and parts of Canada. Damage is particularly problematic in the eastern provinces, including Quebec, New Brunswick, Nova Scotia and Newfoundland. The chinch bug's biology and its habitat appear to be well suited to the application of vacuuming as a treatment method which could prove to be a suitable alternative to the use of chemical pesticides.

Vacuum research is being conducted in Newfoundland as part of a project titled *Non-Chemical Methods for Chinch Bug Control (2006-2009)*. The project was initiated in response to an emerging issue for the lawn care industry, sod growers, and the general public looking for alternatives to chemical pesticides for chinch bug control in lawns and turfgrasses. Funding for the project is provided by the Newfoundland and Labrador Agri-Adapt Council Inc., in partnership with the Nova Scotia Agri-Futures Council and the New Brunswick Agricultural Council, through the Advancing Canadian Agriculture and Agri-Food (ACAAF) Program; and is administered by the Newfoundland and Labrador Horticulture Producers Council. During the summer of 2007, a modified lawn vacuum was tested to determine its effectiveness at controlling chinch bugs in lawns, as compared to a spray treatment using Seven T & O (carbaryl) and a control. The experiment used pre treatment counts and post treatment counts obtained in 0.1 metre square quadrants to measure treatment effectiveness.

The vacuum used in the study was a 6.75 hp (1750 cfm) Minuteman Parker APV debris removal vacuum which had a 4" diameter x 10 foot hose attachment, to which we added 1.5" diameter x 50 feet of hose, hose-end attachments, and an inline collection bag. Vacuum samples were collected using the long hose which permitted the vacuum to remain in a stationary position away from the sample collection area. From previous studies using certain debris removal vacuums on the lawns, we found the vacuums to be difficult if not impossible for an operator to handle, plus there were issues of inaccessibility to sites due to obstacles such as stairs and retaining walls. The vacuum modifications were used to overcome prior obstacles and to test preliminary design concepts.

Monitoring was conducted weekly July through September and a treatment (spray, vacuum or control) was applied in mid-August. The results obtained with the vacuum were comparable to the spray treatment; in both cases the post treatment counts were significantly lower than the pre treatment counts. The vacuum provided a 71% reduction in chinch bug numbers at 24 hours after treatment where as the spray provided a 91% reduction after 24 hours. One week after treatment, two out of three vacuum sites provided at least 90% reduction compared to the spray sites which provided 99% reduction in chinch bug numbers. Samples collected by the vacuum were analyzed to obtain chinch bug counts per each life-stage, i.e. egg, 1st instar nymph, 2nd instar nymph, etc. It was evident that large numbers of chinch bugs were captured by the vacuum and that all stages were collected (egg through adult). Relatively low numbers of beneficial insects such as big-eyed bugs and damsel bugs were captured by the vacuum, however, it was clear from pre and post treatment counts that the vacuum treatment did not significantly reduce the beneficial insect population.

At present it is unfair to compare the performance of vacuum treatments with spray treatments regarding the ease of application and the results obtained. The vacuum used in this study was sufficient for gathering preliminary data; however, it requires significant restructuring in order to reach its full potential as an insect control device. To optimize vacuum performance, we are collaborating with industry and Memorial University of Newfoundland's (MUN) Faculty of Engineering & Applied Science. Senior engineering students at MUN are working on a vacuum prototype which we intend to use in field tests this summer. We believe that this technological innovation will result in numerous benefits including a reduction in chemical pesticide use, an increase in market share and revenue, a reduction in environmental degradation, and an increase in public advocacy. It is expected that at the conclusion of this project, all of our goals will be attained including the testing of a vacuum prototype and a new vacuum design. Upon receipt of additional funding, we expect to continue to perfect the lawn-pest vacuum and associated treatment protocols, and hope to examine further design configurations that will provide expanded vacuum use and application in the landscape. ♦

— Nancy Hudson can be reached at 709-772-8870, hudson.na@gmail.com

BE A WATER HERO! SMART IRRIGATION – THE FUTURE IS HERE

OTS HIGHLIGHT ARTICLE • CHRIS LE CONTE • SMART WATERING SYSTEMS

It seems that you can't go a day now without hearing a news story, reading the newspaper or seeing a television program that hints at climate change, the environment and the need for all of us to "do our part." The green movement is forcing change in all aspects of our economy, businesses and lives. The irrigation industry is just starting to feel the effects of change, and at some point, these changes will impact Canadian sports turf managers.

