Contact: Joan Racki

REGISTER OF IOWA STATE UNIVERSITY
CAPITAL IMPROVEMENT BUSINESS TRANSACTIONS

Action Requested: Consider:

1. Approval of the following actions for the **Troxel Hall** project:
    a. Acknowledge receipt of the University's final submission of information to address the Board's capital project evaluation criteria (see Attachment A);
    b. Accept the Board Office recommendation that the project meets the necessary criteria for Board consideration; and
    c. Approve the schematic design, project description and budget ($11,000,000), with the understanding that approval will constitute final Board approval and authorization to proceed with construction.

2. Review of the plans for storm water runoff and drainage for the proposed **Cyclone Sports Complex**.

Executive Summary: Troxel Hall would be a new free standing building (see Attachment B for the proposed location of the facility) with a state-of-the-art 400 seat auditorium, pre-function and student interaction spaces, as well as a post-class meeting room, chemistry preparation room, auditorium storage, and building support spaces. The auditorium is being designed to accommodate high-demand courses, while optimizing the quality of instruction and student learning. (Existing University auditoriums are heavily scheduled and the ability to accommodate scheduling changes is severely limited by the number of large auditoriums. There are currently only five general university auditoriums on campus that can accommodate more than 350 students, and one is a substandard learning and teaching environment.) The project budget of $11,000,000 is being funded by private gifts, Income from Treasurer's Temporary Investments, facilities overhead use allowance, and liberal arts and sciences. The schematic design booklet is included with the Board's agenda materials.

At its March 2011 meeting, the Board approved a number of actions for the Cyclone Sports Complex, but asked that these approvals be subject to final review of the plans for storm water runoff and drainage. Snyder and Associates, Inc., a civil engineering, planning, and landscape architecture firm with an office in Ankeny, IA has provided a written report related to the City of Ames and Iowa Department of Natural Resources storm water management requirements and the plans to address storm water management at the Sports Complex. This memorandum is included as Attachment C. The calculations have been submitted to the City of Ames Engineering Department for review and approval, and a report from the City is anticipated prior to the Regents April Board meeting. Maps showing the existing site drainage conditions and the proposed site drainage improvements are included as Attachments D and E, respectively.

Details of the Projects:

Troxel Hall (formerly known as East Campus Auditorium)

Project Summary

	Amount	Date	Board Action
Permission to Proceed		Aug. 2010	Approved
Initial Review and Consideration of Capital Project Evaluation Criteria			Received Report
Naming of East Campus Auditorium as Troxel Hall		Aug. 2010	Approved
Design Professional Agreement – BNIM Arch. (Des Moines, IA)	$ 812,375	Oct. 2010	Not Required*
Program Statement		Feb. 2011	Not Required*
Schematic Design		April 2011	Requested
Project Description and Total Budget	11,000,000	April 2011	Requested
Final Review and Consideration of Capital Project Evaluation Criteria		April 2011	Receive Report

*Approved by Executive Director consistent with Board policies

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The design of Troxel Hall responds to three primary project goals. The 400-seat auditorium will be an exemplar of a high-quality learning environment, providing ample opportunity for students to engage with one another in a state-of-the-art collaborative learning environment. The new facility will be a model of highly sustainable design, employing a multitude of strategies to reduce the environmental impact, create a positive social climate, and adhere to short and long-term economic constraints. The project will endeavor to be a responsible and sensitive addition to campus, in terms of its scale, materiality and response to the existing patterns of movement.

Troxel Hall will be a one-story facility providing student access into the auditorium primarily from the northeast and southeast, with secondary entrances on the northwest and southwest. Service access to the building will be from the northwest, and the facility will share the existing service area to the north with Horticulture and Bessey Hall.

The design of Troxel Hall includes a number of strategies to contribute to the sustainable design objectives. These include lowering the building into grade, which reduces the exposure of the building envelope to large temperature variations, and the use of a vegetated roof to reduce the heat island effect and limit stormwater runoff from the site. The prefunction spaces will take advantage of natural daylighting.

Responding to the immediate and campus building context, materials to be used for Troxel Hall will consider brick masonry, transparent glazing and concrete to complement the material palette of the adjacent buildings. The scale of the building is significantly reduced by configuring the auditorium so that the top tier of seating is located at grade and the front house teaching area is below grade.

Due to the refinement in schematic design and adjustments made to balance the budget and scope, the square footages for program areas have been modified from the approved building program.

The following table compares the square footage in the approved building program with the square footage in the schematic design.

