

Somerset Park

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A SENIOR CAPSTONE PROPOSAL

Submitted in partial fulfillment of the requirements for the degree
Bachelor of Science in Landscape Architecture

Department of **Landscape Architecture**
College of Agricultural and Life Sciences

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Approved by
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Figure 0.01 - Somerset Park

ACKNOWLEDGEMENTS

I would like to thank the following people for their amazing contributions and support on this project

- Agnes Wojnarski with PHNRC for initiating and organizing this project, and for her tremendous commitment to the betterment of Prospect Heights' natural areas.
- Dana Sievertson, also with PHNRC, for going out of his way to provide whatever information I could think to ask for on a moment's notice.
- Kathy Nowicki with PH Parks Dept. for giving me the insight to understand the mindset of the community.
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a thorough, passionate, and supportive education. Special shout-outs to Doug Hadley for being the metaphorical hook that got me into this profession, Shawn Kelly for being a true mentor for things both inside and outside the profession, and Debi Griffin for keeping this whole thing going behind the scenes.

- My family, for their unfaltering support even if they hadn't heard from me in a month or didn't ever really understand what I was actually doing.



Figure 0.02 - Somerset Park Pedestrian Bridge

ABSTRACT

Somerset Park is small swath of open space between two suburban neighborhoods in Prospect Heights, Illinois. The park sits at the intersection of three important pedestrian and wildlife corridors; Prospect Heights bike path, McDonald Creek, and a tele-com right of way. Throughout the city, natural restoration projects have been established in hopes of enhancing the viability of the wildlife corridors. However, a general lack of community support hinders the effectiveness and the continuation of these projects. Somerset Park is an opportunity to solve this issue.

Through the study of environmental education, quality prairie garden design techniques, and community involvement, this proposal provides a development and design plan for Somerset Park. By providing the residents of Prospect Heights a beautiful natural setting that they can truly interact with and make a part of their community, Somerset Park can help to foster the public appreciation for natural spaces needed to transform Prospect Heights into a thriving community for people and wildlife alike.



Figure 0.03 - Sean McMillion

THE AUTHOR

I grew up in the remote reaches of northern Minnesota, at the end of the Gunflint Trail in the Boundary Waters Canoe Area. Home to me is the dark blue lakes, the harsh granite bluffs, and the miles of wild forests. Coming into the field of Landscape Architecture, I have not left behind that love and connection to wilderness. Although the world is changing, I still see so much disconnect and disconcert for the natural world. As I move into the professional world, I hope to bring people back into a relationship with nature, one design at a time.

Sean McMillion
Department of **Landscape Architecture**

May 2015

CONTENTS

PART I

| | |
|-----------------------|-----|
| Introduction..... | 6-8 |
| Project Workflow..... | 9 |

PART II

| | |
|-----------------------------------------|-------|
| Project Context, Client Background..... | 10-11 |
| Project Goals and Concerns..... | 12 |
| Programmatic Elements..... | 13 |
| Site History..... | 14-15 |
| Research Topic & Literature Review..... | 16-19 |
| Precedent Review..... | 20-23 |
| The Region..... | 24-25 |
| The Community | 26-31 |
| The Site..... | 32-37 |
| Professional Design Ethics..... | 38 |
| Evaluation Criteria..... | 39 |

PART III

| | |
|--------------------------------|-------|
| Design Concept..... | 40-43 |
| Master Plan Design..... | 44-47 |
| Site Design..... | 48-65 |
| Implementation Solutions..... | 66-69 |
| Conclusion and Reflection..... | 70-71 |

PART IV

| | |
|---------------|-------|
| Appendix..... | 72-77 |
|---------------|-------|

INTRODUCTION

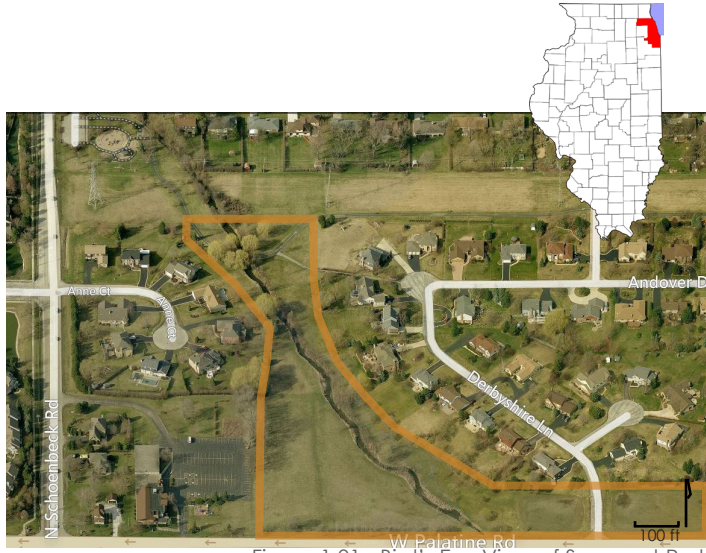


Figure 1.01 - Bird's Eye View of Somerset Park



Figure 1.02 - Children Learning About the Environment

INTRODUCTION

To fulfill the requirements of the Senior Capstone Program in the Department of Landscape Architecture at the University of Wisconsin-Madison I will investigate how ideas of environmental education may inform the design of a native prairie garden. This investigation will be given context and focus by the concerns and goals of the Prospect Heights Park District, and the Prospect Heights Natural Resources Commission, which include restoration ecology. Somerset Park in Prospect Heights, Illinois, will be the site for this study.

RESEARCH TOPIC

This project will be designed under the contexts of environmental education - a fitting research topic for the client's goals for the site. One of the primary proposed functions for Somerset Park is educating the residents of Prospect Heights about nature and its role in their community. In the course of this project, I have researched precedent projects and reports which incorporated environmental education opportunities into similar communities, in order to identify successful and unsuccessful methods which will best tailor my design to be successful in this goal. A few noteworthy authors on the subject include Jane Roy Brown, Julie M Johnson, and Rachel Kaplan.



Figure 1.03 - A Prairie Garden



Figure 1.04 - Native Prairie Plant Community

PROJECT TYPE

The proposed design for Somerset Park is as a native prairie garden. As it currently stands, the site is simply a large expanse of mowed, underutilized grass. This design repurposes it as a native prairie plant community, in accordance with my client's ongoing efforts to reestablish natural, native plant and wildlife habitat throughout the area of Prospect Heights. However, as the site is right within a residential community, it must also be open to and utilized by the community living near it. That being so, this proposal for Somerset Park is a very appropriate venue for researching environmental education, as it will bring the public directly into the natural landscape.

PROFESSIONAL FOCUS

The primary goal of my clients is to create a network of healthy native plant and wildlife communities in the area of Somerset Park. To help them achieve that goal, my professional focus throughout the timeframe of this project has been in restoration ecology. As I have worked on this project with them, I have been enrolled in restoration ecology courses and have actively been researching that field, so that the design presented to them is of the very highest quality.