The issue of water scarcity in the Southern United States (California, Arizona and Nevada) is the primary driver of change in the irrigation industry. Sure, as Canadians we don't really need to worry about the well running dry but there are other factors that should make us take note of what is happening in our communities.

The largest issue facing Ontarians is the need for expanded infrastructure in the form of water treatment facilities and pipelines to the Great Lakes. The government's "Places to Grow" plan makes it very clear that Southern Ontario is earmarked for significant growth over the next 25 years. As population increases, so does the Peak Day Water Demand in our cities. The larger the peak day demand, the more infrastructure you need to support it. This is resulting in significant changes in how water managers in all municipalities try to reduce peak demand and manage the increasing burden placed on our existing infrastructure (that is in most cases over 50 years old and leaking). In order to repair our pipes and build new treatment plants, there has to be an increase in revenue. One way to achieve this is to dramatically increase water rates.

Recent changes to the Safe Drinking Water Act force municipalities to establish long-term, financially sustainable pricing models for water costing. This is resulting in "Full Cost Water." Full cost water implies that our cost to use our treated water will now cost us what it should have been costing us for the past decade. Toronto has approved annual increases of 9% and Halton is increasing its rates 6.5%. These are just a few examples. The story is the same across Ontario.

With increasing water rates, parks departments are coming under increasing scrutiny for how they manage their fields (IPM) and how they irrigate them. Even if you aren't paying for your water now, there is a very good chance that you will be in the near future. With this in mind, the time to change how you irrigate is now.

When you think about it, spraying drinking water over our turf really doesn't make much sense. Municipalities across the US use recycled, reclaimed and non-potable water sources for their irrigation. Ontario infrastructure has not been designed to support this yet, but we must still find a way to improve our current practices.

SMART controllers. The most effective, simple, proven way to save water, save time, save money and improve the quality of your turf is to implement weather based scheduling into your irrigation management. SMART controllers use evapotranspiration values to adjust irrigation schedules.

The most cost effective, simple, proven way to save water, save time, save money and improve the quality of your turf is to implement weather based scheduling into your irrigation management. The easiest way to do this is with a SMART Controller. A SMART Controller uses evapotranspiration (ET) values to adjust your irrigation schedule. ET is the sum of moisture loss from your landscape as a result of evaporation from the soil and the transpiration of moisture from the plant material.

Weather based irrigation is not new. It has been proving its ability to save water and promote healthier landscapes for over 15 years. Just recently it has become an option for Canadian cities. Weather based irrigation consists of a SMART Controller that integrates with an existing irrigation system to conserve water and promote healthier plant material by eliminating over-watering.

As the weather changes, so does the moisture loss in your landscape. A SMART Controller uses local, high quality weather information and the water management principle of Managed Allowed Depletion (MAD) to adjust irrigation schedules. MAD results in deeper, less frequent watering by allowing the soil reservoir to deplete (instead of a preset schedule always keeping it full), and by only using irrigation when the last drop of precipitation has evaporated. Now oxygen can reach the roots of the plant. The final result? Potentially, millions of gallons of water saved, thousands of dollars saved and a higher quality, attractive playing surface that uses water responsibly.

Currently there are over 13 SMART Controllers that have been submitted to the Centre for Irrigation Technology (CIT) for testing. The CIT tests all SMART controllers for their accuracy and reliability. Many of these SMART Controllers use US based weather networks making most of them unusable in Canada. However, currently there are three very good options for Canadian sports turf managers: 1) Hunter ET System, 2) Rain Bird ET Manager and the 3) Toro Intelli-sense. All three of these controllers have been proven in the Canadian market to save significant amounts of water and money. It is important to be aware that there are differences in these controllers and that careful consideration should be used when deciding on the appropriate controller for your application.

1. The **Hunter ET System** uses a stand-alone weather station to gather site specific data and to generate new run-times based on the soil, slope and overall quality of your irrigation system. The ET System is compatible with almost all Hunter controllers and can provide you with seven days of historical information.

2. The **Rain Bird ET Manager** is compatible with virtually any existing irrigation controller and receives hourly weather information from local, high quality weather stations that are typically located on golf courses. The ET Manager can provide you with an annual summary of the amount of water used and the amount of times that irrigation occurred. A small weather subscription fee is required for annual weather information.

3. The **Toro Intelli-sense** uses the NOAA (National Oceanic and Atmospheric Association) network of over 1500 Canadian weather stations to measure evapotranspiration and to transmit this weather data to your site once a day. The scheduling engine then makes adjustments to your irrigation schedule.