	Approved Building Program		Schematic Design	
Troxel Hall				
Auditorium	6,900		6,800	
Prep Room	432		508	
Post-Class Meeting Room	400		280	
Auditorium Storage	120		155	
Pre-function Space	3,600		4,097	
Study Space	600		735	
Total Net Square Feet	**12,052**	NSF	**12,575**	NSF
Anticipated Gross Square Feet	**20,081**	NSF	**21,407**	NSF
Anticipated Net to Gross ratio =	60%		59%	

It is anticipated that the project will be bid in Summer 2011 and the project substantially complete prior to Spring Semester 2013.

Project Budget

Construction	$ 8,698,270
Design, Inspection and Administration	1,596,260
Movable Equipment	400,500
Relocation	10,000
Project Contingency	294,970
TOTAL	$11,000,000
Source of Funds:	
Income from Treasurer's Temporary Investments	$ 5,000,000
Private Giving	4,750,000
Facilities Overhead Use Allowance	1,000,000
Liberal Arts and Sciences	250,000
TOTAL FUNDS	$11,000,000

Cyclone Sports Complex

Project Summary

	Amount	Date	Board Action
Permission to Proceed		Oct. 2010	Requested
Initial Review and Consideration of Capital Project Evaluation Criteria		Oct. 2010	Receive Report
Selection of RDG Planning and Design (Des Moines, IA)		Oct. 2010	Requested
Design Professional Agreement – RDG Planning and Design	$ 1,042,482	Mar. 2011	Approved
Program Statement		Mar. 2011	Not Required*
Final Review and Consideration of Capital Project Evaluation Criteria		Mar. 2011	Receive Report
Schematic Design		Mar. 2011	Approved
Project Description and Budget	12,961,940	Mar. 2011	Approved
Plans for storm water runoff		Apr. 2011	Receive Report

*Approved by Executive Director, consistent with Board policies

Troxel Hall
Evaluation Criteria

Since the project meets the Board's definition of a major capital project, the University has provided the following information in response to the Board's evaluation criteria.

Institutional Mission/Strategic Plan: The Troxel Hall project has been developed to meet the needs of the students and faculty of Iowa State University. The University has found that as class sizes have increased, the size and availability of classrooms on campus cannot meet the growing need for space. In particular, the University has identified a shortage of large lecture spaces.

Envisioned as a 400-seat general university auditorium, the construction of Troxel Hall will greatly improve not only the availability, but also the quality of large lecture facilities on campus. The development of this project follows the University's mission to enhance student success by strengthening educational opportunities. In addition, it directly responds to the Strategic Plan's objectives to attract outstanding students and faculty and to become a treasured resource for Iowa, the nation and the world.

The design of Troxel Hall will create a highly collaborative and interactive environment that promotes robust engagement of faculty with students and encourages students to be active participants in their educational experience. It will accomplish this both with the careful configuration of the auditorium space and seating, and the thoughtful integration of state-of-the-art learning and teaching technology.

As an exemplar of a large-scale collaborative learning environment, this facility will serve to attract and retain outstanding faculty, providing them the freedom and support to teach in the most effective manner. This environment, where both the qualities of physical space and level of instruction are elevated, will not only draw outstanding students but also improve their ability to work with others in complex problem-solving efforts.

Another important component of this state-of-the-art collaborative learning environment will be the integration of strategies for high performance design. These strategies will enhance environmental stewardship, reduce the use of natural resources, reduce long-term operating costs and improve student performance.

The primary component of Troxel Hall will be a 400-seat auditorium, designed to accommodate a wide variety of course offerings, including science instruction and experiential learning. All other spaces will serve this function. These support spaces include a chemistry preparation room, a post-class meeting room, a storage space for instructional material and ample pre-function space that includes places for small-group student collaboration