CAPSTONE WORKFLOW DIAGRAM

Somerset Park Prospect Heights, IL

SEAN MCMILLION

Bachelor of Science in Landscape Architecture
9/23/15

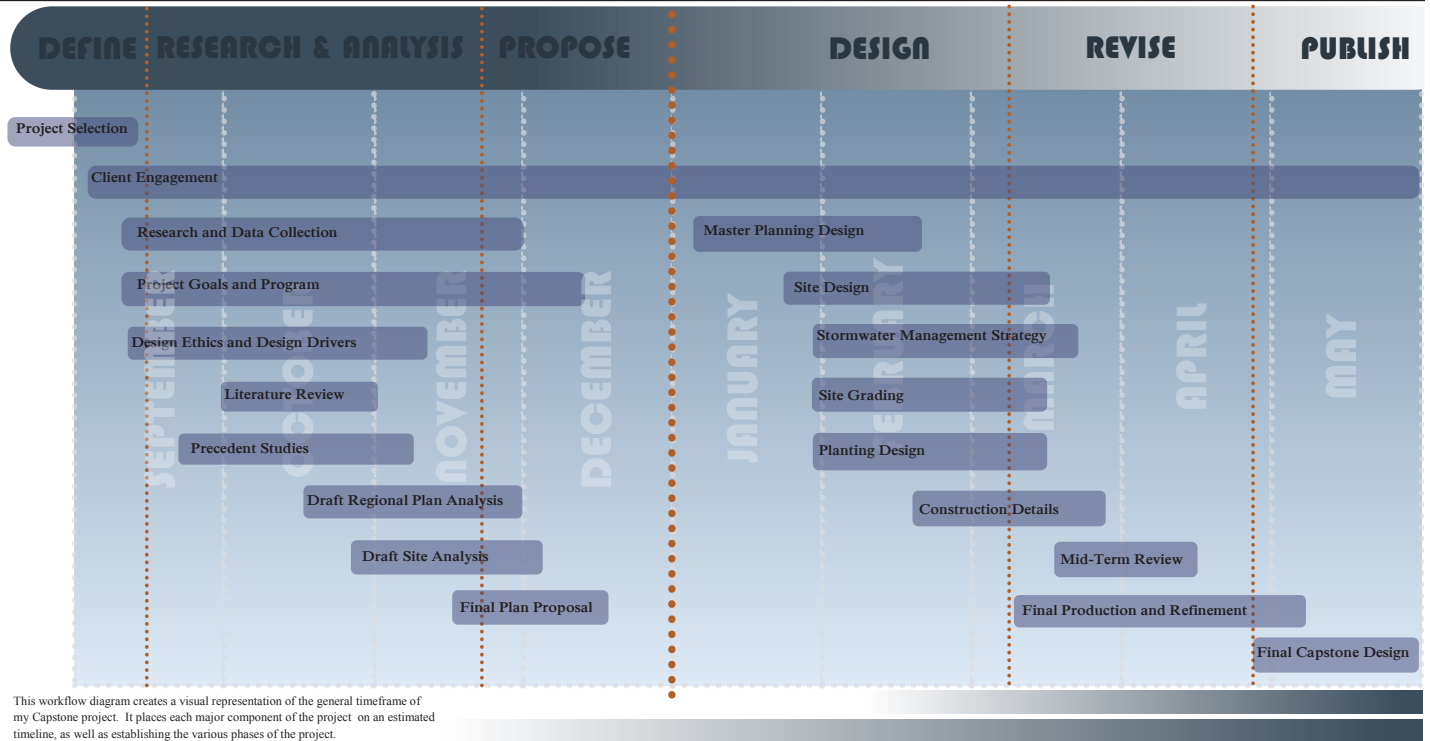


Figure 1.05 - Workflow Diagram

CAPSTONE PRODUCTS

The products of this capstone will include a set of design documents and recommendations for Somerset Park, which will be submitted to the Prospect Heights Park District and the Prospect Heights Natural Resources Commission, and a capstone document, which will be submitted to the Department of Landscape Architecture in partial fulfillment of the degree of Bachelor of Science in Landscape Architecture.

PROJECT CONTEXT

CLIENT BACKGROUNDS



Figure 2.01 - Prospect Heights Logo



Figure 2.02 - PHNRC Logo

PROSPECT HEIGHTS PARKS DISTRICT

Contacts: Kathy Nowicki

The Prospect Heights Parks District is the legal owner and caretaker of Somerset Park. They currently maintain Somerset simply by mowing, and recognize how underused the park is and wish to see it redesigned so that it can become a viable part of the community. The President of the Parks District, Kathy Nowicki, has had a hand throughout the project, offering insight into the wants and needs of the residents who live around Somerset Park, and helping to formulate the human aspect of the new design for Somerset Park.

PROSPECT HEIGHTS NATURAL RESOURCES COMMISSION

Contacts: Agnes Wojnarski, Dana Sievertson

This entire project was the brainchild of Agnes Wojnarski with the Prospect Heights Natural Resources Commission, and her vision for a city which can be home to people and nature alike. Having recently established a few restoration projects around Prospect Heights, she initiated this project with the idea of creating a quality wildlife corridor along McDonald Creek. This original vision has been carried throughout the project.

Dana Sievertson, also with the PHNRC, has also played a vital role in Somerset Park's redesign. He has not only been a font of information and resources regarding the area, but also opened up dialogue about the project with the residents via monthly newsletters, allowing them to have an active hand in the design of Somerset Park.



Figure 2.03 - Overgrown McDonald Creek



Figure 2.04 - Somerset Park

PROJECT GOALS AND CONCERNS

Two primary issues have largely steered the course of this project. First off is the overreaching goal of the PHNRC to create wildlife habitat and natural areas throughout Prospect Heights. To help achieve this goal, it was originally proposed to design Somerset Park as a native prairie restoration site similar to the other restoration projects in the city. The idea was to use Somerset as a connection between an existing restoration site just north of the park, and McDonald Creek, forming the first link in the envisioned network of wildlife corridors. However, when this proposal was made public, it resulted in considerable backlash from the community who view Somerset Park as an extension of their backyards and were not keen on having that taken away from them to solve what they saw as a non-issue.

This leads into the second goal of the project, which is the improvement of public opinion of and concern for natural spaces in the community. Right now, public opinion the restoration projects already around Somerset Park is somewhat negative. This is mostly due to the fact that these projects are quite recent and have not yet come into their full. Because of this, many residents view these areas as “messy” patches of unkempt vegetation that they have no

access to or use for. However, whether they realize it or not, their community does in fact have a need for these natural spaces. Therefore, it was decided to use Somerset Park as a medium for improving public opinion of natural restoration in Prospect Heights. This would be achieved by designing Somerset Park as an in-between of restoration and public park, in hopes of bringing people into nature rather than excluding them from it so that they may begin to better understand and respect it.

With these two key issues in mind, more specific goals were established. These included creating a 100% native prairie plant community, improving the conditions of McDonald Creek, encouraging the public and local residents to use the park, and providing educational opportunities regarding the natural world. The intended net result of these goals is to create a public park that caters to both people and wildlife and that brings the two worlds together in a effective and inspiring way.

PROGRAMMATIC ELEMENTS

In order to fulfill the goals established for the new design of Somerset Park, several key elements were proposed to be incorporated into the design of the park. These elements range between satisfying the ecological needs and the experiential needs of the site, and are as follows:

Natural Prairie Garden

While not a true restoration in that the plant communities may not be exactly representative of what existed in the area prior to European settlement, this element will use native species planted using formal design techniques to create an ecologically sound yet aesthetically pleasing prairie community.

McDonald Creek Improvements

These improvements will include bank stabilization and waterflow improvements, along with clearing out overgrown vegetation alongside the creek, resulting in improved aquatic habitat and reopening the creek to the public eye.

Natural Retention Basin Plantings

Using native hydrophilic plant species, the existing retention basins will retain their stormwater management functions while being pleasing to look at and providing wildlife habitat.

Biking/Strolling Path System

Path systems will connect to the existing bike path and will encourage visitors to come into the site with many access points.

Public Gathering Space

A small, intimate space for residents to gather, encouraging social activities such as picnics and bonfires

Natural Playground

Using natural materials, this playground will not only be a playspace, but will encourage children to explore and learn about the natural world independently.



Figure 2.05 - Small Gathering Space

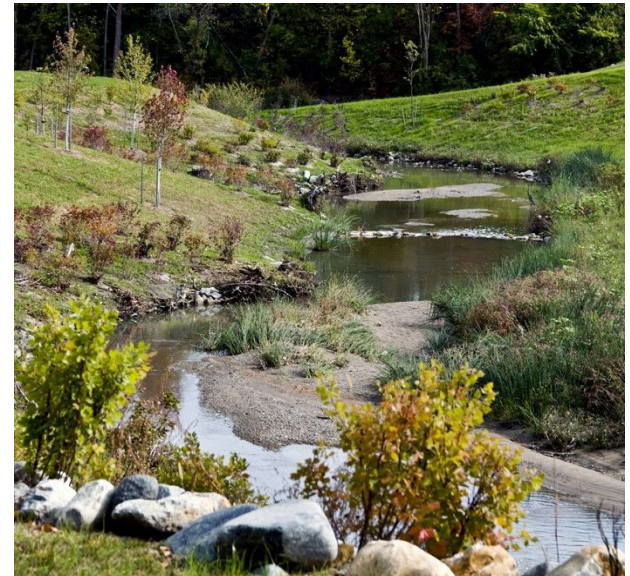


Figure 2.06 - Gilkey Creek Restoration

SITE HISTORY

The community of Prospect Heights was founded 1936, when the first few families moved into six houses built by a pair of developers along Elmhurst Road. Its story is that of many suburban communities throughout America - a residential community built from scratch in the countryside for people looking for "The American Dream."

Built in the aftermath of the Great Depression, Prospect Heights, like so many other similar communities, was seen as an oasis of sorts by the upper middle class. These people were looking to escape the cities and the memories of the Depression, and with the advent of the automobile and the economy recovering, communities like Prospect Heights made that possible.

The suburbanization process in Prospect Heights was rapid. Jump-started by the post-war housing boom, development was monumental, transforming Prospect Heights from farmland, into a small residential community, and finally into an incorporated piece of the sprawling Northwest suburbs of Chicago.



Figure 2.07 - 1938 Aerial Photo

1800'S

The area is largely farmland, owned predominantly by Hiram L. Kennicot who operated a one thousand acre dairy farm.

Prior to this, the area was reported be mostly composed of prairies and wetlands.

1936

In 1936, developers Carlton Smith and Allen Dawson purchased the land and built six two-story homes. These first houses were quickly occupied, and by the next year, several more houses and a drive-in mall were built.