Currently there are over 300 SMART controllers in use across Canada and over 15,000 in use in the US. With the value of water increasing everywhere, now is the time for action. Since irrigation systems are significant users of our treated water, it is a huge opportunity for sports turf managers to be the environmental leaders and stewards in our communities. Why wait for someone to turn the tap off or implement severe restrictions? Start the process now by advocating for change in your organization. Work with your contractors, distributors and manufacturers to examine the solutions available and to implement the best products for your application. Be a water HERO! ♦

— Chris Le Conte, SMART Watering Systems, www.smartwateringsystems.ca

CONTROLLING LIGHT POLLUTION & ENERGY CONSUMPTION

OTS HIGHLIGHT ARTICLE • TERRY PICHE • ONTARIO RECREATION FACILITIES ASSOCIATION • WWW.ORFA.COM

"It's good to be green" – Kermit the Frog. Ontario's greenspaces are not often thought of as being high energy users. Indeed, much has changed in the technology and techniques involved in the sports illumination process since its debut in 1883 when General Electric strung a handful of open-face lights across a minor-league field and night baseball was born. However, in the 21st century, some parks might be considered energy abusers. As an increase in light pollution awareness continues to grow across the continent, today's facility manager must consider sports field electrical management as part of their energy reduction plans. The lifetime savings accrued from wise facility management can return many thousands of dollars which can support other recreational opportunities.

Light Pollution

Light pollution is a broad term that refers to multiple problems, all of which are caused by inefficient, unappealing, or unnecessary use of artificial light. Since the early 1980s, a global dark-sky movement has emerged, with concerned people campaigning to reduce the amount of light pollution. Also known as photo-pollution or luminous pollution, it is excess or obtrusive light created by humans. Specific categories of light pollution include light trespass, over-illumination, glare, clutter and sky glow. A single offending light source often falls into more than one of these categories. Among other effects, it disrupts ecosystems, can cause adverse health effects, obscures the stars for city dwellers, and interferes with astronomical observatories. Lights on a sports field, when not in use or not needed, fall into the category of light pollution and energy waste.

Light Trespass. Spill light that is either annoying or unwanted is referred to as light trespass. New construction of a sports field or the introduction of dwellings after the fact often results in light trespass issues. Light trespass occurs when unwanted light enters one's property. Given that most houses are shown to prospective owners during daylight hours when a sports field may not be in use, new owners often see the recreation field next door as an asset. This opinion can often change when a strong light enters their windows causing problems such as sleep deprivation or the blocking of an evening view. Bright light sources can also affect a driver's visibility because of glare. In addition, visual confusion can affect the ability to locate and recognize signal lights. Facility managers may not be able to change the existing use of the field but they must respect such issues by carefully scheduling, controlling and monitoring light use.

WHAT LIGHT COLOUR IS BEST FOR FIELDS?

Type of Light	Colour	Efficiency (lumens per watt)
Low Pressure Sodium	Yellow	80 -200
High Pressure Sodium	Pink/Amber White	90 -130
Metal Halide	Bluish-white/white	60 -120
Mercury Vapour	Blue-Greenish white	13 - 48
Incandescent	Yellow/White	8 - 25

Over-illumination. Lighting is responsible for one fourth of all energy consumed worldwide. Over-illumination is the excessive use of light beyond what is required for the specific activity. It is calculated that over-illumination is responsible for approximately two million barrels of oil per day in wasted energy. Factors that contribute to these issues include:

• Improper use of controls (timers, occupancy sensors, etc.) that should extinguish lighting when it is not required.

• Improper lighting design, especially of workplace spaces, that specify higher light levels than what is required for the given task.

• Improper selection of fixtures or light bulbs, which do not direct light into the necessary areas.

• Improper selection of hardware that utilizes more energy than what is required to light the area.

• Inadequate training of building managers and users on the efficient use of lighting systems.

• Poor lighting maintenance practices resulting in higher energy costs and an increase in stray light.

Selecting the Right Lighting System

So what light colour is best? The white light from metal halide is still the preferred lighting for most outdoor sports as it renders colour accurately. High pressure sodium (HPS) produces a yellowish light which is not as good for colour identification. New studies seem to show that people can see better under fewer lumens (measurement of light output) of white light than more lumens of yellow light (see table at the top of this page).

Purchasing the right bulb will take some research by facility management. Even if a manufacturer replaces a lamp that fails prematurely, the time spent documenting the use of the lamp and the labour retrieving and replacing it are still a significant burden to the lighting owner.

