road. Nikiski residents and the local region and employees and students at the school primarily see this view. The landform is flat, horizontal, and smooth. Rugged mountains are visible in the far background through the gap in the trees created by the road to the west. Vegetation is regular and continuous, consisting primarily of parallel verticals and light green color. Structures include the road, transmission lines, and light poles.

Project Activities Generating Impacts

KOP 50 is the view looking west from the Nikiski North Star Elementary School. AGDC would construct the Mainline Pipeline and liquefied natural gas (LNG) Plant about 1.5 miles west of the school. Due to the distance, generally flat terrain, and intervening tall dense vegetation, the LNG Plant would not be directly visible from this location and there would be no contrast anticipated for landform, water, vegetation, or structures during construction or operation.

AGDC did not evaluate the potential size and frequency of visible condensation plumes from the Liquefaction Facilities. As discussed in section S-2.1.1.1, AGDC concluded, based on a study of plumes associated with compressor stations and heater stations, that condensation plumes would be visible during 2 to 26 percent of daylight hours, with a maximum plume height of 130 to 430 feet (41 to 132 meters) and a maximum plume length of 130 to 1,540 feet (39 to 470 meters).⁴ Based on this information, we conclude that condensation plumes from the Liquefaction Facility would potentially be visible from KOP 50.

TABLE S-2-83		
KOP 50: Nikiski North Star Elementary School (view west)		
KOP: 50		Date: 9/1/15
Visual Resource Inventory Class: III		
Location: Northing 6726252.083, Easting 593302.636		
Distance from proposed activity: about 1.5 miles west of the Liquefaction Facility		
Approximate Milepost: N/A		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal; rugged far background	Form: strip, regular	Form: vertical (transmission, light pole), horizontal
Line: horizontal, smooth; rugged/jagged far background	Line: continuous, parallel, verticals	Line: horizontal, vertical, straight
Color: brown/tan, gray	Color: light green mostly, come dark green; yellow and pink seasonally	Color: brown, gray
Texture: smooth to medium	Texture: smooth to medium-rough	Texture: smooth, medium-rough
N/A = Not applicable		

Visual Impacts During Construction

Although the LNG Plant would not be directly visible from this KOP, the facility's construction would introduce substantial new sources of artificial nighttime lighting at the facility. Due to the distance and intervening tall vegetation, the light sources would not be directly visible from the vicinity of this KOP, but it is likely that the lighting would be visible at night reflecting off low clouds and trees and glowing in the atmosphere. Although there are existing sources of artificial nighttime light from industrial, commercial, and residential development in the area, reflected light and atmospheric glow from the Project would add appreciably to the existing night sky lighting in views from this area. Impacts on night sky due to construction lighting would occur for about 6.75 years (the construction period for the Liquefaction Facilities). For these reasons, the LNG Plant visual impact on views from KOP 50 and the surrounding area during construction would be moderate.

Visual Impacts During Operation

Although the LNG Plant would not be directly visible from this KOP, operation of the facility would introduce substantial new sources of artificial nighttime lighting at the facility. Due to the distance and intervening tall vegetation, the light sources would not be directly visible from the vicinity of this KOP, but it is likely that the lighting would be visible at night reflecting off low clouds and trees and glowing in

⁴ Information can be found in AGDC's "Project Note: Analysis of Visible Condensation Plumes from Compressor and Heater Stations" (Accession No. 20170616-5204) on FERC's website at <http://www.ferc.gov>. Using the "eLibrary" link, select "Advanced Search" from the eLibrary menu and enter the 20170616-5204 in the "Numbers: Accession Number" field.

the atmosphere. Although there are existing sources of artificial nighttime light from industrial, commercial, and residential development in the area, the Project's reflected light and atmospheric glow would add appreciably to the amount of existing night sky lighting in views from this area. Impacts of the night sky lighting would occur throughout facility operation.

Based on the visibility of nighttime lighting and daytime plumes, the visual impact of the LNG Plant for views from KOP 50 and surrounding area during operation would be moderate.

Mitigation Measures

To reduce the impact of added artificial lighting and minimize impacts on sensitive viewers in and around Nikiski, AGDC would use the minimum amount of lighting required for safety and security for nighttime activities during LNG Plant construction and operation. AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward and shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

S-2.1.5.4 KOP 51: Escape Route Road

Affected Visual Environment

KOP 51 (see table S-2-84) is at the corners of Escape Route Road and Holt Lamplight Road, looking west along Holt Lamplight Road. This location is the closest viewpoint from the Kenai NWR to the LNG Plant. Residents, visitors to the Nikiski area and the local region, and visitors to the Kenai NWR would primarily experience this view. The landform is flat, horizontal, slightly curving/sloping, and smooth to medium in texture. The vegetation is in a continuous, regular strip consisting of parallel verticals and primarily light greens. Vegetation is smooth to medium-rough. The road curves to the right and the vegetation almost immediately obscures it.

Project Activities Generating Impacts

KOP 51 is the view looking west from near the the Kenai NWR. The LNG Plant would be about 3.8 miles west. Due to the distance, generally flat terrain, and intervening tall dense vegetation, the LNG Plant would not be directly visible from this location and there would be no contrast anticipated for landform, water, vegetation, or structures during construction or operation.

Visual Impacts During Construction

Although the LNG Plant would not be directly visible from this KOP, construction of the facility would introduce substantial new sources of artificial nighttime lighting. Due to the distance and intervening tall vegetation, the light sources would not be directly visible from the vicinity of this KOP, but it is likely that the lighting would be visible at night reflecting off low clouds and trees and glowing in the atmosphere. Although there are existing sources of artificial nighttime light from industrial, commercial, and residential development in the area, reflected light and atmospheric glow from the Project would add appreciably to the existing night sky lighting in views from this area. Impacts on night sky due to construction lighting would occur for about 6.75 years (the construction period for the Liquefaction Facilities). For these reasons, the LNG Plant visual impact on views from KOP 51 and the surrounding area during construction would be moderate.

TABLE S-2-84		
KOP 51: Escape Route Road		
KOP: 51		Date: 9/1/15
Visual Resource Inventory Class: III		
Location: Northing 6726409.927, Easting 595803.93		
Distance from proposed activity: about 3.8 miles from the Liquefaction Facility		
Approximate Milepost: N/A		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal, slight slope	Form: strip, regular	Form: vertical (transmission poles), horizontal (road and lines)
Line: curving, horizontal, smooth	Line: continuous, parallel verticals	Line: horizontal, curving, vertical, straight
Color: brown, tan, gray	Color: mostly light green; dark green, seasonal pinks and yellows	Color: brown, gray
Texture: smooth to medium	Texture: smooth to medium-rough	Texture: smooth, medium-rough (poles)
N/A = Not applicable		

Visual Impacts During Operation

Although the LNG Plant would not be directly visible from this KOP, operation of the facility would introduce substantial new sources of artificial nighttime lighting. Due to the distance and intervening tall vegetation, the light sources would not be directly visible from the vicinity of this KOP, but it is likely that the lighting would be visible at night reflecting off low clouds and trees and glowing in the atmosphere. Although there are existing sources of artificial nighttime light from industrial, commercial, and residential development in the area, reflected light and atmospheric glow from the Project would add appreciably to the existing night sky lighting in views from this area. Impacts of the night sky lighting would occur throughout facility operation. For these reasons, the LNG Plant visual impact on views from KOP 51 and the surrounding area during operation would be moderate.

Mitigation Measures

To reduce the impact of added artificial lighting and minimize impacts on sensitive viewers in and around Nikiski and visitors to the Kenai NWR, AGDC would use the minimum amount of lighting required for safety and security for nighttime activities during LNG Plant construction and operation. AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward and shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

S-2.1.5.5 KOP 52: Kaleidoscope Charter School

Affected Visual Environment

The view from KOP 52 (see table S-2-85) faces northwest at Kaleidoscope Charter School. Residents, visitors to Kenai and the local region, and employees and students at the school would primarily see this view. The flat, dark gray asphalt and geometric structures of the school dominate the view. A dense stand of vegetation (green conifers and birches) surrounds the north and west sides of the school.

Project Activities Generating Impacts

KOP 52 is the view looking northwest from the Kaleidoscope Charter School. LNG Plant about 6.1 miles northwest of the school in the background distance zone. Due to the distance and intervening terrain, buildings, and tall vegetation, the LNG Plant would not be directly visible from this location and there would be no contrast anticipated for landform, water, vegetation, or structures during construction or operation.

TABLE S-2-85		
KOP 52: Kaleidoscope Charter School		
KOP: 52	Date: 9/1/15	
Visual Resource Inventory Class: III		
Location: Northing 6715963.431, Easting 594382.513		
Distance from proposed activity: about 6.1 miles from the Liquefaction Facility		
Approximate Milepost: N/A		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat, horizontal	Form: solid, regular, vertical	Form: flat, horizontal, vertical, geometric
Line: horizontal, regular	Line: vertical, broken, non-linear	Line: geometric, curving, vertical, horizontal
Color: brown, tan	Color: light to dark green, seasonal yellow	Color: black, gray, tan, brown
Texture: smooth	Texture: medium	Texture: smooth to rough
N/A = Not applicable		

Visual Impacts During Construction

Although the LNG Plant would not be directly visible from this KOP, the facility's construction would introduce substantial new sources of artificial nighttime lighting. It is likely that the lighting would be visible at night reflecting off low clouds and trees and glowing in the atmosphere. Although there are existing sources of artificial nighttime light from industrial, commercial, and residential development in the area, reflected light and atmospheric glow from the Project would add to the existing night sky lighting in background views from this area. Impacts on night sky due to construction lighting would occur for about 6.75 years (the construction period for the Liquefaction Facilities). For these reasons, the LNG Plant visual impact on views from KOP 52 and the surrounding area during construction would be moderate.

Visual Impacts During Operation

Although the LNG Plant would not be directly visible from this KOP, facility operation would introduce substantial new sources of artificial nighttime lighting at the facility. The lighting would likely be visible at night reflecting off low clouds and trees and glowing in the atmosphere. Although there are existing sources of artificial nighttime light from industrial, commercial, and residential development in the area, reflected light and atmospheric glow from the Project would add somewhat to the existing night sky lighting in background views from this area. Impacts of the night sky lighting would occur throughout facility operation. For these reasons, the LNG Plant visual impact on views from KOP 52 and the surrounding area during operation would be moderate.

Mitigation Measures

To reduce the impact of added artificial lighting and minimize impacts on sensitive viewers in and around Nikiski, AGDC would use the minimum amount of lighting required for safety and security for nighttime activities during LNG Plant construction and operation. AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward and shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

S-2.1.5.6 KOP 53: Pillars Boat Launch

Affected Visual Environment

KOP 53 (see table S-2-86) is at the Pillars Boat Launch on the Kenai River, just north of Soldotna. The KOP looks northwest down the river. The foreground is flat and regular, tan, and of medium texture. It has solid, continuous trees that create horizontal and vertical lines. The Kenai River, which flows through the foreground, is flat, linear, glossy, and quick flowing. A few low boat docks are visible along the shoreline. The background features distant, jagged, snowy mountains.

TABLE S-2-86		
KOP 53: Pillars Boat Launch		
KOP: 53		Date: 9/1/15
Visual Resource Inventory Class: I		
Location: Northing 6712388.883, Easting 604329.343		
Distance from proposed activity: about 10.0 miles from the Liquefaction Facility		
Approximate Milepost: N/A		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: A		Overall Sensitivity Rating: H
Landscape Description		
Landform/Water	Vegetation	Structure
Form: flat foreground; jagged background; linear, flat water	Form: solid, rough, strip	Form: vertical, horizontal, diagonal; few, low (docks)
Line: regular, continuous, horizontal foreground; jagged, angular background; flowing, smooth water	Line: continuous, horizontal, vertical	Line: geometric, horizontal, vertical, diagonal
Color: tan, gray, white (snow), milky green/blue (water)	Color: light to dark green; brown, yellow seasonally	Color: gray, brown
Texture: medium foreground, smooth background, glossy water	Texture: medium to rough	Texture: smooth to medium
N/A = Not applicable		

Project Activities Generating Impacts

KOP 53 is the view from the Pillars Boat Launch on the Kenai River in a portion of the Kenai River Special Management Area just north of Soldotna. The proposed LNG Plant would be about 10.0 miles northwest of the Pillars Boat Launch in the background distance zone. Due to the distance and intervening terrain and vegetation, the LNG Plant would not be visible from this location in the short or long term. There would be no contrast anticipated for landform, water, vegetation, or structure.

Visual Impacts During Construction and Operation

Because the Project would not be visible from this location, it would not produce any noticeable contrast. In addition, at a distance of about 10.0 miles, it is unlikely that indirect artificial lighting emitted

by the facility and reflected off low clouds or the atmosphere would be noticeable given other light sources between the LNG Plant and this KOP. For these reasons, the Project would have no visual impacts on KOP 53 during construction or operation.

Mitigation Measures

AGDC has not proposed any mitigation for this KOP.

S-2.1.5.7 KOP 54: Mt. Redoubt Church

Affected Visual Environment

KOP 54 (see table S-2-87) is at the corner of Kenai Spur Highway and Lovers Loop in Nikiski in front of the Mt. Redoubt Baptist Church, looking north toward proposed structures in the adjacent lot. Residents of Nikiski and other local communities, as well as employees of the existing facilities, experience this view. The landform is horizontal, regular, brown, and medium-coarse. Vegetation is smooth, solid, and continuous; primarily light green; and dense. Structures present in the viewshed include the dirt road Lovers Lane and transmission poles/lines.

TABLE S-2-87		
KOP 54: Mt. Redoubt Church		
KOP: 54		Date: 9/2/15
Visual Resource Inventory Class: IV		
Location: Northing 6725062.299, Easting 589792.132		
Distance from proposed activity: 0.1 mile from the Liquefaction Facility		
Approximate Milepost: N/A		
Ecoregion/Subregion: Cook Inlet-Susitna Lowland		
Scenic Quality Classification: C		Overall Sensitivity Rating: M
Landscape Description		
Landform/Water	Vegetation	Structure
Form: horizontal, flat, regular	Form: smooth, solid	Form: vertical (transmission poles), horizontal, flat (road)
Line: horizontal, regular	Line: continuous, regular, vertical	Line: horizontal, vertical
Color: brown, tan	Color: light green, gray, some dark green, seasonal yellow	Color: brown, tan, gray
Texture: medium-coarse	Texture: dense, smooth	Texture: smooth, medium-rough (transmission poles)
N/A = Not applicable		

Project Activities Generating Impacts

KOP 54 is the view looking north from the current location of the Mt. Redoubt Baptist Church. The proposed LNG Plant would be about 0.1 mile north of this location. Due to the generally flat terrain and intervening tall dense vegetation, the LNG Plant would not be directly visible from this location and there would be no contrast anticipated for landform, water, vegetation, or structures during construction or operation.

Visual Impacts During Construction

Although the LNG Plant would not be directly visible from this KOP, facility construction would introduce substantial new sources of artificial nighttime lighting. Due to the intervening tall vegetation, the light sources would not be directly visible from the vicinity of this KOP, but the lighting would be visible

at night reflecting off low clouds and trees and glowing in the atmosphere. Although there are existing sources of nighttime light from industrial, commercial, and residential development in the area, reflected light and atmospheric glow from the Project would add appreciably to the existing night sky lighting in views from this area. Impacts on night sky due to construction lighting would occur for about 6.75 years (the construction period for the Liquefaction Facilities). For these reasons, the LNG Plant visual impact on views from KOP 54 and the surrounding area during construction would be moderate.

Visual Impacts During Operation

Although the LNG Plant would not be directly visible from this KOP, facility operation would introduce substantial new sources of artificial nighttime lighting. Due to the intervening tall vegetation, the light sources would not be directly visible from the vicinity of this KOP, but the lighting would be visible at night reflecting off low clouds and trees and glowing in the atmosphere. Although there are existing sources of artificial nighttime light from industrial, commercial, and residential development in the area, reflected light and atmospheric glow from the Project would add appreciably to the existing night sky lighting in views from this KOP. Impacts of the night sky lighting would occur throughout facility operation. Based on the distance from the Liquefaction Facilities, condensation plumes from the Liquefaction Facilities would be visible from this KOP and could occasionally dominate the viewshed. For these reasons, the LNG Plant visual impact on views from KOP 54 and the surrounding area during operation would be moderate.

Mitigation Measures

To reduce the impact of added artificial lighting and minimize impacts on sensitive viewers from KOP 54 and the surrounding area, AGDC would use the minimum amount of lighting required for safety and security for nighttime activities during LNG Plant construction and operation. AGDC would use the minimum lighting required for safety and security for nighttime, orient all permanent lighting downward and shield it to eliminate off-site light spill, and use timers or motion-activated sensors for all lighting.

APPENDIX S-2b

Existing Conditions and Visual Simulation Imagery for Key Observation Points

APPENDIX S-2b: Existing Conditions and Visual Simulation Imagery for Key Observation Points

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Figure S-2-1: KOP 1: Colleen Lake

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-2: KOP 2: Dalton Highway Wayside

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-3: KOP 3: Galbraith Lake Campground (view north)

a. Existing Conditions



b. During Construction



c. After Construction



d. Existing Winter Conditions



e. Winter Conditions During Construction



f. Winter Conditions After Constructions



Figure S-2-4: KOP 7: Atigun Pass Pullout

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Winter Existing Conditions



e. Winter Conditions After Construction



Figure S-2-5: KOP 9: Marion Creek Campground

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-6: KOP A: Coldfoot Camp

a. Existing Conditions



b. During Construction



c. After Construction



d. Existing Winter Conditions



e. Winter Conditions During Construction



f. Winter Conditions After Construction



Figure S-2-7: KOP F: 86 Mile Overlook

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-8: KOP 14: Five Mile Camp

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-9: KOP 26: Otto Lake

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-10: KOP J: Denali RV Park and Motel

a. Existing Conditions



b. During Construction



c. After Construction



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-11: KOP 28: Nenana River Bridge

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction

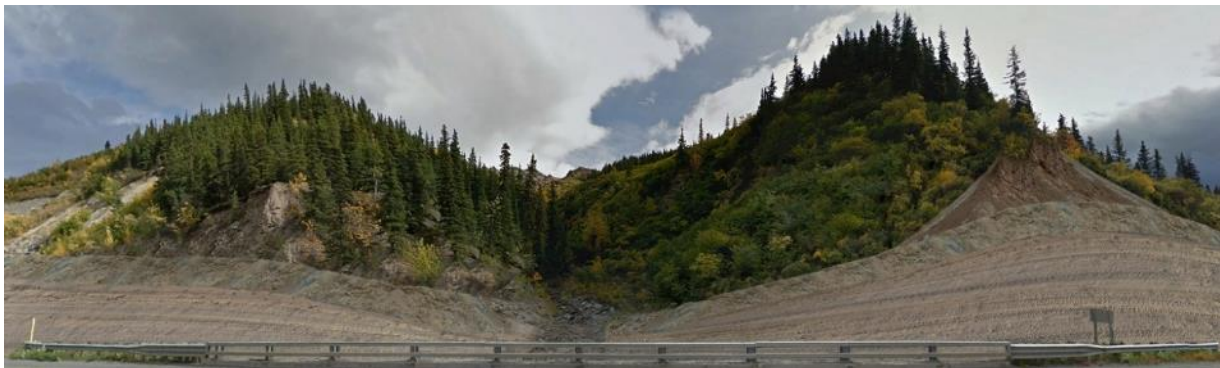


Figure S-2-12: KOP 29: Fox Creek Crossing

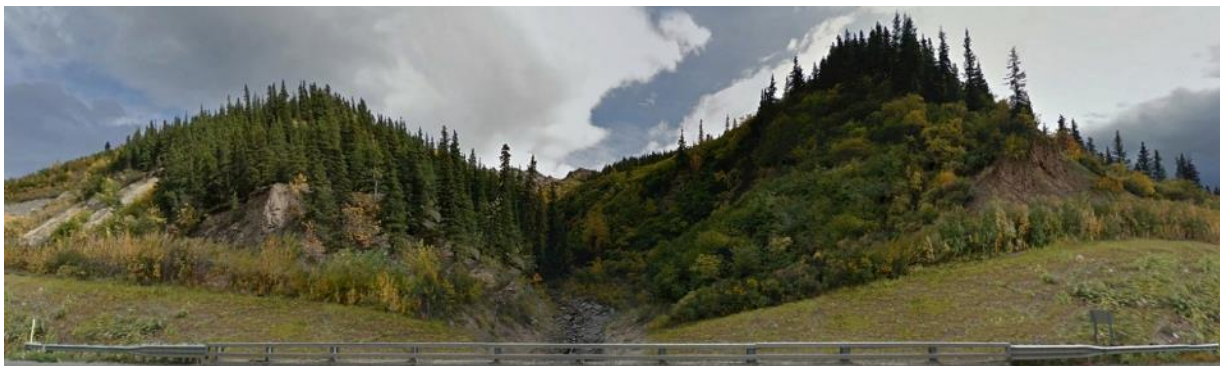
a. Existing Conditions



b. After Construction



c. After Reclamation



d. Winter Existing Conditions



e. Winter Conditions After Construction



Figure S-2-13: KOP K: McKinley Chalet Resort

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-14: KOP 31: George Parks Highway-Carlo Creek

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-15: KOP P: Lower Troublesome Creek Trailhead

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-16: KOP 40: George Parks Highway-MP 131

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-17: KOP U: George Parks Highway-MP 121.7

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Winter Existing Conditions



e. Winter Conditions After Construction



Figure S-2-18: KOP 2019-1: Iditarod National Historic trail

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Winter Existing Conditions



e. Winter Conditions After Construction



Figure S-2-19: KOP 47: Iditarod National Historic Trail

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Winter Existing Conditions



e. Winter Conditions After Construction



Figure S-2-20: KOP 2018-1: Healey Compressor Station

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Winter Existing Conditions



e. Winter Conditions After Construction



f. Night Conditions After Construction, Winter



g. Night Conditions After Construction, Summer



Figure S-2-21: KOP 2018-2: Ray River Compressor Station

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



f. Night Conditions After Construction, Winter



g. Night Conditions After Construction, Summer



Figure S-2-22: KOP 2018-3: George Parks Highway Crossing 1

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-23: KOP 2018-4: George Parks Highway Crossing 2

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-24: KOP 2018-5: George Parks Highway Crossing 3

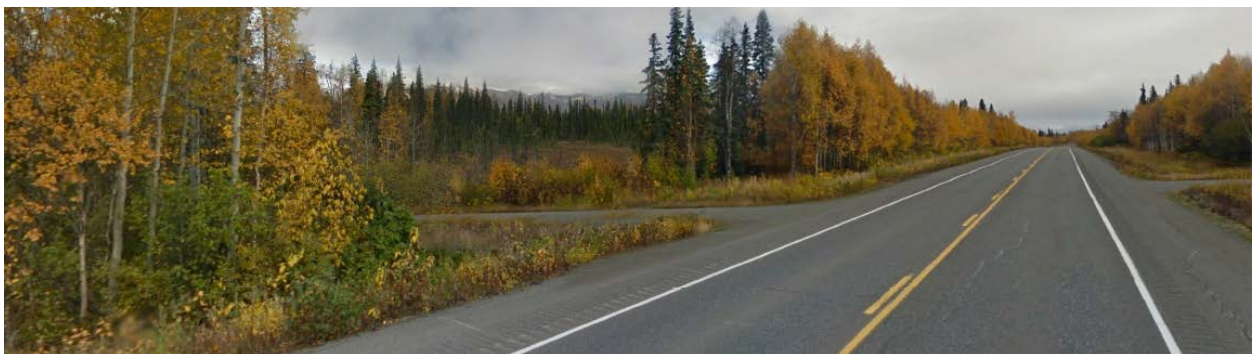
a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-25: KOP 2018-6: George Parks Highway Crossing 4

