

Rubble and Debris Disposal, Large-Scale Event

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Burial of rubble and debris in an expeditiously constructed landfill is a method of disposing of material that has been rendered unsafe and unusable by the effects of a large-scale disaster, either natural or man-made, often affecting tens of counties or parishes. Many homes and business structures are rendered unfit for occupancy, either by destruction or contamination. Such a landfill involves excavating a large pit or trench, placing the rubble and debris in the trench, and covering each layer with a blanket of soil material. A final blanket of cover material is placed over the whole facility when completed.

This interpretation shows the degree and kind of limitations that affect a soil's use for this type of landfill. The soil is evaluated from the surface to 79 inches. An on-site investigation to greater depth will be needed for final site acceptance. The ratings are based on the soil properties that affect attenuation of suspended, soil solution, and gaseous decomposition products and microorganisms; construction and maintenance of the site; and public health. Improper site selection, design, or installation may cause contamination of ground water, seepage, and contamination of stream systems from surface drainage or floodwater.

Properties that influence the risk of pollution, ease of excavation, trafficability, and re-vegetation are 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. Soils that have high saturated hydraulic conductivity (Ksat) or are shallow to bedrock, ice, a cemented pan, or stones and boulders are limited because these features interfere with the installation, performance, and maintenance of the system. Slope is an important consideration because it affects the work involved in road construction, the performance of the roads, and the control of surface water around the excavation. It may also cause difficulty in constructing trenches for which the trench or pit bottom must be kept level and oriented to follow the ground contour.

The ease with which the trench or pit 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 which affect the 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 rubble or debris. 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 rubble and debris disposal operation it may be desirable to stockpile the surface layer for use in the final blanketing of the filled area.

The ratings are both verbal and numerical. Numerical ratings indicate the severity of the individual limitations. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low

maintenance can be expected of a properly designed and installed system on these soils. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

How to Obtain Interpretations

Soil interpretation maps can be generated for areas up to 10,000 acres at the Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) by selecting "Catastrophic Mortality, Large Animal Disposal, Pit" under Waste Management in the Suitability and Limitation of Use section of Soil Data Explorer after selecting the Area of Interest (AOI) and generating the Soil Map.

Soil interpretations for GIS applications can be downloaded from the Soil Data Mart at <http://soildatamart.nrcs.usda.gov/>.