Pulse-start technology extends lamp life considerably and stabilizes the colour shift associated with metal halide bulbs. It also reduces warm-up time to about two minutes and re-strike after a power interruption to about four minutes, considerably shorter than the nearly fifteen minutes needed for other HID systems.

Design lighting systems first for the area and then for energy-efficiency. The Illuminating Engineering Society of North America (IESNA) publishes "Recommended Practices for Sports and Recreation Area Lighting" (RP-6-01) which provides design criteria for new lighting systems and for existing systems.

Retrofitting a sports field requires some additional consideration. Whether or not the actual wattage may be dropped in any particular situation will depend upon your current lighting standards; the photometrics; installation of the specific luminaire; and whether or not the spacing of your poles is already at a maximum. Most retrofits seek to maintain the existing pole placements to contain costs; however, this is not always possible.

Group re-lamping is a practice that can reduce labour costs as well as lamp burnouts at critical times. This type of maintenance also reduces energy consumption by making the best use of equipment and staff.

While more efficient lighting can help reduce energy consumption, the first thing to look at is scheduling. The more games played during daylight the better. Once a night schedule is set for the season it must then be managed properly. The longest day of the year is June 20th. After this date, light is reduced each evening by approximately 90-seconds. Scheduled lights should be adjusted every 14 to 21 days from the start of the season to its end.

Controlling sports field use must be done through set policy and procedures. This should also include educating the user on the lighting practices of your facility. Consider the softball umpire who holds the key to controlling field lighting. Faced with presiding over three or four consecutive games on the diamond, the umpire may choose, for sake of convenience, to fire up the lights before the start of the first game, even though the sun may not set for another two hours. Systems that provide reports for light usage, lamp starts and customer usage are available.

Nothing is more frustrating to a taxpayer then seeing a fully illuminated sports field with no users on the field. Warm weather months can provide additional operational challenges as staffing levels are often increased with the addition of seasonal workers. Temporary workers may not have the skills or training that is necessary to recognize improper lighting practices. Seasonal workers require training and monitoring by skilled staff to guarantee success.

Balancing energy consumption and user safety requires commitment

Sports field lights that shut-off all at once increase the risk for injuries. Consider also the on and off field safety of park users. Whenever possible, shut down lighting in stages. Sufficient lighting must be left on for the safety and security of users and patrons. Attention should also be given to ensure user safety after field lights are turned out.

Close coordination with user groups and good communication with neighbours will help to address issues and concerns. A successful energy management program requires ongoing commitment by all levels of recreation professionals for today's recreation facilities. ♦

Sources

• *IESNA RP–01 Recommended practice for sports and recreational area lighting,* International Engineering Society of North America (IESNA), 2001.
• Energy Solutions Alberta, www.energysolutionsalberta.com
• Hydro One, www.hydroone.com
• Musco Lighting, www.musco.com
• Starry Night Lights, www.starrynightlights.com

STA Member Profile

Gordon Horsman • Sportsfield Manager • City of Moncton • New Brunswick

1. What is your role with the City of Moncton? City of Moncton Sportsfield Manager and Assistant Project Manager for six new ball fields.

2. What kind of team do you work with? Four casuals and eight students for our site alone.

3. What are you and your team responsible for? We drag and line ballfields, make sure our fields are safe to play on, maintain two and a half acres of flowerbeds and 450 young trees and roughly 500 irrigation heads.

4. What is the biggest challenge in your job? Making sure turf stays healthy, fields are safe to play on, and managing our crew.

5. What is the most satisfying part, what makes the job worthwhile for you? To see the kids and parents enjoy using the fields and engaging in sports and family events.

6. What is the biggest misconception about your job? That we just mow the grass.

7. What is your educational/employment background? I have a Grade 12 education with experience in project management, sand and soil blending, golf and sport field construction, and the University of Guelph's Turf Managers' Short Course.