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-26: KOP 2018-7: George Parks Highway Crossing 5

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-27: KOP 2018-8 Denali Park Road

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions after Construction



Figure S-2-28: KOP 2018-9: Government Hill

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction

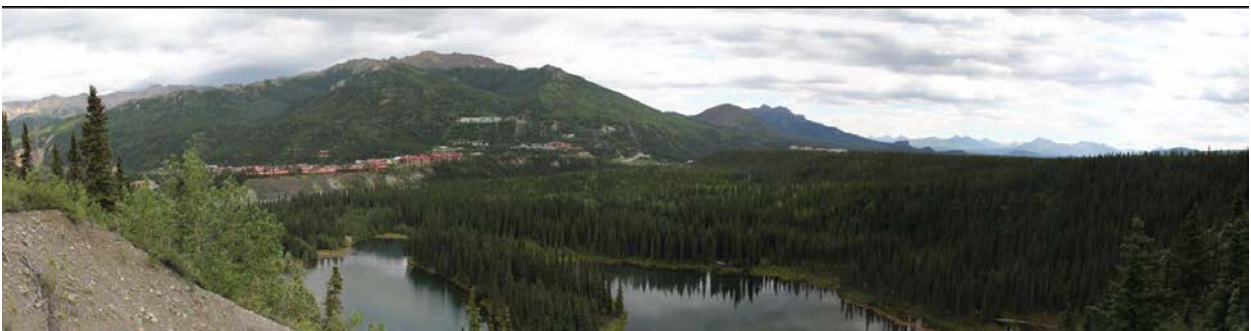


Figure S-2-29: KOP 2018-10: Alaska Railroad above Horseshoe Lake

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-30: KOP 2018-11: Mt. Healy Overlook Trail Summit

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



a. Winter Conditions After Construction



Figure S-2-31: KOP 2018-12: Triple Lakes Trail

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-32: KOP 2018-13: Nenana River Pedestrian Bridge

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



Figure S-2-33: KOP 2018-14: South of Parks Highway MP 236

a. Existing Conditions



b. After Construction



c. After Reclamation



d. Existing Winter Conditions



e. Winter Conditions After Construction



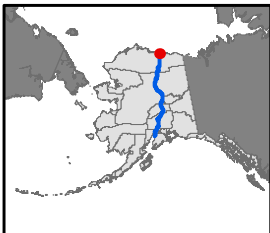
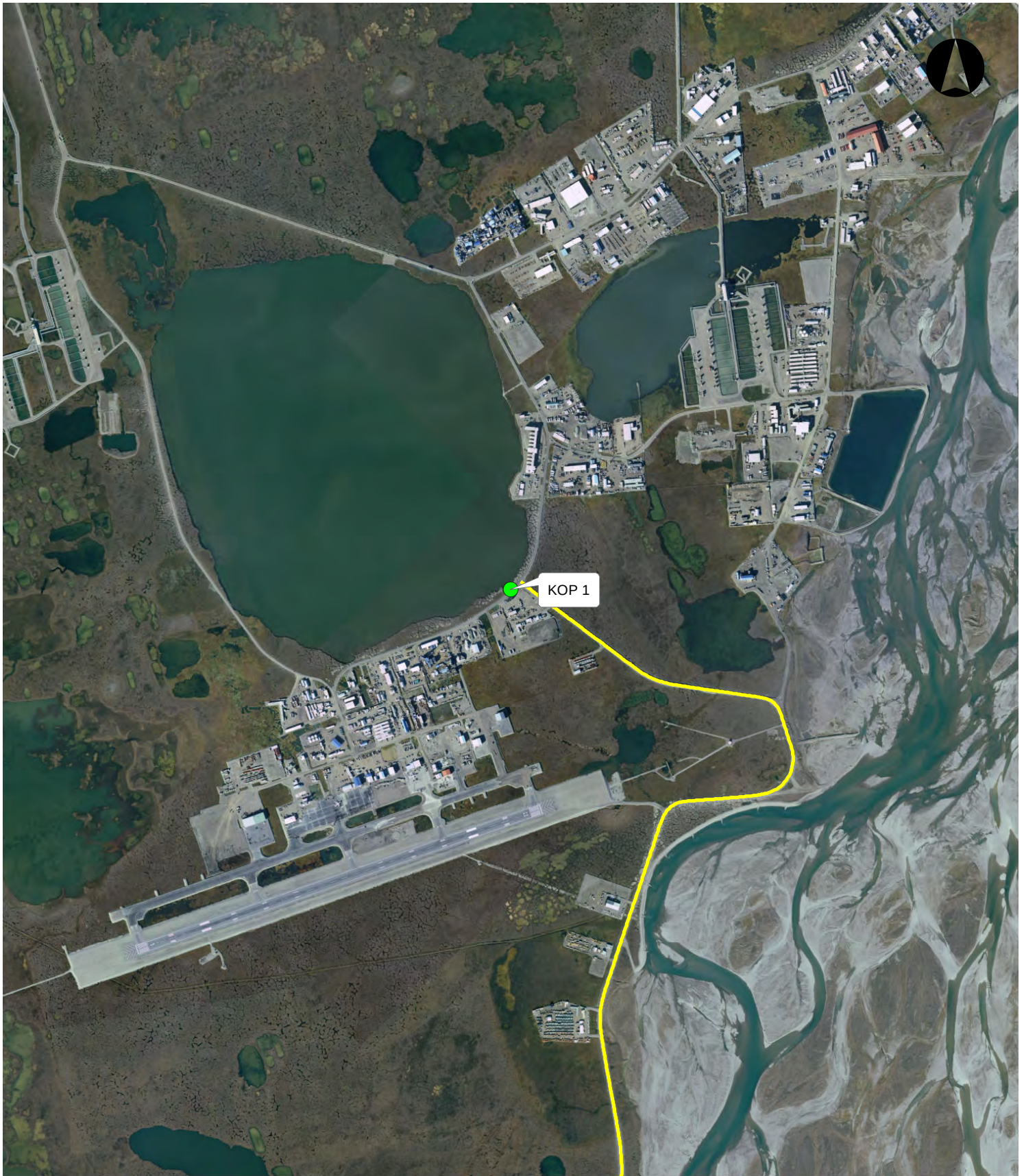
APPENDIX S-3

Maps of Key Observation Points

APPENDIX S-3: Maps of Key Observation Points

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- Key Observation Point 2015
- Scenic Byway

0 0.25 0.5 Miles
S-152

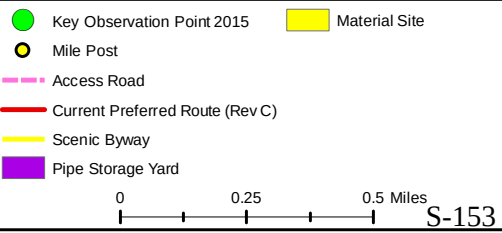
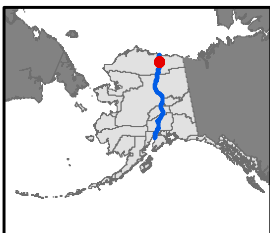
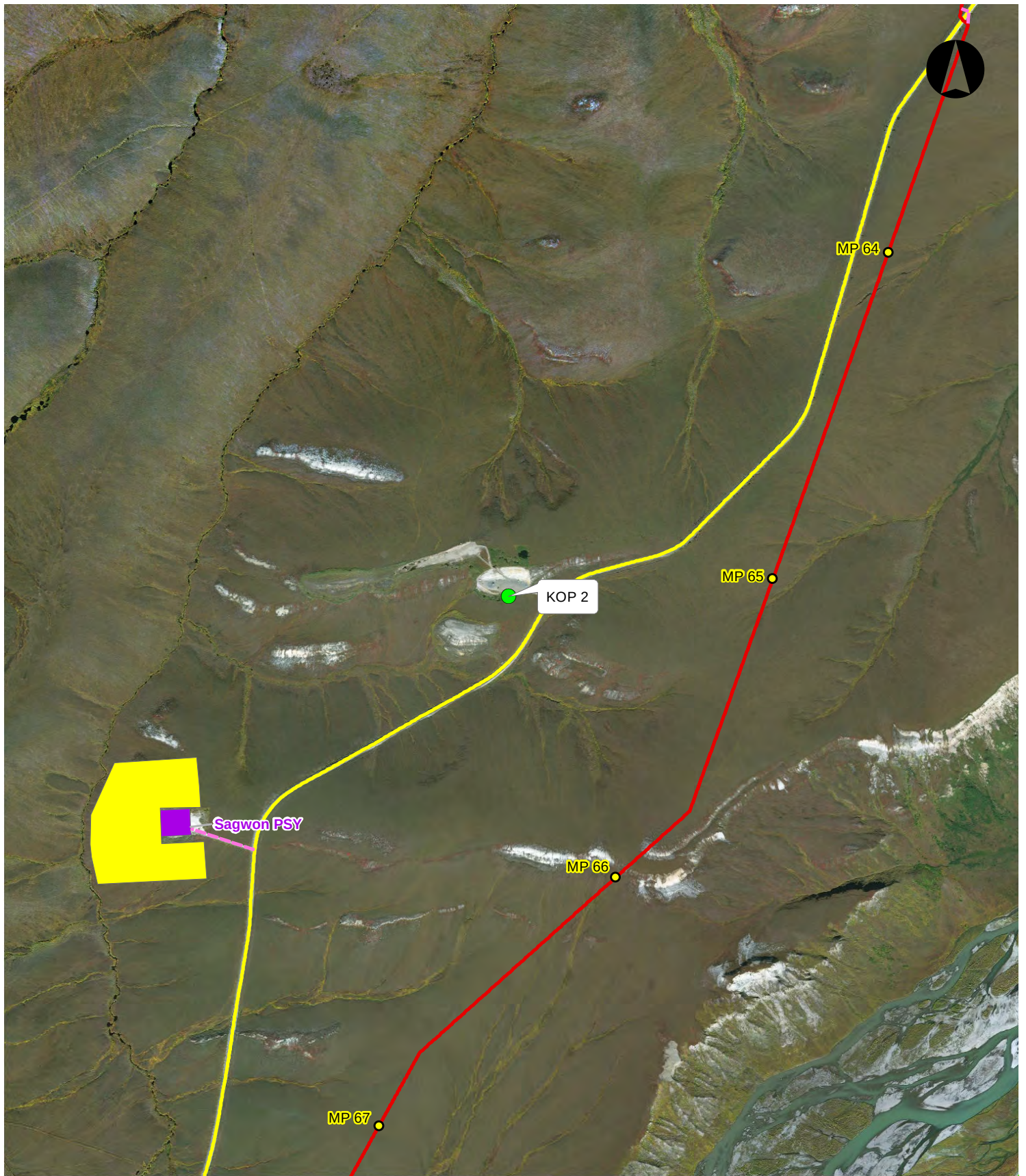
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Figure S-3-1 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 1



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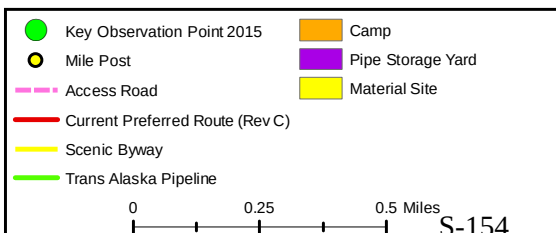
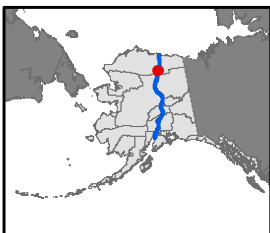
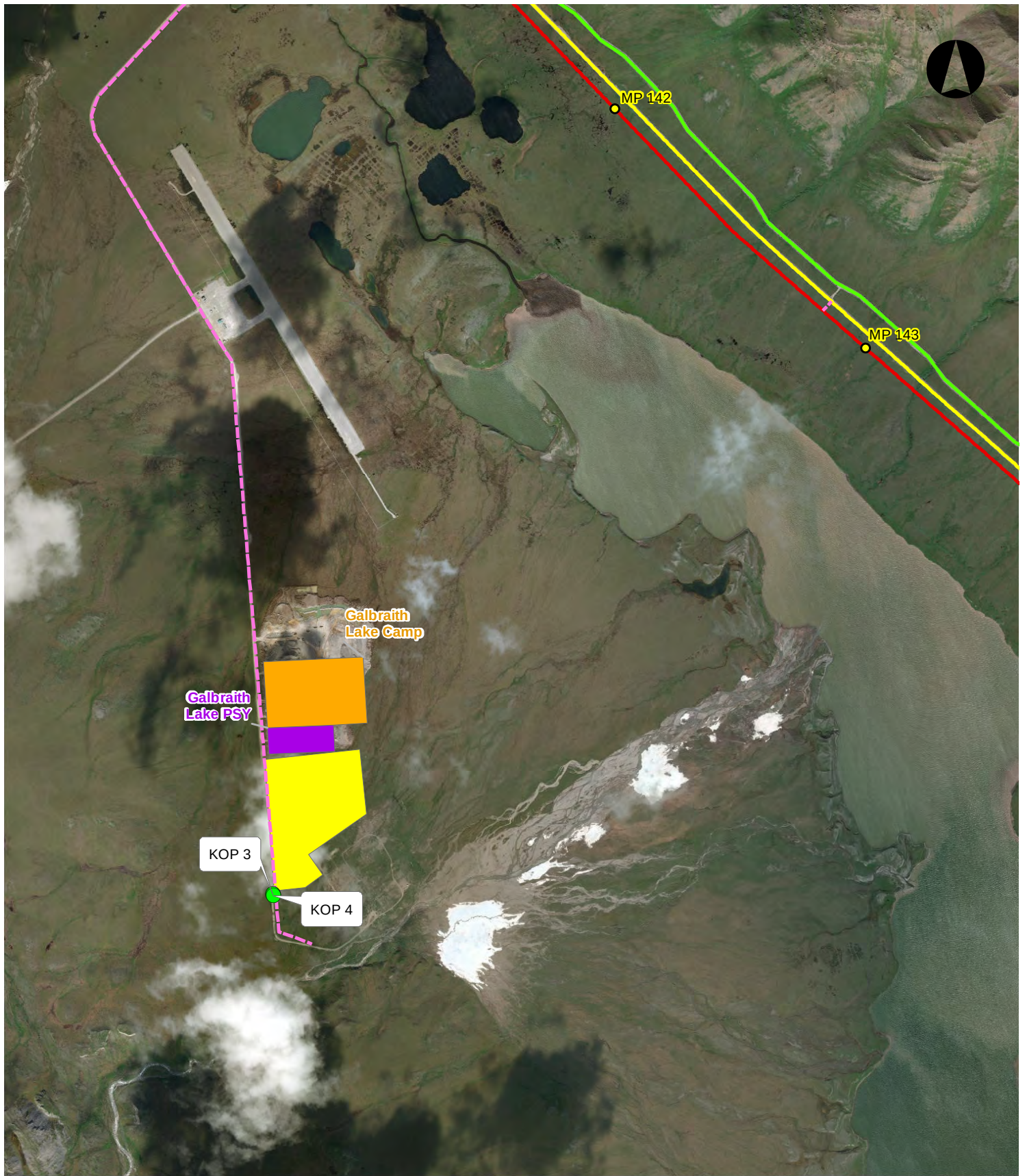
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Figure S-3-2

Alaska LNG Project

Visual Resource Work Plan

Key Observation Pt:
KOP 2

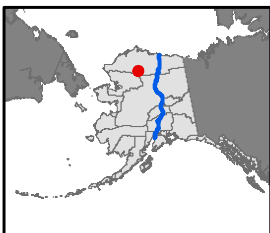
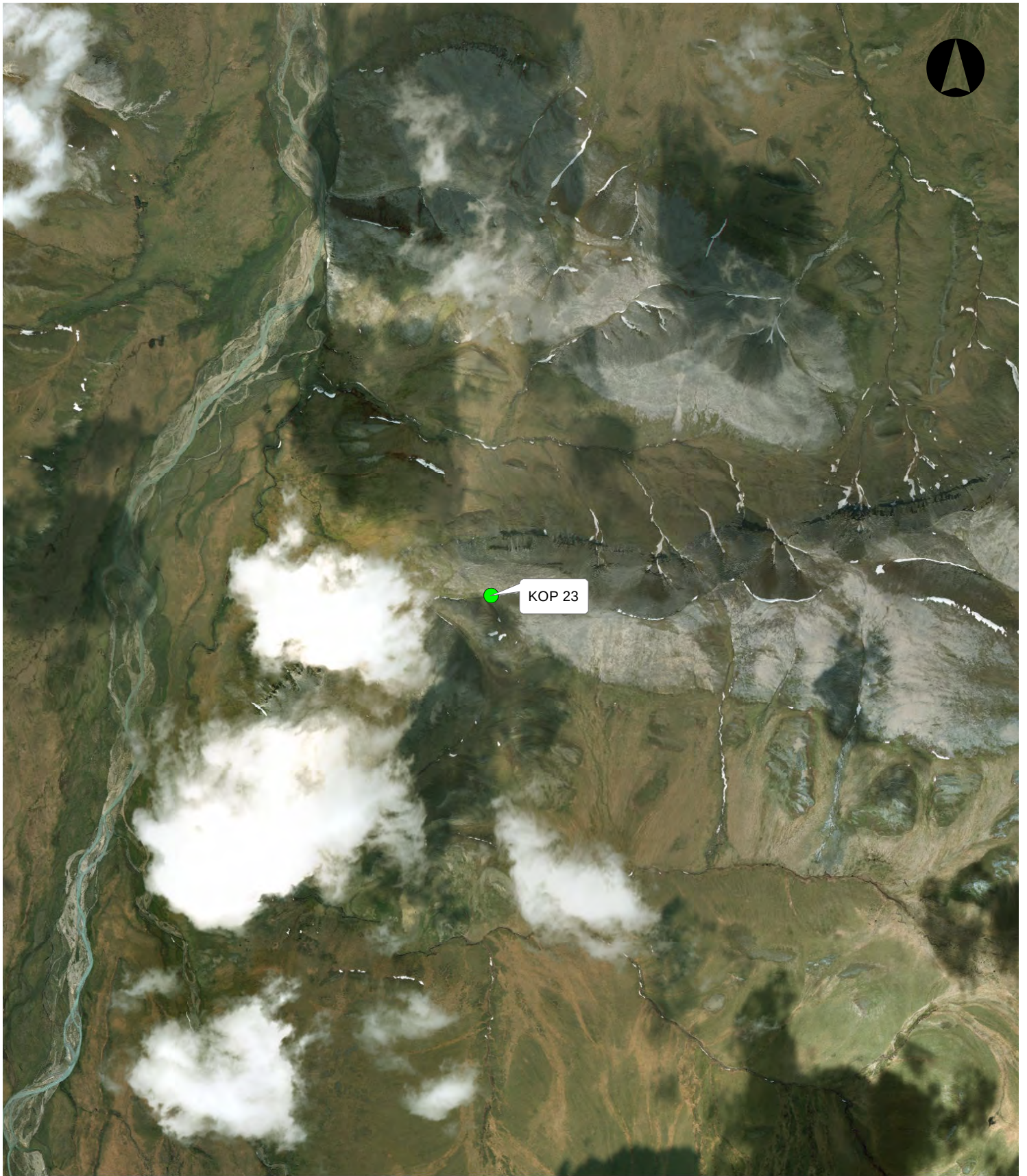


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Figure S-3-3
Alaska LNG Project
Visual Resource Work
Plan
 Key Observation Pt:
 KOP 3 and 4



● Key Observation Point 2015

0 0.25 0.5 Miles
S-155

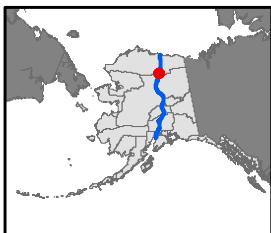
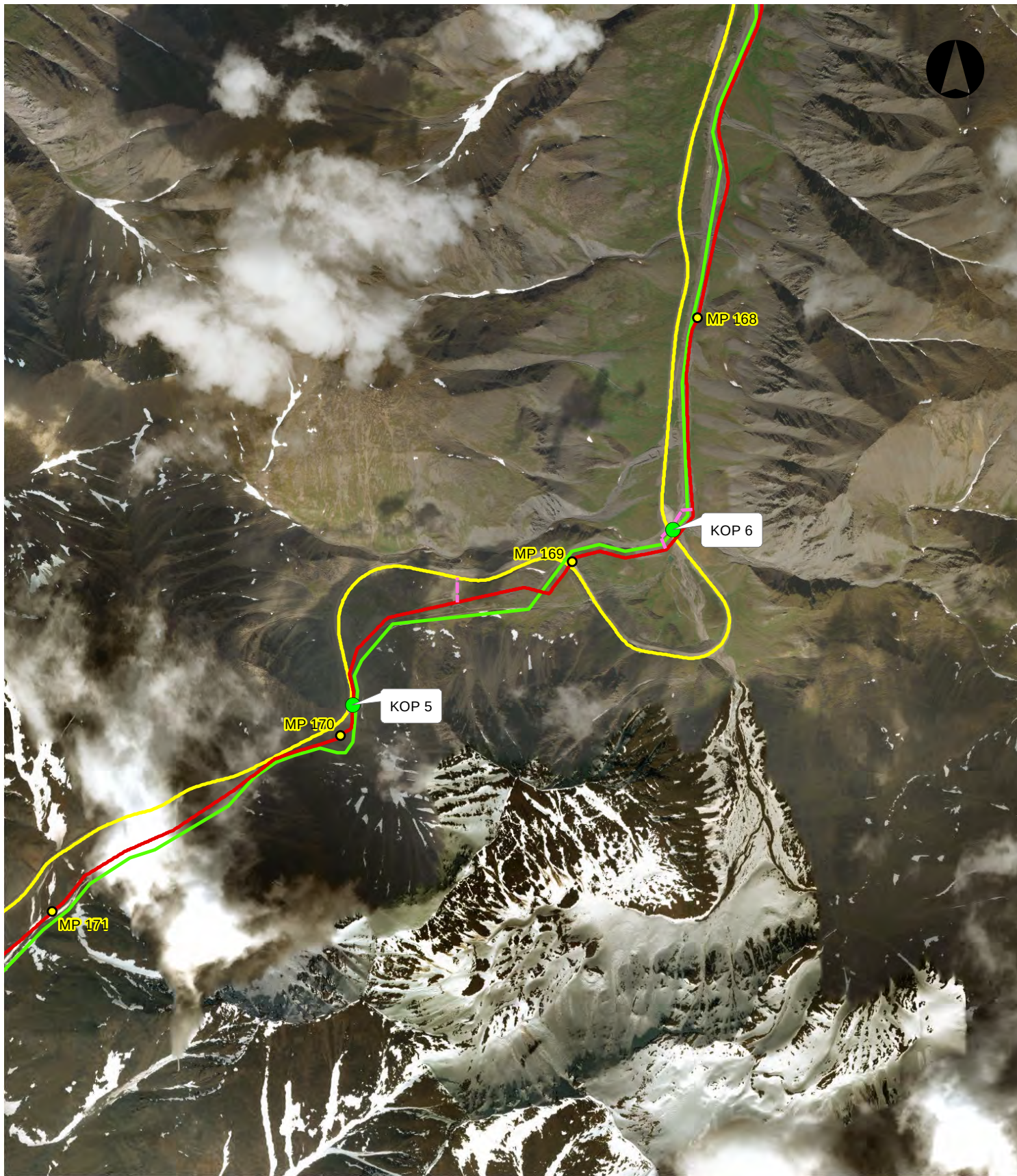
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Figure S-3-4 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 23