1938

In 1938, the Prospect Heights Improvement Association, or PHIA, was formed, marking the first public governing body of the community of Prospect Heights.



Figure 2.08 - 1960 Aerial Photo



Figure 2.09 - 2015 Aerial Photo

1945

Smith and Dawson's investment in Prospect Heights paid off, and by 1945, the community was made up of over 300 residential homes.

1955

The rapid suburbanization of Prospect Heights continued post-WWII, and in the next decade, the community doubled in size, with over 600 homes.

1976

With development continuing to increase, the PHIA was becoming overwhelmed, and decided that it was time to incorporate. Thus, on January 31, 1976, the city of Prospect Heights was created.

1980

In the 1980's Prospect Heights and its neighbors began to expand their infrastructure, developing a large corporate and industrial area to the East of the city. Meanwhile, single-family homes continued to be built to the West.

1986

In 1986, Prospect Heights and the neighboring community of Wheeling jointly purchased Palwaukee Airport, now known as the Chicago Executive Airport.

2000

The development trends of the past more or less continue into the present day. As of the 2000 census, the City of Prospect Heights was home to 17,081 residents.

RESEARCH TOPIC

RESEARCH TOPIC: ENVIRONMENTAL EDUCATION

All around the world, natural spaces are in a state of detriment, from the melting ice caps at the poles to disappearing jungles in the tropics. Rivers are straightened and intoxicated by runoff, the oceans are being fished to depletion, rain forests are being clear-cut, grounds are fracked and mined, and potable groundwater reservoirs are being drained. This list goes on and on.

All of this can be attributed by innumerable factors. However, one largely overreaching cause is the vast disconnect between the environment and so many people today. The extreme rates of urbanization and suburbanization, while perhaps necessary to accommodate the massive boom of population in the modern age, have resulted in entire generations of people never having had a meaningful interaction with nature.

The true issue with this arises from the fact that the world desperately needs us to act as its caretakers. However, people are not likely to care about and care for something which they have no real connection to. The key to counter this is improved environmental education - not schooling per se, but informal, citizen education.

This type of environmental education hits on five key points. 1. Engaging with citizens of all demographics to; 2. Think critically, ethically, and creatively when evaluating environmental issues; 3. Make educated judgements about those environmental issues; 4. Develop skills and a commitment to act independently and collectively to sustain and enhance the environment; and, 5. To enhance their appreciation of the environment; resulting in positive environmental behavioral change. (Bamberg, S.; Moeser, G. 2007)

To bring this type of education to the community around Somerset Park, a few opportunities exist. First and simplest, is the proposed signage throughout Somerset Park. By bringing people into contact to nature and explaining the deeper processes behind what they are seeing, an understanding can be established, and understanding is the first step towards caring.

The second opportunity lies in the proposed natural playground. The best time to foster a relationship with the natural world is during youth. By getting young kids playing in, and exploring nature, that relationship will be founded and will continue on through adulthood.

The third and most exciting environmental education opportunity for Somerset Park is the potential for direct outreach efforts to bring people to the park for the expressed purpose of learning about nature. Specifically, there exists the opportunity to involve Betsy Ross Elementary School and MacArthur Middle School, both of which are just a couple of blocks away. Their proximity to Somerset Park would allow science classes or others to take the class outside for hands-on learning experiences

These seemingly simple educational opportunities could have a profound effect on the community. The kinds of experiences which would be offered by Somerset Park would open up a dialogue between the residents and the natural world around them which had previously been so distant. Experiences build up to become a relationship, and relationships grow to become meaningful and important, and when people become invested in a meaningful relationship with nature, they will start caring for it. Somerset Park can build that relationship for the people of Prospect Heights.

LITERARY REVIEW

Bamberg, S.; Moeser, G. (2007). "Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psychosocial determinants of pro-environmental behaviour". *Journal of environmental psychology* 27 (1): 14–25. doi:10.1016/j.jenvp.2006.12.002.

Brown, Jane Roy. "Just Add Nature." *Landscape Architecture Magazine* (May, 2015)

The article "Just Add Nature" discusses the importance and benefit of bringing natural space and educational opportunities into urban schoolyards. While my site lies within the suburban realm, and will be used for more than children specifically, a primary goal of my site is to bring the community into closer contact with nature to help educate them about the natural world. This article helps to prove that doing so is both necessary, and that it can have measurable effects if done correctly.

Francis, Mark. "Proactive Practice: Visionary Thought and Participatory Action in Environmental Design." *Places*. 12, 2. (1999)

Francis, Mark, Lisa Cashdan, and Lynn Paxson. *Community Open Spaces*. Washington, D.C.: Island Press. (1984)

Garvin, Alexander. *Parks, Recreation and Open Space*. Chicago: American Planning Association. (2001)

Johnson, Julie M., and Jan Hurley. "A Future Ecology of Urban Parks: Reconnecting Nature and Community in the Landscape of Children." *Landscape Journal* (January, 2002)
This article again addresses the need to create natural space for children in the urban and suburban environment. However, it also expands beyond the educational mindset and discusses how natural spaces can help to make stronger connections between residents of a community. This is a notion that I believe will become a strong rallying point for gaining the support of the community around my site.

Kaplan, Rachel. "Citizen Participation in the Design and Evaluation of a Park." *Environment and Behavior* 12, 4: 494-507. (1980)

Kaplan, Rachel, Stephen Kaplan, and Robert L. Ryan. *With People in Mind: Design and Management of Everyday Nature*. Washington, DC: Island Press. (1998)

Project for Public Spaces. *How to Turn a Place Around: a Handbook for Creating Successful Public Spaces*. New York: Project for Public Spaces. (2000)

Roehr, Daniel, and Yewewu Kong. "'Retro-Greening' Suburban Calgary: Application of the Green Factor to a Typical Calgary Residential Site." *Landscape Journal* (January, 2010)

I found this article to be particularly insightful. Even though it does not address the specific reasons for bringing a natural landscape into my project site, it does present quantitative ways to measure the successfulness of green space in suburban areas specifically. This is indirectly important to the topic of natural education in suburban areas because a site must be successful and healthy in order for it to be an effective learning tool.

Smith, Daniel S., and Paul C. Hellmund (Eds.). *Ecology of Greenways: Design and Function of Linear Conservation Areas*. Minneapolis: University of Minnesota Press. (1993)



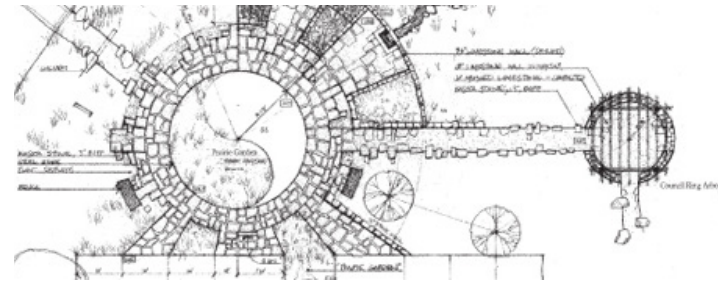
Figure 3.01 - Children Learning About the Environment

PRECEDENTS

1. CAPEN PRAIRIE

Chaska, MN
Savanna Designs, 2008
<http://savannadesigns.com/portfolio/commercial/capen-prairie/>

The primary precedent for Somerset Park, Capen Prairie exemplifies a designed prairie, blending native plants and natural forms with hardscape and formal design principles. These same themes will be brought to Somerset.



Nature Meets Design



Use of Hardscape



Small Public Gathering Spaces



Use of Natural Materials

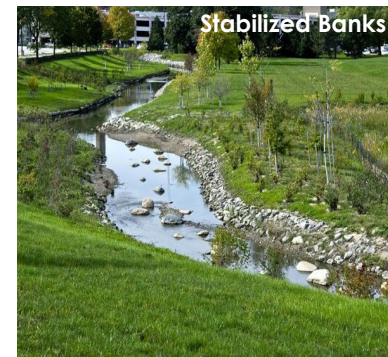
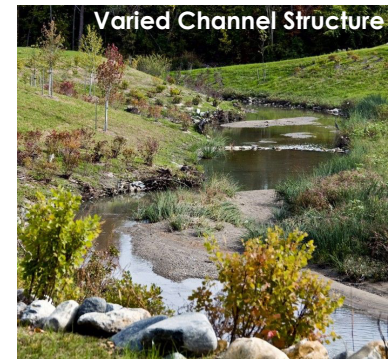
2. RUTH MOTT FOUNDATION - GILKEY CREEK RELOCATION AND RESTORATION

Flint, MI

Smith Group JJR, 2008

<http://landscapeperformance.org/case-study-briefs/gilkey-creek-restoration>

This creek restoration project in Michigan is an appropriate precedent for the restoration of McDonald creek in Somerset Park. The size, waterflow, and conditions of Gilkey creek are very similar to McDonald creek, and the end results - a healthy creek which is visible and open to the public - are precisely what is desired for McDonald creek.



