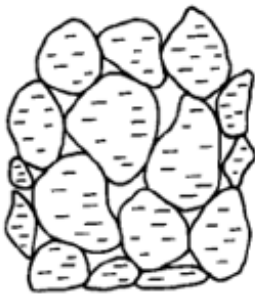




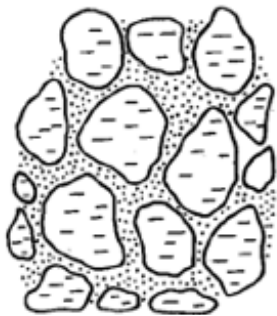
AKTTAP Newsletter | April 2024

Finding the Right Gradation for Gravel Roads

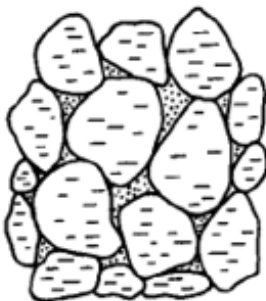
by Billy Connor, AIDC Director, 2 April 2024



Low Fines



High Fines



Correct Fines

The Alaska TTAP and LTAP recently hosted a two day gravel roads training. Thank you Matt Ulberg for your expertise. During that training we discussed the need to use the right aggregate materials in the construction and maintenance of gravel roads. Since then, I've been asked why the gradation is so important. The simple explanation below will hopefully help you understand how the gradation impacts the performance of your road.

If the coarse aggregate is without or low in fines, then it has a high percentage of voids between the coarse aggregate. The material is very strong due to the grain to grain contact if sufficiently confined, and low in stability if not confined. These materials are difficult to compact and ravel easily making a poor choice for roadway surface courses. However, they drain readily which may be useful in wet climates. Low fines reduce the likelihood of the material being frost susceptible. Consequently, aggregates with relatively low fines make a strong fill suited for cold regions.

On the other end of the spectrum is aggregate with too many fines. These materials tend to separate the coarse aggregate reducing or eliminating the grain to grain contact, lowering the strength of the soil. These materials have a lower density but tend to hold water due to their low permeability. They are often frost susceptible. These properties make these materials unsuitable for the upper 3 feet of the roadway embankment. Because there are too many fines, these materials should not be used as a surface coarse because of their low strength and high propensity to create dust.

Ideally the aggregate should have sufficient fines to just fill the voids but allow grain to grain contact. These materials are referred to as high density materials. They are suitable for surface courses since they minimize dust and readily shed water due to their low permeability. These materials may be moderately difficult to compact but tend to perform well.

In order to get the right gradation, refer to your State DOT Standard Specifications for surface course and subbase. This corresponds to E-1 and Grading A,B and C in Section 703 of the Alaska Standard Specifications for Highway Construction. The gradation may vary from state to state, but they will be similar.

Upcoming Events

Reducing Dust on Your Roads and Streets: Water to Paving - A 2-Part Webinar Event

April 17 and May 2024

We all curse dust from our roadways. It obscures our vision and makes breathing more difficult. In addition, dust has long term health impacts while increasing the costs of maintaining the road. This two-part webinar will focus on options for reducing dust on roadways. Part 1 on April 17 explores options for low and very low volume roads including institutional controls, roadway maintenance, and chemical palliatives. Part 2 on May 16th is aimed at roads with higher traffic volumes and higher speeds. This will include a discussion of when to pave and paving options. Part 2 will also discuss additional requirements for roadway maintenance. Please join us at <https://alaska.zoom.us/j/84717939032?pwd=Y-jY1OW1YajJuYnYzU1Q0OUZCRXN6Zz09> on April 17 at 1 pm.



Ice Roads Training

August 15, 2024 - SAVE THE DATE

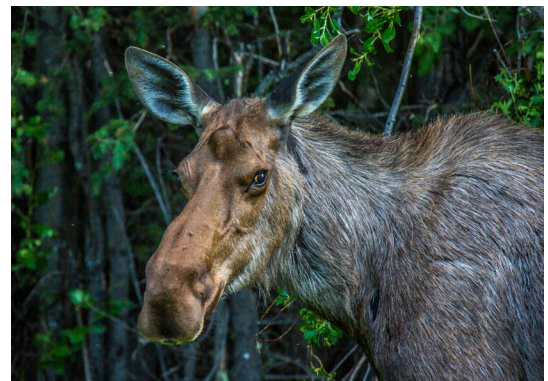
The AKTTAP is planning to hold a 1-day training course on Construction and Maintenance of Ice Roads. The course will be offered on August 15, 2024 in the BP Design Theater on the UAF campus, Fairbanks, Alaska. The course will be taught by Billy Connor and Kevin Bjella. This course discusses safe and efficient design, construction, maintenance and operation of an ice road. An email with additional information and a registration link will be sent out in June.



Past Webinars Available on YouTube

Ongoing

Every webinar sponsored by the AKTTAP is recorded and posted to the AIDC channel on YouTube. Topics currently available are Dust management, Updating Your LRTP, Ice Roads Funding, and DOT Grants Dashboard Demonstration. The upcoming webinars on dust management (Apr. 17 and May 16) will be posted once presented. The dedicated AKTTAP playlist can be found at [AKTTAP Playlist](#).



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We acknowledge the Alaska Native nations upon whose ancestral lands our campuses reside. In Fairbanks, our Troth Yeddha' Campus is located on the ancestral lands of the Dena people of the lower Tanana River.

