

BLM Selected Mitigation Measures from FEIS Chapter 5		AECOM/Corps MM concerns (June 20) General: Need to consider how measures will be enforced. The measures in the EIS may not provided the specificity needed for permitting.	BLM Comments/Response (June 22) to AECOM/Corps: Measures will be specified through the ROW Grant Stipulations.
1	Train site construction managers to oversee work of specialists in wetland recognition, permit stipulations, and BMPs.		
2	Prior to pipeline construction, the specific location of "potentially contaminated soils" (get better description from Beck) should be mapped compared to final grading plans at the Farewell airstrip (all action alternatives), North Foreland barge landing, Tyonek-Beluga pipeline trench segment, and Puntilla airstrip (Alternative 3B). Disturbance of these soils can/will then be avoided if possible, and the impacts reduced. Clear documentation of the current, contaminated sites would also reduce liability for the developer.	None of the locations listed are on BLM managed land.	Farewell airstrip is BLM managed lands
3	Develop Plans and Procedures for notification, documentation, sampling, and curation in the event that scientifically important paleontological resources (e. g., dinosaur fossils) are found during ground disturbing activities.	addressed in the PA.	
4	Schedule Pipeline component Closure Phase activities to occur during the winter season (similar to how Construction Phase activities are scheduled) to minimize surface disturbances to soil and erosion potential.		
5	Where practicable, leave riparian bank vegetation material intact or, where needed and practicable, store for replacement on the disturbed banks to stabilize and restore the crossing. Monitoring of crossing sites to identify sites that need additional restoration to prevent bank erosion should be implemented after construction. At stream bank crossings, placement of riparian mats or root masses would be placed to facilitate rapid vegetation regrowth to prevent bank erosion.		
6	Mark wetland boundaries and vegetation clearing limits with flagging or other markers to prevent crews from damaging more vegetation than needed during construction.		
7	Where practicable, for winter pipeline construction access roads, frost pack muskegs and wetlands (the combination of covering with snow and driving on it causes freezing at depth and provides a slightly elevated running surface) to minimize impacts to vegetative ground cover and wetlands.		
8	Where practicable, promote salvaging and re-spreading topsoil over the overburden piles and allowing native vegetation and native seed planting vegetation growth to keep topsoil viable until it is needed during final reclamation. In pipeline reclamation practices, segregate windrowed organic soils as cover material (where present).		
9	Install signs that clearly distinguish trails from the pipeline ROW at points where the pipeline crosses trails to guide trail users to stay on the trail and off of the pipeline ROW where the two are not collocated. As practicable, revegetate, or otherwise block access to, a narrow strip of the pipeline ROW where it crosses the trail to help steer and keep trail users on the trail and reduce the visual effect of the pipeline ROW crossing.	DG previously commented on this saying that blocking access is subject to landowner approval. Does BLM including this measure give approval? Will this only apply to the pipeline where it crosses BLM land?	ROW Grant stipulations further this MM with more specifics. Yes, this (and all BLM selected MMs, and our BLM ROW Grant Stipulations) will apply to only BLM-managed land.
10	Where practicable, when clearing brush and shrubs as required to maintain the operations ROW, introduce variation in the edges of clearing (i.e., avoid extended straight lines) to minimize effects to visual resources.		
11	Include measures to mitigate visual impacts to known sensitive cultural resource areas, such as clearing a narrower construction ROW, using HDD drilling under a sensitive site, minor realignment of the construction ROW, or other appropriate measures to avoid known sensitive areas.	See notes on this measure in Table 5.5-1. Need to make sure this does not conflict with what is in the PA. If mitigation measure are already addressed in the PA do they even need to be included in this spreadsheet; especially if they may conflict with the PA?	Yes, BLM needs to have this in the Grant. The Grant is the authorizing document for the applicant. Applicant Field Personnel are unlikely to have the PA or the ROD in the field with them, but are likely to have the ROW Grant and stipulations. This MM does not conflict with the PA.
12	Apply measures to reduce substantial grading of hillsides for the pipeline ROW, on a site-specific basis.	Note (9) was included on the measure in Table 5.5-1 saying that the measure, as suggested, lacks detail/specificity for effective implementation and/or enforcement.	BLM clarified this MM with specific ROW stipulations. We will keep this MM in the JROD.

13	Apply measures to reduce the initial clearing requirements for the ROW, on a site-specific basis. Avoid vegetation clearing during the bird nesting season.	Note (9) was included on the measure in Table 5.5-1 saying that the measure, as suggested, lacks detail/specificity for effective implementation and/or enforcement.	BLM clarified this MM with specific ROW stipulations. We will keep this MM in the JROD.
14	Evaluate use of slope breakers and trench breakers at wetlands boundaries to prevent trenches from draining wetlands.	Note (9) was included on the measure in Table 5.5-1 saying that the measure, as suggested, lacks detail/specificity for effective implementation and/or enforcement.	BLM clarified this MM with specific ROW stipulations. We will keep this MM in the JROD.