3. BROCK ELEMENTARY SCHOOL NATURAL PLAYSCAPE

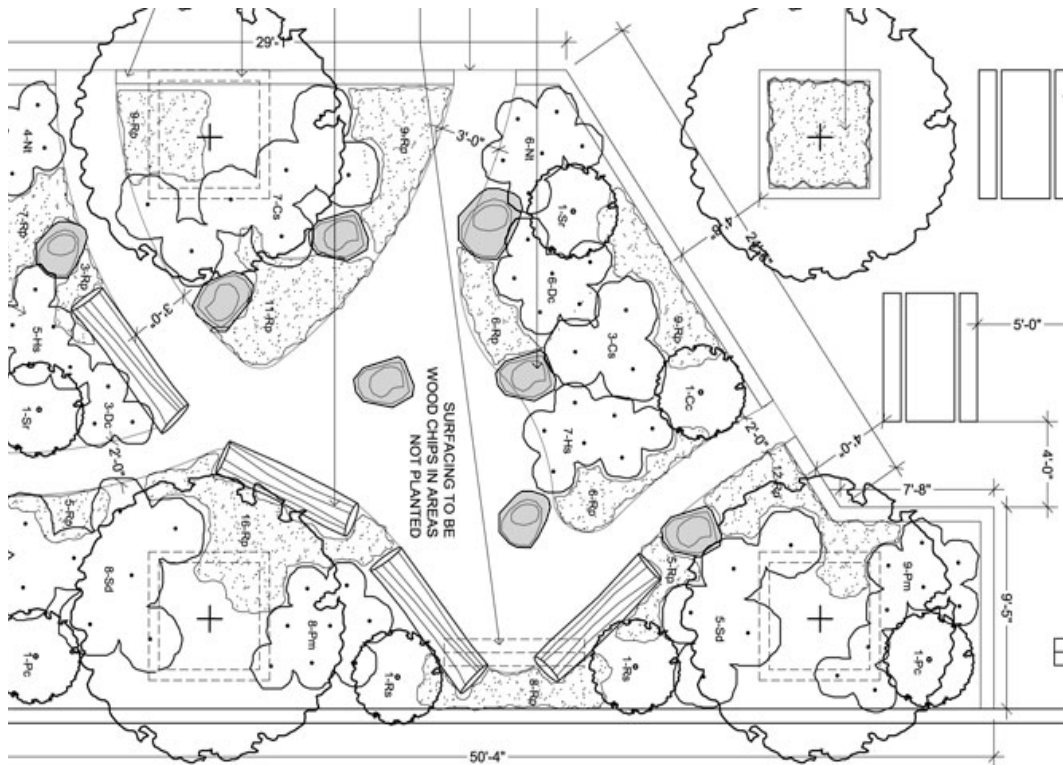
Vancouver, Canada
Skala Design, 2010

<http://www.skaladesign.ca/landscapes/general-brock-elementary/>

This natural playground precedent offers lessons on how cheap and readily available natural materials such as local boulders and logs can be utilized to create an effective natural play area with minimal construction effort or cost.