- Key Observation Point 2015
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles

S-156

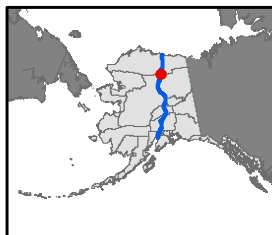
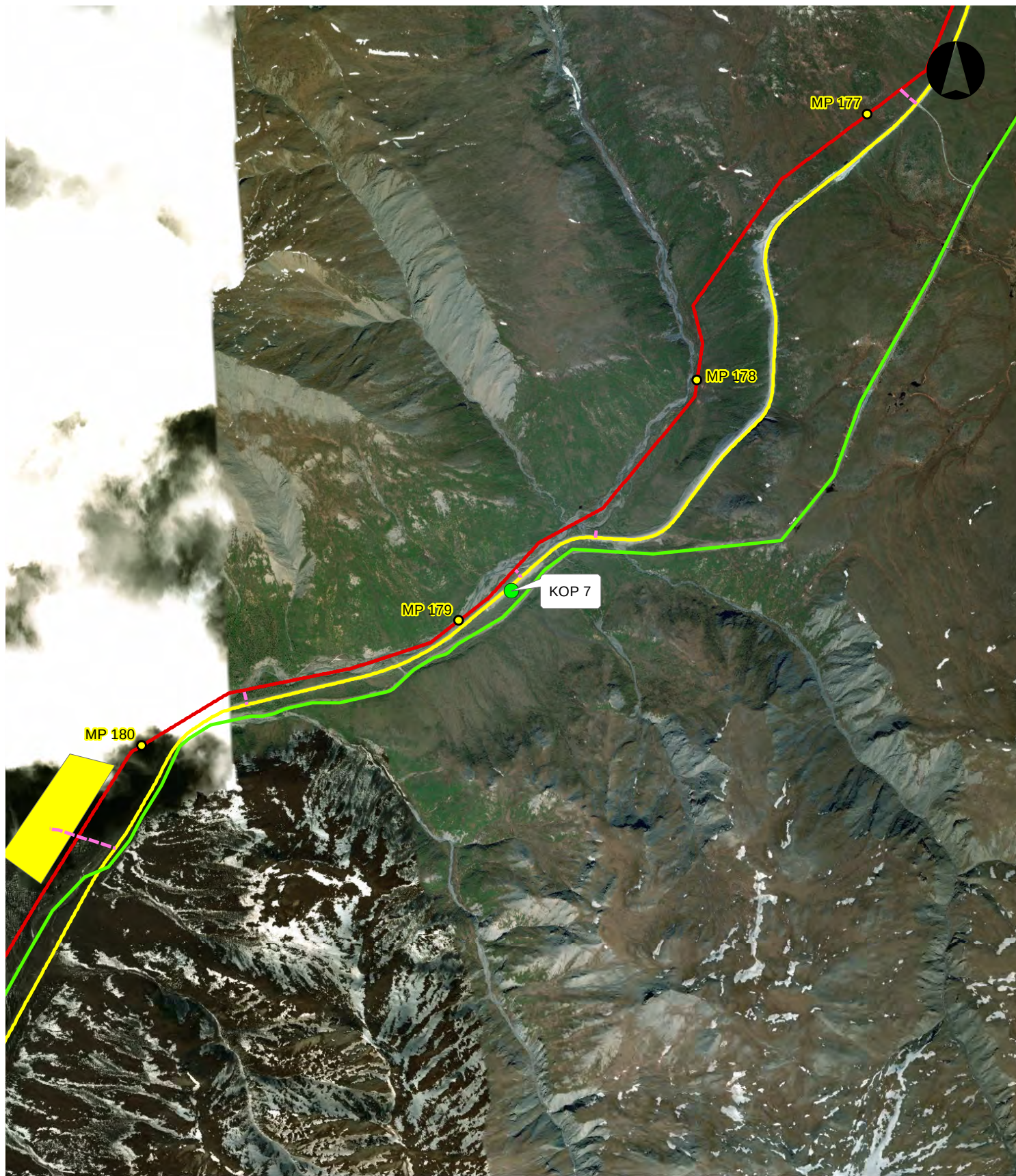
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Figure S-3-5 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 5 and 6



- Key Observation Point 2015
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles

S-157

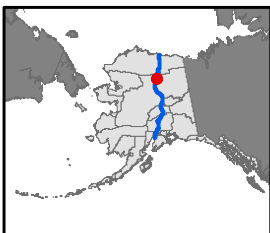
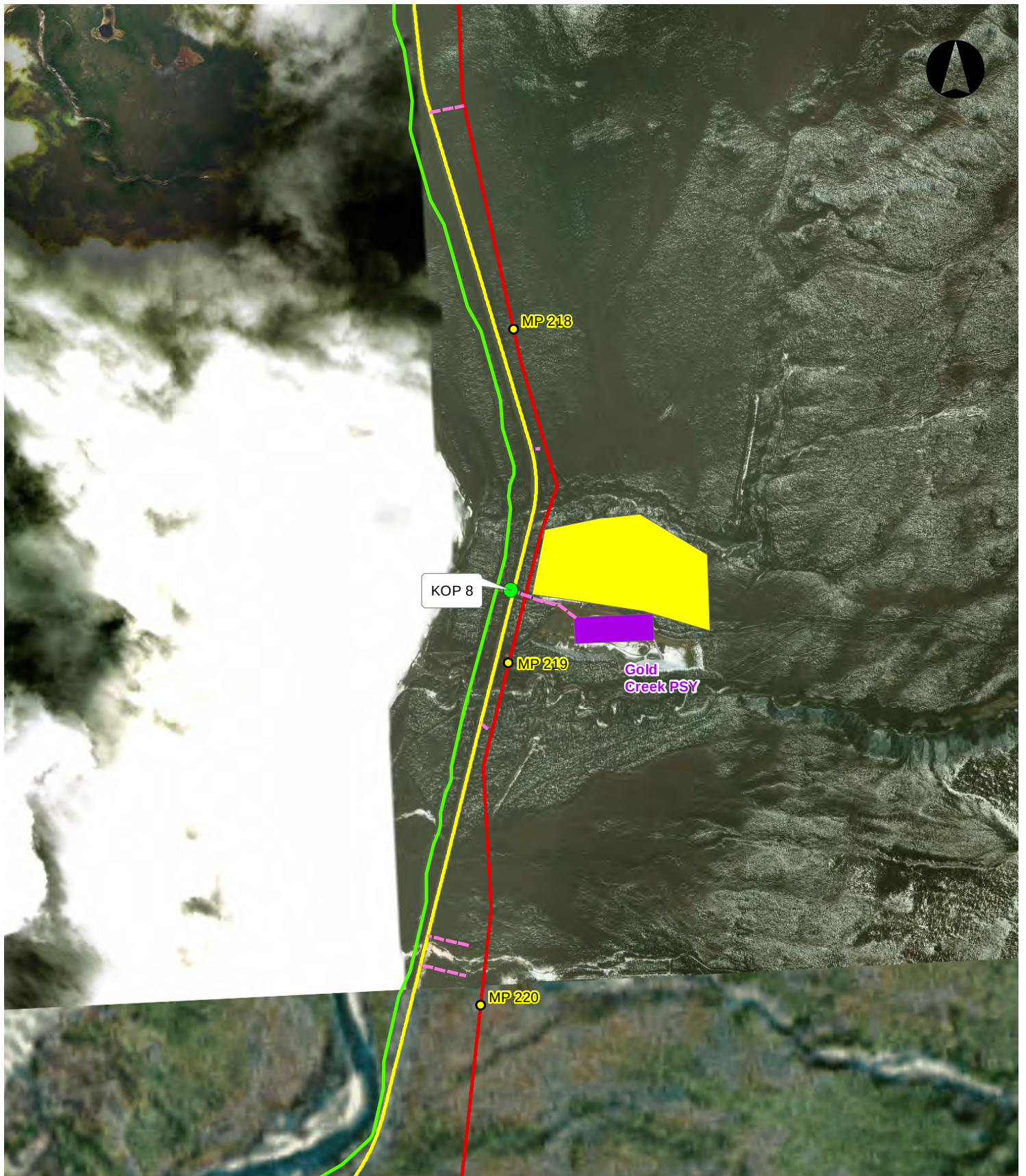
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Figure S-3-6 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 7



- Key Observation Point 2015
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline
- Pipe Storage Yard
- Material Site

0 0.25 0.5 Miles

S-158

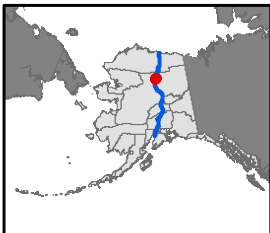
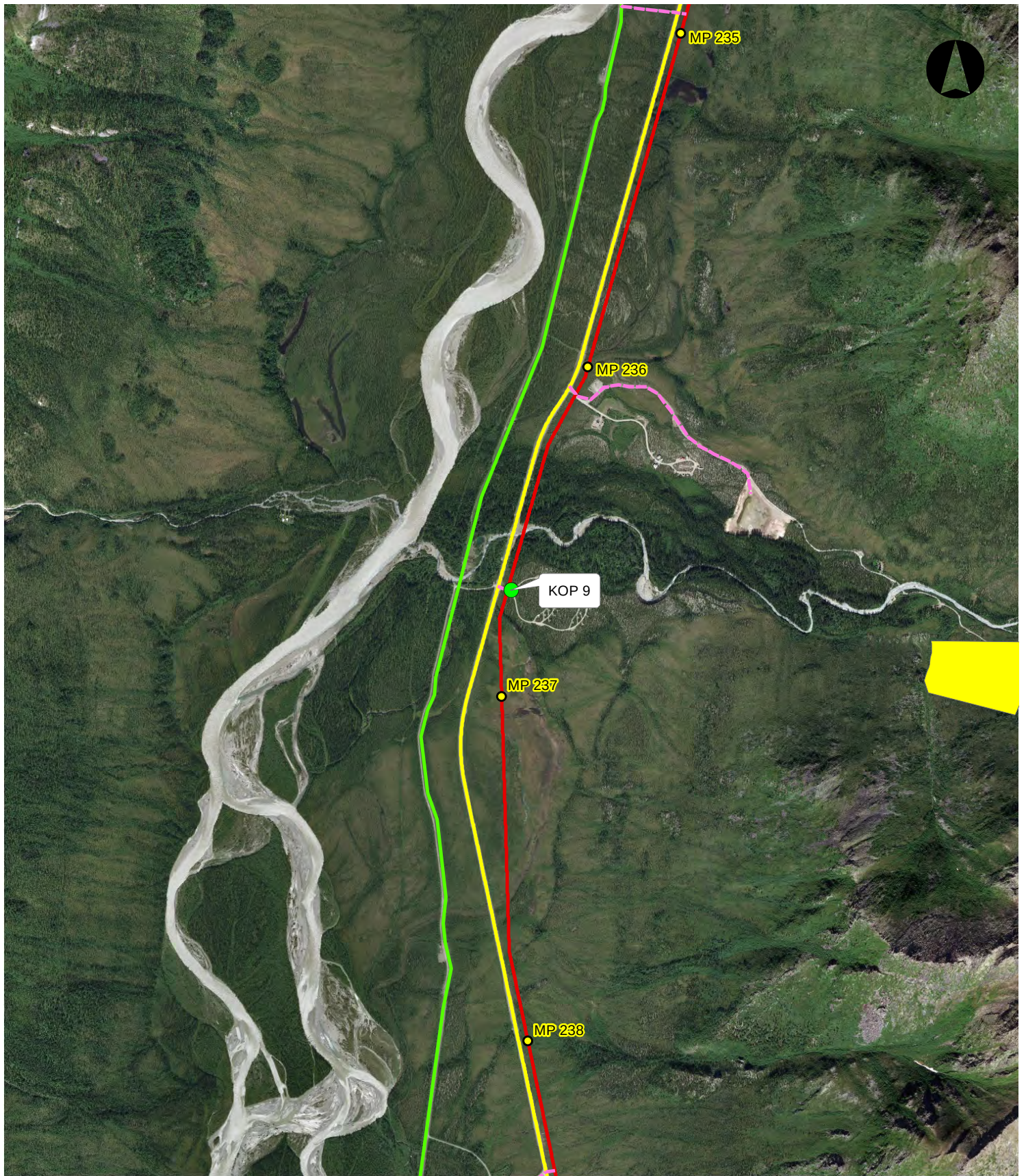
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Figure S-3-7 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 8



- Key Observation Point 2015
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles
S-159

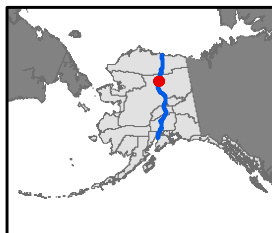
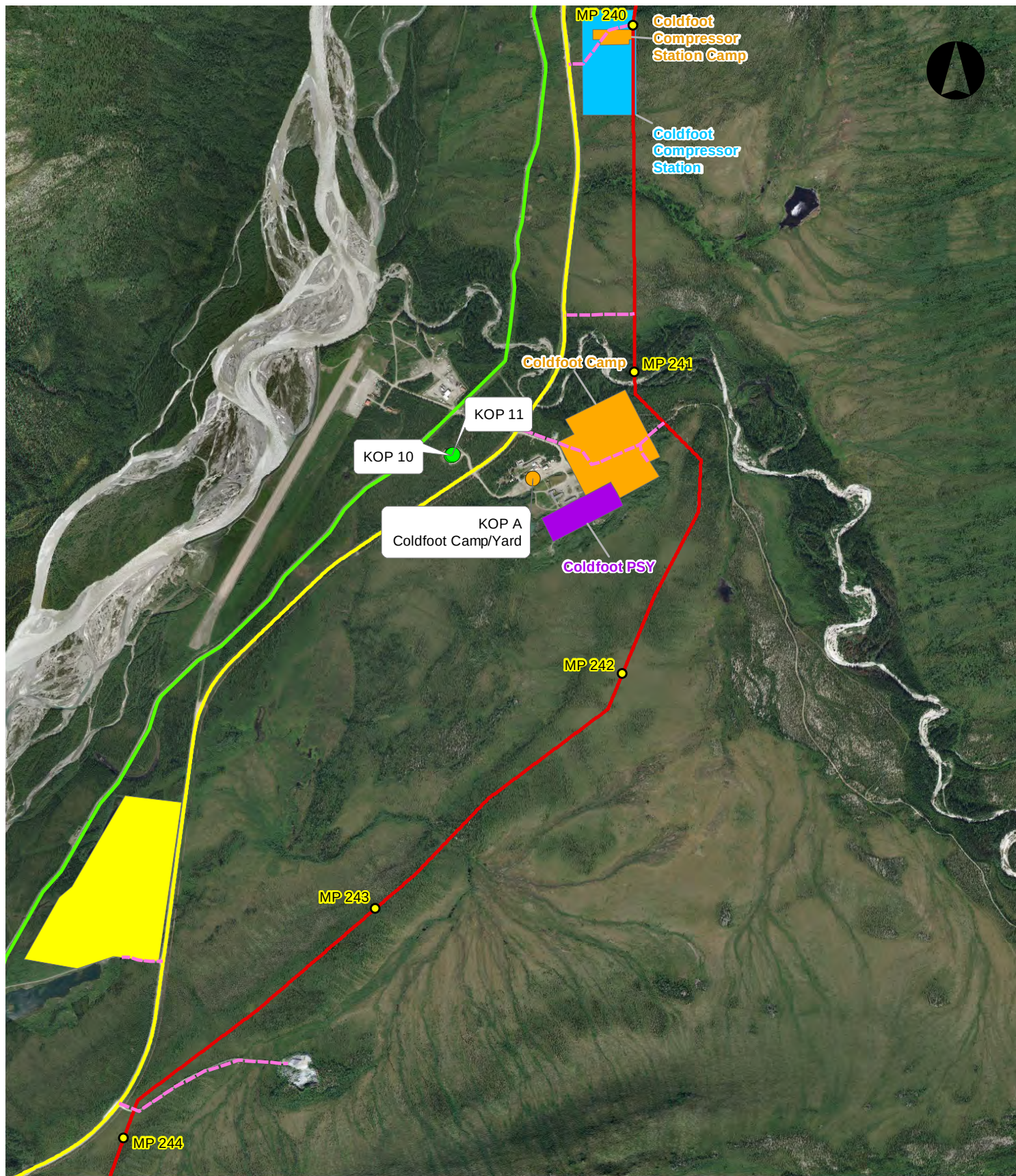
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Figure S-3-8 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 9



- Key Observation Point 2015
- Key Observation Point 2016
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline
- Camp
- Pipe Storage Yard
- Compressor Station
- Material Site

0 0.25 0.5 Miles
S-160

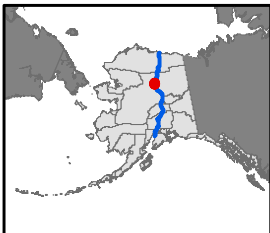
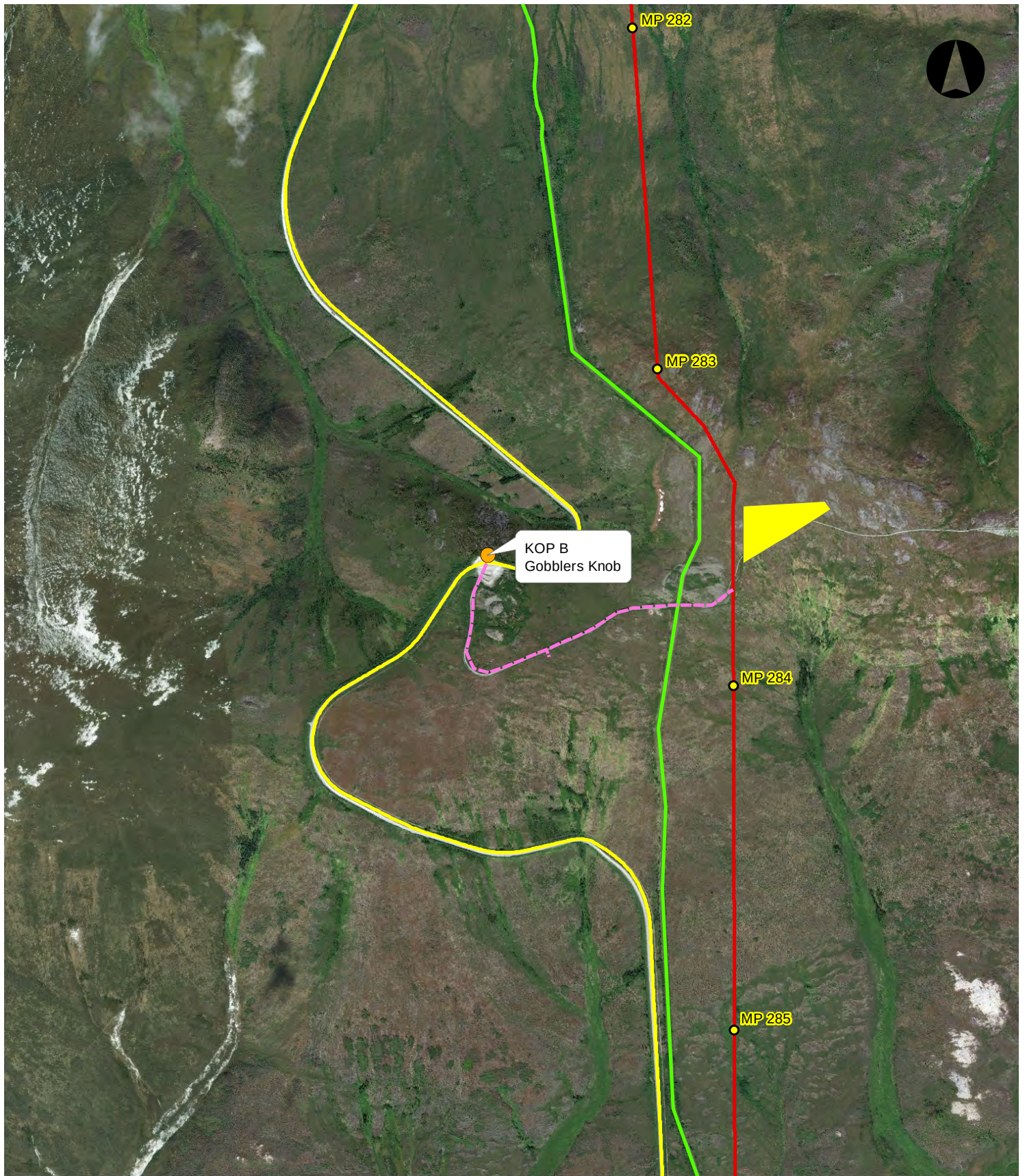
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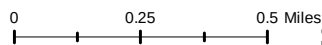
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Figure S-3-9 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 10, 11, and A



- Key Observation Point 2016
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline



S-161

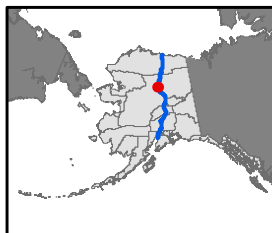
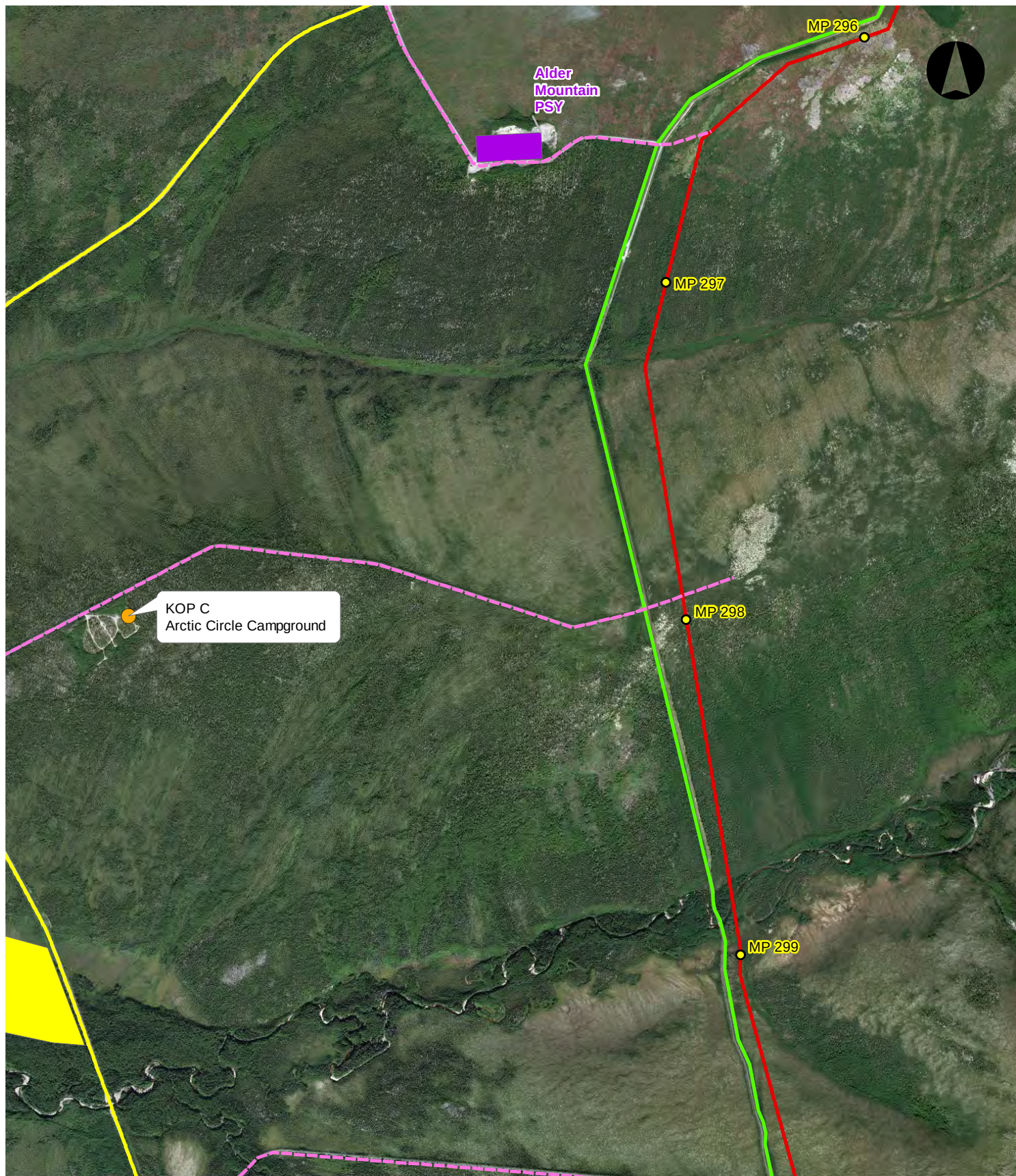
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Figure S-3-10 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP B



- Key Observation Point 2016
- Mile Post
- Pipe Storage Yard
- Material Site
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles

S-162

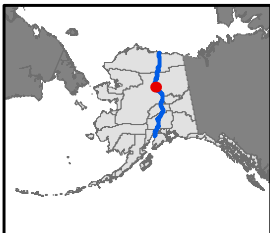
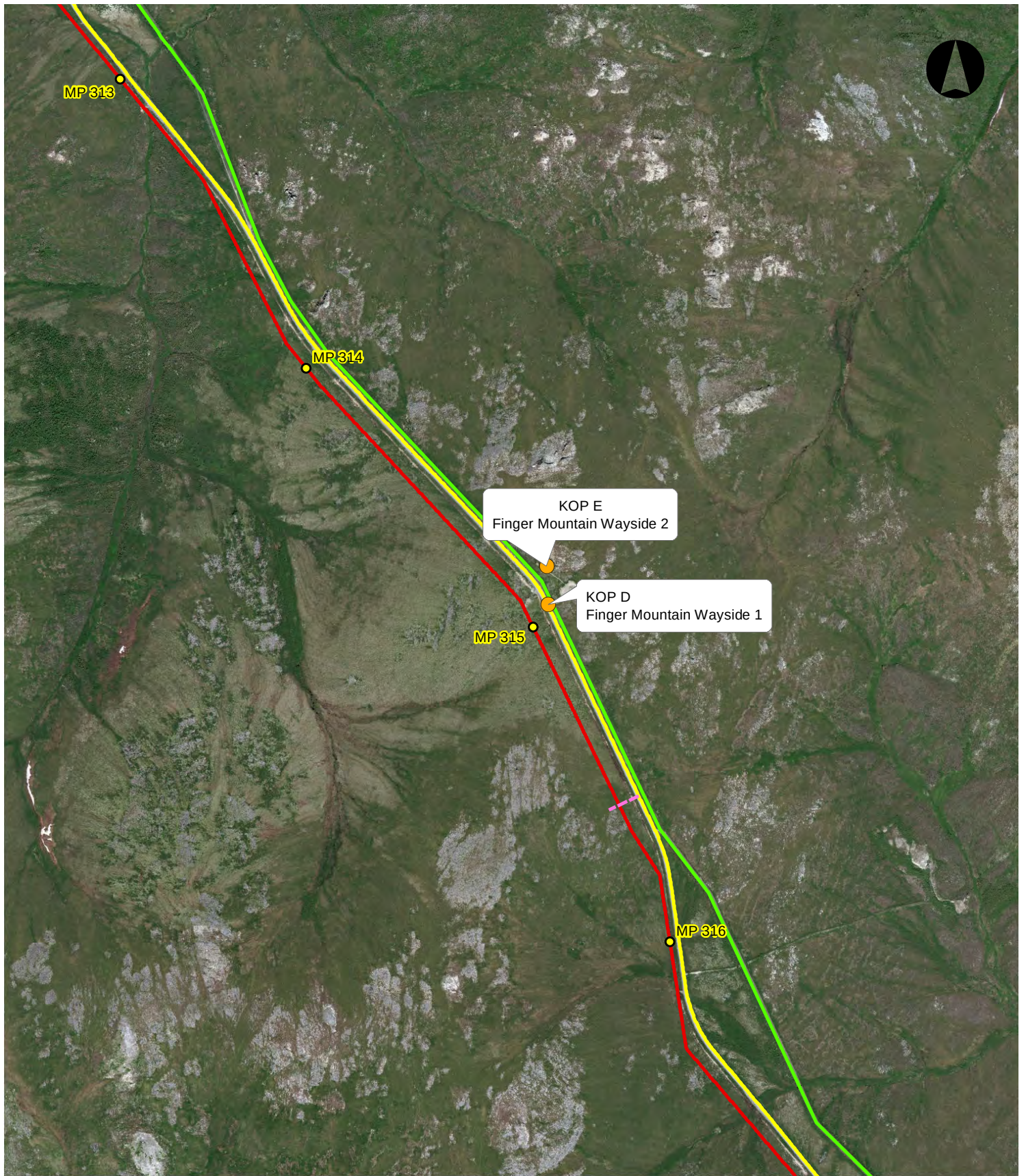
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Figure S-3-11 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP C



- Key Observation Point 2016
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles

S-163

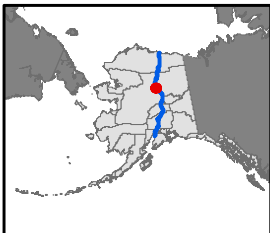
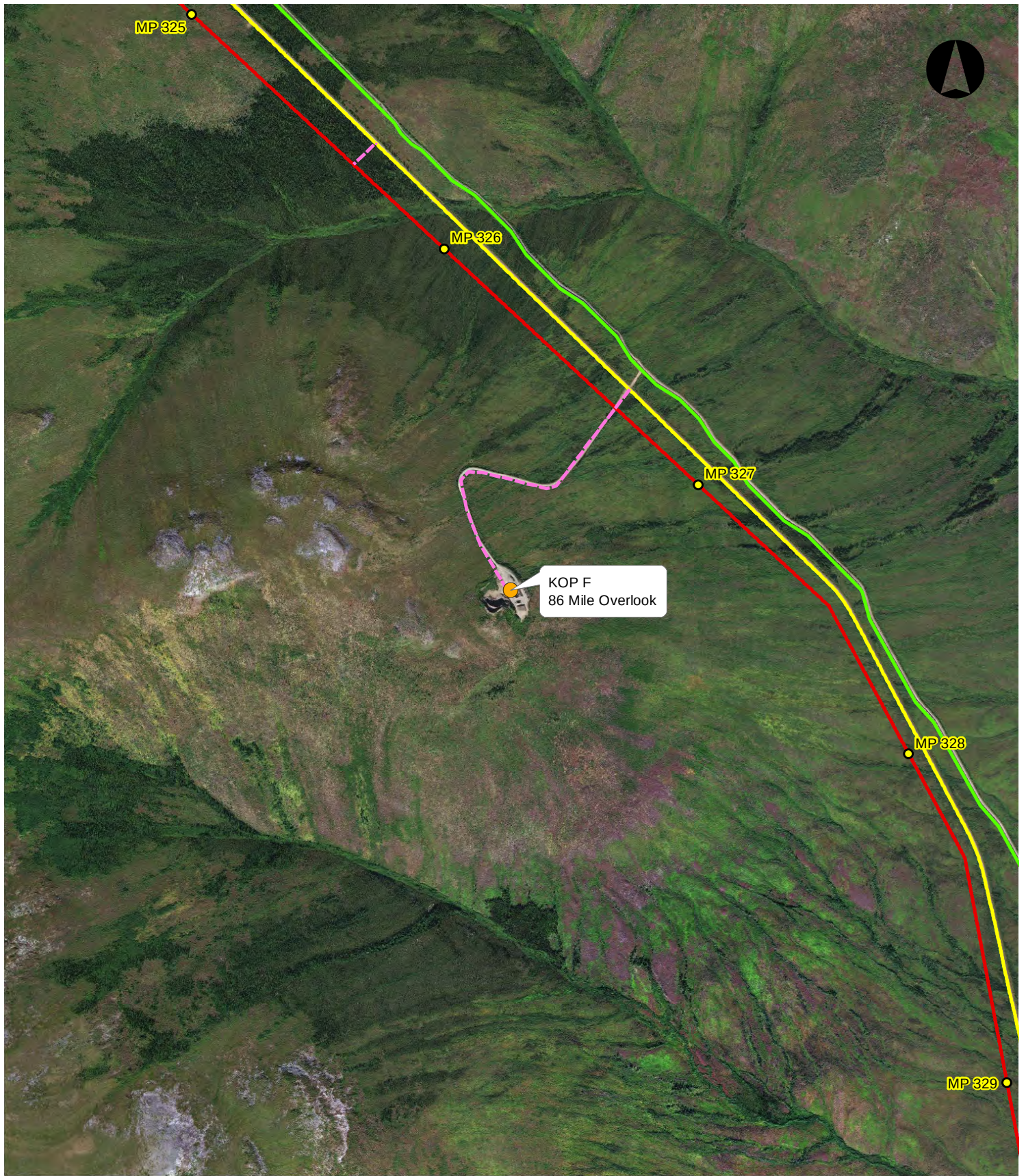
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Figure S-3-12 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP D and E



- Key Observation Point 2016
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles

S-164

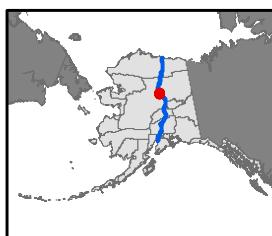
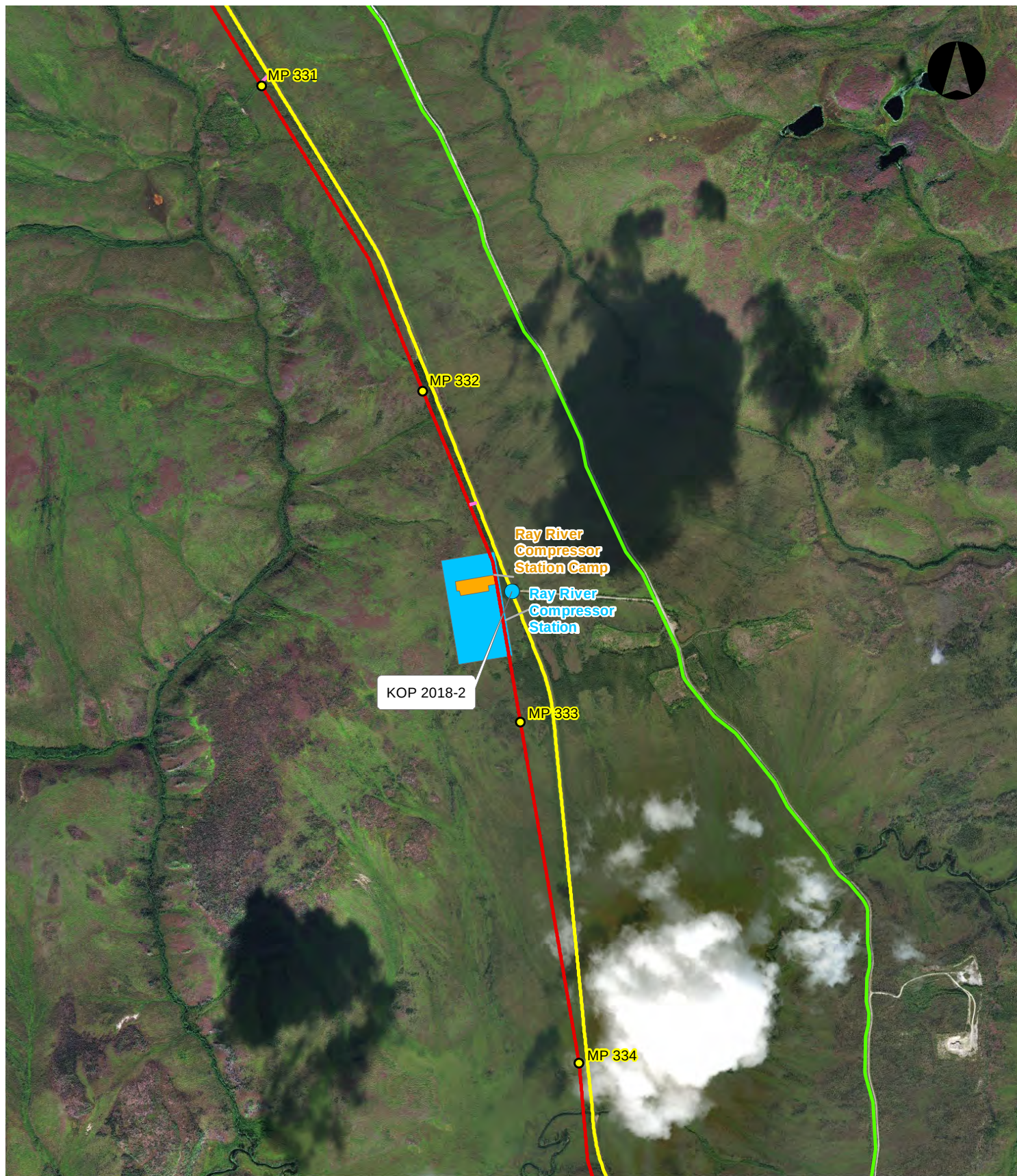
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Figure S-3-13 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP F



- Key Observation Point 2018
- Mile Post
- Camp
- Compressor Station
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles

S-165

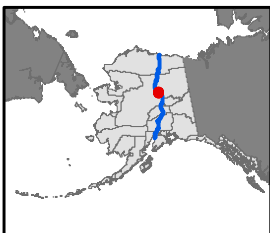
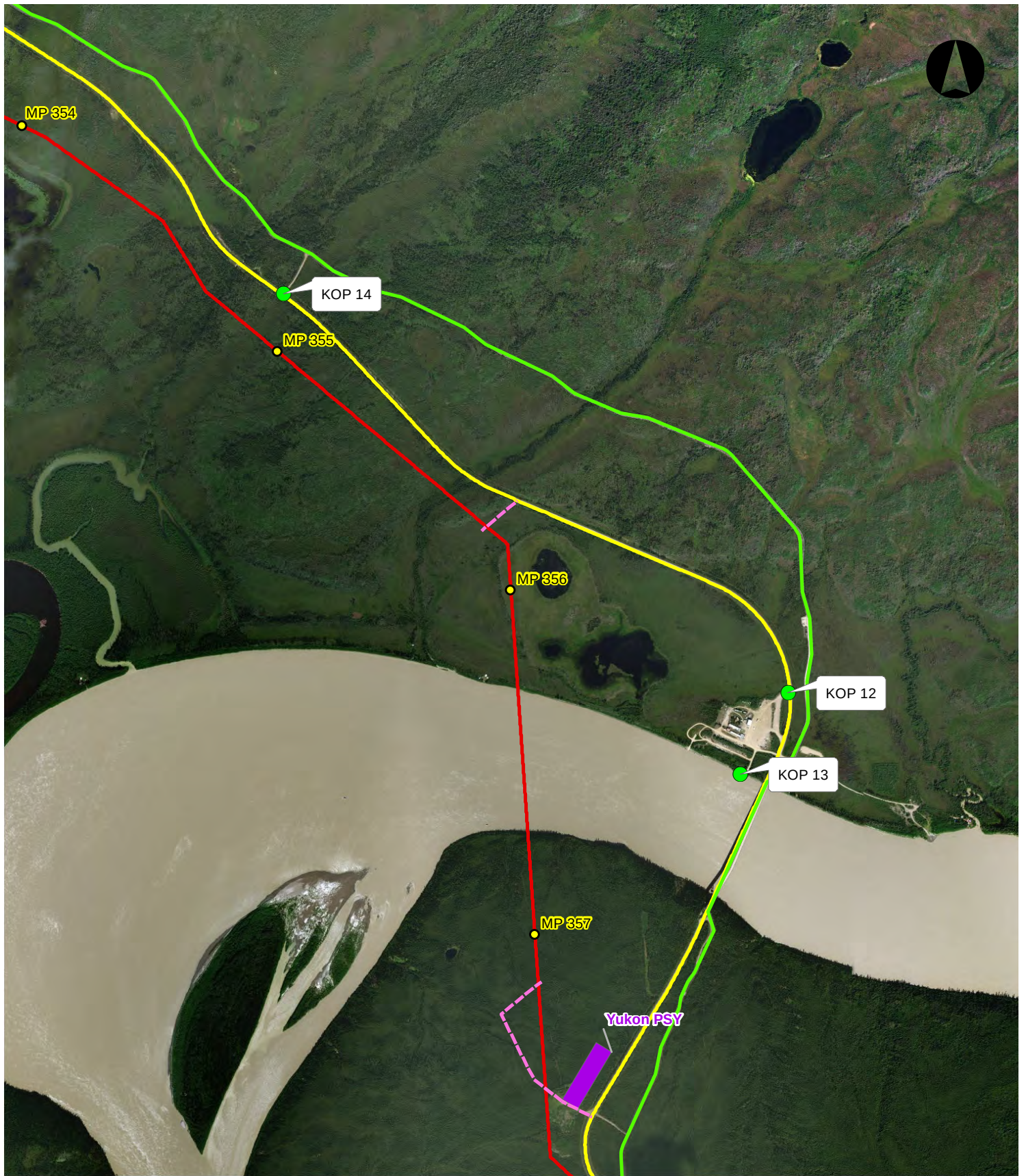
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Figure S-3-14 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 2018-2



- Key Observation Point 2015
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline
- Pipe Storage Yard

0 0.25 0.5 Miles
S-166

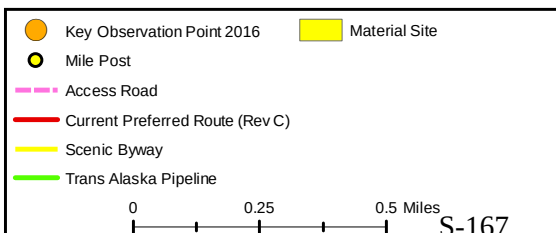
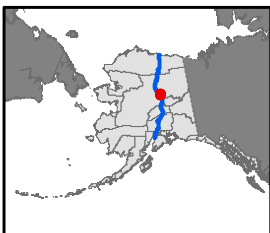
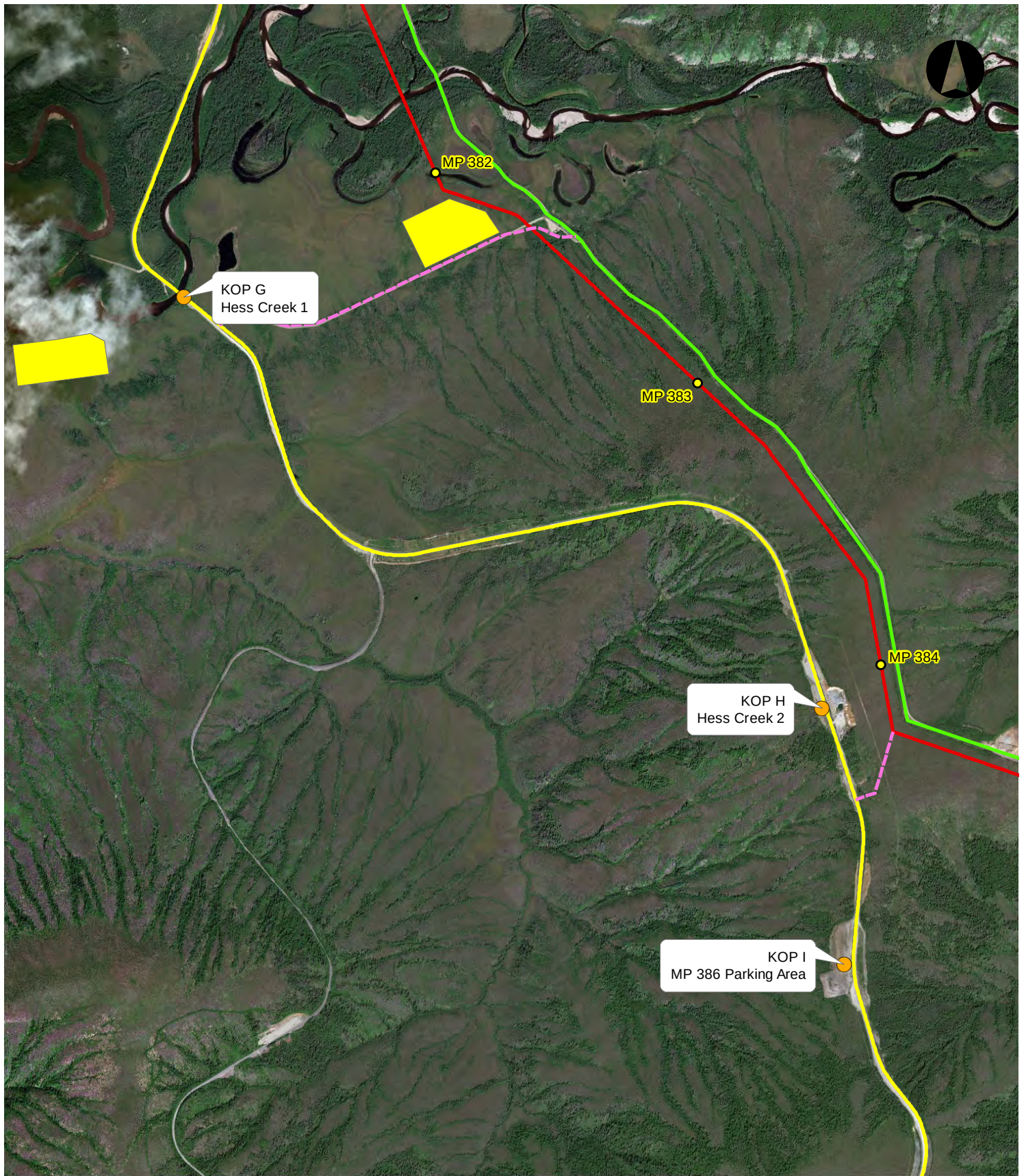
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Figure S-3-15 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 12, 13, and 14