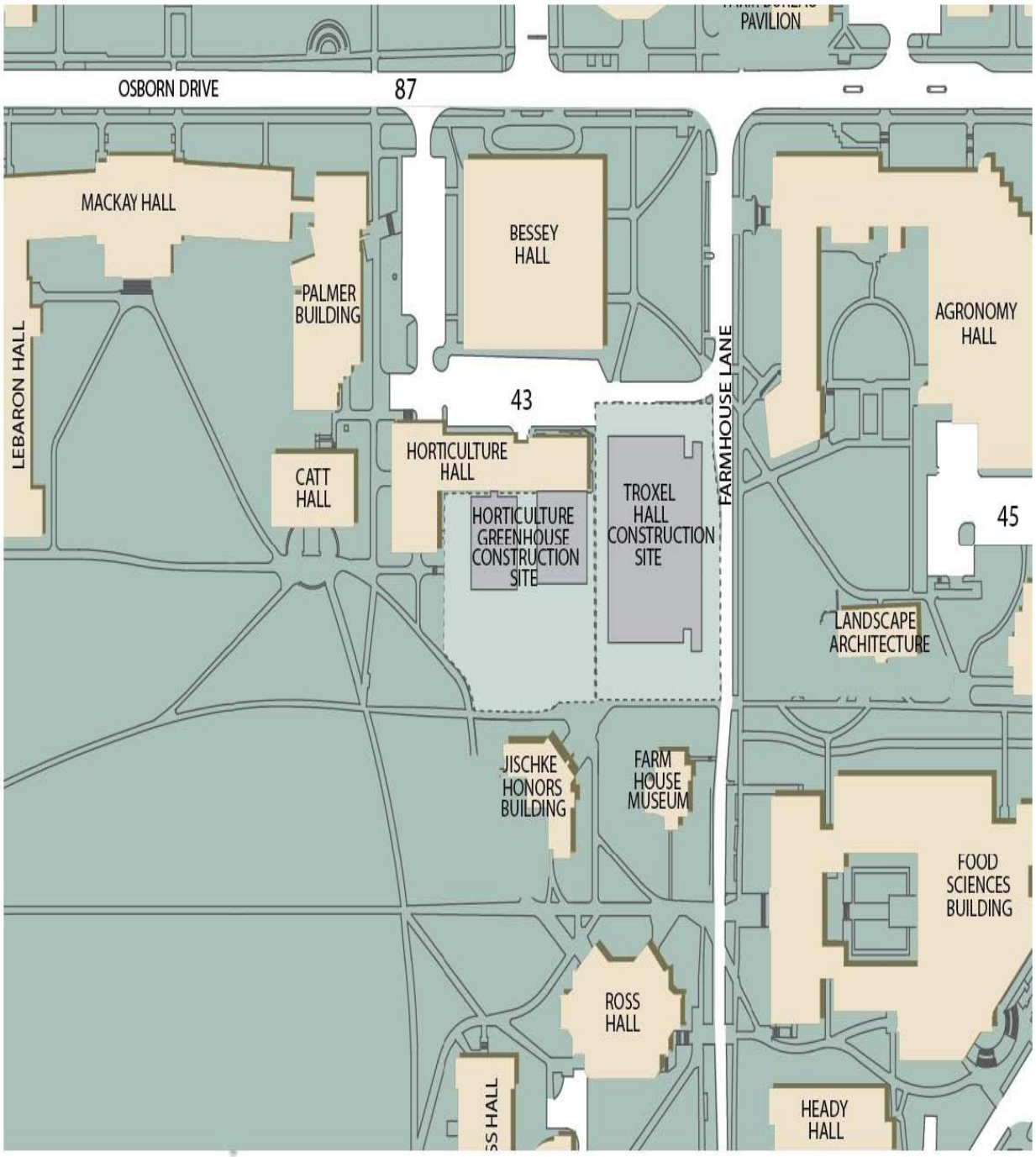
Other Alternatives Explored: Auditorium studies conducted in December 2008 and June 2009 are the basis for this project concept. The needs assessment found that the current classroom facilities in Gilman Hall were antiquated and dysfunctional and did not meet the current demand for a large lecture facility. The goal of the project is to improve the quality and availability of large lecture facilities to meet the needs of introductory classes serving large numbers of students, with the primary emphasis on science instruction.

Several alternative auditorium sites were investigated on both the west and the east side of campus. A preliminary assessment of each option from the perspectives of space utilization, department program implications, and the campus master plan was conducted.

The conclusion and recommendation of the study was develop an auditorium at the east campus location due to the immediate availability of the site, its ability to serve a variety of instructional needs, and balance the need for a large lecture facility on the east side of campus.

Financial Resources for Construction Project: The project will be funded by general university funds and private fundraising.

Financial Resources for Operations and Maintenance: All operating and maintenance funding will be funded by general university funds.


