Athletic Field GRADING

By Sean Connell

As an athletic field contractor, I constantly read bid documents for athletic fields. To be an athletic field contractor, this action is both unavoidable and mandatory. In a year, I may bid over 100 athletic construction projects. Many times I submit many more bids than what I could actually perform. Of course, competition, the reduced economy and weather are some varying factors of why or why I do not get every job I bid. I do get my fair share and I am happy and thankful for my success.

The interesting part of these bids involves the different methods that are specified regarding athletic field construction. Several components merge to make an athletic field: what grasses you use - cool season or warm season, soil amendments, topsoil depths, and fertilizers. The questions and options are endless. An owner, engineer or a sports field manager has to quantify exactly what he or she wants. The interruptions start from there. It seems that after all parties inject their opinion the result is a watered-down project because one person's options have been sacrificed for another. For example, a specific product may not have been used because an alternate was approved or maybe a different piece of equipment was accepted. Whatever the reason, the original idea has been altered.

It is perceived that athletic fields should be uniform and safe. Reasonable expectations of fields include 100% turf coverage, smooth grading contours (i.e. no 'pot holes') and, of course, good drainage. These conditions are very standard and obtainable. Of course how this is accomplished can vary as much as anything.

Currently, there are several standards in-place to construct athletic fields to achieve better playing conditions. Field construction starts with grading plans. For example, new fields specifically designed for football should have the high point running down the middle of the field (north and south) with slopes draining to both sidelines at 1.0 to 1.5 % (i.e. 1.0% of fall is equal to 1.0-ft of fall per 100 linear feet). This high point can be extended to the 20 yard line on both ends. A new slope (1.0%) begins at each 20 yard line and falls to the back of each end zone creating a triangle so both end zones have a consistent surface that drains in a sheet off the playing surface.

On baseball fields there are three standards for grading plans. 1) The whole field is sloped from home plate through center field on a 1.0 to 1.5% slope. 2) Incorporate the first method and add slopes to both foul lines of 0.75%. This will add additional sheet

Continued on page 17

Continued from page 14

RUTGERS CORNER - Soil pH and Use of Lime

In the case of this example, if the liming material available for use has a CCE of 85%, then the actual amount of material needed to be applied per 1000 square feet based on the lime recommendation is: (95/85)X100 = 112 lbs liming material per 1000 square feet.

In the case of established sports fields and other turfgrass sites, lime requirements are often specified such that the amount of lime required is applied over multiple applications.

This article was adapted from the following publications and provide additional reading on the subject of soil pH and liming:

Carrow, R.N., D.V. Waddington, and P.E. Rieke. 2001. Turfgrass soil fertility and chemical problems. Sleeping Bear Press, Chelsea, MI.

Landschoot, P. 1994. Liming turfgrass areas. Penn State Col. Of Ag. Sci., Ag. Res. and Coop. Ext. Extension Circular 415.

Murphy, J. and J. Heckman. Managing soil pH for turfgrasses. Rutgers Coop. Ext. FS 635.

Plaster, E.J. 1992. Soil science and management. Delmar Publishers, Inc., Albany, NY.

Brad Park is Sports Turf Research & Education Coordinator, Rutgers University; SFMANJ Board Member; and Editor, SFMANJ Update

Continued from page 15

Athletic Field Grading

flow drainage in 2 directions (toward the foul lines) compared to sheet flowing the entire length of the field. 3) Using a cone shape. This is where you start from the pitchers mound and radiate from there sloping away from the mound with as much 2.0% slope. All bases are the same elevation in the infield and the slope continues through the outfield which is consistent with infield. This creates a cone shape and is becoming a more popular design. These methods are acceptable for all new fields.

Grading plans for existing fields and sites often specify slopes in a certain direction because of permanent objects such as buildings, parking lots or fences. Applications like this require balancing the soil in place. By shooting the grades on the field you can approximate the slope and grade of the field to maximize drainage and safety. Budgeting money for a field that has already been constructed but is not performing adequately is always an issue. Native soil fields are typically either worn-out from overuse or suffer from poor drainage, heavy textured soils, etc. Starting a field project with a solid plan and agronomic knowledge of local conditions is the start of a successful project. You have to marry the concept that all components going to into a project will complement each other. Strong technical specifications about procedures, products, materials and machine control laser grading will make your next project successful.

Sean Connell is Owner and Primary Project Manager, Georgia Golf Construction, Woodbine, NJ; and SFMANJ Treasurer