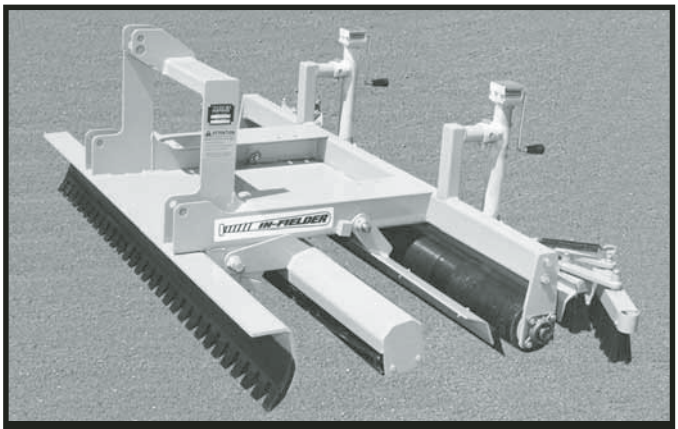
8. Tell us about your family. Our daughter is graduating with a Masters in Library and Information Studies at Dalhousie University and our son is completing his Primary Care Paramedic at the Atlantic Paramedic Academy. My lovely wife of 24 years enjoys her career and sewing.

9. What do you enjoy doing outside of the workplace? Hobbies, favourite past times? Collecting antique golf clubs, playing the odd round and reading up on trends in the golf industry (oh, and keeping up to date on sports field construction!).

10. How has the industry changed and in what direction(s) would you like to see the industry, as a whole, move towards? IPM accreditation seems to be the way the industry will now educate and train employees. I hope this heightens the perception that we are managing our facilities with due diligence with pesticide reduction being our main goal. Lots of the day-to-day practices are second nature to the most important, IPM.

CN Sportsplex, Moncton, NB

11. What do you consider to be the biggest benefit of being a member of the STA? Networking with great people along with opportunity to share knowledge and resources. ♦



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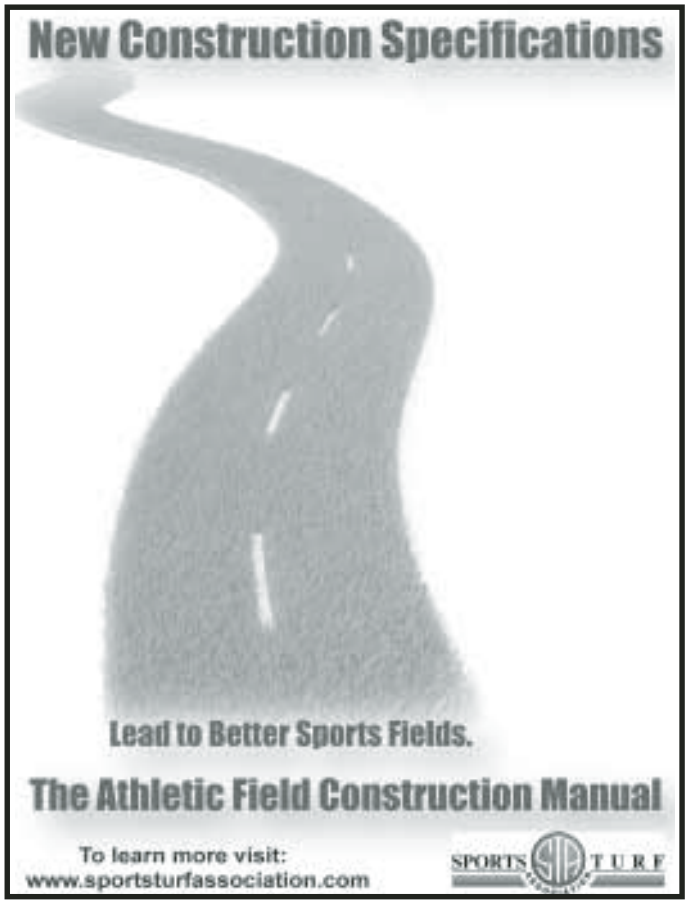

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STA Facility Profile

CN Sportsplex • Moncton • New Brunswick

1. Name, location of facility. CN Sportsplex, Moncton, New Brunswick.

2. General information regarding the facility. The Sportsplex is located on a 250-acre site where the main shops for the CNR were located until it closed its doors in the 1970s. There is now a state of the art four-ice arena along with six soccer and 10 baseball fields. There is also a new sport dome for indoor soccer and a driving range (privately owned) that is a great addition to the site.

3. What types of sports fields are on site? There are 10 ball fields and six soccer pitches. There is approximately 50,000 tons of sand, 20,000 tons of peastone and 5,000 yards of compost for soil amending.

4. How many employees are involved with turf care at this facility? There are 10-12 people who look after the site.

5. How many acres of turf are maintained at this facility? How many acres of sports turf? On 100 acres of land, there are 23 acres of sand based Kentucky Blue.

