

# Integrated Pest Management (IPM) Plan

## Athletic Fields

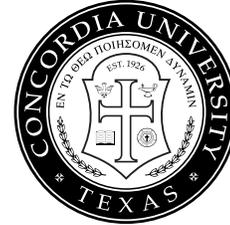


**Concordia University Texas**  
**Austin Campus**

*Ron Petty*  
*Director of Facilities Management*

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Concordia University Texas  
11400 Concordia University Drive  
Austin, TX 78726



Concordia University Texas recognizes the potentially serious risks inherent in using chemical pesticides on the campus – especially in an environmentally sensitive setting. It is committed to implementing a comprehensive Integrated Pest Management Plan (IPM) for all athletic fields on the new campus in northwest Austin. The IPM plan will be defined as the coordinated use of physical, biological and cultural controls, and in the face of any public health threat or substantial property damage, the use of least-toxic pest control chemicals.

The objectives for using an IPM plan for athletic fields at Concordia University are to:

- ✓ Maintain a safe and sustainable campus environment;
- ✓ Protect the health of students, faculty, staff and visitors by controlling or eliminating pests that pose an imminent threat to public health and safety;
- ✓ Reduce or eliminate human exposure to pesticides through use of least-risk management practices;
- ✓ Reduce or prevent pest damage to campus property, especially athletic playing areas;
- ✓ Reduce or eliminate environmental pollution and degradation;
- ✓ Maintain economically sound practices for pest management on athletic fields; and
- ✓ Enhance the overall quality of life for those who work at, live in or use campus athletic fields.

*Integrated Pest Management* is understood to involve monitoring of pest populations, establishment of tolerance thresholds, modifications of habitats (to eliminate sources of food, water and harborage and entry), utilization of least-toxic controls, keeping records and evaluation of performance on an ongoing basis on the campus. It is the responsibil-

ity of the Director of Facilities Management and athletic personnel to ensure that any maintenance and pest control services hired by Concordia University comply with the best practices listed in this IPM plan to minimize the use of fertilizers, pesticides and herbicides.

A *pesticide* is defined as any insecticide, rodenticide, herbicide, algacide, disinfectant or other chemical utilized to kill or repel a pest. Any use of chemicals will be in compliance with federal and state laws.

## **PART A – PROJECT DESCRIPTION**

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- a) **Project name:** *Concordia University Texas – Athletic playing field IPM*
- b) **Project case number:** *SP-2007-0231C*
- c) **Project type:** *University athletic playing fields*
- d) **Project address:** *11400 Concordia University Drive, Austin, TX 78726*
- e) **Project contact information:** *Ron Petty, Facilities Services Director (486-1116)*
- f) **City of Austin water quality reviewer:** *Kevin Shunk (974-9176)*
- g) **City of Austin IPM plan reviewer:** *John Gleason*
- h) **Reason for IPM requirement:** *Plan requested by Sylvia Pope (hydro-geologist review), HY3 (974-3429)*
- i) **Landscape** (not being developed under the SOS Ordinance):
  - 1. **Playing field turf acreage:** *Approximately 12 acres when fully completed*
  - 2. **Ornamental acreage:** *See overall campus IPM (under development)*
  - 3. **Native landscaped area:** *See overall campus IPM (under development)*
  - 4. **Total Campus acreage (excluding the nature preserve):** *135 acres*
- j) **Built Structures:**
  - 1. **Estimated floor area:** *Not Applicable.*  
*See overall campus IPM (under development)*
  - 2. **Estimated pavement / sidewalks:** *Not Applicable.*  
*See overall campus IPM (under development)*
- k) **Environmental features:** *Surface geology on the property consists of the basal unit of the Edwards Limestone Formation and consists primarily of limestone and dolomite. Soil on the upland portion of the property consists of the Tarrant and Speck and the Tarrant (rolling) series and typically consists of shallow, stony and clayey soils with large limestone rocks. There is a significant amount of cedar and oak trees covering the developable part of the site.*
- l) **Site plan:** *A copy of the 2007 Campus Master Plan is attached showing the future build out for playing fields. Note: The construction of playing fields will be phases over several years.*

## PART B – ANTICIPATED ATHLETIC FIELD PEST PROBLEMS

The new Concordia campus in northwest Austin is located in an environmentally sensitive area near the Balcones Canyonlands Preserve. Much of the land surrounding the proposed athletic fields is populated by a mixture of cedar and live oak trees with the land heavily covered with a wide range of rocks. The proposed athletic fields will consist of turf grass appropriate for athletic play for baseball, softball, soccer and football. Like the existing campus, the new campus athletic fields will be managed in keeping with the *Grow Green's Earth-wise* guides. The information in this section (Part B) and the next section (Part C) supplements the *Grow Green* guides.

