

Sports Turf Manager

for safe, natural sports turf

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NEW MULTI-PURPOSE STADIUM, MONCTON, NB

Ontario Turf Seeds

Yes, we've done your homework for you! See pages 19-20 for a comprehensive list of turf seed available from Ontario suppliers. STA publishes this information every two years as a valuable member reference.

Construction of a Multi-Purpose Stadium in Moncton, NB

DR. R.W. DANIELS, DEP'T ENVIRONMENTAL SCIENCES, NS AGRICULTURAL COLLEGE (RETIRED)

A 2009 OTS Highlight Article. The City of Moncton, New Brunswick has been awarded the 2010 International Athletic Association Federation (IAAF) World Junior Championships. In order to host this event, they are required to construct a facility, consisting of a grass infield and an eight lane track with locations for jumping and throwing events. All facilities are to meet the specifications as set out by the IAAF. This article deals with the specifications, planning, construction, grow-in, and maintenance of the infield during the period of its initiation, which began in Winter 2008.

In July of 2010, over 2,000 athletes, coaches and officials representing 170 countries will be on campus at the Université de Moncton to participate in these championships. The athletes will be ages 19 and under, many of whom will compete in the 2012 Olympics in London. This seven-day event will be the largest sporting event ever held in Atlantic Canada. During this time period, a total of 44 events (22 each for women and men) will be held. It is anticipated the championships will be seen by millions of viewers with media coverage ex-

tending to 134 countries around the world. It will leave a \$500,000 financial legacy for the region.

Upon its completion, the athletic infield will be one of the best in Canada. Our goal is to exceed the standards as set out by the IAAF. To comply with IAAFF standards, the surface of the infield must be almost flat, with only a 0.3 percent surface grade being acceptable. The D zones will be made with track synthetic surface for jumping and throwing events. D zones are the rounded space at the two ends of the infield, i.e. the... **→ page 9**





PREPARING FOR THE 2010 IAAF WORLD JUNIOR CHAMPIONSHIPS

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Continued From the Front Cover. ... rectangular turf area, between the infield and eight lane perimeter track where athletes stand and get a proper footing for throwing the javelin, etc. This area has to be “hard” to provide proper traction for individual athletes and prevent slippage.

Additional event locations for the horizontal jumps (long jump and triple jump) will be constructed between the track and the spectator seating to avoid narrowing the width of the infield in order to comply with FIFA rules for international soccer matches. In the event that the owners may want to install artificial turf at a later date, the sub-base was prepared with this in mind.

Another feature incorporated into the design were provisions to hold future outdoor concerts. In preparation, appropriate electrical cables were placed under the infield to minimize future obstructions on the surface of the infield. In addition to meeting IAAF specifications, the established turfgrass playing surface of the infield must have the capability of holding 10,000 concert spectators as well as those sitting in the stands.

Fields Already in Place

Specifications for the infield conform very closely to those of a category 1 field as specified in the *Athletic Field Construction Manual* published by the Sports Turf Association (Ontario). Prior to the construction of this infield, a recreational complex known as the Moncton Sportplexe was built in 2000 consisting of six soccer fields and ten ball fields constructed of a similar all sand base. Additional and similar all sand-based soccer fields were later built at Mount Allison University in Sackville, New Brunswick and St. Francis Xavier University in Antigonish, Nova Scotia.

In the construction of each successive field, knowledge gained from previous projects was used in refining and upgrading the specifications and construction techniques. Seasonal usage of these fields has been monitored throughout the years and in all instances, individual fields have exceeded the expectations of all involved. Most impressive has been the number of seasonal hours of play that each field has had while still maintaining an acceptable cover of turf.

During periods when turf has been injured, the playing surface recovered quickly and seldom if ever has an activity been cancelled due to heavy rain. Some of these fields have recorded over 400 hours of usage per year and still maintained a satisfactory turf cover. Being situated on college campuses, these hours of play have been condensed to a relatively short time period (September to late November). This time period coincides with seasonal heavy rainfall. Simply put, because of the relatively short period of use, we do not know the limitations of these fields in terms of maximum number of playable hours per year.

One additional point that cannot be over-emphasized is the importance of quality control when selecting materials and during construction. Experience has shown clearly that an improperly constructed field can never be improved to the level of original specifications after it has been built. In overseeing quality control, only individuals knowledgeable in both the science and art of agronomy and athletic field construction should be in-

volved. For optimum playability, once construction is complete, individuals managing the field must be given the knowledge, equipment and adequate seasonal maintenance budgets for the field.

Defining Sand-Based

To properly define this infield and the previous ones mentioned, a definition of sand-based or all sand sport fields must be made. The claim to construct a “sand-based” field is often abused and misunderstood. All media used in field construction contains some sand, and in some instances, a selected medium is modified by adding additional sand and referred to as a “sand field.” In these instances, the sand used varies greatly in quality and particle size.

For the purpose of this discussion, a sand-based field is one that contains a

converted to artificial turf at a later date. The sub-base was graded and drainage gravel added to facilitate any future installation of artificial turf. Depth of growing media was 275 mm, allowing for 25 mm of settling, once it was applied to the future surface of the infield. The infield was established to turf by seeding to avoid any “media layering” effect.

Turf established on the future playing surface consisted of a blend of 90% improved Kentucky bluegrass and 10% improved perennial ryegrass. The Kentucky bluegrass component consisted of three separate improved varieties in equal proportions. The original intention was to seed the infield during Fall 2008, with grow-in during the following year (2009).

Due to a delay in constructing the drainage system immediately adjacent to the infield, seeding was delayed beyond Sep-



Top: Final infield preparations. **Above:** The perimeter of the infield will be completed in 2009 when the running track is installed.