Active Play and Exploration

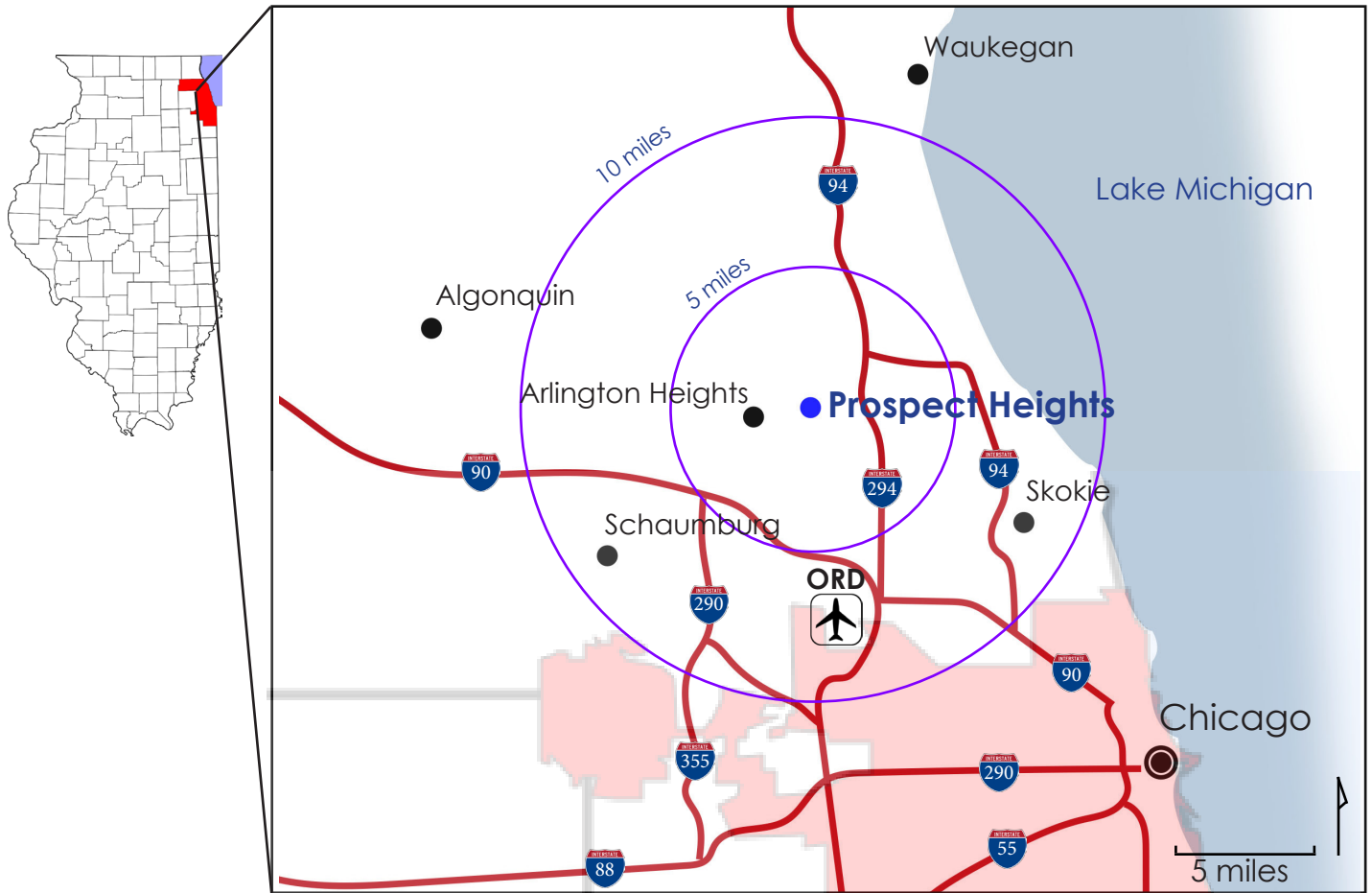


Variety of Spaces



Cheap, Natural Materials

THE REGION

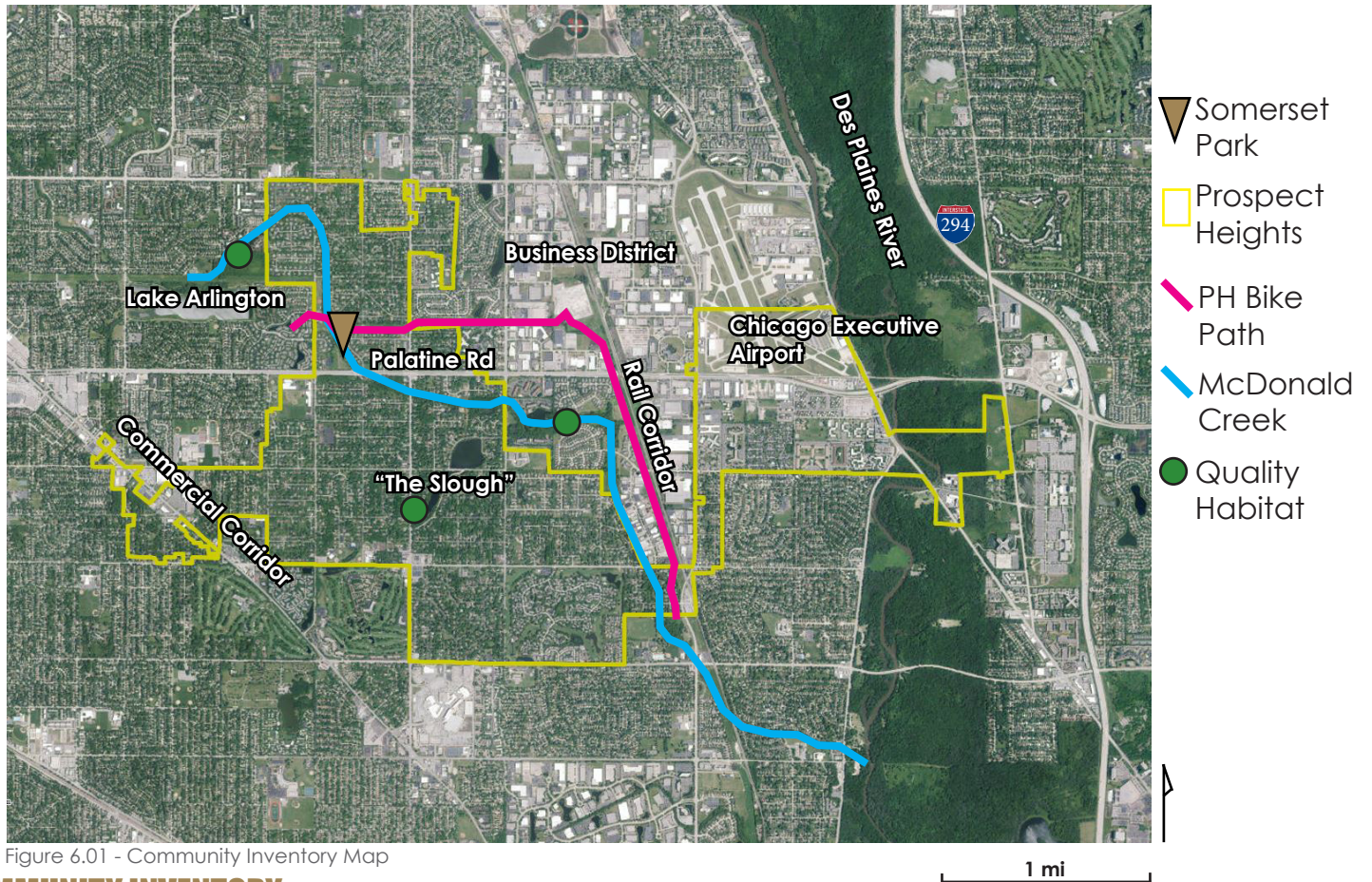


REGIONAL ANALYSIS & DESIGN STRATEGY

Figure 5.01 - Regional Map

Somerset Park is located in the city of Prospect Heights, a community of around 20,000 people in the Northwest suburbs of Chicago, Illinois. Prospect Heights is about 15 linear miles from the city of Chicago, near Arlington Heights and just West of the Des Plaines river natural corridor. Being nestled between I-90 and I-94, the city is easily accessible by both. However, as it is not directly on-route of either, the city and Somerset Park are not often destinations for people other than local residents. This reinforces the need for the design of Somerset Park to cater specifically to residents.

THE COMMUNITY



COMMUNITY INVENTORY

The city of Prospect Heights, and the surrounding area, is largely single-family residences. However, the area does also house a large industrial and business district to the east, and a sizable stretch of commercial and retail businesses to the west. Coming off of interstate 294, Palatine Road functions as the primary axis of vehicle traffic through the city.

The two city-wide features which interact with Somerset Park the most are McDonald Creek and the Prospect Heights Bike Path. McDonald Creek begins at Lake Arlington and

flows southeast, through Somerset Park, until it meets the Des Plaines River. Meanwhile, the bike path, which is frequently used both recreationally and by local commuters, runs west to east along a powerline right-of-way before turning south along a railroad corridor.

The Des Plaines River forms a large swath of natural space to the east of the city. However, only three areas of inhabitable natural spaces exist in the city, at Lake Arlington, at "The Slough," and at one small stretch of McDonald Creek downstream from Somerset Park.

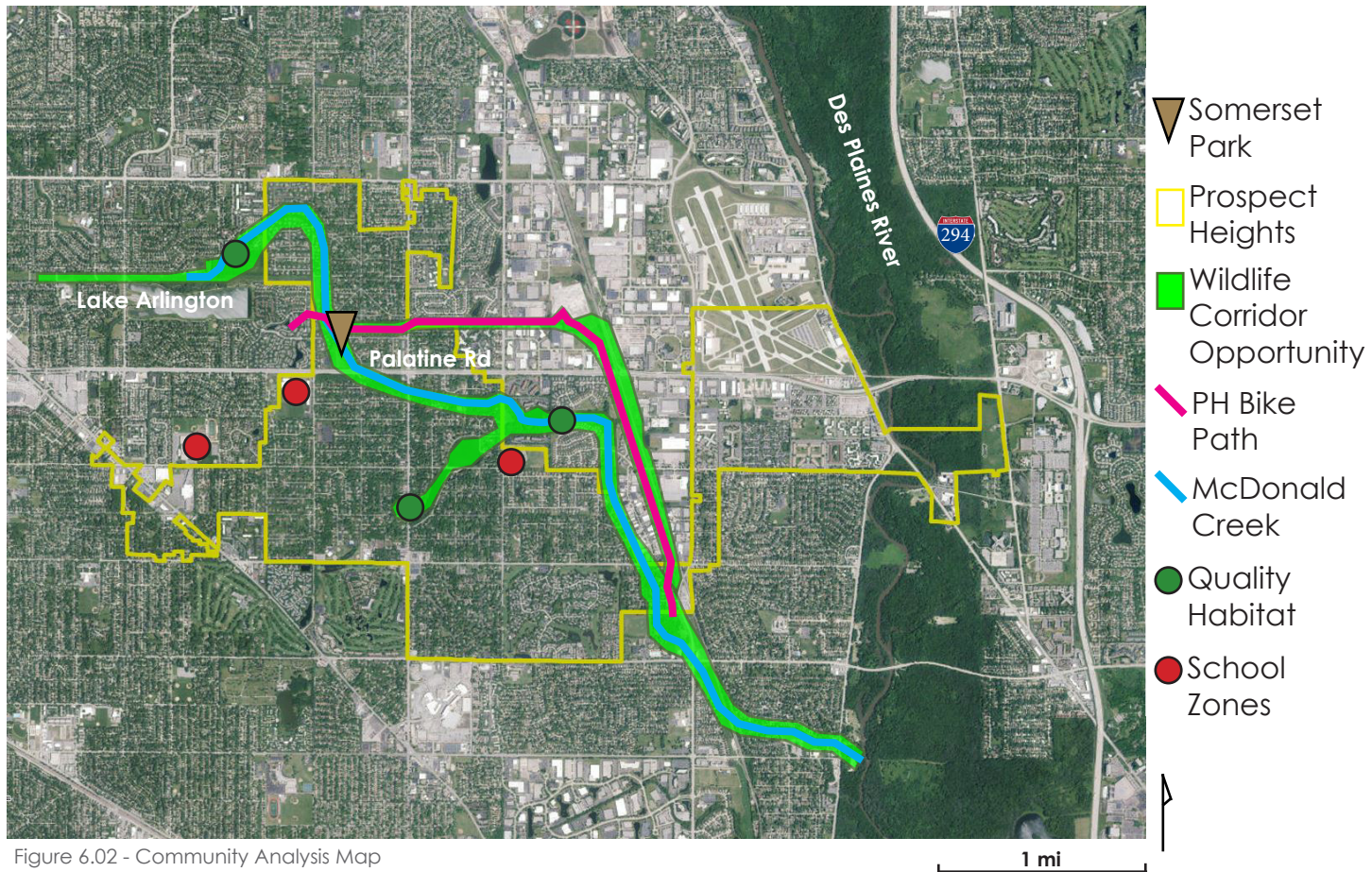


Figure 6.02 - Community Analysis Map

COMMUNITY POTENTIAL

Despite the lack of connections between natural spaces in the city today, Prospect Heights already contains the framework for what could be a very effective wildlife corridor. Such a corridor would integrate the natural world with the existing suburban infrastructure, bringing wildlife into the city, and marking Prospect Heights as a uniquely eco-friendly community in the greater Chicagoland area.

In a 50 year vision for the community, natural corridors could be implemented along the course of McDonald Creek and

along the Prospect Heights Bike path. The result would be a network of wildlife habitat running throughout the city and connecting to the much larger Des Plaines River corridor, all without the need to displace nearly any existing structures.