**a) Potential Pests of athletic fields and other turf grass:** The treatment strategies for these pests are described in Part C of this document.

### 1. Lawn weeds:

*Any plant other than the desired turf grass may be considered a weed in turf grass. Specific weeds that are commonly encountered in lawns and athletic fields include crab grass, dallis grass, annual bluegrass, spurge, goose grass and many others, including annual and perennial species.*



**Crab grass**



**Dallis grass**



**Bluegrass**



**Spurge**



**Goose grass**

## 2. Lawn diseases:

Leaf spot (*Helminthosporium spp.*), brown patch (*Rhizoctonia spp.*), rust (*Puccinia spp.*), spring dead spot (*Leptosphaeria korrae*), pythium (*Pythium spp.*), dollar spot (*Sclerotinia homoeocarpa*) and take-all patch (*Gaeumannomyces graminis*).



**Leaf spot**



**Brown patch**



**Dollar spot**



**Rust (*Puccinia spp.*)**

## 3. Lawn Insects:

Fire ants (*Solenopsis invicta*), mole crickets (*Scapteriscus borellia*), sod webworms (*Herpetogramma phaeopteralis*), armyworms (*Spodoptera spp.*), grubs (*Phyllophaga crinita* and others), and chinch bugs (*Blissus leucopterus*).

## 4. Other Lawn Problems:

Drought stress, soil compaction, iron chlorosis and shade stress.



**Take-all patch**

## PART C – TREATMENT STRATEGY

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### Pests and other Lawn Problems of Athletic Fields

The following treatment strategies address pests and problems of the athletic field turf. Treatment strategies can be found in Part D – *Grow Green's Earth-wise* guides.

#### 1. PEST DESCRIPTION:

A. Pests and problems as listed in Part B of this IPM Plan and as identified by a professional landscape maintenance company.

#### 2. TOLERANCE THRESHOLD:

**A. Weeds:** *The goal for the athletic field turf is not to eliminate all weeds; it is to keep weed numbers low enough to prevent significant visual damage. Lawns are a very dynamic ecosystem, and even under optimum grass-growing conditions some weeds will become established. Even height smooth turf is required on athletic fields. Treatment for weeds will be considered necessary if weed growth causes the lawn surface to be too uneven for field sports and thus endangers athletes using the respective field.*

**B. Diseases:** *Lawn diseases, if encountered, will be managed quickly after discovery to minimize the spread of disease.*

**C. Insects:** *Even height smooth turf is required on field areas and desired in other areas on campus. The presence of an infestation will be verified prior to treatment. Treatment for insect infestation will be considered necessary when damage is noticeable, unsightly and/or impacting play on the athletic field and potentially endangering athletes. Several treatment thresholds are noted in the following information.*

1. **Armyworms:** *identified by either a professional landscape maintenance company or trained University staff and treated at 5 per square foot.*



2. **Chinch bugs:** *identified by either a professional landscape maintenance company or trained University staff by flushing with water and treated when characteristic damage is evident.*



3. **Fire ants:** *identified by either a professional landscape maintenance company or trained University staff by characteristic mound, aggressive behavior or biting; treated when at least one colony exists in a sensitive area, or several colonies exist in a non-sensitive area.*



4. **Grubs:** *identified by either a professional landscape maintenance company or trained University staff and verified by digging, and treated at a minimum of 5 \ per square foot.*



5. **Mole crickets:** *identified by either a professional landscape maintenance company or trained University staff and treated at 3 per square foot.*



6. **Sod webworms:** *identified by either a professional landscape maintenance company or trained University staff and treated at 5 per square foot.*



- D. **Other lawn problems:** Concordia University Texas will use the *Grow Green's Earth-wise* guides to *Lawn Problems* to identify miscellaneous turf issues along with consultation of a professional landscape maintenance company. Treatment will occur when damage becomes intolerable or poses a threat to humans.