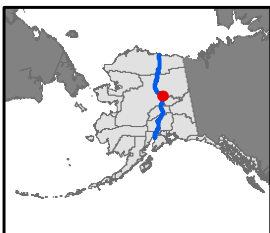
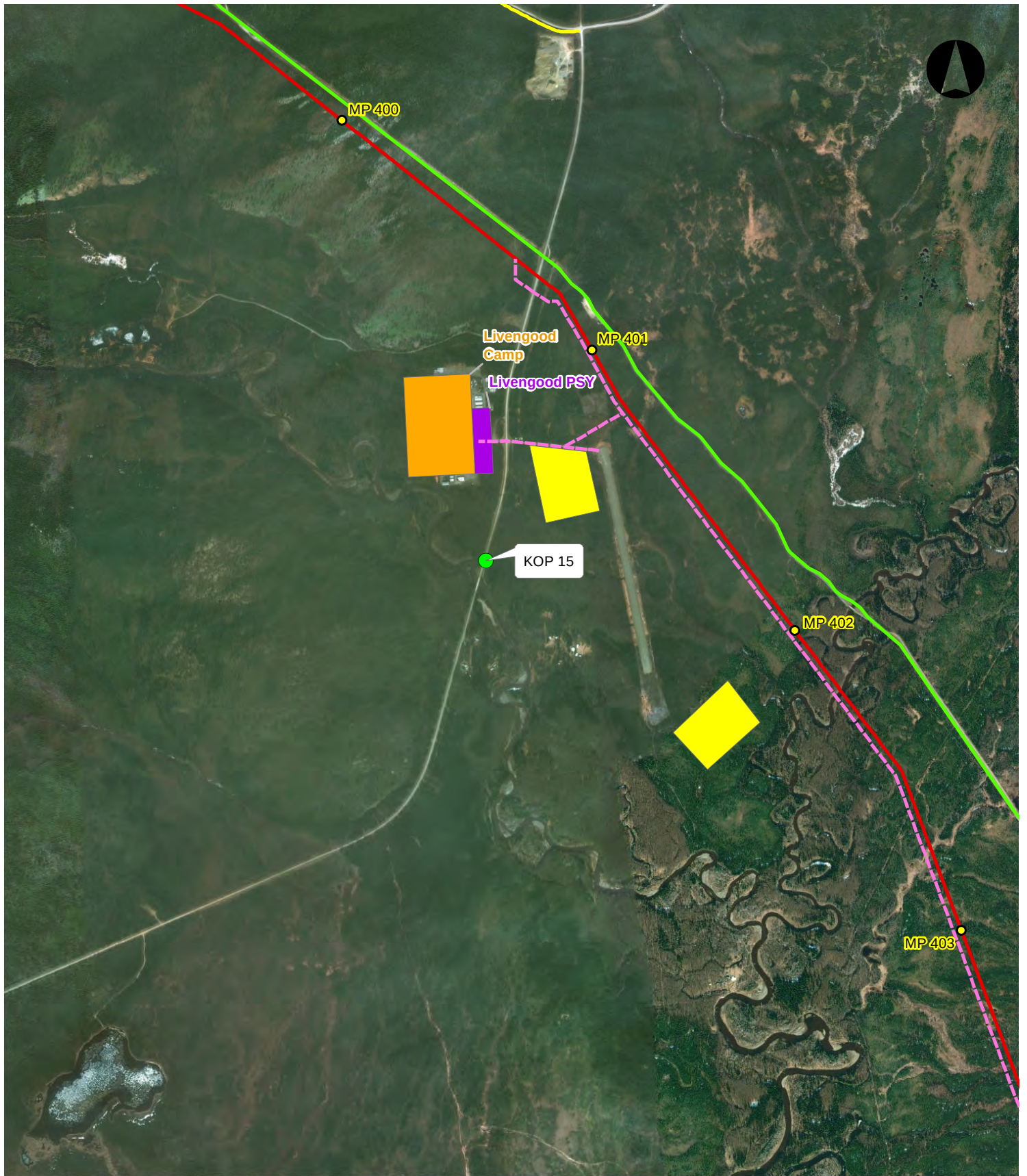
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Figure S-3-16
Alaska LNG Project
Visual Resource Work
Plan

Key Observation Pt:
KOP G, H, and I



- Key Observation Point 2015
- Camp
- Mile Post
- Pipe Storage Yard
- Access Road
- Material Site
- Current Preferred Route (Rev C)
- Scenic Byway
- Trans Alaska Pipeline

0 0.25 0.5 Miles

S-168

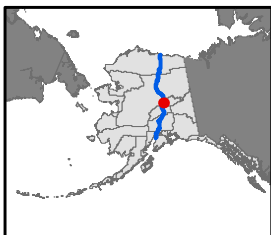
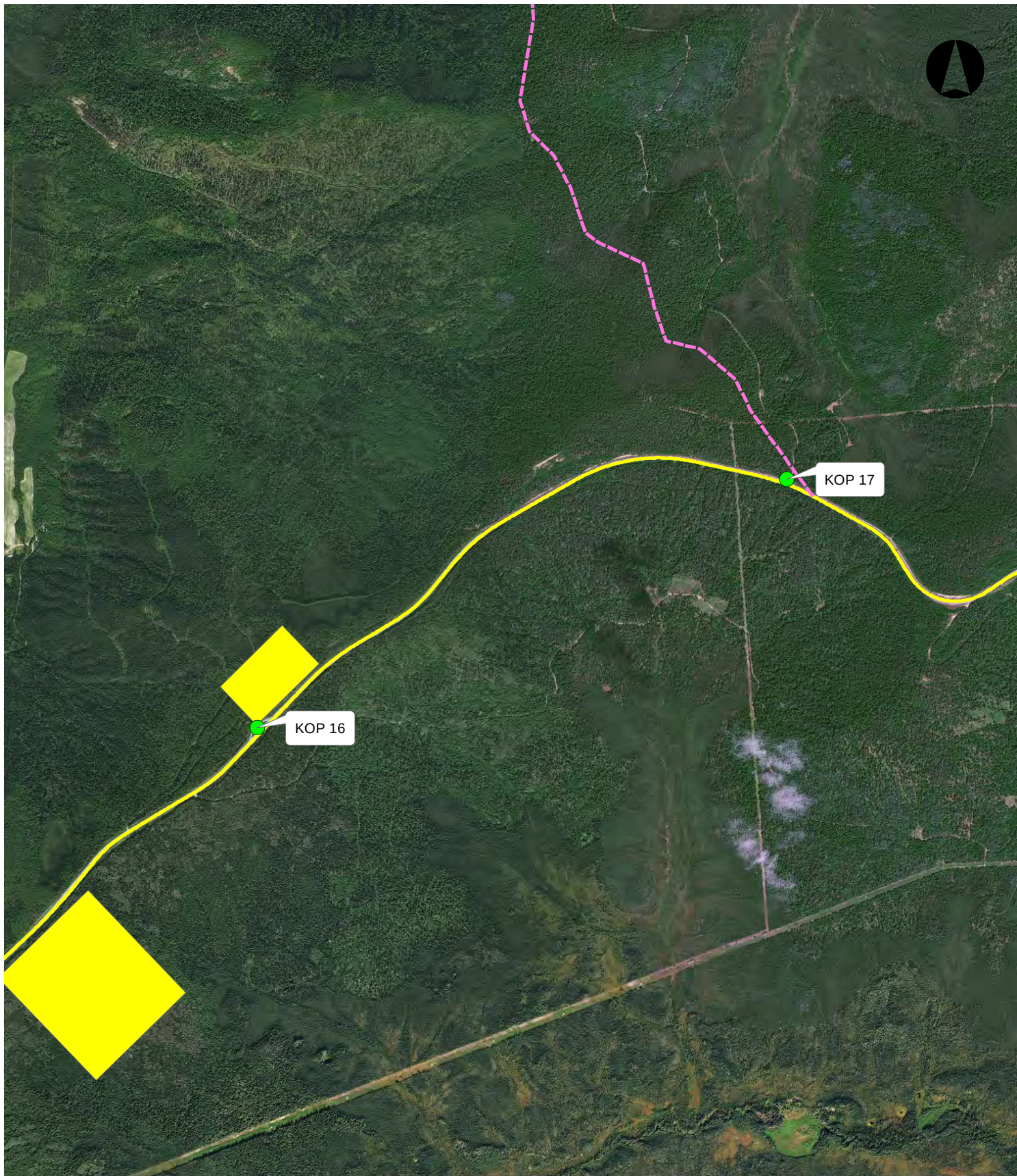
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Figure S-3-17 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 15



- Key Observation Point 2015
- Access Road
- Scenic Byway
- Material Site

0 0.25 0.5 Miles

S-169

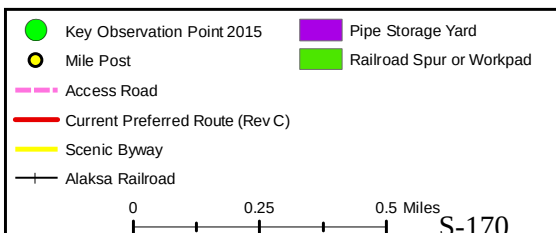
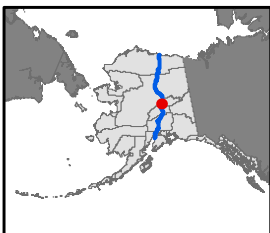
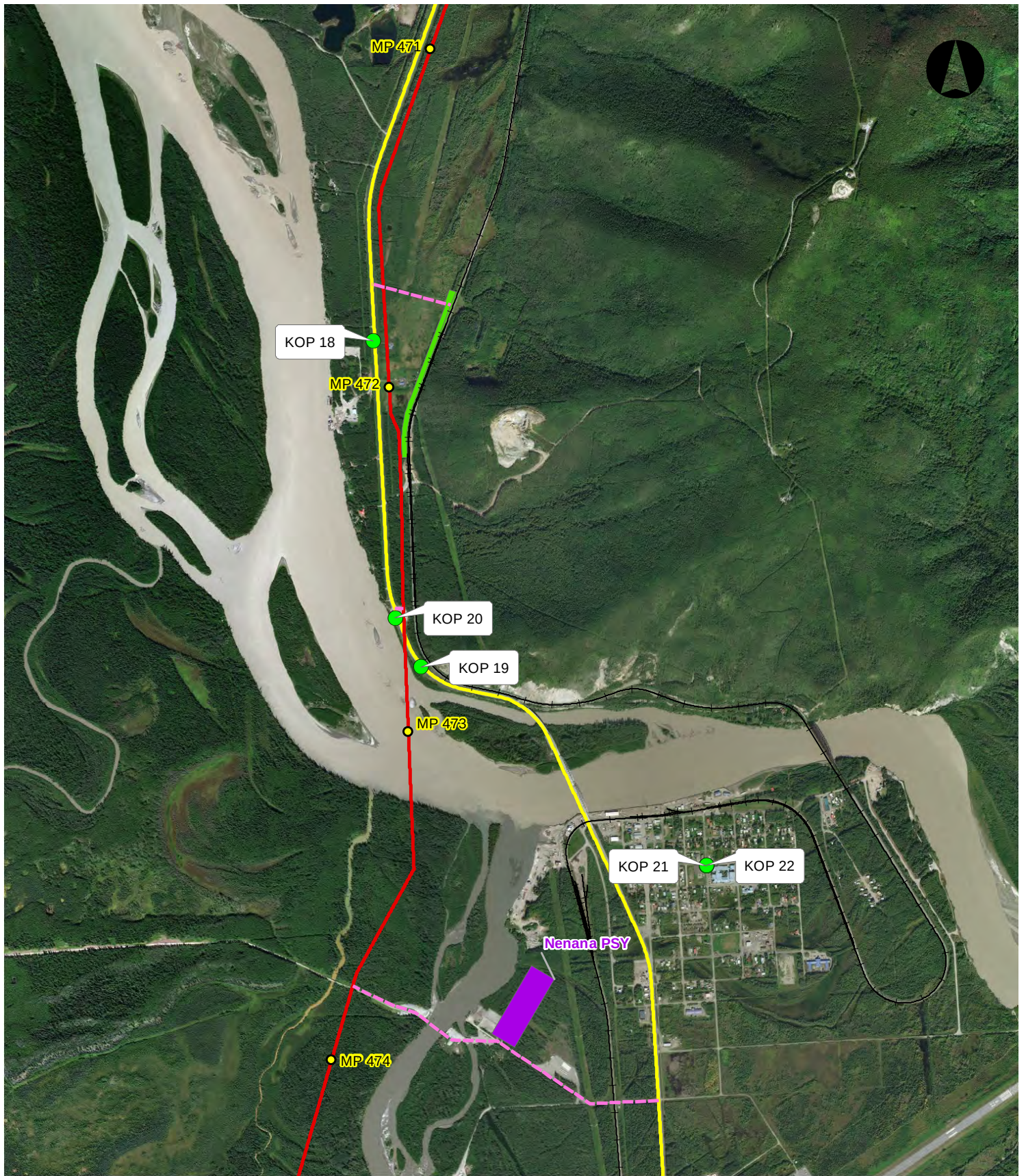
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Figure S-3-18 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 16 and 17



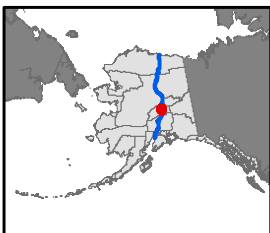
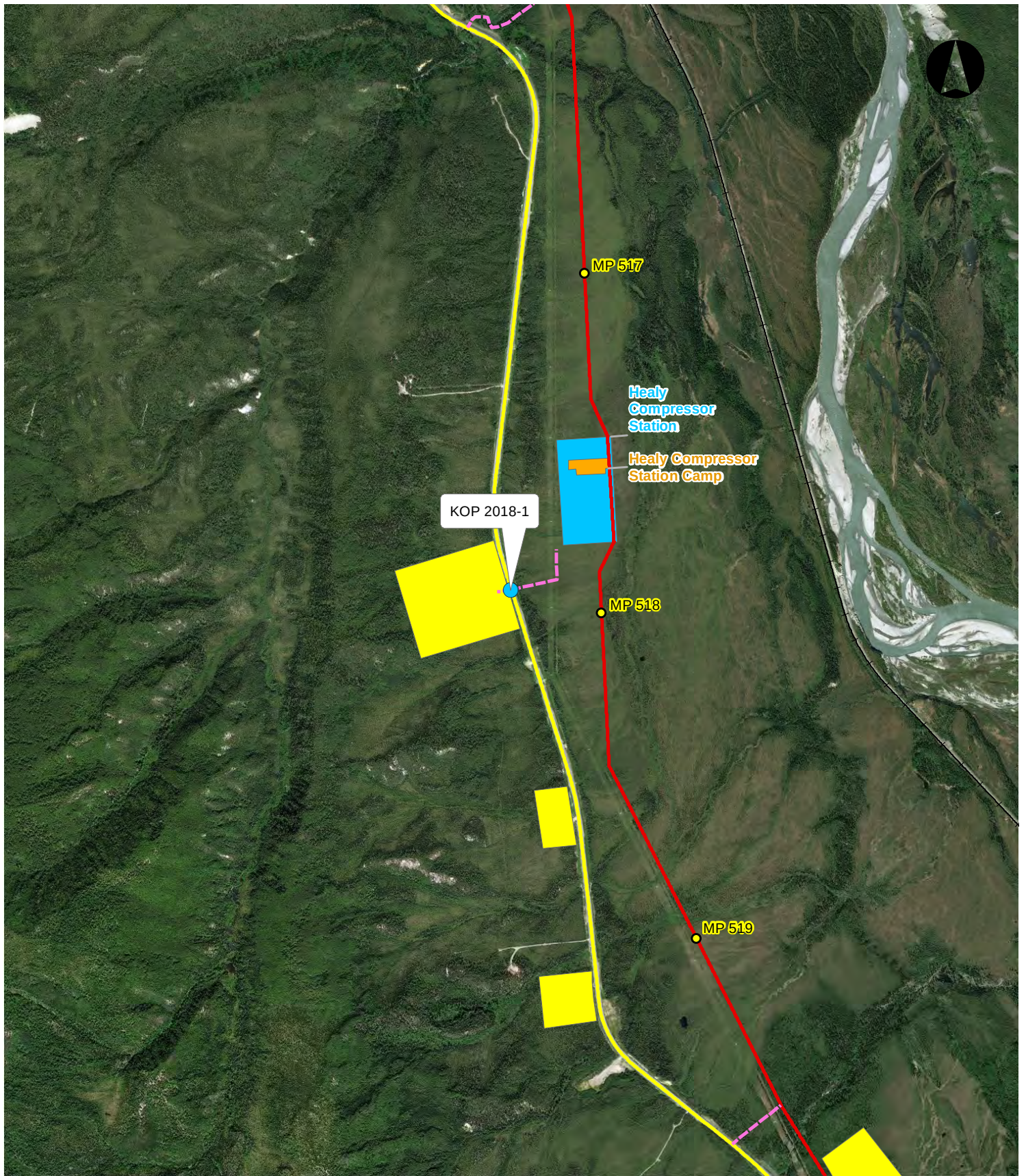
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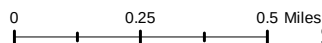
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Figure S-3-19
Alaska LNG Project
Visual Resource Work
Plan

Key Observation Pt:
KOP 18, 19, 20, 21, and 22



- Key Observation Point 2018
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Alaska Railroad
- Camp
- Compressor Station
- Material Site



S-171

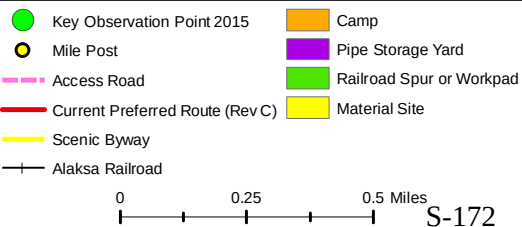
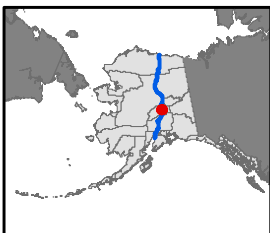
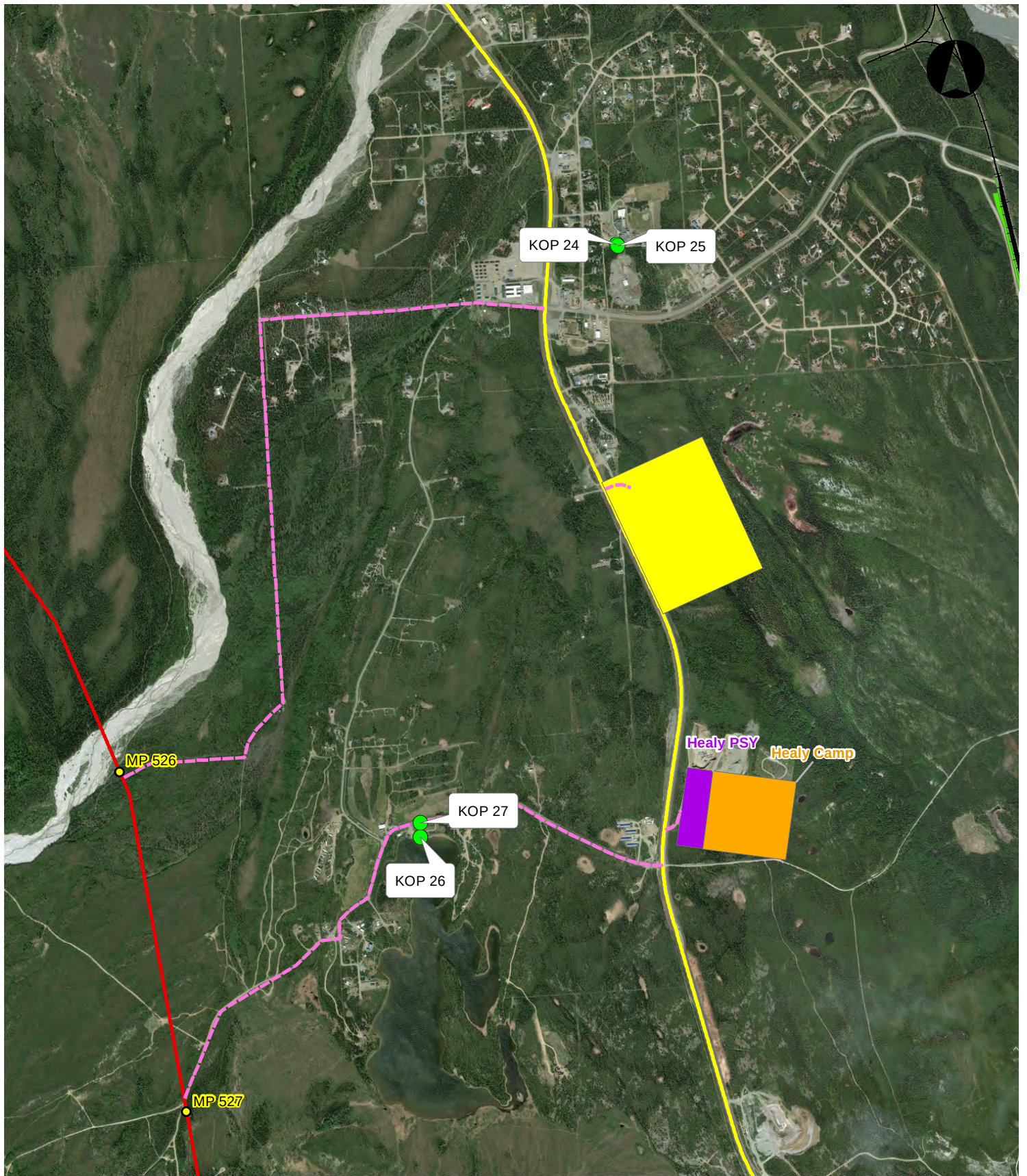
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Figure S-3-20 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 2018-1