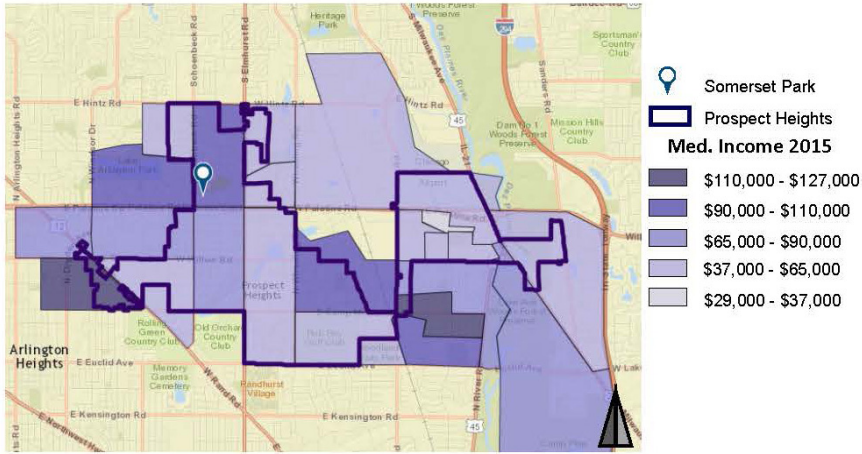
In a more short-term vision, the proximity of three schools to Somerset Park and other existing natural areas present ample opportunities to involve local kids in the restoration process, and to start fostering an improved relationship with nature.



Figure 6.03 - Typical House Near Somerset Park

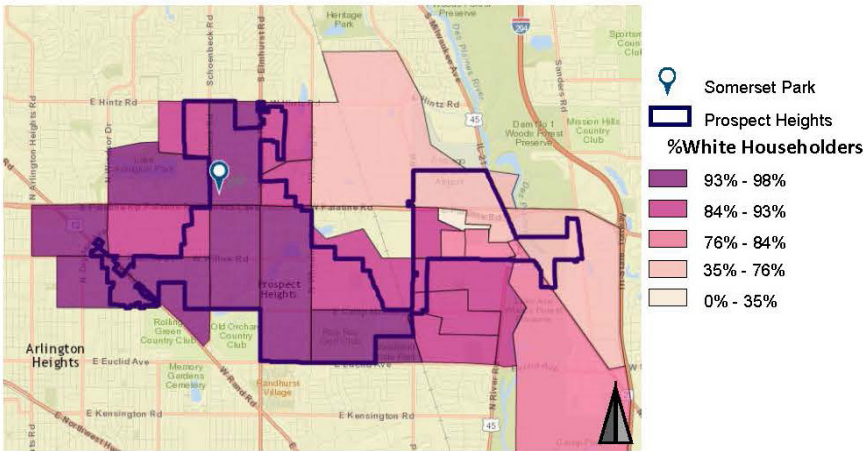
DEMOGRAPHICS

Figure 6.04 - Med. Income Map



MEDIAN HOUSEHOLD INCOME

The median household income in Prospect Heights ranges from about \$30,000 to \$120,000 - much to be expected from a Midwestern suburban community. The neighborhood which encompasses Somerset Park has a median household income of \$90,000 to \$110,000, placing it and its residents in the upper-middle class range.

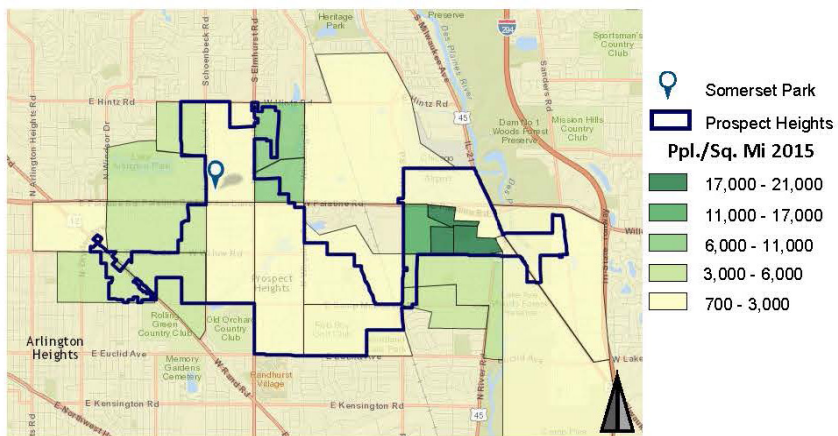


ETHNIC DIVERSITY

Ethnic diversity in Prospect Heights is overwhelmingly low. While some small areas in the East have higher percentages of diversity, throughout most of the city, 84% to 98% of householders are white. In the area around Somerset Park specifically, the percentage of white householders is 93% to 98%.

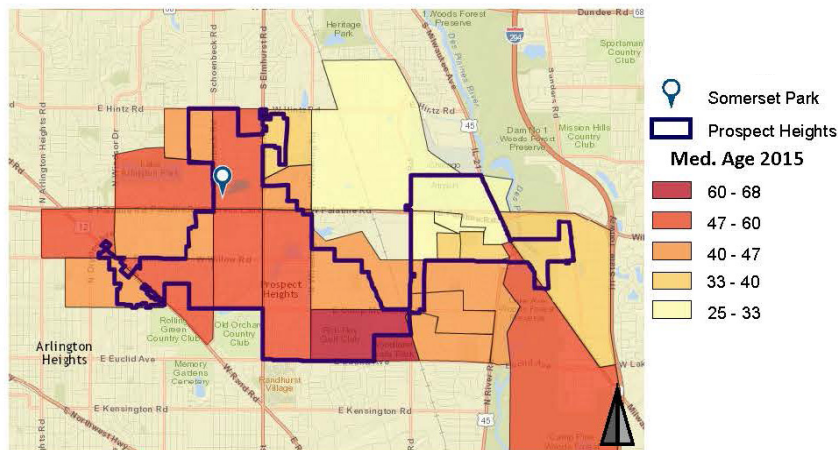
Figure 6.05 - Ethnic Diversity Map

Figure 6.06 - Population Density Map



POPULATION DENSITY

Again representative of a suburban community, Prospect Heights displays very low population density. The majority of the city, including the area around Somerset Park, has a density of just 700 to 3,000 people per square mile. Some denser areas do exist where multifamily apartment buildings have been built in the east.



MEDIAN AGE

The median age in Prospect Heights ranges from 40 to 60 years old, with a few pockets that run slightly older or younger. The Somerset Park area itself has a median age of 47-60 years old. This can be interpreted to mean that the residents around Somerset Park likely range for the most part from recent retirees to families with school-age children.

Figure 6.07 - Med. Age Map

THE SITE



Figure 7.01 - Somerset Park Aerial

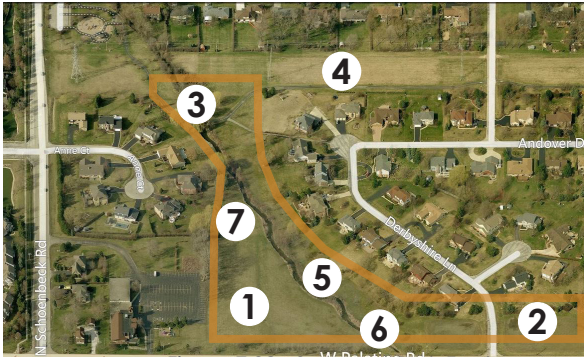


Figure 7.02 - Somerset Park Features Map



Main Lawn



Detention Basins



Pedestrian Bridge



Bike Path and Right-of-Way



SITE FEATURES

Somerset Park's largest features are a large expanse of mowed, unused lawn (1) which McDonald creek flows through, and two large detention basins (2) on either side of Derbyshire Lane. Because of the size, openness, and lack of use in these two areas, a lot of open potential exists within them.

On the North end of the site, the Prospect Heights bike path crosses McDonald creek via a pedestrian bridge (3) and continues down along a powerline right-of-way (4). The right-of-way features a recently installed prairie restoration project, offering a starting point for a larger wildlife corridor along the right-of-way. However, it is still growing in and is a point of contention between the goals of the PHNRC and the residents.

Throughout the course of McDonald creek in the site, its banks are generally very overgrown and hide it from view, while the waterflow ranges from gentle riffles to slow, stagnant stretches. On the downstream end of the site, a storm drain (5) empties into one of these slow areas before the creek continues slowly under Palatine Drive (6)

On the west side of McDonald creek, just before the site really opens up into the lawn, there is a large depression which is drained by a pipe (7) which leads into the storm system running under the site.