15	During final design locate any potential vegetation buffers to reduce visual impacts.	Note (9) was included on the measure in Table 5.5-1 saying that the measure, as suggested, lacks detail/specificity for effective implementation and/or enforcement.	BLM clarified this MM with specific ROW stipulations. We will keep this MM in the JROD.
16	To the extent practicable, avoid wetlands in the positioning of temporary construction facilities, including camps.	included in DA permit application	
17	Where appropriate, employ seasonal timing restrictions on blasting, as stipulated by resource agencies, to reduce noise related effects of blasting during sensitive subsistence hunting activities (e.g., fall moose hunting).	Note (9) was included on the measure in Table 5.5-1 saying that the measure, as suggested, lacks detail/specificity for effective implementation and/or enforcement.	BLM clarified this MM with specific ROW stipulations. We will keep this MM in the JROD.
18	Develop a sampling and analysis plan to ensure PAG rock and other sources of contaminants are not used for construction at the mine or for road surfacing (i.e., where such construction could lead to surface water quality impacts).	This measure is specifically for the mine site and for road surfacing. It isn't clear that road surfacing would apply to pipeline construction on BLM managed land.	In speaking with Donlin, they are planning on using gravel at the construction camps and possibly along some shoo fly roads. We will keep this MM in the ROD.
19	Frost pack the pipeline trench cover in bogs and fens, cut the trench cover in blocks, set the blocks aside during construction and replace them over the trench fill afterwards.	This measure indicated that it is not likely feasible on a large scale	We will keep this MM because of the problems with buried utilities in permafrost zones. See current example of Dalton Highway fiber optic cable problems.
20	Segregate wetlands soil for use in wetland mitigation to the maximum amount practicable.		
21	During construction of the pipeline, avoid wetlands impacts by placing above ground appurtenances away from floating bogs and fens.		
22	Restore flat-to-gently sloping wetlands by removal of fill at project closure where practicable. Removed fill would be transported to approved upland areas for disposition.		
23	Restore riparian areas at stream crossings along the pipeline.		
24	Specific plans for borrow site reclamation would be completed in a later phase of the project. In addition to standard BMPs for contouring, drainage, and erosion controls (Section 3.2, Soils), reclamation should create ponds and/or stream connections for fish and wildlife habitat at borrow sites in low lying areas (e.g., at Getmuna Creek) in accordance with ADEC and ADF&G guidance (McClean 1993; Shannon & Wilson 2012; Owl Ridge 2017c).	Is this consistent with what is in the CMP? Coordination with the Corps on measures specific to wetlands mitigation is recommended.	We have not seen the Corps' CMP
25	Include additional erosion and sediment control measures such as settling ponds, silt fences, or sediment barriers to minimize the amount of sedimentation from snowmelt.		

26	Where needed and practicable, use mats or other appropriate types of ground protection to minimize disturbance to ground vegetative cover during non-winter construction.	This measure was assessed as not reasonable/practicable on a large scale due to limitations with transportation, storage, and deployment in remote areas or in rough terrain.	BLM finds this MM is reasonable, given the "where practicable". And, Donlin has indicated most construction would be in winter. These situations would be rare, "where needed".
27	Where practicable, salvage and replace the native vegetation mat in wetlands, and/or re-establish wetland vegetation that is typical of the general area.	This measure was assessed as not reasonable/practicable on a large scale. Although may be practicable in limited situations where salvaged material can be stored nearby and reused in a timely way.	BLM thinks this MM is reasonable, given the "where practicable". And, Donlin has indicated most construction would be in winter. Therefore these situations would be rare, "where practicable".
28	Where practicable and in compliance with FAA and safety requirements, establish appropriate minimum flight altitudes to minimize impacts to wildlife when animals are present in the vicinity of the work (both >1,000 feet and > 1,500 have been specified for other projects in Alaska).	This measure was assessed as not reasonable/practicable because a fixed altitude requirement can result in unsafe operation; safety is primary goal.	As it says in MMs, "where practicable and in compliance with FAA and safety requirements", BLM believes this is reasonable and practicable.
29	Review the success and practicability of measures that were taken to prevent or minimize adverse effects on visual resources on other linear projects, including the Trans-Alaska Pipeline System (TAPS), the Dalton Highway, the Elliott and Parks Highways, and the Anchorage-to-Fairbanks Intertic, and incorporate successful measures into the design and location of the pipeline where reasonable and appropriate.	This measure was assessed as not effective and not reasonable/practicable	This is something BLM is committing to doing, that is why we are keeping it. BLM will consider this in our authorization(s).
30	Work with communities to make equipment and parts available at Closure, and remaining material should be shipped off site for recycling or disposal.	The only material removed from the pipeline on BLM managed land would be above ground appurtanances such as valves or markers. This measure was assessed as not effective and not reasonable/practicable because this would increase barging. ADEC would approve what may be disposed of onsite. Does BLM have authority to require this?	BLM does have authority to require off-site disposal and removal of materials on BLM managed lands.
31	Agencies should coordinate to refine clearing practices that both meet PHMSA regulations and protect ecological values.	This measure is not a DG action. It was assessed as not effective and not reasonable/practicable.	BLM is committed to working with other regulatory agencies, and we will keep this in the JROD to let the public know.