What is a sand-based infield? For the purpose of this discussion, a sand-based infield is one that contains a minimum of 80% sand, has a specific amount of defined sand particles, a minimum stipulated internal water drainage capacity and a defined range of both micro and macro pores. The media must also be tested in a recognized laboratory.

minimum of 80% sand, has a specific amount of defined sand particles, a minimum stipulated internal water drainage capacity and a defined range of both micro and macro pores. The media is tested in a recognized laboratory. When a given sample does not meet specifications, amendments are added and the final product is re-tested. Samples for final testing are taken on site when the media is being prepared. In this way, the actual sample being tested will best represent the actual material that will be used. Experience has shown that once a prepared media has been handled (taken from source to field and installed), its internal drainage will in all likelihood be changed. Project specifications therefore stipulate that the media must meet all recommended criteria during its final preparation.

Field Construction

Following are some of the infield specifications, which also outline the specific provisions followed should the infield be

tember 15 – the day that had been established as the last “safe” date for fall seeding. A decision was made that the infield would only be seeded if a period of up to ten days of temperatures above 12° C were forecast, as it was determined that this would be the minimum amount of time required to get a satisfactory germination of the seed mix.

On September 26, favourable weather was predicted and therefore the infield was seeded. Fortunately this was accompanied by significant rainfall and above average seasonal temperatures prevailed for the next two weeks. A seeding rate of 4.0 lb per 1000 sq ft was used. This was a heavier than anticipated rate but we felt it was warranted considering the possibility of cool temperatures which would limit the germination rate. This proved to be a wise decision as the perennial ryegrass component emerged in seven days followed by the Kentucky bluegrass on day 12. The resulting turf stand was such that it adequately covered the surface, stabilized the

media so that little disturbance occurred and allowed seedlings to grow and develop into strong turfgrass plants. On November 28, by the time the project was closed for the season, Kentucky bluegrass seedlings were approximately 1.25” high and had a sufficient root system to stabilize the media, thus little erosion and displacement should occur over the winter period.

Other Considerations

During the championships, there will be many television cameras positioned at various locations around the perimeter of the running track, all of which will show a background of turf. To ensure that all turf is of identical colour, turf established in the immediate areas off of the infield will be of the same mixture and receive an identical management program to that of the infield. As a back-up in the case that additional turf may be needed, an area, containing a similar growing medium and turfgrass cover, will be established to turf and maintained exactly to the standards of the infield.



Above: All vehicle surface tracks were removed by hand to ensure a proper finished grade on the playing surface.

Once constructed, the contractor has the responsibility of maintaining the infield for the following 12 months. To ensure that the turf matures properly, the contractor will be given a very specific management program to implement. In addition, the selected maintenance staff responsible for the infield during the championships will closely monitor the infield. This will ensure a smooth transition when these individuals take complete responsibility for the infield.

This event requires that the infield and all areas encompassing the site meet the highest possible standards. This is a great challenge with no provision for any “practice.”

MEDIA SPECIFICATION Recommended vs. Actual

Particle Class	% by Volume Recommended	% by Volume Actual
Gravel	<10%	0.0%
Very Coarse Sand	<10%	14.9%
Coarse + Medium Sand	50-75%	57.0%
Fine Sand	<25%	14.0%
Very Fine Sand	<10%	6.4%
Silt + Clay	<15%	7.2%

MEDIA Infiltration, Porosity, Bulk Density, Organic Matter, pH

Characteristics	Recommended	Actual
Water Permeability (in/hr)	5 to 10 in	7.6 in
Total Porosity	35 to 55%	40.4%
Air Filled Porosity	15 to 30%	23.1%
Water Filled Porosity	15 to 30%	17.3%
Bulk Density (g/cubic cm)	— — —	1.58
Organic Matter	1 to 4%	1.81%
pH	6.0 to 7.0	5.50

Industry News: Rittenhouse's Unique Alternative to Pesticides

The Green Steam

St. Catharines, ON – Restrictions on pesticide use are becoming an issue across North America when it comes to maintaining lawns and other weed prone areas. Rittenhouse offers a unique solution.

Using patented technology, the Green Steam produces super-heated steam to 650° F to quickly and effectively kill weeds without chemicals. The Green Steam unit uses a standard 20 lb propane tank that will last for approximately eight hours of continuous operation, while the 10-gallon water tank provides three hours of constant operation. The unit uses a deep cycle 12 volt battery to operate the diaphragm pump. The Green Steam can be outfitted with an optional hose reel including 25' of hose. The reel swivels and features an automatic re-

wind for ease of operation. The compact design of the machine also increases usability – at only 60 lb, the Green Steam can be transported easily from site to site. A skid mount version is also available for placement in the back of a truck or utility vehicle.

Cities and municipalities will find the Green Steam to be a very useful tool as part of their regular maintenance programs. It is perfect for eliminating weeds in sidewalks, parking lots and other hardscaped areas. The use of steam means there is no concern over spray drift or residue. In addition to government organizations, private landscapers will appreciate this

convenient alternative to chemical weed control.

The Green Steam provides a unique opportunity to be ahead of the curve and ahead of the competition when it comes to implementing a green care program. Visit www.rittenhouse.ca or call toll free 1-800-461-1041 to inquire further about the Green Steam and other great landscaping products.

Rittenhouse has been a family owned and operated company since 1914. We have extensive knowledge serving the green care industry as well as other horticultural and agricultural related sectors. Go to www.rittenhouse.ca to learn more about Rittenhouse and the products we offer.