### 3. PREVENTATIVE MEASURES AND TREATMENT:

- A.** Concordia University Texas will follow the recommendations for management of weeds, diseases, insects and other lawn issues in the *Grow Green's Earth-wise* guides along with consultation with a professional landscape maintenance company. The following management techniques will be employed, with preference given to using the least-toxic methods first.
- B. Physical:** Physical measures include the use of set backs and buffer zones adjacent to environmentally sensitive areas on campus surrounding athletic fields. Buffer zones receive no pesticide or fertilizer applications.
1. **Weeds:** *Mowing, pulling or weed-eating will be used to remove rank growth before weeds have flowered and set to seed.*
  2. **Diseases:** *Physical removal of diseased turf may be possible if the disease is discovered early enough.*
  3. **Insects:** *When possible, pest insects will be physically eradicated.*
  4. **Other lawn problems:** *Shade stress will be managed by pruning tree branches to minimize shade whenever appropriate, or turf will be removed and replaced with groundcover. Stress from compaction will be minimized in the following ways:*
    - a) *Use of pavement in pedestrian pathways, where possible as it relates to athletic field areas.*
    - b) *Physical barriers or signs to prevent foot traffic.*
- C. Cultural:** Consistent use of the following cultural lawn care practices will provide high quality turf and successfully limit weed, disease, insect and other lawn problems. The presence of weeds and other pests can often be correlated to stressful lawn maintenance practices. A professional landscape maintenance company will monitor all lawn maintenance on athletic fields, as coordinated by the Director of Facilities Management. The following cultural methods will be utilized at Concordia University Texas:
1. **Irrigation:** *It is difficult to maintain an athletic field without periodic irrigation, especially in a relatively hot climate as that of Central Texas. An irrigation system will be utilized for the turf areas of athletic fields. Irrigation will be managed to supplement rainfall. Frequency and duration will depend on environmental factors. The best time to irrigate is just before wilt occurs. Enough water needs to be applied to soak the soil to a depth of at least 6 to 8 inches. This will likely mean applying approximately 1 inch of water per week during the summer before sunrise or after sunset to reduce water loss from evaporation. If irrigation is necessary, it will generally be utilized 24 to 48 hours before a major field use to reduce soil compaction. Irrigation will be closely monitored and scheduled by University staff to prevent over and under watering and help conserve water.*

- 2. Mowing:** *Proper mowing promotes deep rooting and good shoot density, desirable mat, and uniform growth. Regular mowing at the right height with properly-maintained equipment will be the goal. Mowing height of the turf will depend on the type of turf used on athletic fields. For hybrid bermudagrasses (Tifway, TifSport and Tifway II), a mowing height of  $\frac{3}{4}$  to 1 inch is preferred, and for common bermudagrass  $1\frac{1}{2}$  to 2 inches is preferred. The first mowing in the spring should be low by as much as one-half the desired final height. This helps increase turf density and allows the cutting height to be raised during the summer if scalping occurs. Turf should be mowed often enough so that no more than one-third of the leaf surface is removed at a mowing. Generally, this means the field should be cut twice a week during the summer. Higher mowing heights do not need as frequent mowing but result in lower quality and weaker turf. If mowing frequency is properly adjusted, clippings may be returned without harming the turf. If excessive clumping of clippings occurs, they should be dispersed or removed. Regardless of the type of mower used, it is important to keep the blades sharp and properly adjusted.*
- 3. Aeration:** *Lawns will be aerated regularly, as needed. Aeration will occur more frequently in areas that are compacted by frequent foot traffic or athletic play. As a general rule, the spacing between aeration holes should be 2 to 3 inches. Aerate fields a minimum of two times per year. The first should be done in the spring just before fertilization and the second in mid-summer. Each aeration should involve a minimum of three passes over the playing field. If field use is heavy or the soil is compacted, aerate monthly during the growing season. After the soil cores have dried, they can be crumbled and spread over the turf by using a flexible steel drag mat or some other means. Slicing with solid blades  $\frac{1}{4}$  to  $\frac{1}{2}$  inch wide cultivates the soil with minimum surface disruption. Units with offset tines can be quite effective in relieving soil compaction. Aerate when soil moisture is at field capacity. This generally translate to 8 to 24 hours after rainfall or irrigation or when a spoon-type aerator would remove soil cores to the surface. If moisture were higher or lower, cores would not easily move to the surface. However, some equipment, particularly solid tines or blades, are most effective when soil moisture is drier than field capacity. Aerate when the turf is actively growing and not under stress.*
- 4. Fertilization:** *Soil examination by soil test (pH) and/or professional visual analysis will be performed regularly to determine the need for fertilization. When required, fertilization will be accomplished by top-dressing with compost or the use of a granular organic fertilizer. If additional fertilization is required, as demonstrated by soil test and/or professional visual analysis,  $\frac{1}{2}$  pound of nitrogen per 1000 square feet will be added no more than eight times a year, as required.*
- 5. Over seeding:** *Winter rye grass seeding may be employed, as it works with the respective athletic field schedule.*