TOPOGRAPHY AND UTILITIES

1' Contour Map

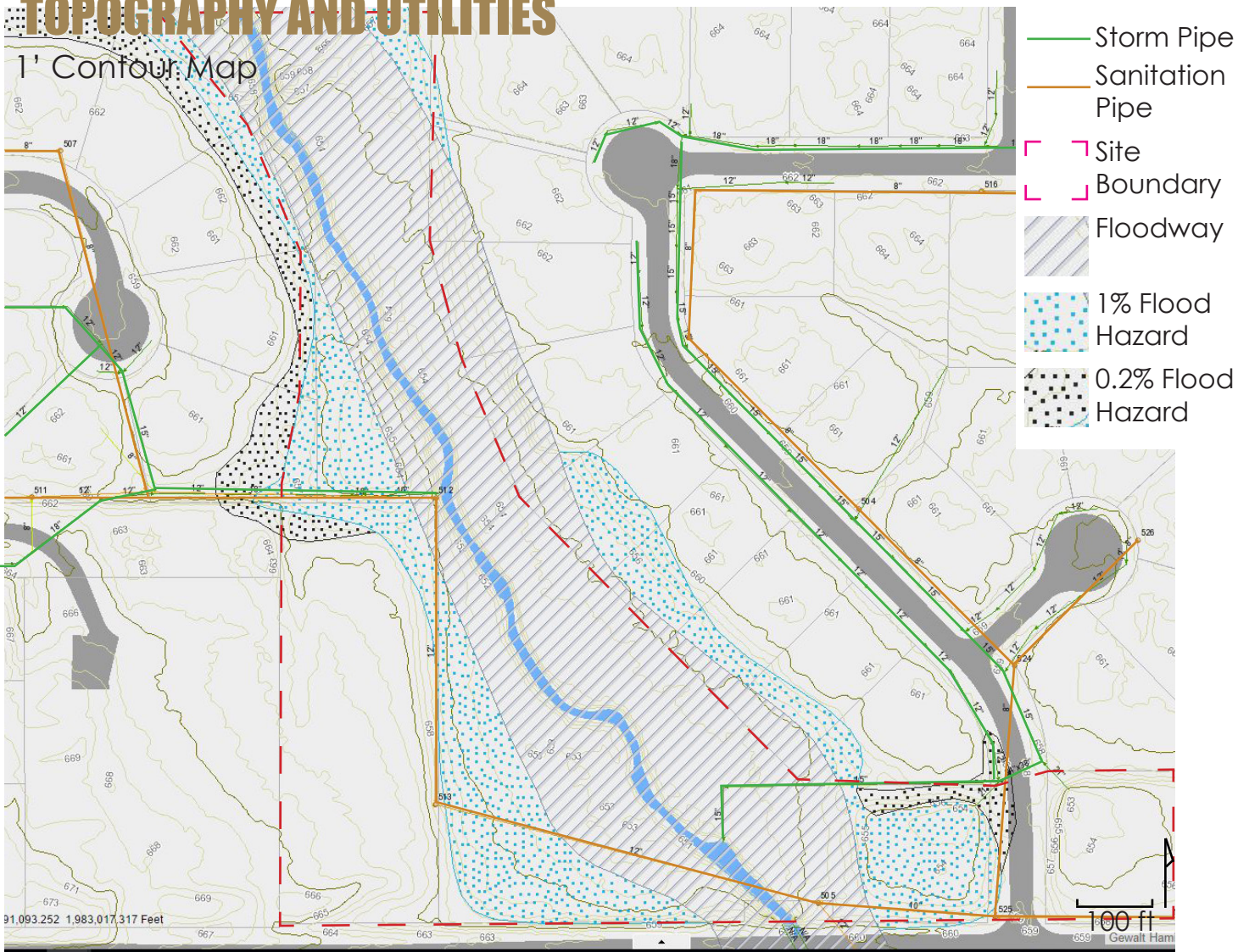


Figure 7.03 - Somerset Park Topo and Utilities



Figure 7.04 - Middle Depression



Figure 7.05 - Palatine Rd Incline

TOPOGRAPHY AND UTILITIES

Topographically, the site is fairly unremarkable. The site slopes gradually down to McDonald Creek on either bank, though the downstream end of the site is generally flatter. There are three depressions on site, as previously mentioned; two in the southwest corner of the site, and one near the middle on the west bank of McDonald Creek. Also noteworthy is a very steep incline of over five feet along the site's border with Palatine Road.

This topography results in a very straightforward floodway which does not spread far from the creek itself. Meanwhile, serious flood events which spill over the creek banks are very rare, with 100 and even 500 year flood events calculated to spread only a few yards from the floodway. In like fashion, flooding has never been reported to be a problem for the community.

The site also contains segments of both the storm and sanitation pipe systems which are buried under the ground. The sanitation pipe runs through a large portion of the southwest corner of the site before crossing under the creek and off site. Meanwhile the storm pipe system only crosses into the site in a few places. However there are two access points to the storm system on site; one which drains out of the central depression, and one which drains into McDonald Creek on the downstream end. Careful consideration must be taken of these two pipe systems during design so as to not disrupt them.



Figure 8.01 - Lower McDonald Creek

ESSAY ON PROFESSIONAL DESIGN ETHICS

On any project, my primary concern is to create a place which exhibits a medium between functionality and aesthetic. Landscape Architects operate on a unique scale in that what we create must blend both art and engineering, resulting in places which go beyond both. In my mind, an entirely engineered space which lacks any aesthetic appeal is uninspiring and will fail to foster any meaningful connection with its users. On the other hand, an area which is designed solely as an artistic piece is missing out on the opportunity to provide a much needed social or ecological function which could tangibly improve the quality of our lives and of the environment, all while still being visually appealing. To me, this balance is the most important quality that I or any Landscape Architect can add to a space to enhance the world we will live in.

Following those lines, it is incredibly important that any site I design must be sustainable. Generations of unsustainable practices have resulted in disappearing space and resources, and this cannot continue. Even if I do not make any monumental changes to the world, I want to make sure

that the ones that I do make, no matter the scale, improve or at the very least, do not negatively impact the natural or social environment. This means managing stormwater runoff, making responsible planting choices, and ensuring that all people can and will continue to be able to use a site, among many other factors.

An additional factor which must be integral in all of my designs is the addressing of community wants and needs. This means that a good relationship with both the client and the general affected public is needed, that the client and the public will be strongly involved in the design process, and that their inputs will be considered with all sincerity. The result of this kind of community involvement will be a site which will truly belong in its surroundings.

Sean McMillion
Department of Landscape Architecture
May 2015

EVALUATION CRITERIA

In order for this project to be considered a success, the following evaluation criteria must be fulfilled.

1. The clients have been involved with and informed about all aspects of the design process
2. The community has been well-informed about the project and have been presented with ample opportunities to voice their concerns and suggestions regarding the design of the project.
3. 100% of plant materials used in all aspects of the project are native species, and are site-appropriate.
4. Runoff entering McDonald Creek from residential lawns and from roads has been reduced and filtered.
5. The stream flow of McDonald Creek is more representative of a healthy, pre-development stream, and the pollution content of the water is reduced.
6. Substantial and quality wildlife habitat has been established.
7. All public spaces throughout the site are ADA accessible.
8. Opportunities for multiple passive recreational activities are present.
9. Public access to the site is vastly improved, encouraging all people to enter and use the site.

