

IRRIGATION AND DRAINAGE

By Mary Helen Sprecher

Why these complex subjects are anything but cut-and-dried



Irrigation (and subsequently, drainage) are some of the most important topics in sports facilities, but they often receive the least attention.

Maybe it's because they're not as exciting as a new set of lights or upgraded Wi-Fi. Maybe it's because most people don't understand them very well, and as a result, avoid paying attention to them.

The problem, however, is that avoiding this particular topic will set up sports facilities to fail. After all, it doesn't matter how great the Wi-Fi is if the field is a muddy mess. And if tennis, pickleball, or basketball courts have puddles of water that gather dirt and become slippery, all the lighting in the world won't help.

The following is a primer on irrigation and drainage and how one can harness them to put sports facilities on the path to success.





FOR COURTS

First, the basics. Most courts in park and rec installations have hard surfaces (made of concrete or asphalt and covered with sport-specific acrylic surfacing).

Proper drainage for these courts starts with the correct slope, which, according to the publications *Tennis Courts: Construction & Maintenance Manual* and *Pickleball Courts: Construction & Maintenance Manual*, should be one inch in 10 feet with a permissible maximum of one percent. (More than this is bothersome to players.)

Courts should slope in one true plane, either from side to side (net post to net post), end to end (baseline to baseline), or diagonally (corner to corner). In a bank of courts, courts should slope end to end in order to avoid water running across multiple courts.

Slope allows courts to shed water effectively during a rain event (or following cleaning, such as power washing) and to dry more quickly.

Puddles on the court can be a safety problem as well as an aesthetic issue. Low areas, or “birdbaths,” are defined as any areas where standing water more than 1/16” (1.58mm) deep (commonly measured using a nickel) remains after drainage of the area has ceased or after one hour at 70 degrees Fahrenheit or above in sunlight.



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If one notices such puddles on the court, a court contractor can be called in to provide ideas. Do not attempt to patch or fill the areas as part of a DIY project; wait for a professional recommendation.

According to John Schedler of Baraka Sport, staying on top of drainage problems starts with regular inspections of all facilities. Do not wait until an athlete slips and falls to investigate.

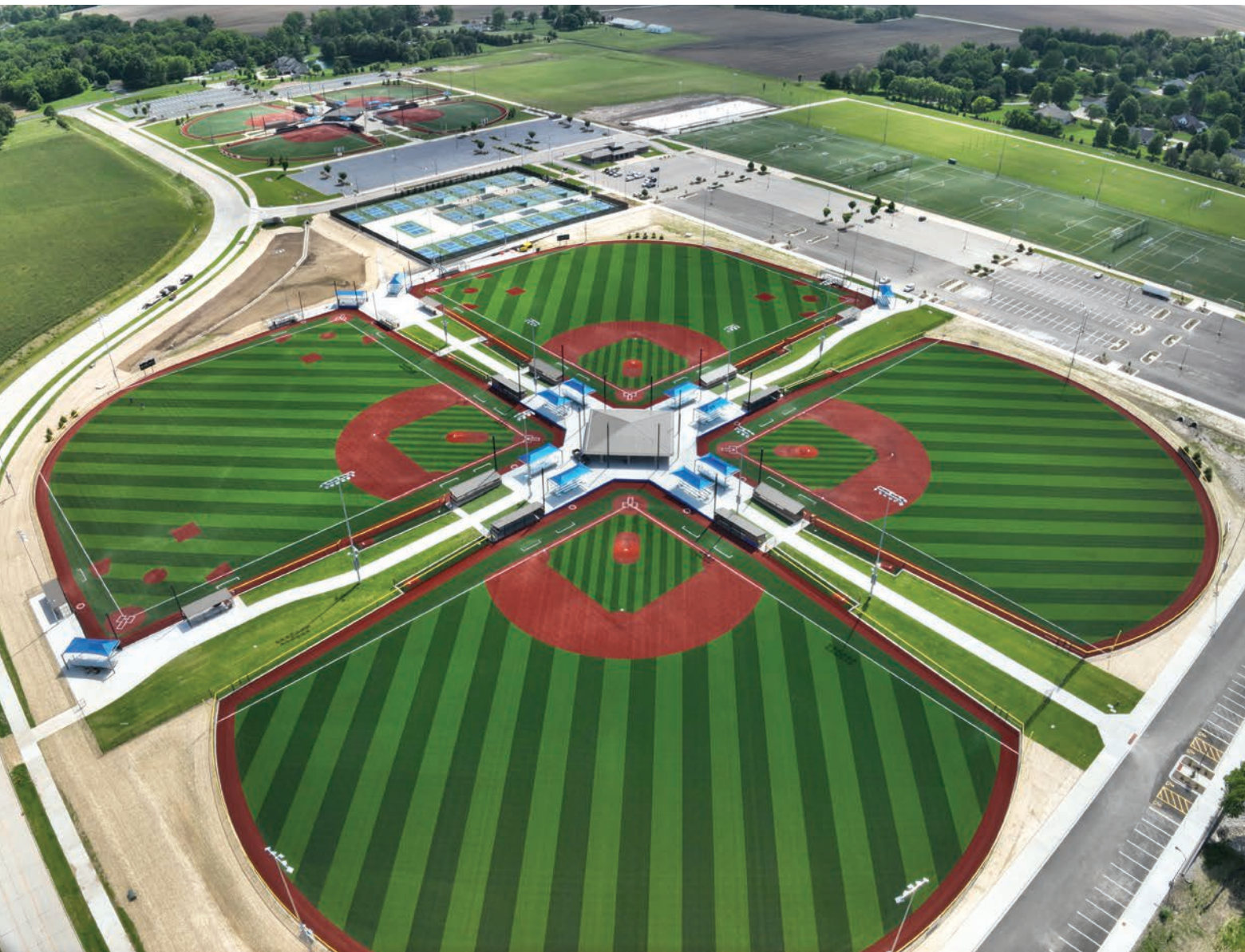
“Regular inspections with knowledgeable, experienced, or professional staff, consultants, vendors, and others are key,” Schedler says. “I’ve seen many surfaces that were left without any repair, advice, or attention for way too long. This typically ages the facility more quickly, making early replacement more likely.”