PAVILION
OSBORN DRIVE
87
MACKAY HALL
PALMER BUILDING
BESSEY HALL
LEBARON HALL
AGRONOMY HALL
43
FARMHOUSE LANE
HORTICULTURE HALL
CATT HALL
HORTICULTURE GREENHOUSE CONSTRUCTION SITE
TROXEL HALL CONSTRUCTION SITE
45
LANDSCAPE ARCHITECTURE
JISCHKE HONORS BUILDING
FARM HOUSE MUSEUM
FOOD SCIENCES BUILDING
ROSS HALL
HEADY HALL

ENGINEERS & PLANNERS
SNYDER & ASSOCIATES
IOWA | MISSOURI | NEBRASKA | SOUTH DAKOTA | WISCONSIN

MEMORANDUM

To: Jon Harvey, Iowa State University

From: Jerod P. Gross, P.E., LEED AP

Date: April 11, 2011

Subject: CYCLONE SPORTS COMPLEX
STORM WATER MANAGEMENT

Introduction

Snyder and Associates, Inc. has prepared this memorandum to describe the proposed storm water management design for the Cyclone Sports Complex. Downstream impacts of the development of this facility are a serious concern; therefore the design offered has been given careful and thorough consideration. The following is a description of the City of Ames requirements for storm water management, a description of the proposed storm water management design for the Cyclone Sports Complex, and background information on the Iowa Department of Natural Resources involvement and definitions of storm events.

City of Ames Requirements for Storm Water Management

The City of Ames regulates storm water management per Article 4 of Chapter 29 of the City Code. The requirements are defined as follows:

> "Storm water management design shall include grading, facilities or improvements or some combination thereof which results in no increase in the rate of runoff when compared to the undeveloped condition of the area to be developed. The rainfall frequencies that shall be incorporated in the design of the storm water management system shall include the five year, ten year, 50 year and 100 year design storm events. The calculations and design of the storm water management system shall be prepared by an engineer licensed to practice in Iowa."

This regulation was adopted as City Ordinance Number 3591, 10-10-00.

Cyclone Sports Complex – Proposed Storm Water Management Design

The proposed site plan includes a series of intakes, storm piping and manholes that route storm water runoff through the site incorporating three detention basins. Each of the detention basins will have a constricted outlet to release the storm water at a lower flow rate than the rate at which the water is entering the basins. The basins will be planted with native grasses that have a deep root system to assist with storm water absorption. The storm water release rate from the site is proposed to not exceed the five year storm runoff rate for the undeveloped condition. This design approach is more stringent than current City of Ames requirements.

Table 1 compares the discharge rates for the undeveloped existing site and the developed site.

Table 1 - Release Rates

Storm Event	Precipitation (60 min. duration)	Undeveloped Existing Site Release	Proposed Site Release
5-Year	1.71 inches	11.1 cfs	5.9 cfs
10-Year	2.01 inches	13.1 cfs	7.1 cfs
25-Year	2.42 inches	15.8 cfs	8.4 cfs
50-Year	2.76 inches	18.0 cfs	9.4 cfs
100-Year	3.11 inches	20.3 cfs	11.1 cfs

Drainage Area = 26.1 acres

The two enclosed exhibits show the drainage flow patterns of the existing site and the proposed site with the common outlet location. The proposed site exhibit shows the location of the detention basins.