**6. Night lighting:** *Field lights will be used only as required by the field schedule.*

**D. Biological:** Biological control tactics for weeds, insects, diseases and other lawn issues will be employed when possible.

1. **Weeds:** *There are no biological controls proposed for weeds at this time.*
2. **Diseases:** *There are no biological controls proposed for diseases at this time.*
3. **Insects:** *Biological control of caterpillars, such as armyworms and sod webworms, will include the use of the bacteria *Bacillus thuringiensis* (Bt). More information about Bt can be found in Grow Green’s Earth-wise Guide to Caterpillars.*

**Table 1 – Biological Controls for Specific Insect Pests**

PEST		CONTROL	
Common Name	Scientific Name	Active Ingredient	Product Name
<i>Armyworms</i>	Spodoptera spp.	Bacillus thuringiensis	<i>Dipel</i> ®
<i>Sod webworms</i>	Herpetogramma phaeopteralis	Bacillus thuringiensis	<i>Dipel</i> ®

**4. Chemical:**

Chemical controls will only be employed on an “as-needed” basis when problems exist that have not been or cannot be addressed by physical, cultural or biological practices. The following information is a sample of possible approaches. Specific chemical controls will change as availability and improvements in chemicals change.

- A. Weeds:** *Initial spot treatment will be with acetic acid / horticultural grade vinegar (‘CedarCide RidAWeed’ and ‘Burnout’). If required, spot treatment with glyphosate (‘Roundup’) will be used. No pre-emergent herbicide use will be practiced. For nutgrass, Manage (halosulfuron) will be used, if necessary.*
- B. Diseases:** *Least toxic chemical controls for brown patch and take-all patch include corn gluten meal (Concern ® Weed Prevention Plus) and Thiophanate methyl (Green Light ® Systemic Fungicide Disease Control).*
- C. Insects:** *Positive identification of the insect pest will be made prior to the use of any chemical control.*

**Table 2 – Chemical Controls for Specific Insect Pests**

PEST		CONTROL	
Common Name	Scientific Name	Active Ingredient	Product Name
<i>Chinch bugs</i>	Blissus leucopterus	Potassium salts of fatty acids	<i>Safer</i> ® <i>Insecticidal Soap</i>
<i>Grubs</i>	Phyllophaga spp.	Halofenozide	<i>Ortho</i> ® <i>Grub-B-Gone</i>

## 5. USE OF THIS IPM PLAN

Pesticide products change on a regular basis, and those listed in this plan are provided for reference only. Listing of a specific product trade name does not constitute an endorsement of its use. Many pesticide products other than those listed in this plan are available and may be suitable for use. If a pest problem occurs that is not addressed by this management plan, or if the Director of Facilities Management desires to use pesticides of greater toxicity than those listed, the director shall alert the City of Austin IPM coordinator.

It should also be noted that this IPM Plan is a dynamic document and will periodically be reviewed and revised as circumstances at Concordia University Texas change and as new pest management products and techniques become available. The City of Austin IPM coordinator will be notified whenever this document is substantially revised or altered.

## 6. APPLICATION OF PESTICIDES OR CHEMICALS

When it is determined that pesticides or chemicals are needed for pest management on campus athletic fields, only products registered for use in the State of Texas will be applied with strict adherence to label directions. Applications will be undertaken only by personnel from a licensed pest control company or qualified University staff. No pesticides or fertilizers will be used within 150 feet of any critical environmental features (CEFs) or streams.

