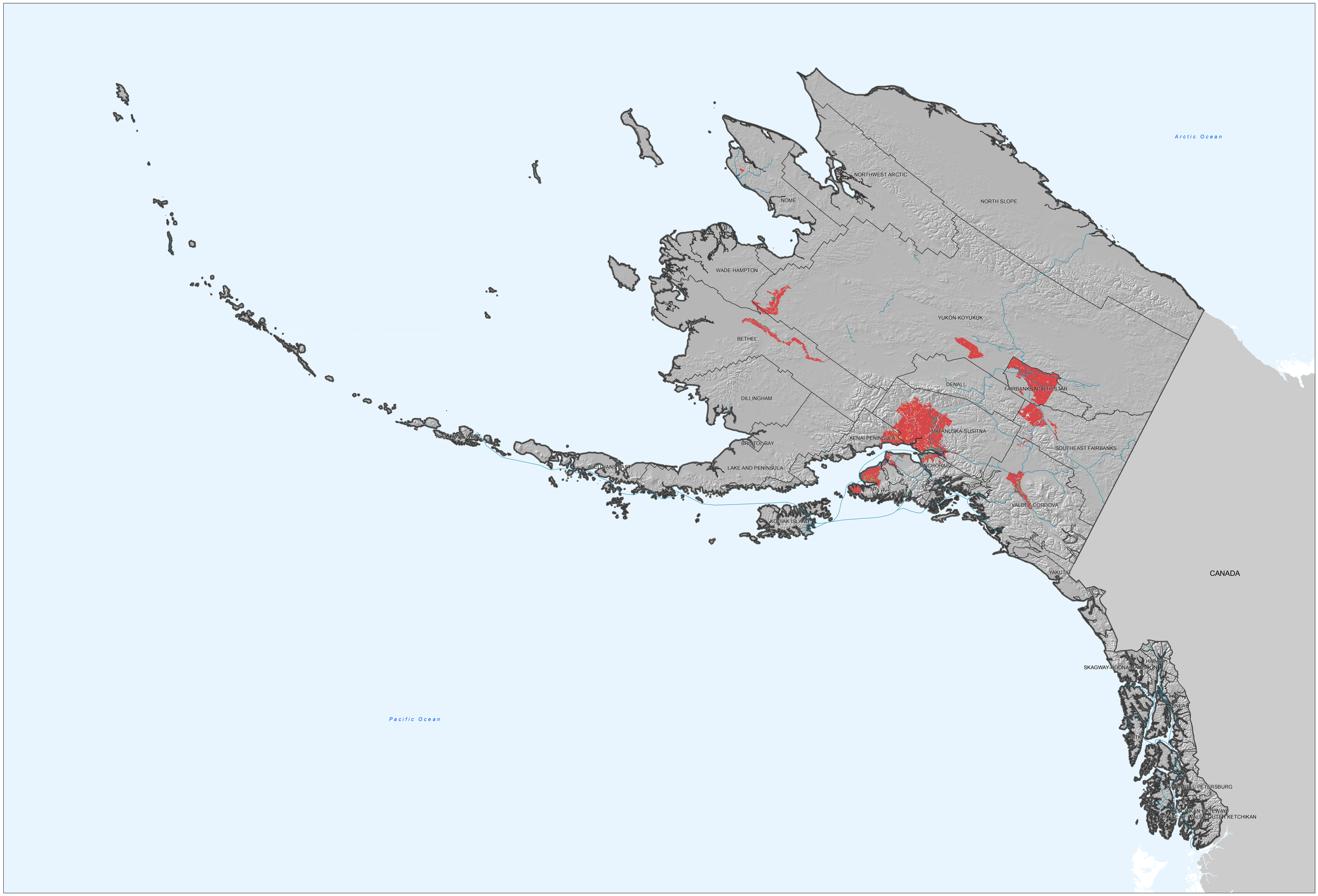
Limitations for Trench Sanitary Landfills - Alaska (2009)



This map was prepared as a general planning aid; on-site soil evaluations may be required prior to making land management decisions. Soils were rated solely on the basis of physical soil properties. Ratings are for soils in their present condition and do not consider current land use.

Geographic proximity to watercourses and land use were not considered in this interpretive rating. In cases where multiple soil series are mapped within a given soil delineation (e.g., a map unit complex), the interpretive rating associated with the most common soil series was applied to the entire delineation.