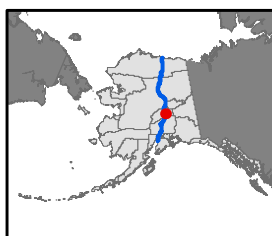
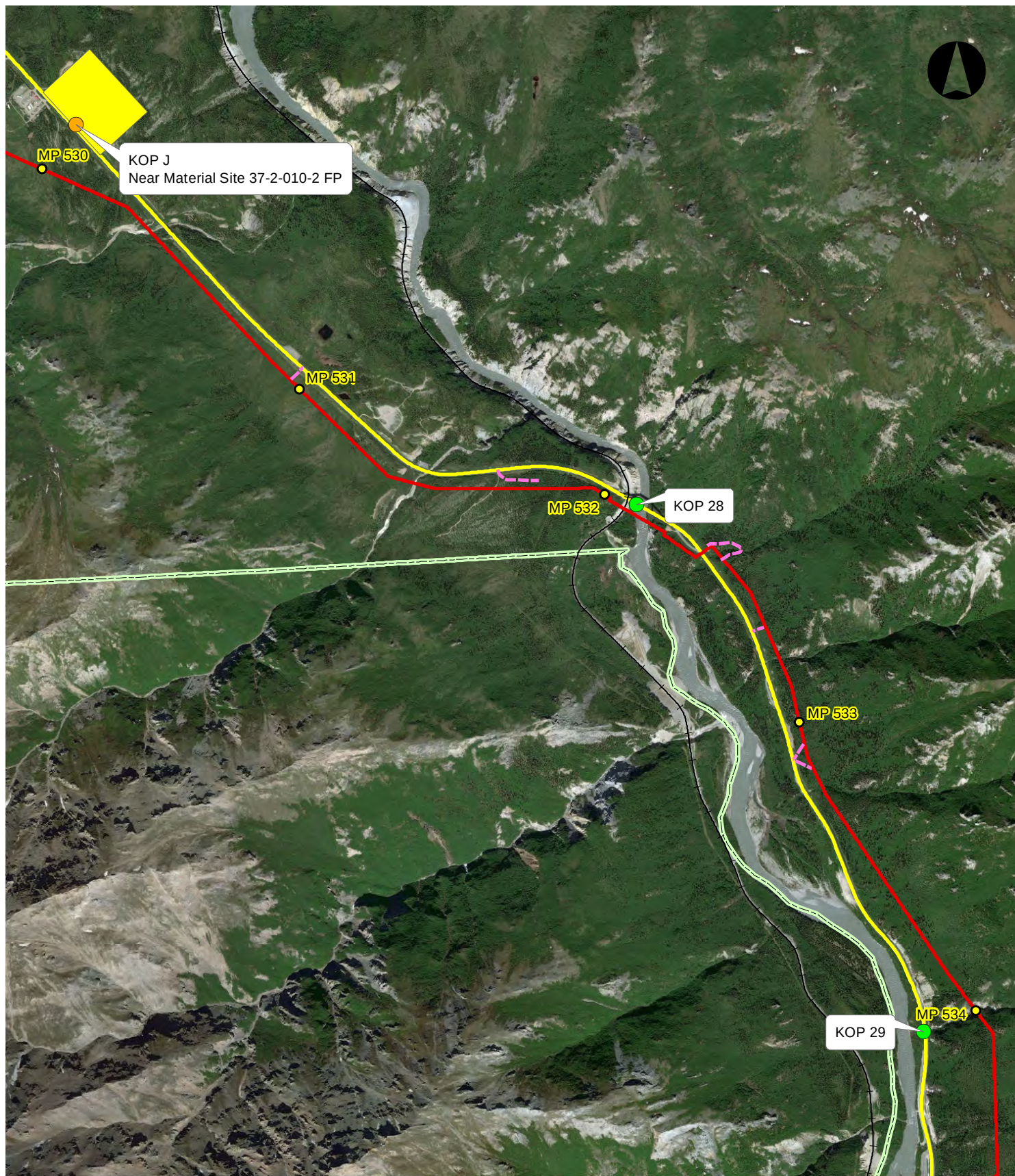
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Figure S-3-21 Alaska LNG Project Visual Resource Work Plan

**Key Observation Pt:
KOP 24, 25, 26, and 27**



- Key Observation Point 2015
- Key Observation Point 2016
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Alaska Railroad
- Material Site
- Park/Refuge Boundary

0 0.25 0.5 Miles

S-173

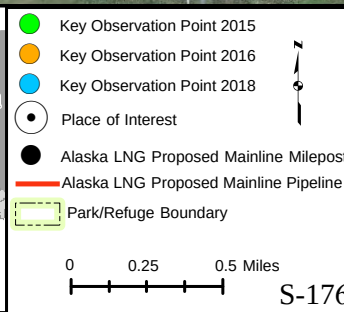
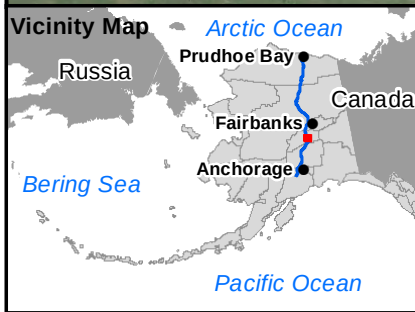
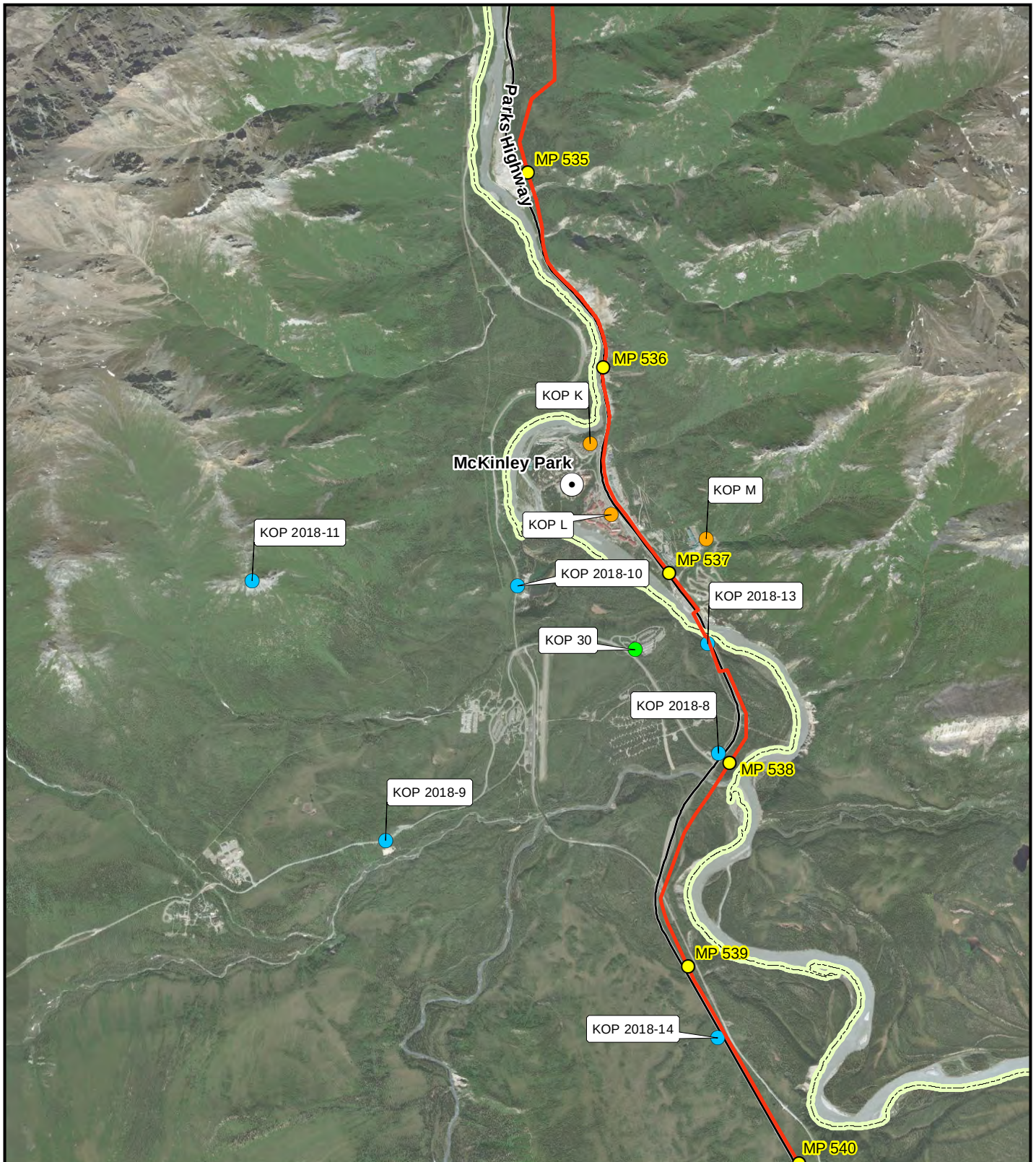
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Figure S-3-22 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 28, 29, and J



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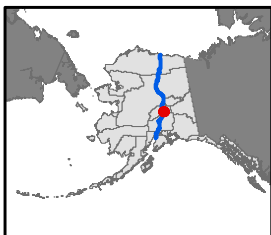
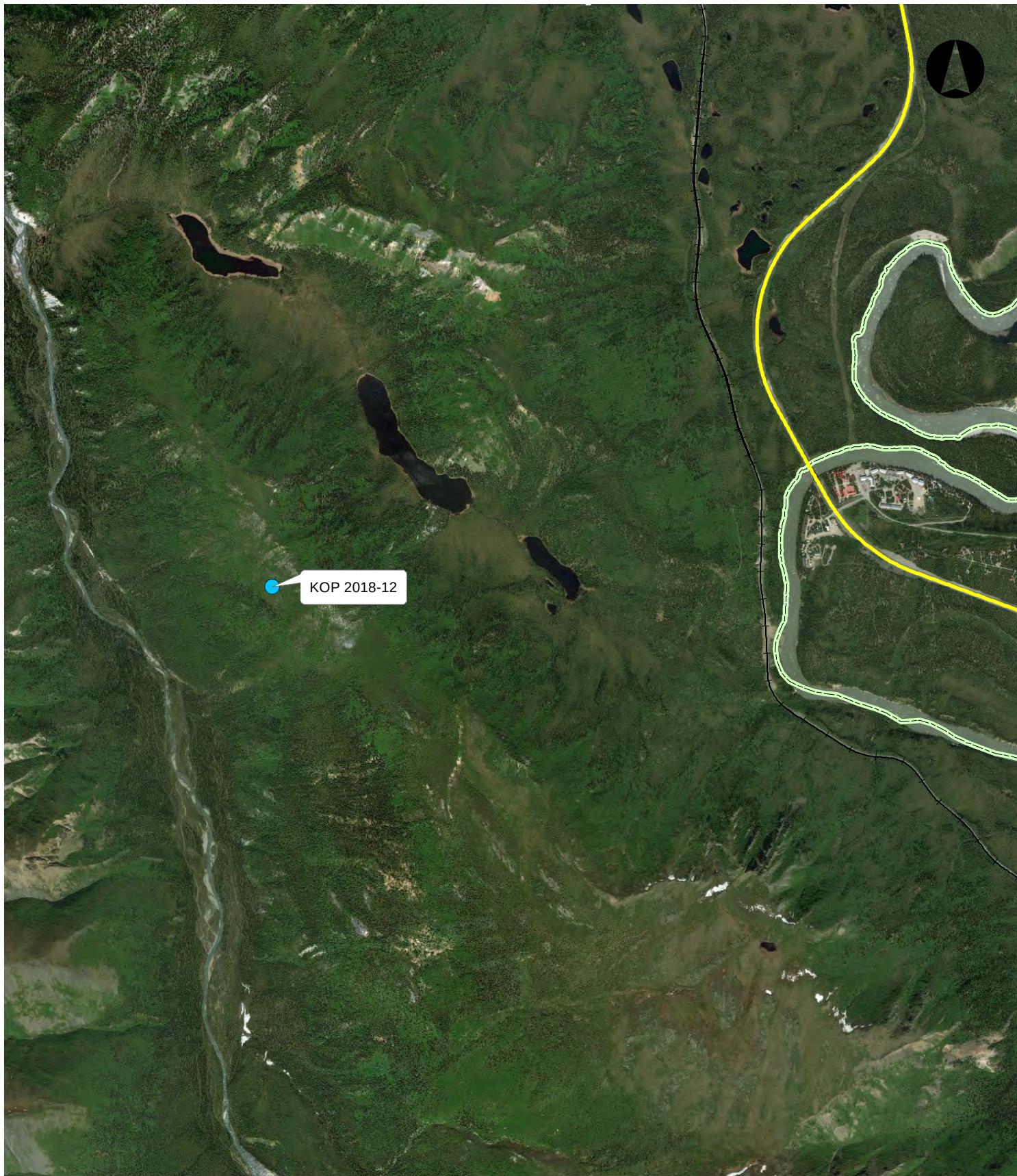
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Figure S-3-23
Alaska LNG Project
Visual Resource Work Plan

Key Observation Pt: KOP K, L, M, 30, 2018-8, 2018-9, 2018-10, 2018-11, 2018-13, and 2018-14



- Key Observation Point 2018
- Scenic Byway
- Alaska Railroad
- - - Park/Refuge Boundary

0 0.25 0.5 Miles
S-175

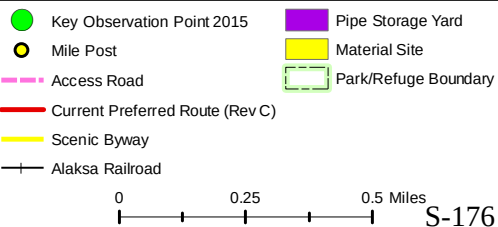
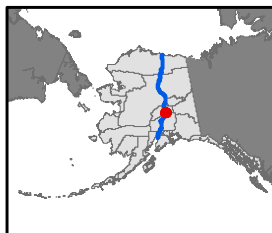
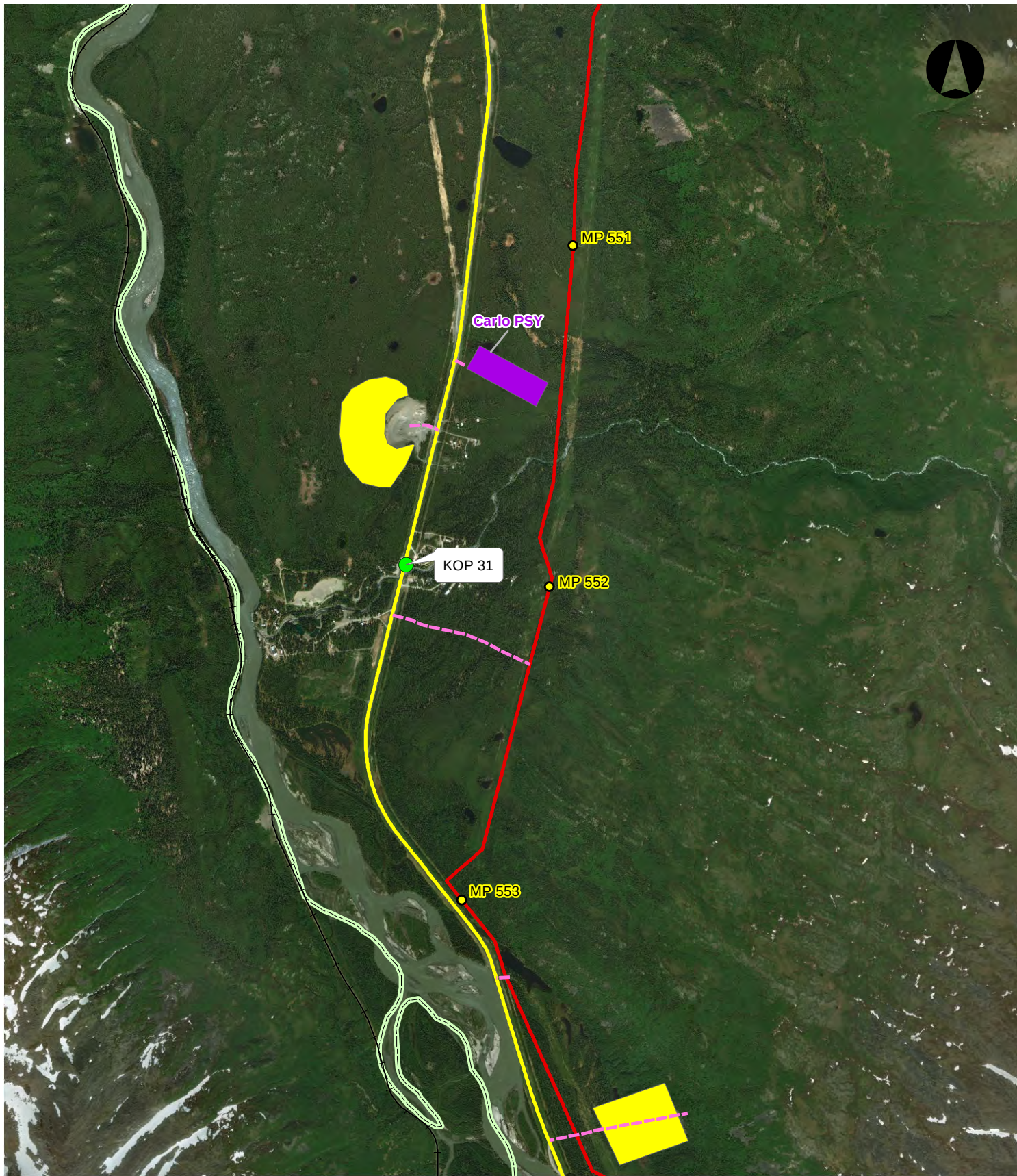
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Figure S-3-24 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 2018-12



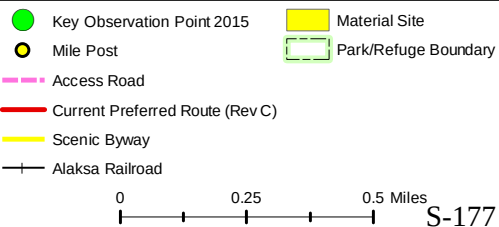
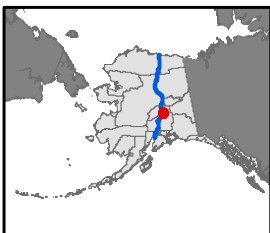
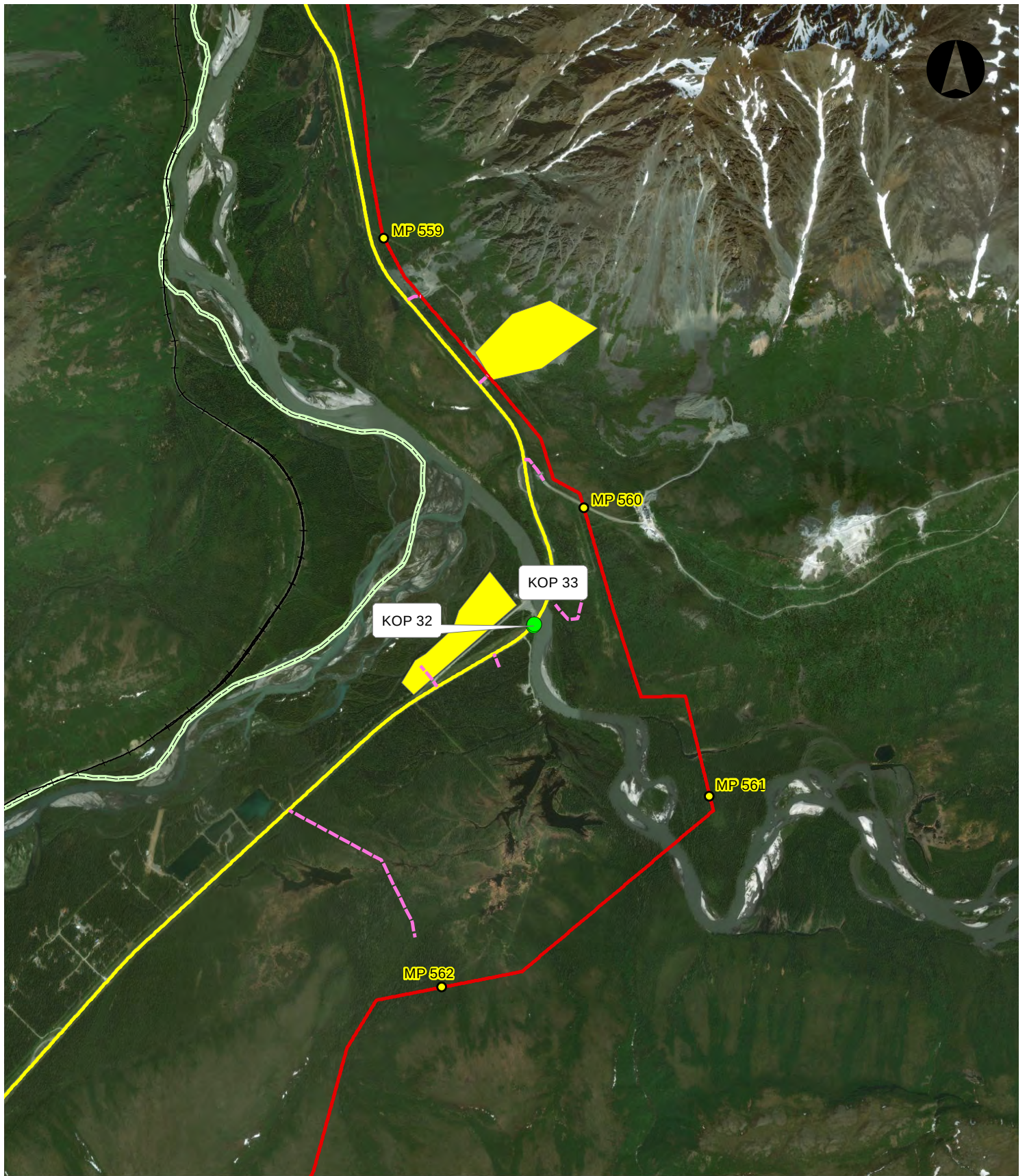
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Figure S-3-25 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 31