Early intervention often results in a less expensive fix, Schedler adds.

FOR FIELDS

Whether fields are diamonds (for baseball and softball) or rectangular (such as those used for soccer, lacrosse, football, and other sports), good drainage is absolutely imperative.

If diamonds are natural grass, be sure to rake regularly to avoid a buildup of loose material and grass clippings where the infield meets the outfield. That



buildup can create a dam that keeps water from draining effectively. (Additionally, it can cause a ball to take a hop that may injure a player.)

Many natural fields have drainage around the perimeter; builders note the importance of keeping drains clear of material like grass clippings, mud, leaves, and other debris that can cause clogs and inhibit drainage.

Todd Smith of R&R Engineers & Surveyors, Inc. says that all too often, attention is paid to grass fields in a reactive rather than a proactive manner. Mowing is only one aspect of field care.

“The main mistake I see is not doing a little maintenance each day or each time the field is used,” he says.

It is also essential to understand the lifecycle of grass and how it responds to stress, Smith adds.

“Overwatering is the most common problem. Just because a grass blade turns a bit tan or brown, that doesn’t mean it needs more water. It may need rest as every living organism does. It may need more phosphorus (P) and potassium (K) fertilizer to help store energy reserves, or it may be out of its natural range.”

The latter problem is common. Some grass species,



by nature, want to go dormant at a specific temperature; however, if a field owner continues to fertilize the grass, it will maintain its vibrant, green color, but will lack a strong root system.

Consult with a local agronomist who can provide care recommendations on water and fertilization for grass in a specific installation.

Synthetic fields have integrated drainage systems; these



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should be checked regularly by turning on the irrigation and flooding the field, then watching to see if any areas remain wet.

It's also important to look for other telltale symptoms of problems, says Schedler.

"Look for obvious issues like visible seams, but also for planarity issues, which will present as wavy-looking playing lines. You can also inspect for contamination—dust, sand, dirt, and organics, usually from the surrounding landscape—as well as damage in high-wear areas and loose fibers. Look out for encroachment of weeds and grasses, as well as problems like discoloration and uneven areas of infill level."

IRRIGATION

Perhaps one of the first (and most easily addressed) issues with irrigation is keeping it directed only where it should be.

If, for example, fields have an in-ground irrigation system, it is essential to make sure water falls only on the field and not onto bleachers, dugouts, and other adjacent structures. Additionally, waterwise systems are now available; if precipitation is sensed, the system stops watering the field.

By contrast, if courts are surrounded by landscaping with an irrigation system, water should be hitting only the landscaping. Be careful of any system that might not only get the courts wet but might wash dirt, mulch, or other debris onto the surface.

Problems with a sprinkler system are among the most easily remedied; however, if the issue goes beyond the capability of the park maintenance crew, contact a sports-specific contractor or a sprinkler vendor.

The publication *Sports Fields: Construction and Maintenance Manual* can provide in-depth information on field care. Information is available from the American Sports Builders Association, www.sportsbuilders.org.

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Mary Helen Sprecher is the technical writer for the American Sports Builders Association (ASBA) and also the editor of two of ASBA's publications, Sports Fields: Construction and Maintenance Manual and Courts & Recreational Surfaces: Construction and Maintenance Manual.





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