Sanitary Landfills (Trench)

Sanitary landfill (trench) is a method of disposing solid waste by placing refuse in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil that is excavated from the trench. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill.

Soils are rated and placed into "Sanitary Landfill (Trench)" interpretive rating classes per their rating indices. These are not limited (rating index = 0), somewhat limited (rating index > 0 and < 1.0), or very limited (rating index = 1.0). Ratings arebased on properties and qualities to the depth normally observed during soil mapping (approximately 5 or 6 feet). However, becausetrenches may be as deep as 15 feet or more, geologic investigations are needed to determine the potential for pollution of ground water as well as to determine the design needed. These investigations include the examination of stratification, rock formations, and geologic conditions that might lead to the conducting of leachates to aquifers, wells, watercourses, and other water sources.

Properties that influence the risk of pollution, ease of excavation, trafficability, and revegetationare major considerations. Soils that flood or have a water table within the depth of excavation present a potential pollution hazard and are difficult to excavate. Slope is an important considerationbecause it affects the work involved in road construction, the performance of the roads, and the control of surface water around the landfill. It may also cause difficulty in constructing trenches for which the trench bottom must be kept level and oriented to follow the contour.

The ease with which the trench is dug and with which a soil can be used as daily and final covers is based largely on texture and consistence of the soil. The texture and consistence of a soil determine the degree of workability of the soil both when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and difficult to place as a uniformly thick cover over a layer of refuse. The uppermost part of the final cover should be soil material that is favorable for the growth of plants. It should not contain excess sodium or salt and should not be too acid. In comparison with other horizons, the A horizon in most soils has the best workability and the highest content of organic matter. Thus, for a trench-type landfill operation it may be desirable to stockpile the surface layer for use in the final blanketing of the fill.

This interpretation is applicable to both heavily populated and sparsely populated areas. While some general observations may be made, onsite evaluation is required before the final site is selected. Improper site selection, design, or installation may cause contamination of ground water, seepage, and contamination of stream systems from surface drainage or floodwater. Potential contamination may be reduced or eliminated by installing systems designed to overcome or reduce the effects of the limiting soil property.

N
W
E
S

0 190 380
Kilometers

0 90 180
Miles

Original Map Scale 1:3,000,000

Original Map Scale is 1:3,000,000 when printed using a page size of 52"W x 54"H. When printed at other page sizes, the original absolute map scale will no longer be valid and scale bars should be used for reference.

Albers Equal Area Map Projection
North American Datum of 1983

NRCS Natural Resources Conservation Service

Soil Limitations

- Water
- Null or No Data
- 0.00: Not Limited
- 0.01 to 0.20: Slightly Limited
- 0.21 to 0.40: Moderately Limited
- 0.41 to 0.60: Moderately Limited
- 0.61 to 0.80: Moderately Limited
- 0.81 to 0.99: Significantly Limited
- 1.00: Very Limited
- State Boundaries
- CLAY County Boundaries
- Roads
- Hillshade

Sources:
ESRI. 1992. 1:3,000,000 Oceans. ArcWorld. ESRI - Redlands, CA.
National Atlas (http://www.nationalatlas.gov/). Roads. (09/2005).
National Atlas (http://www.nationalatlas.gov/). State Boundaries. (03/2007).
USDA-NRCS Staff. 2003. County Boundaries derived from 1:100,000 (Bureau of Census – TIGER) source as provided by C. Lloyd, USDA-NRCS, Information Technology Center, Fort Collins, CO.
USDA-NRCS. 2008. ENG - Sanitary Landfill (Trench) Interpretation. Soil Data Mart Source (http://soildatamart.nrcs.usda.gov/). Fiscal Year 2009, first quarter edition.
USDA-NRCS. 2008. Soil Survey Geographic Database (SSURGO) version 2.1. Alaska Collection. Palmer, AK. Soil Data Mart Source (http://soildatamart.nrcs.usda.gov/). Fiscal Year 2009, first quarter edition.
USGS. Analytical Hillshade computed from 30 meter National Elevation Dataset (NEDS) using the following parameters: 315 degrees altitude, 45 degrees azimuth, and z factor 1x. Prepared by USDA-NRCS-NGDC, Morgantown, WV.