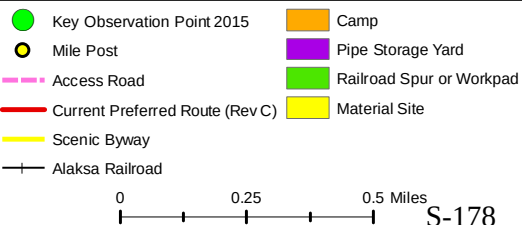
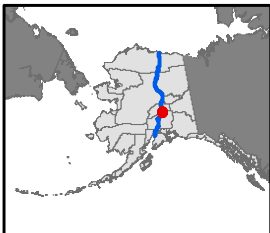
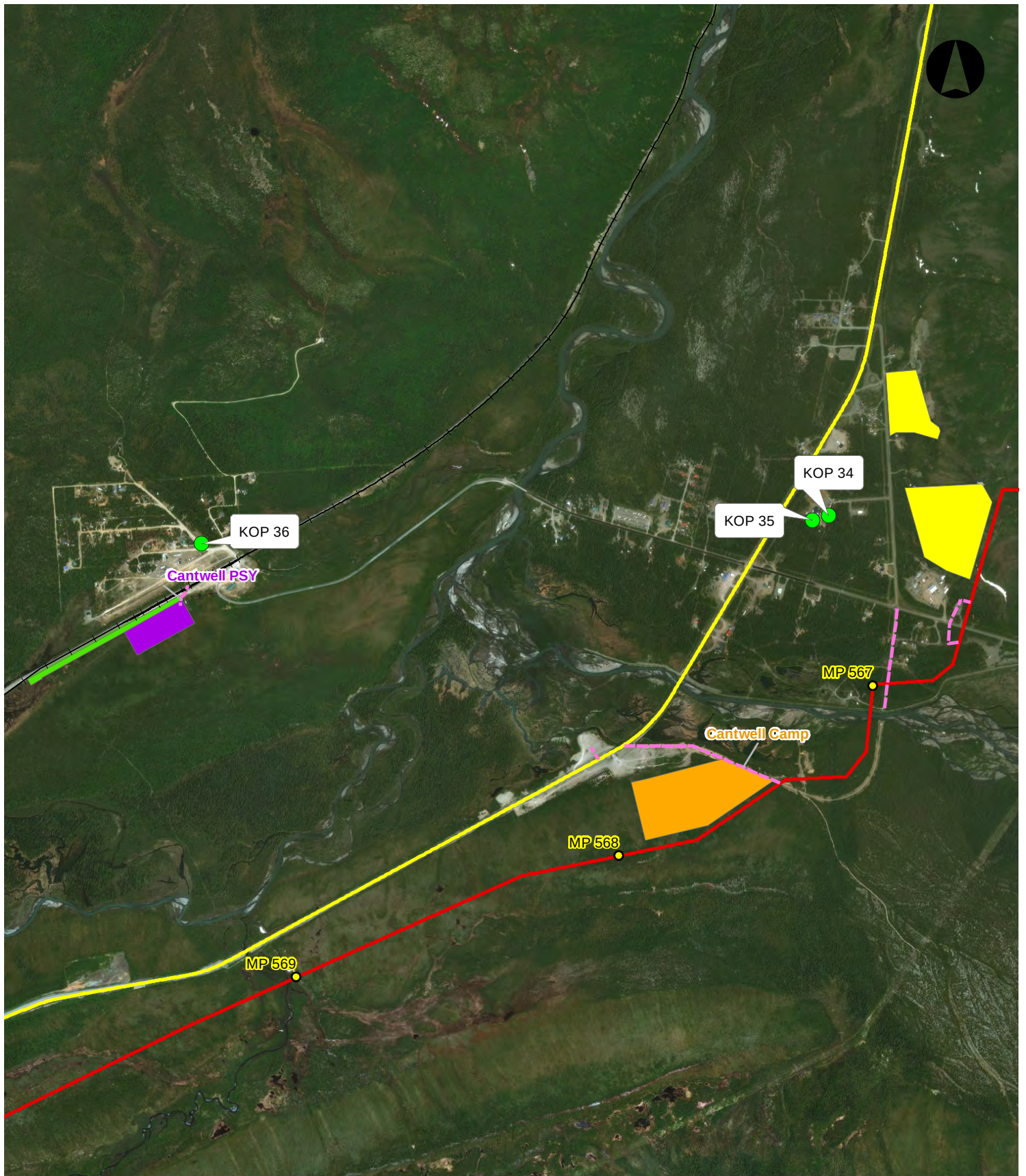
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Figure S-3-26 Alaska LNG Project Visual Resource Work Plan

**Key Observation Pt:
KOP 32 and 33**



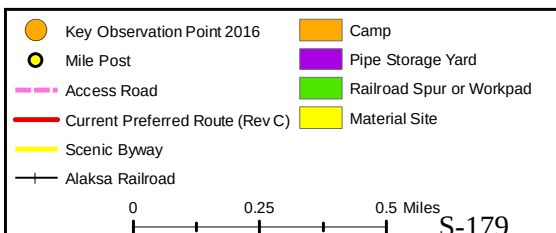
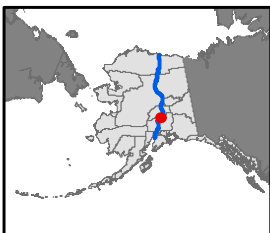
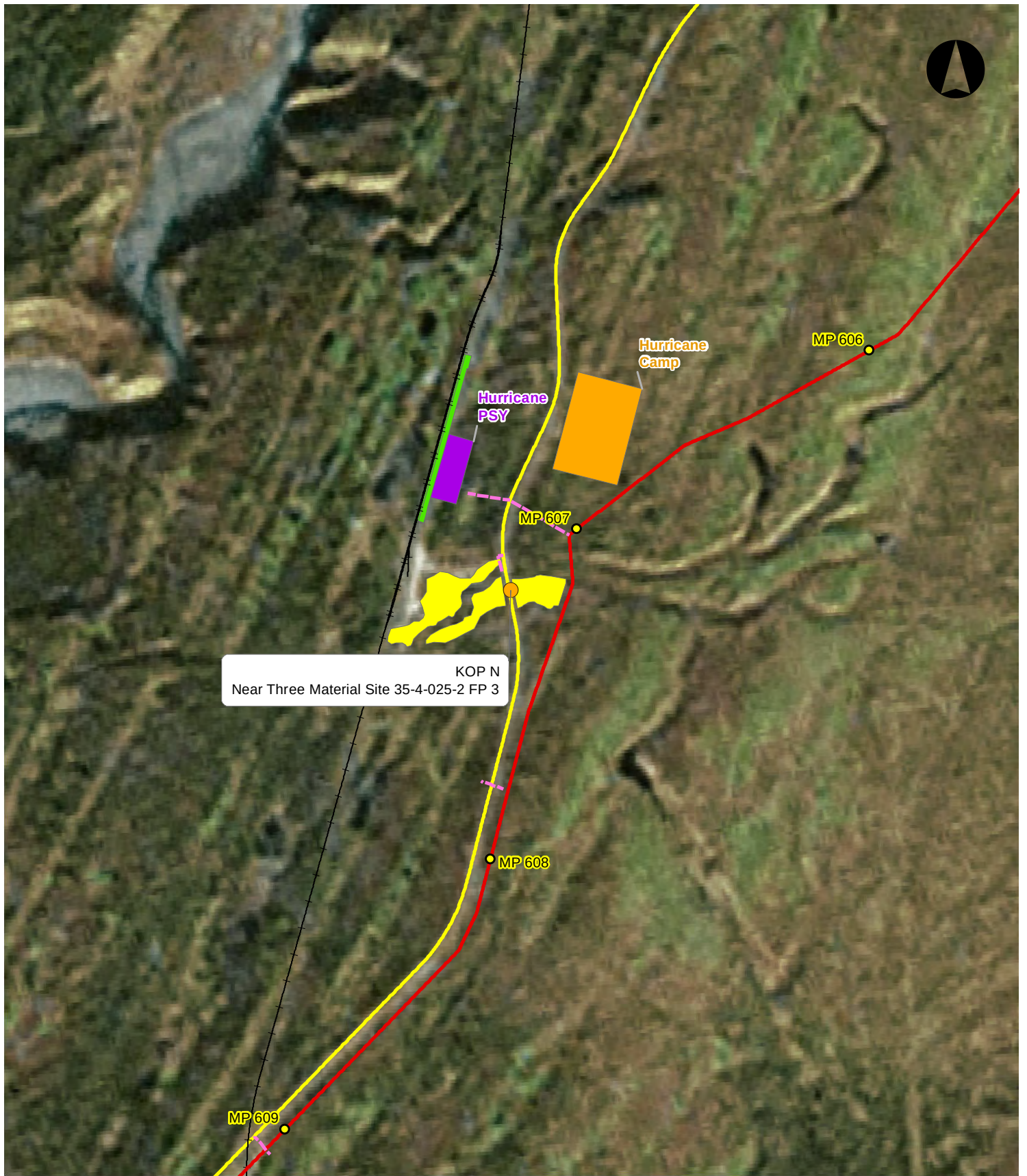
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Figure S-3-27 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 34, 35, and 36



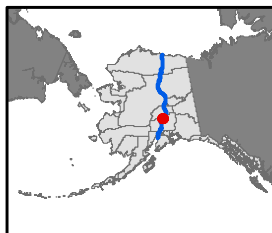
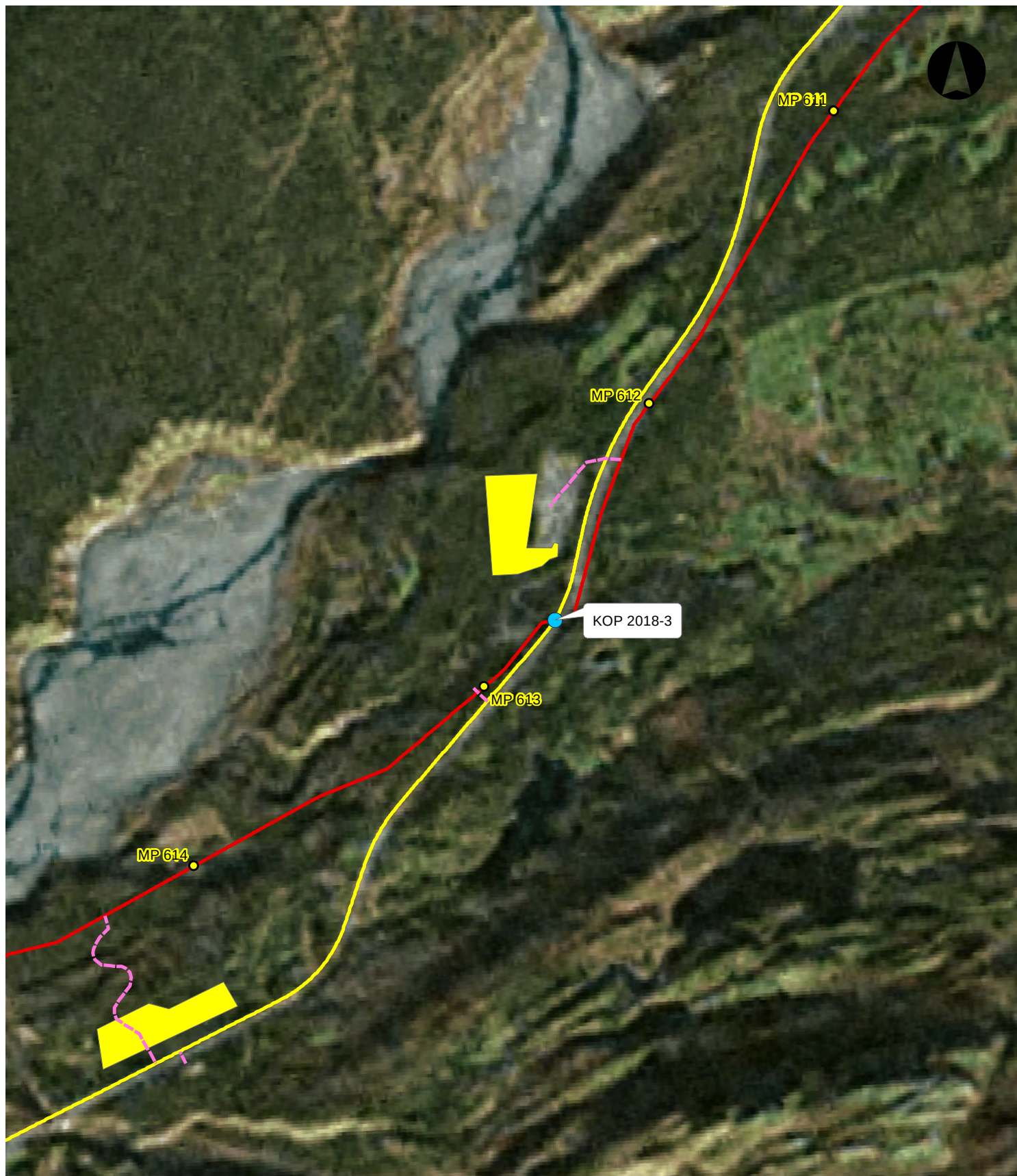
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Figure S-3-28
Alaska LNG Project
Visual Resource Work
Plan

Key Observation Pt:
KOP N



- Key Observation Point 2018
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Material Site

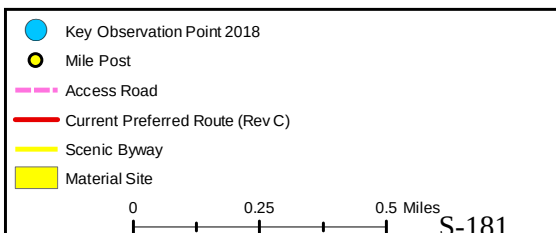
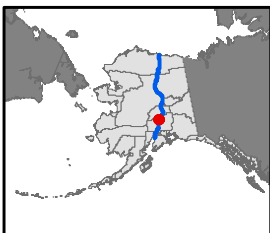
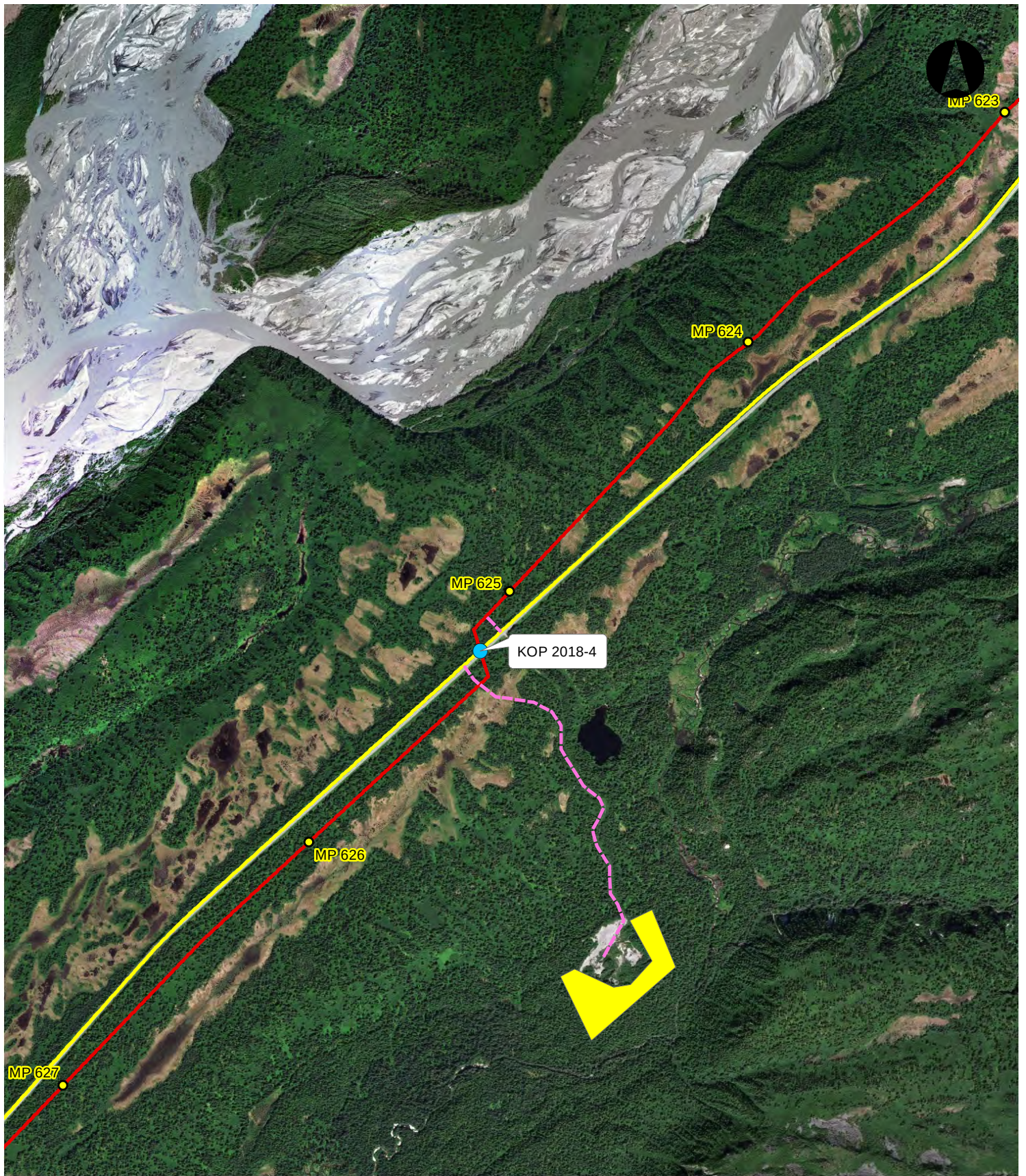
0 0.25 0.5 Miles
S-180

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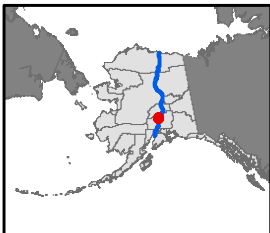
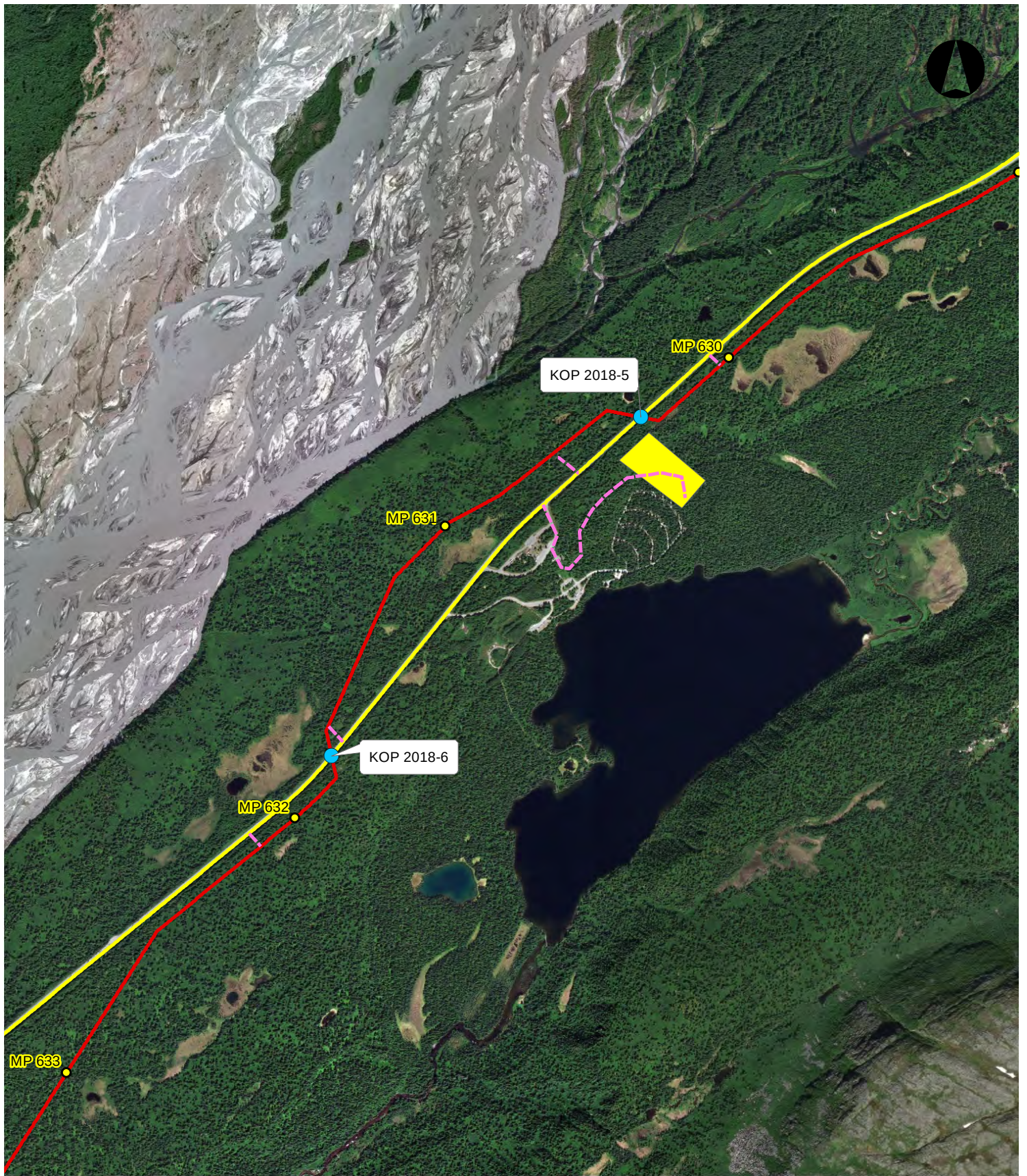
Figure S-3-29
Alaska LNG Project
Visual Resource Work
Plan
Key Observation Pt:
KOP 2018-3



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Figure S-3-30
Alaska LNG Project
Visual Resource Work
Plan

Key Observation Pt:
KOP 2018-4



- Key Observation Point 2018
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Material Site

0 0.25 0.5 Miles

S-182

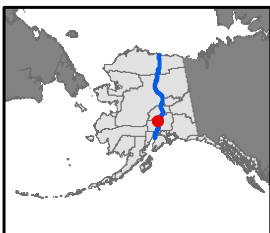
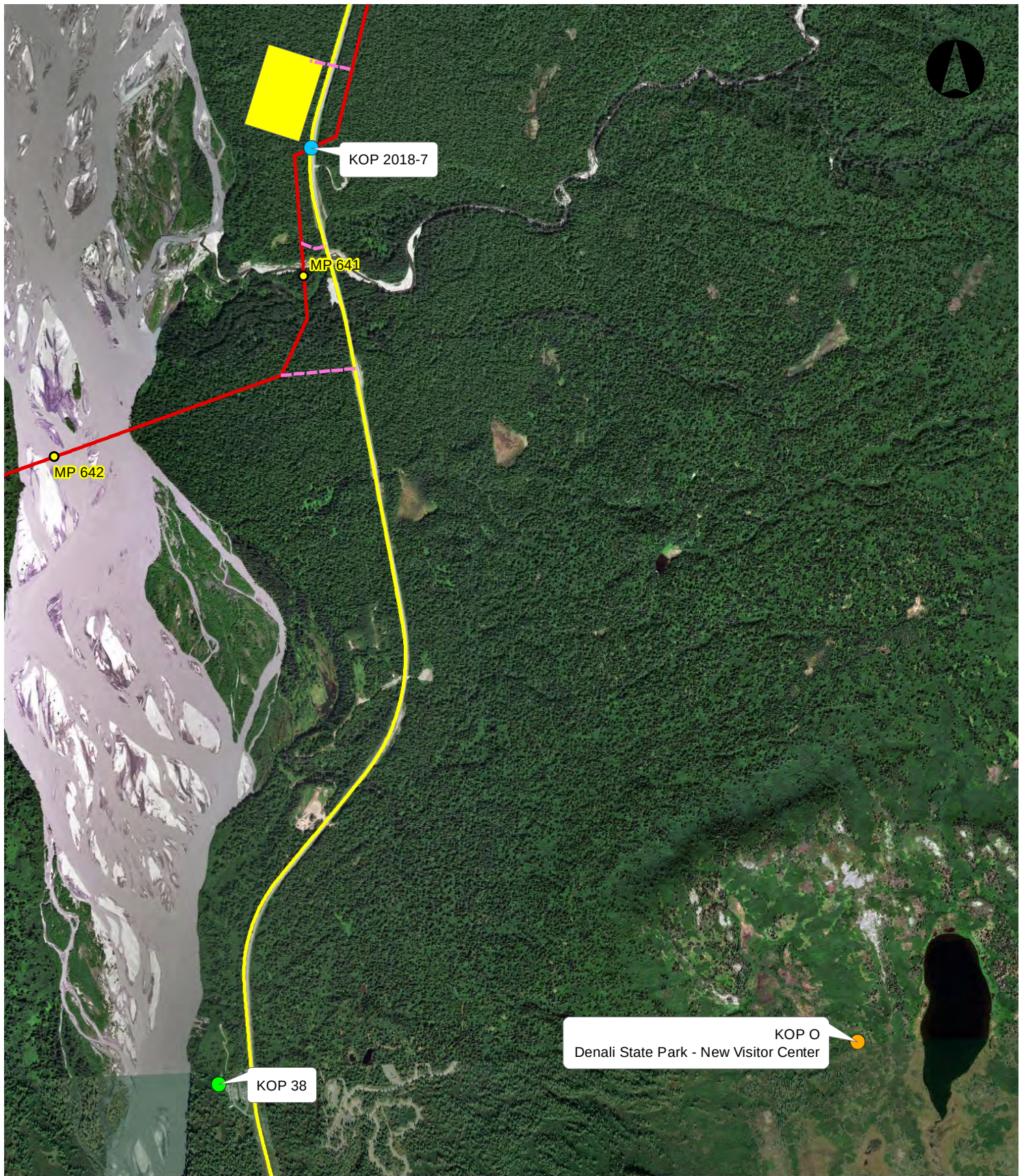
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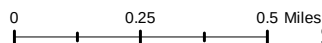
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Figure S-3-31 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 2018-5 and 2018-6



