

This memorandum provides background information on the soil profiling tests and percolation tests that have been conducted on the Cordoba Center parcel.

SOIL PROFILING TESTS

On June 15, 2006, Michael Batz of Batz Environmental Consulting was retained by the applicant to perform soil profiles onsite in association with a proposed 3 lot subdivision. In accordance with County Ordinance Code Chapter IV, Section B11-67(i), a soil profile is required for any proposed onsite wastewater treatment system to verify adequate depth of permeable soil and the separation between the bottom of the leachfield trenches and groundwater. Three 15-foot soil profiles were completed in association with each of the proposed subdivision lots (see Attachment I for the map showing test locations).

For the proposed subdivision Lot #1 (the area now proposed for the cemetery) the soil profile encountered groundwater at 15.5 feet. For proposed subdivision Lot #2 (the area now proposed for the leachfield for the religious institution buildings), there was some subsurface seepage from moisture contained in the clay soils at 15-feet, but no groundwater was encountered. This was considered an acceptable soil profile because the subsurface seepage of water was determined to be from a confined perched source. For proposed subdivision Lot #3 (the area now proposed for the religious institution facilities) the profile hole was dry to 15 feet. In addition to the three required soil profile holes for the three-lot subdivision, Michael Batz excavated six shallow holes (to a depth of 8-feet) to confirm the soil type in the proposed leachfield areas for the proposed subdivision. These shallow holes provided additional soil testing data supporting the findings of the three 15 foot soil profile holes, with respect to soil consistency and depth to groundwater.

In addition, Section B11-80 (h)(2) states sufficient area must be designated for 100 percent future expansion or replacement of the required dual leachfield system for percolation rates between 61 and 120 minutes per inch. As the percolation rate for the Cordoba Center was 109 minutes per inch, additional soil testing was performed on 8/3/12 by Ann Peden of DEH and found to be consistent with the previous soil testing on the parcel.

The proposed Cordoba Center is located in the vicinity of an area known to contain relatively high groundwater. For example, previous groundwater and soil studies conducted by Questa Engineering (April 19, 2000) on the parcel directly to the south of the Cordoba Center showed seasonal high groundwater at between 8.7 feet to over 15 feet below the surface. The proposed leachfield for the Cordoba Center is not located in an area that exhibits these seasonal high groundwater depths.

In summary, the leachfield area proposed for the religious institution facilities was evaluated using the required soil profile tests and found to be acceptable.

PERCOLATION TESTS

On November 8, 2006, Michael Batz performed three percolation tests for the three-lot subdivision to verify the soil within the proposed leachfield areas had acceptable percolation rates. Percolation tests are used to determine the feasibility of on-site wastewater disposal and to determine the required size of leachfields. The size of a leachfield is a function of the average percolation rate of the soil (based on multiple percolation test holes) and the anticipated peak wastewater flows. Eighteen percolation test holes were excavated to a depth of 5-6 feet, representing six test holes for each of the proposed lots (three in the primary leachfield area and three in the secondary leachfield area for each of the three subdivision lots).

The percolation tests for Lot #1 (the area now proposed for the cemetery) resulted in a percolation rate of 32.89 minutes per inch, meeting County requirements of a minimum percolation of 1 to 120 minutes per inch. The percolation test for Lot #2 (the area now proposed for the leachfield for the religious institution buildings) had a rate of 108.89 minutes per inch. The percolation test holes for proposed subdivision Lot #3 (the area now proposed for the religious institution facilities) had 5 percolation test holes fail because the percolation rate was too slow. No leachfield is proposed in this area for the Cordoba Center.

On August 20, 2007, County staff mailed a letter informing the applicant the proposed 3 lot subdivision application was incomplete. A revised subdivision application was not submitted and the original application expired on August 20, 2008 (one year after the incomplete letter was issued. On April 25, 2011, the applicant submitted a new land use application proposing the religious institution facilities and cemetery without subdivision of the property. The applicant proposed placement of the leachfield for the facilities and cemetery in the area previously designated as a leachfield for subdivision Lot #2 which, as discussed, was tested and found to have a percolation rate of 108.89 minutes per inch. While this percolation rate meets minimum County standards of 1-120 minutes per inch, a percolation rate between 60 to 120 minutes per inch requires a second reserve leachfield equal in size to the primary field to be identified on the property and tested for suitability. The reserve field is required as a contingency in case of a failure of the primary field. Two soil profiles have been conducted in the proposed reserve field area. The first was conducted on 6/15/06, by Batz Environmental Consulting and found to be consistent with the soils tested in the primary leachfield area. The second tests were conducted on 8/3/12 by Ann Peden of DEH and found to be consistent with the previous soil profiles.

In summary, the required combinations of soil profile and percolation tests were conducted consistent with County requirements and the results demonstrate the primary and reserve leachfields are suitable for the proposed religious institution.