Iowa Department of Natural Resources

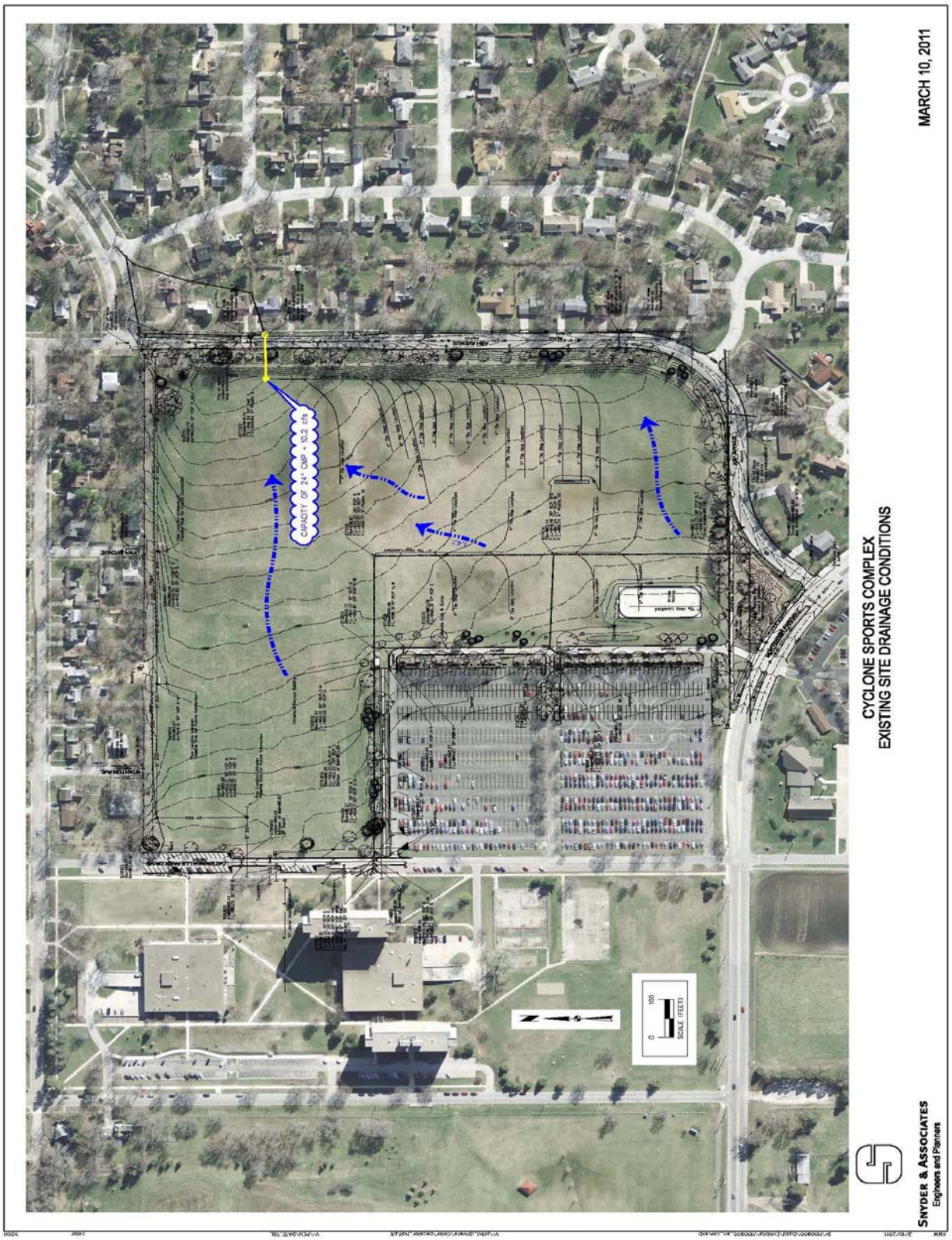
The Iowa Department of Natural Resources does not regulate storm water release rate, instead it regulates storm water quality through a permitting system. Iowa State University is a MS4 (Municipal Separate Storm water System) permit holder. The permit is administered by the University's Environmental Health and Safety Department. The MS4 permit authorizes all existing or new storm water point discharges to the waters of the State of Iowa. The permit requires the University to follow six best management practices (BMPs) to increase the quality of storm water leaving Iowa State University Property. The six BMPs include public education, public involvement, illicit discharge detection and elimination, control of construction site storm water runoff, post construction storm water management, and pollution prevention/good housekeeping. The permit covers roughly 1984 acres including the proposed site. The permit is renewed every 5 years.