- Key Observation Point 2015
- Key Observation Point 2016
- Key Observation Point 2018
- Mile Post
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Material Site



S-183

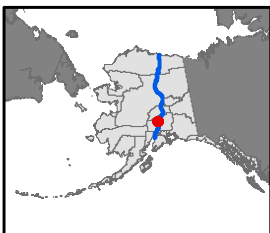
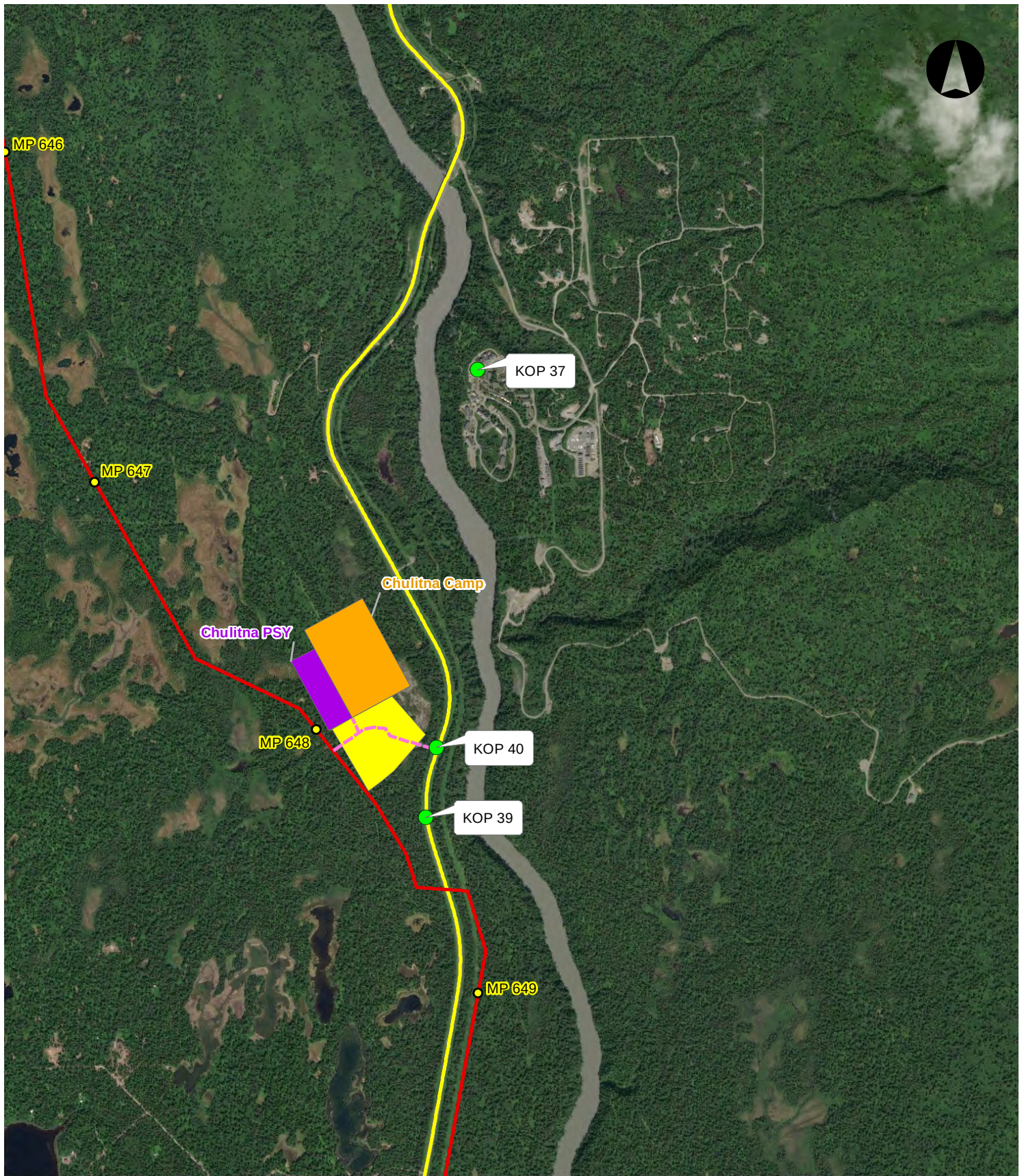
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Figure S-3-32 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP O, 38, and 2018-7



- Key Observation Point 2015
- Mile Post
- Pipe Storage Yard
- Material Site
- Access Road
- Current Preferred Route (Rev C)
- Scenic Byway
- Camp

0 0.25 0.5 Miles

S-184

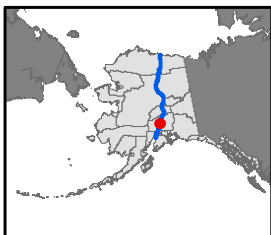
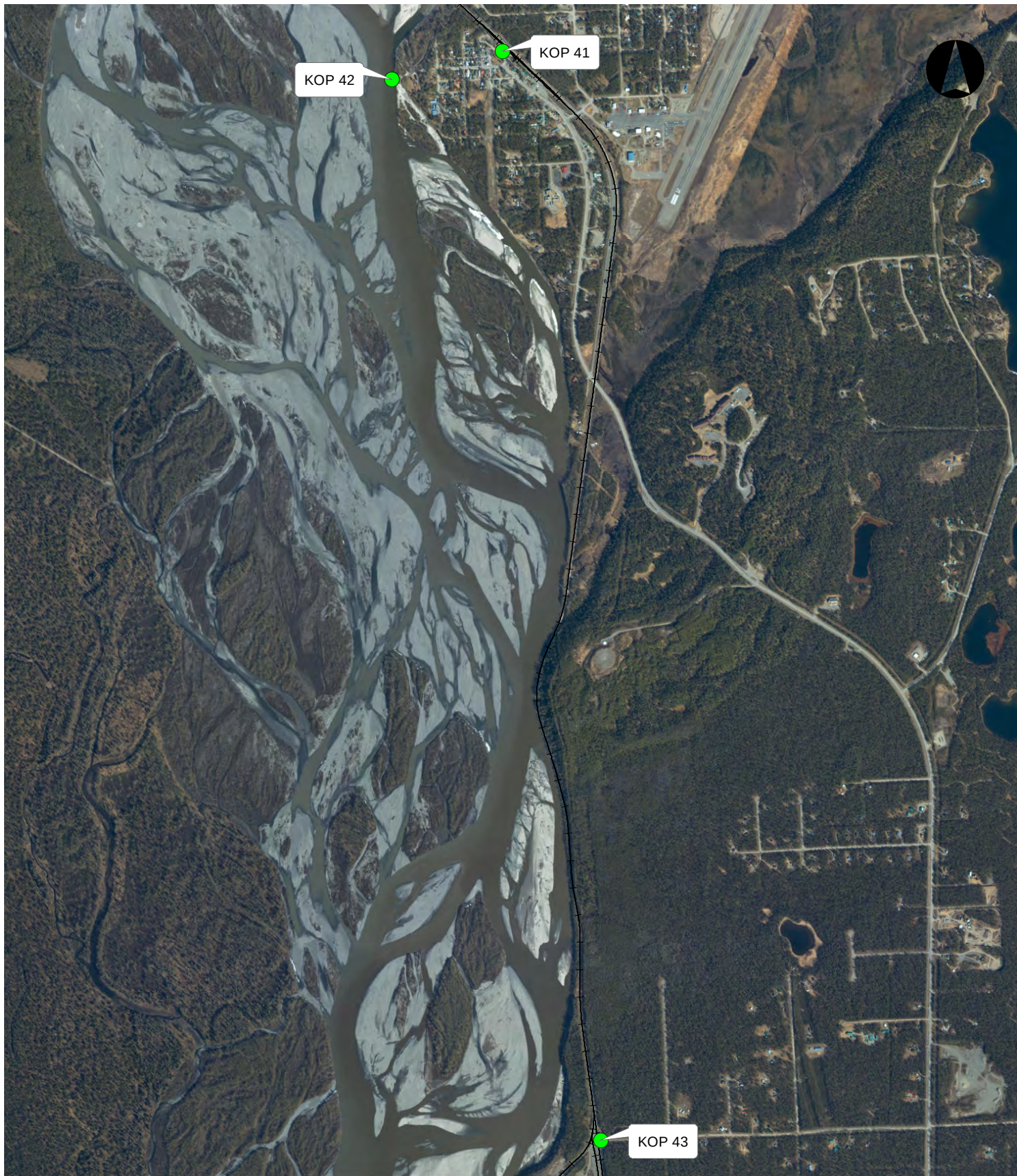
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Figure S-3-33 Alaska LNG Project Visual Resource Work Plan

Key Observation Pt:
KOP 37, 39, and 40



- Key Observation Point 2015
- Alaksa Railroad

0 0.25 0.5 Miles
S-185

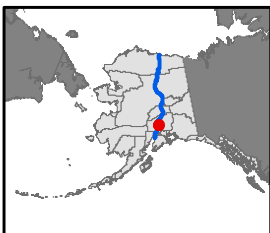
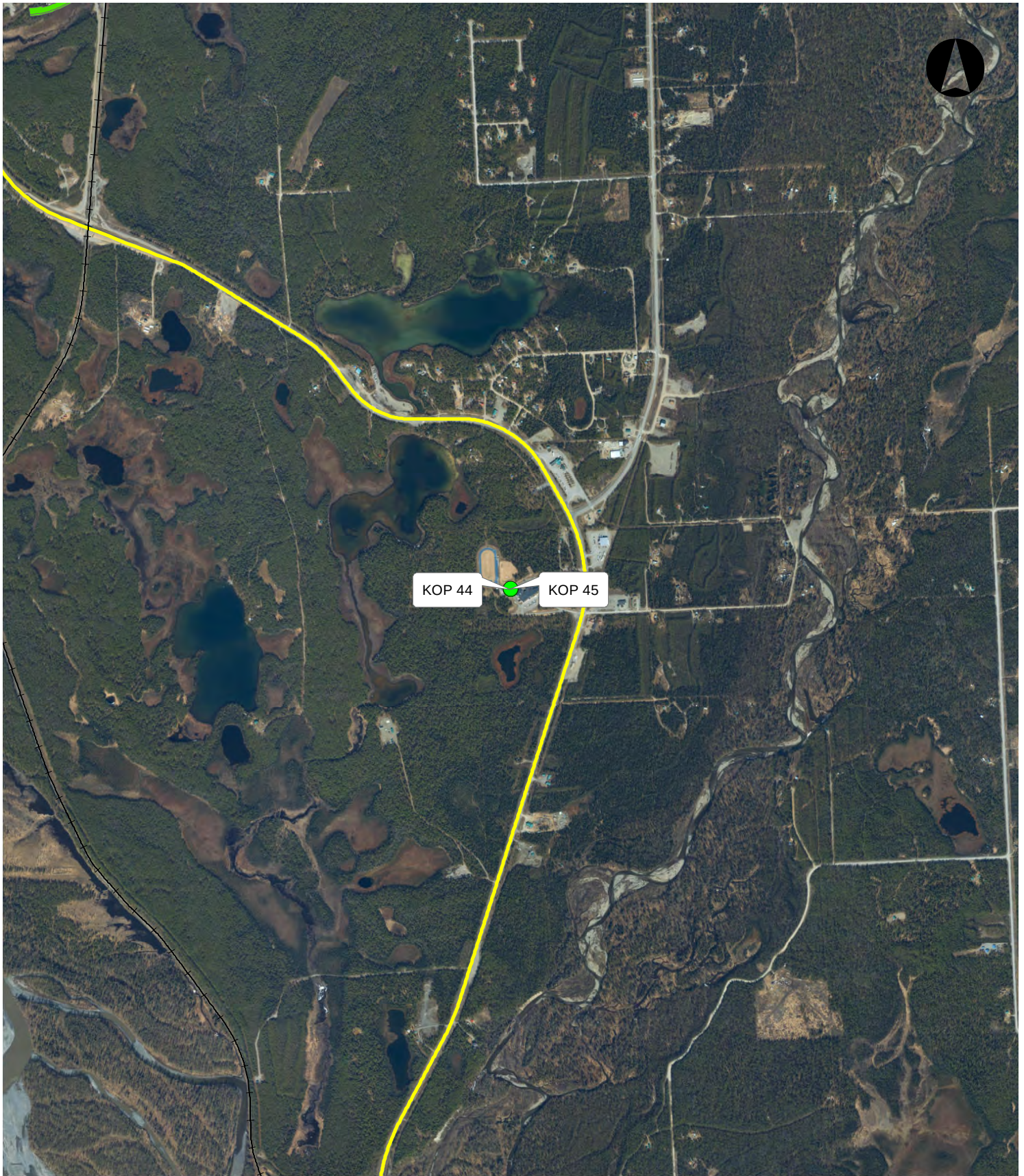
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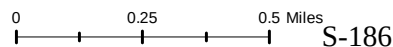
PREPARED BY:	MBG
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Figure S-3-34 Alaska LNG Project Visual Resource Work Plan

**Key Observation Pt:
KOP 41, 42, and 43**



- Key Observation Point 2015
- Scenic Byway
- Alaska Railroad
- Railroad Spur or Workpad



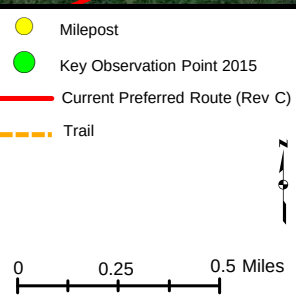
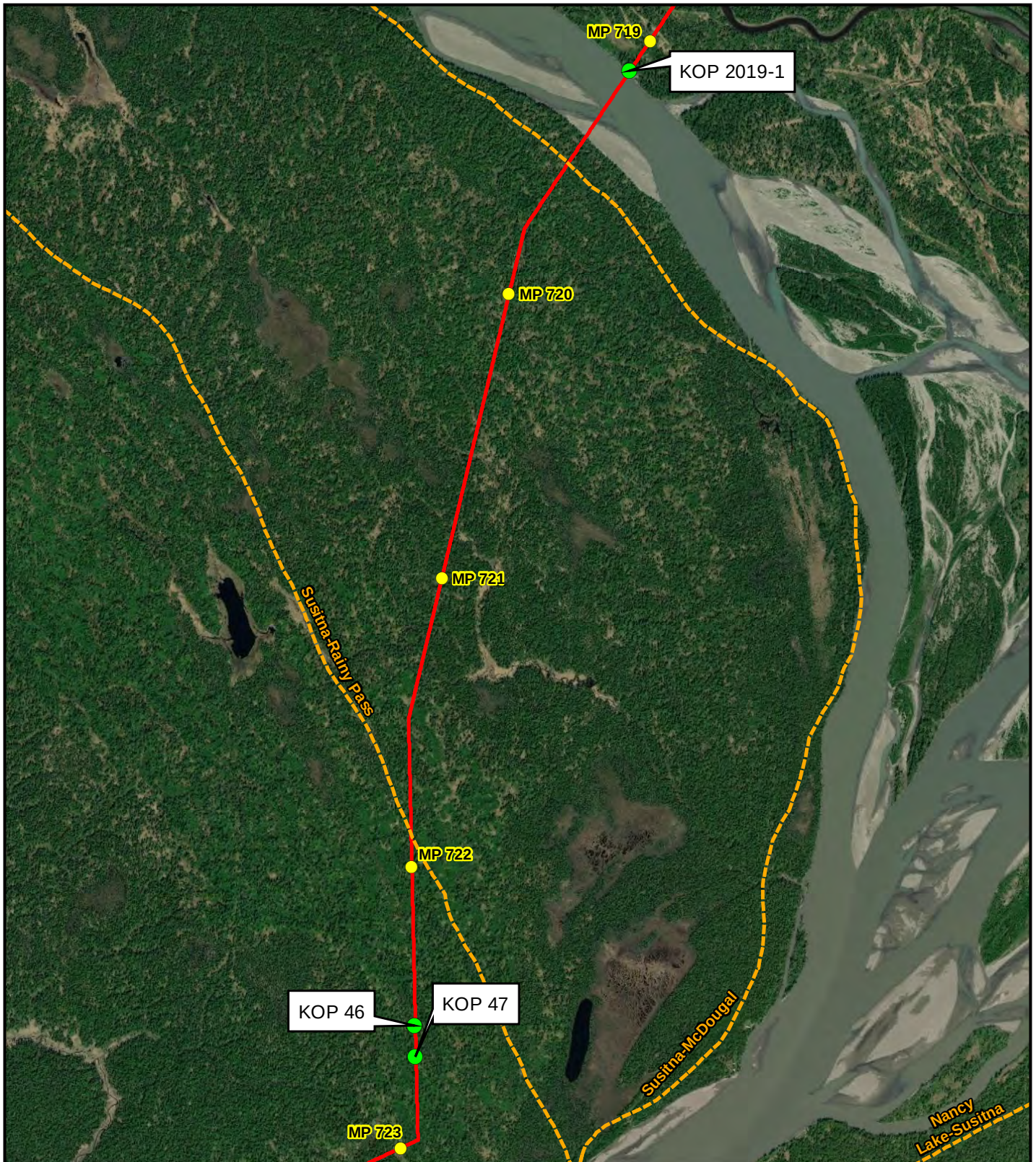
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Figure S-3-35 Alaska LNG Project Visual Resource Work Plan

**Key Observation Pt:
KOP 44 and 45**



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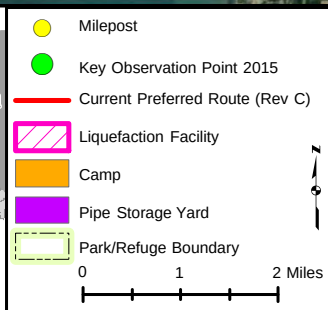
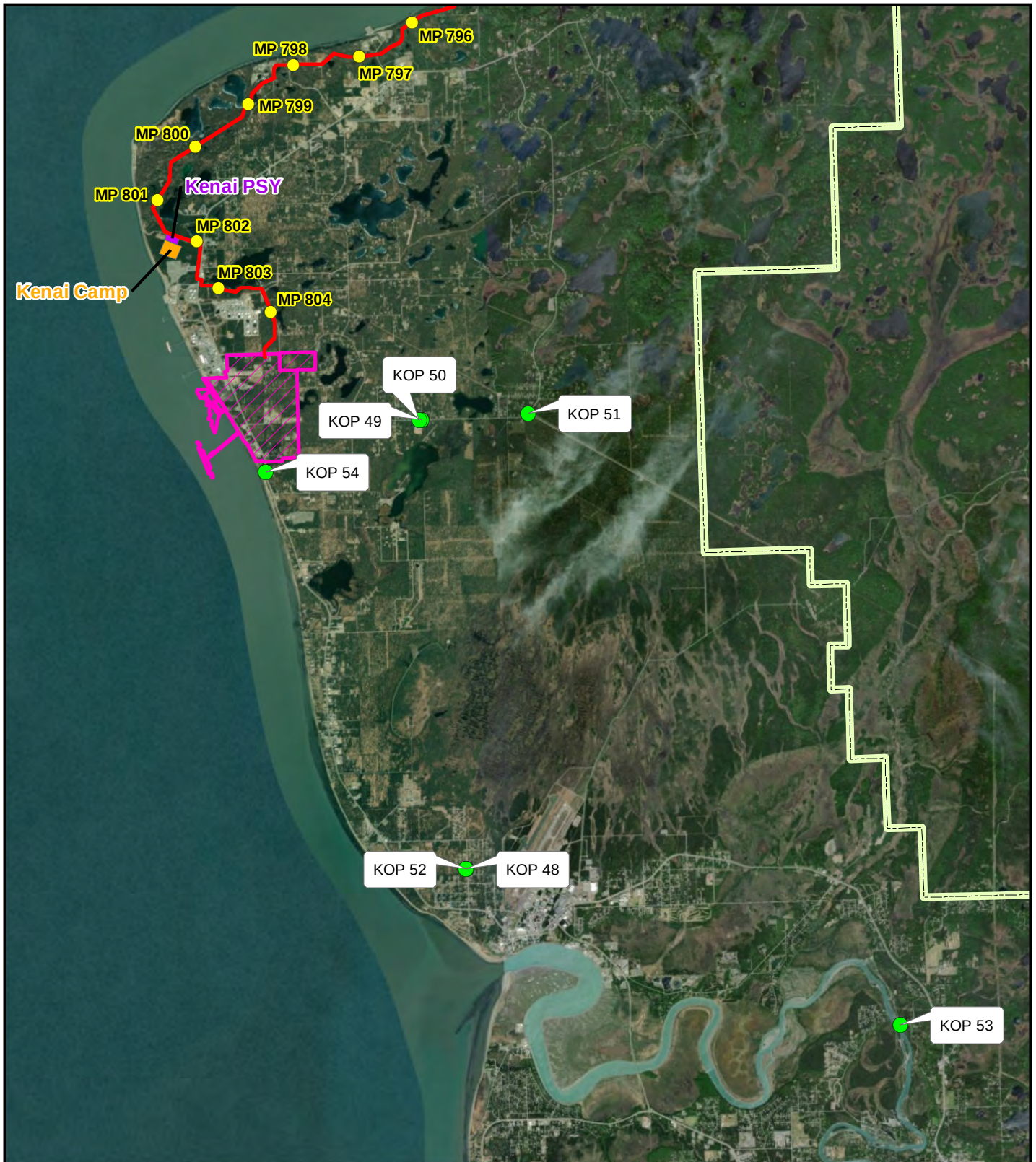
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Figure S-3-36
Alaska LNG Project
Visual Resource Work
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Key Observation Pt:
KOPs 46, 47, and 2019-1



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Figure S-3-37

Alaska LNG Project

Visual Resource Work Plan

Key Observation Pt:
KOPs 48-54