CENTER OF EXCELLENCE FOR AIRPORT TECHNOLOGY

TECHNICAL NOTE

TECH NOTE NO:	18
TITLE:	Analysis of the Suitability of Soils at O'Hare to Support Turfgrass Growth
AUTHORS:	Bruce Branham
	bbranham@uiuc.edu
CONTACT:	Dept of Natural Resources & Environmental Sciences
	University of Illinois at Urbana-Champaign
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1. Background

I received two soil samples from the OÕHare airport and was asked to determine their suitability for supporting turfgrass growth. These soils are on-site and could be used as topsoil for the non-paved areas around the runways. If these soils were to be deemed unsuitable, then topsoil may have to be brought onto the property at substantial additional expense.

Most any soil can support plant growth, so the real questions are how good is the soil that is on site, and could, in the long run, money be saved by bringing in topsoil?

2. Soil analysis

The two soils were analyzed at a local soil testing service and the results are presented below.

Soil Sample	Soil pH	% organic matter	P lbs/a	K lbs/a	CEC meq/100gm	Ca lbs/a
#1	7.2	1.3	5	294	27.3	9198
#2	7.3	1.3	4	348	29.6	9999

I have not determined the percentage of sand, silt, and clay in these samples, but based upon the cation exchange capacity (CEC) I would guess that these samples contain high amounts of clay. Analysis of soil separates will be conducted next week.

3. Recommendation

I would have to conclude that these are poor soils to support plant growth. The organic matter contents are low, indicating that little nitrogen will be supplied by the soil.

The phosphorus levels are extremely low and could not support plant growth without some additional fertilization. The soil pH is adequate. The high clay content and low organic matter combine to produce a soil that will be brick-like when dry. Thus, this would not be a soil I would want to purchase.

I will list the options in terms of increasing cost for amending this soil to make it reasonable for plant growth.

A) If the soil is used without additional topsoil, then fertilization with phosphorus is required to support plant growth. I would recommend that 175 lbs P_2O5/A be incorporated into this soil by tillage to a depth of 4- 6" prior to planting.

B) Option A plus incorporation of 3-5" of peat into the top 4-6" of soil. This will improve soil structure and water holding capacity.

C) Cap these soils with a minimum of 4" of topsoil.

While (C) would provide the best turf quality, the goal for turf at O'Hare airport is soil stabilization. Thus, I would recommend option B which will provide reasonable turf quality at a reasonable cost. Additional fertilizer inputs, particularly nitrogen and phosphorus, will have to be supplied annually for the first 2-3 years following establishment to ensure good turf growth. An establishment and management plan will be provided if requested.