6. What percentage of this acreage is irrigated? All the fields are irrigated.

7. What is the primary type of turfgrass? Kentucky Blue.

8. Is yearly overseeding part of your sports turf maintenance program? We overseed the heavy traffic areas, goalmouths, and wherever necessary for weed prevention.

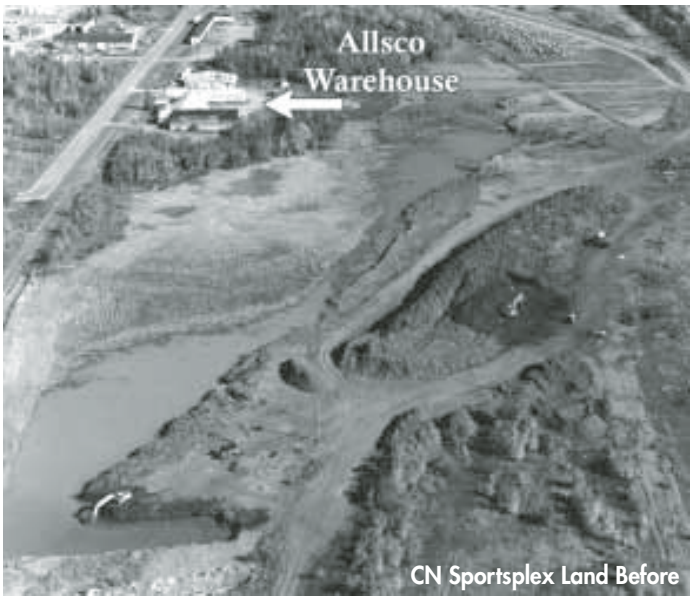
9. How many times do you fertilize? We fertilize three to four times a year using a PSCU product and some organic products.

10. Do you aerate? Topdress? We aerate and topdress every spring and fall.

11. Has your municipality banned the use of pesticides? We do not practice any pesticide use.

12. Are community user groups involved or have they been involved in the construction/maintenance of this facility? Soccer New Brunswick and Codiac Soccer look after bookings and field closures.

13. How many hours per year are the fields permitted? Who permits them? Are the fields ever closed during the season to give them a rest? How much input do you have in the amount and timing of use? The fields see 250–300 hours of play in a season. It is not too often that the fields get a rest but we sometimes cancel in a heavy rainstorm due to the amount of damage done to the turf when it is wet. I can make the call at any given time regarding closures. ♦



CN Sportsplex Land Before

CN Sportsplex Land After

REBUILDING OF ROYAL ATHLETIC PARK, VICTORIA, BC

FOR THE 2007 FIFA U-20 WORLD CUP • KENNETH HILCHEY & GORD SMITH • VICTORIA PARKS

GOOOOOOAAAAAAAAALLLL!!! Cried the announcer as his exuberance echoed throughout the stadium and out to old AM radio transistors and rabbit-eared television sets around the world. The FIFA Under 20 World Cup had begun in Canada. Six major Canadian cities would host the second largest sporting event in the world (after FIFA's World Cup), and this resounding shout from the announcer came from a city that prides itself on soccer – sorry, football.

The first time FIFA officials came to Victoria to see this venue in the heart of the downtown, the organizing committee chairman, after setting foot in the middle of the present soccer pitch at Royal Athletic Park (RAP) looked around and asked, "Where's the field?"

Royal Athletic Park has always been the highlight of Victoria's outdoor sports facilities. It has held world-class soccer games before. The once world famous Traveler's fastball champions played here as well as Canadian football, Australian rules football and more recently the ever popular beer festivals. However, what you really need to appreciate about this field is how it crests abnormally from north to south creating an illusion that one was in a formidable sinking abyss when looked upon from either end. One fan at a recent exhibition soccer match between Canada and Scotland commented that all he could see looking across to the far sideline were men's torsos darting up the field towards the opponent's goal. Now you begin to understand why the question, "Where's the field?" was posed.

Reworking a Classic

Well, after much reassurance of what could and would be done to the existing field and the official's appreciation of the old-fashioned styled stadium atmosphere of Royal Athletic Park, the City of Victoria was granted a pool for the 2007 FIFA Under 20 World Cup (other cities selected were Burnaby, Edmonton, Ottawa, Toronto and Montreal). Hence, after months of meetings, planning and around the world communication, work at Royal Athletic Park began in mid-April, a few short months prior to the Cup.

The elevation numbers in metres ranged from 11.09 to 9.49 from north to south and east to west and because of this huge discrepancy, it made determining the final cut and fill elevation very difficult.