32	Develop a Fugitive Dust Control Plan for the Pipeline component.	This measure was assessed as a low likelihood of implementation because the the amount of dust generated by pipeline construction would be temporary and is not expected to require a control plan.	Donlin has already committed to this, and it is a BMP listed in the FEIS Ch 5. BLM will be requiring a Fugitive Dust Control Plan.
33	Reduce the total number of material sites by increasing their size and maximizing haul distance between them.	This measure was assessed as not reasonable/practicable due to the large scale of the project. Does BLM have authority to require this on land they do not manage?	It appears that BLM is the only land manager requiring this as described in FEIS Page 3.10-68, as a Design Feature of Alternative 2. Therefore, BLM can not require this specific MM as it applies to non-BLM land. We can, however, require a ROW Grant stipulation for the pre-construction surveys on BLM land.
34	Use raincoatings to cover stockpiles or other areas expected to produce runoff to reduce potential seepage of contaminants.	This measure was assessed as not being reasonable/practicable (1, 2, 3): 1. The measure is assessed to be not effective in reducing the potential impact. 2. The measure is assessed to be not reasonable in terms of cost. 3. The measure is assessed to be not reasonable in terms of existing technology.	BLM will keep this in the JROD because we will be addressing this when permitting the material sites. Where it would reduce overall resource impacts, we would adopt this MM, reduce the total number of material sites needed.
35	Establish scientifically based thresholds or quantitative indicators for construction operations (e.g., # of days below freezing, depth of ground frost penetration, minimum thickness of surface water freeze-up) to promote accomplishment of minimum impact winter construction techniques, above which construction activities would be postponed until these conditions are met. Such practices have already been established and successfully implemented in cases such as the permitting and development of ice roads on the North Slope of Alaska where these practices have been assessed to be feasible and practicable.	BLM was not identified as having potential jurisdiction for this measure and the measure was assessed as not being reasonable/practical (1, 2): 1. The measure is assessed to be not effective in reducing the potential impact. 2. The measure is assessed to be not reasonable in terms of cost.	BLM does have jurisdiction over any stock piles which occur on BLM-managed land.
36	Place valve stations to avoid visual impacts to local businesses, the INHT, hunting/guiding camps and cabins, as necessary on a site-specific basis.	This measure was assessed as not reasonable/practicable in this project location and because the scale is small, as compared to North Slope tundra travel, with limited duration that would make use of existing winter trails. (2, 4): 2. The measure is assessed to be not reasonable in terms of cost. 4. The measure is assessed to be not reasonable in terms of logistics, including safety.	This is very relevant. We have already identified some metrics in the ROW stips that parallel with the State ROW lease stips that address this. This is appropriate to keep in the MMs in JROD to allow for adaptive management if better science and strategy becomes evident.
37	Construct temporary access roads using geotextile, "Chip Seal", "High Float", paving, or similar design feature and controls to reduce erosion, sedimentation and dust impacts.	This measure was assessed as not reasonable/practicable because valve stations would need to be installed at intervals no more than 20 miles so avoidance to all specified groups is impracticable. Mitigation to reduce visual impacts to the INHT is addressed as a part of the Section 106 compliance process and specified in the PA (see Design Feature P26). Additionally, the INHT does not occur on BLM managed lands associated with the project so shouldn't be listed here.	This is reasonable and practicable to avoid visual impacts of the above ground features. This will apply to BLM-managed lands.
38	Inert solid wastes that are proposed to be permanently disposed of onsite after the project is completed should be transported offsite to a licensed landfill facility, if feasible.	The measure applies to inert landfills proposed at the Mine Site. BLM was not identified as having potential jurisdiction and the measure was assessed as not being reasonable/practical. An option of decommissioning and removing all mine infrastructure at closure was considered but eliminated because it would provide little environmental benefit and increase impacts to other resources (see Option MS-88 in Appendix C).(1, 2, 8)	In conversations with Donlin, they were not clear on if they needed anything like this for the construction camps. This would apply to any activities on BLM-managed lands.

39	Apply restoration practices to vegetation in wetland areas in trenches along the pipeline route to prevent permanent water filled trenches with no vegetative cover as seen at the Beluga to Anchorage Pipeline.	This measure was assessed as not effective and not reasonable/practicable because the effects are not expected. Wetlands restoration will be addressed as part of the Corps' Section 404 permit.	This will apply to BLM-managed lands. Dalton Hwy fiber optic example is what we want to avoid.
40	Apply measures to further restrict public access to the ROW to reduce indirect effects, such as closing the pipeline ROW to Off Highway Vehicle (OHV) and snowmachine use, where appropriate based on landowner approval.	This measure was assessed as not reasonable/practicable because it was unclear who would be responsible for implementing and enforcing such a measure. If retained, it should be edited to be clear it only applies to BLM managed lands.	This will apply to BLM-managed Lands, per BLM discretion.
41	Add training for staff or construction managers in identification of nonnative invasive species (NNIS) for the full project area (especially along the pipeline route, all project and local roads, and the mine area.)		