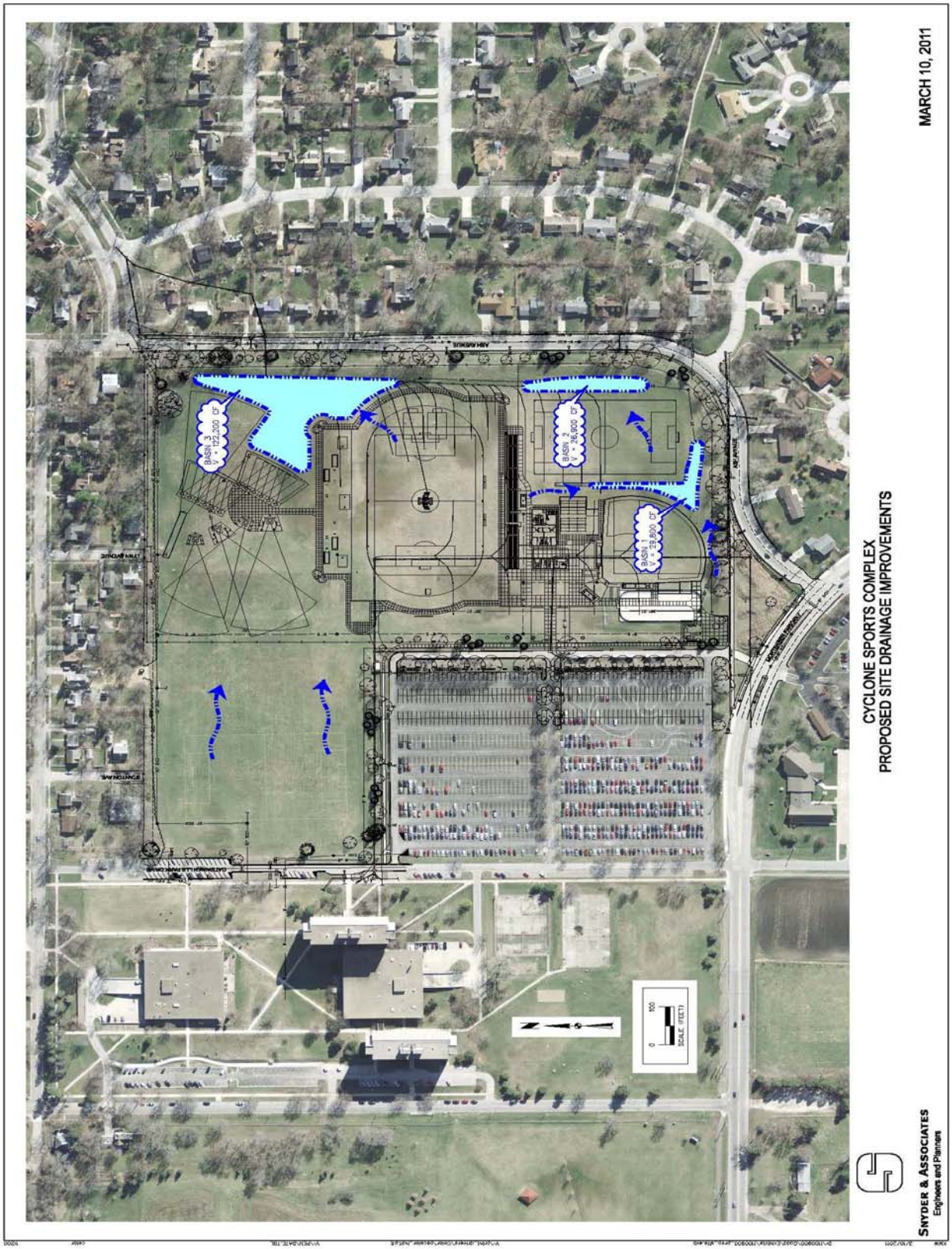
Prior to construction, the Iowa Department of Natural Resources requires an NPDES (National Pollutant Discharge Elimination System) General Permit Number 2 for construction activities. The permit authorizes storm discharge during construction and requires a series of controls to limit pollution from construction activity. As required for the permit, Snyder and Associates, Inc. will submit a pollution prevention plan to identify erosion control devices and locations. The permit is required until vegetation on the site is established.

Definition of Storm Events

When discussing storm events, the definitions of storm frequencies are often misinterpreted. For example a 100-year storm is commonly interpreted as a storm that occurs every 100 years. This is not an accurate understanding. The proper way to define a storm event is by the probability of its occurrence. Table 2 describes the probability for various storm events. For example, there is a 50% chance of a 2 year storm event occurring in any single year. In addition, there is a 1% chance of a 100 year storm event occurring in any single year.

	Time Period in Years					
Frequency (years)	1	5	10	25	50	100
2	50%	97%	99.9%	99.9%	99.9%	99.9%
5	20%	67%	89%	99.6%	99.9%	99.9%
10	10%	41%	65%	93%	99%	99.9%
25	4%	18%	34%	64%	87%	98%
50	2%	10%	18%	40%	64%	87%
100	1%	5%	10%	22%	40%	63%


CAPACITY OF 24" CMP = 10.2 cfs
0
100
SCALE (FEET)
CYCLONE SPORTS COMPLEX
EXISTING SITE DRAINAGE CONDITIONS
MARCH 10, 2011
SNYDER & ASSOCIATES
Engineers and Planners


BASIN 3
V = 122,200 CF
BASIN 2
V = 26,900 CF
BASIN 1
V = 29,500 CF
SCALE (FEET)
0
100
CYCLONE SPORTS COMPLEX
PROPOSED SITE DRAINAGE IMPROVEMENTS
MARCH 10, 2011
SNYDER & ASSOCIATES
Engineers and Planners