## 7. NOTIFICATION

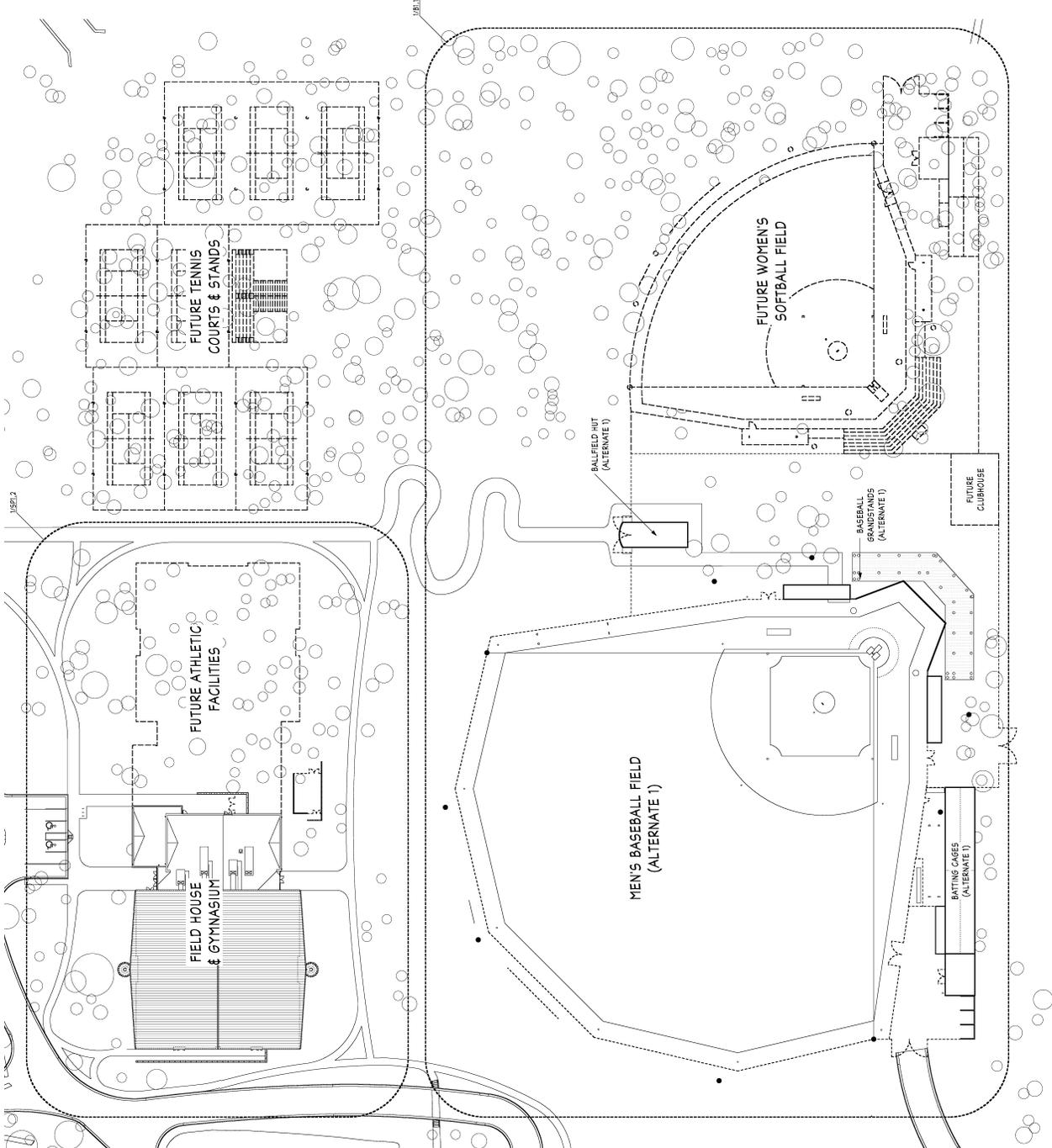
Appropriate signs and notifications will be posted on or around athletic fields notifying faculty, staff and students prior to pest management activities that involve application of pesticides, herbicides or other potential chemical applications that could be harmful to humans. Appropriate efforts will be made to eliminate individuals coming in contact with any such applications to athletic fields within manufacturer specifications.

## 8. RECORDKEEPING

A log book of all pest sightings and pest management activities on campus will be kept in the office of the Director of Facilities Management, 11400 Concordia University Drive, Austin, TX 78726 (Building B). This log will be kept current by the Director of Facilities Management and will be available for public viewing upon request. Additionally, any time a pesticide is used for pest management purposes, a copy of the pesticide label, as well as the pesticide's Material Safety Data Sheet (MSDS) will be kept on record in an easily accessible location as a reference for applicators on proper use, storage and safety.



# Initial Proposed Athletic Complex & Fields



# Concordia Master Plan