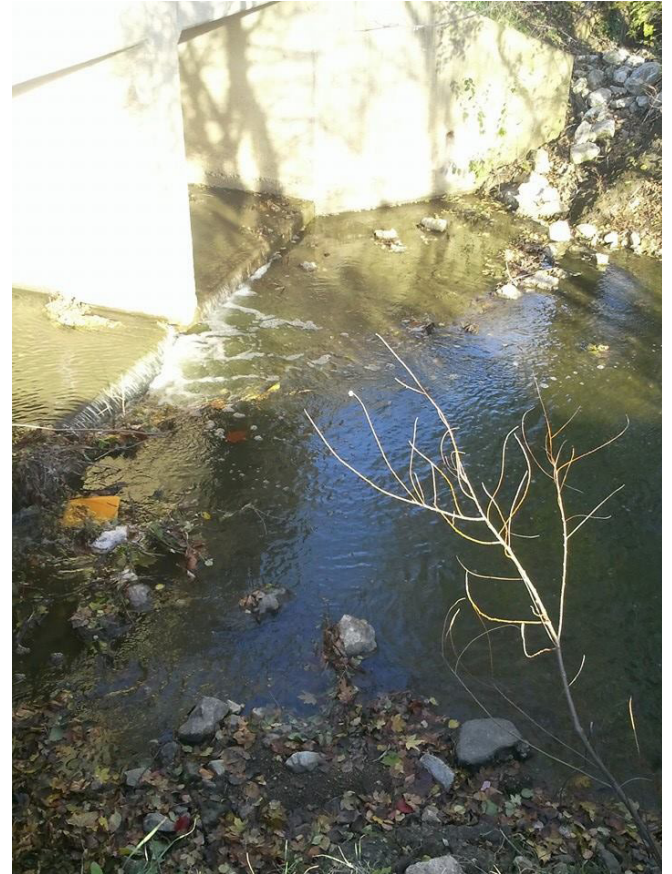


Figure 8.02 - Upper McDonald Creek

CONCEPTUAL PROPOSAL

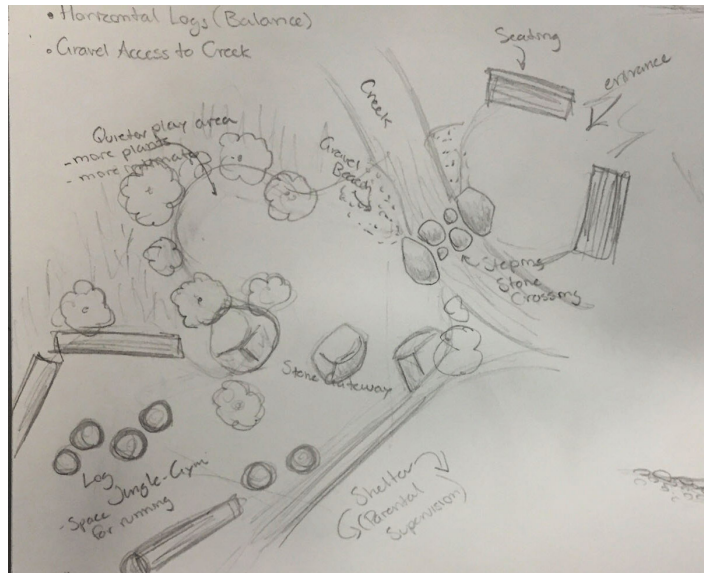


Figure 9.01 - Early Conceptual Sketches

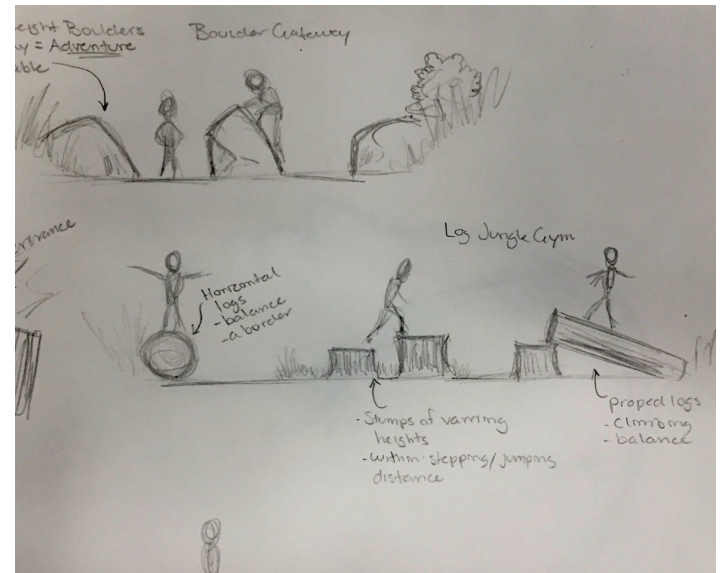


Figure 9.02 - Early Conceptual Sketches

DESIGN GOALS AND CONCEPTS

In order to achieve a balance between the ecological and experiential needs of the site and community, it was necessary for the design of Somerset Park to reflect both aspects equally. The overall visual concept for the park is to blend formal design elements such as form, views, and structures, with rustic and natural materials like stone and rough wood. By successfully blending these two seemingly opposing themes, the design of the site reflects the primary goal of the project - to reconnect a suburban culture and landscape to the natural world.

On a broad scale, it is important for the site to include a large amount of quality natural space as its primary feature. However, it is also important to provide more traditional park elements such as a shelter, open lawn, a playground, and seating benches. These elements are more recognizable by the park's primary user base, and are intended to make the park more familiar and inviting, encouraging people to enter a comparatively unfamiliar natural setting.

Focusing in on the details of the site, the primary design inspiration for the structures in the new Somerset comes from three main sources; contemporary prairie style, traditional Japanese architecture, and American western ranch style. All three of these styles are well-known for beautifully integrating natural materials and forms into architecture. Of additional significance is the fact that the prairie style is a unique vernacular style born from the Midwest, making it culturally significant to the area. What's more, the design of the suburban homes which surround Somerset was directly impacted by western ranch home layout and traditional Japanese hipped-and-gabled roofs, making the implementation of these design themes all the more appropriate.

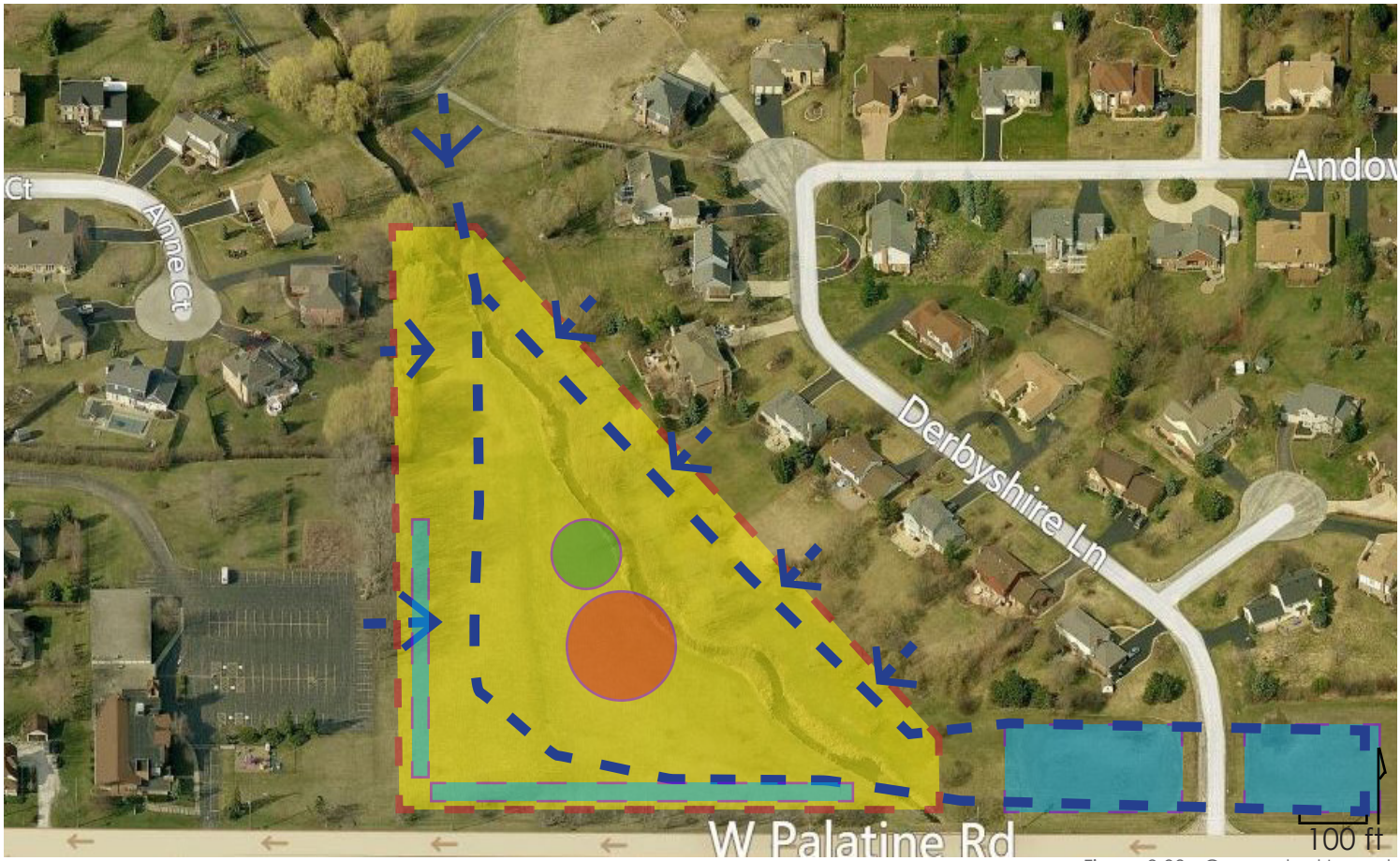


Figure 9.03 - Conceptual Layout

- Designed Prairie
- Natural Playground
- Pedestrian Traffic
- Stormwater Systems
- Community Space
- ➔ Entry Point

DISCUSSION ON CONCEPTUAL LAYOUT

From the very beginning of the design process, the layout of the park was intended to have a minimal impact on the land and the creek, and to be reasonably cost effective. To that end, the design had to work with the existing topography, utilize what existing features there were on the site to the best of their abilities, and had to include relatively non-intrusive site elements.

To create the desired natural space while providing a solution to the community's critiques of prairie restorations appearing to be too "messy," it was decided that the primary component of the site should be a tall grass prairie planting. While not a true representation of a native Midwestern prairie, this component would still be comprised of completely native species to provide quality habitat while giving residents the beautiful sea of grass visual that is so commonly evoked by the thought of a prairie.

To address the human uses for the park, a central hub was envisioned, containing the aforementioned lawn, shelter, and playground elements commonly associated with suburban parks and allowing for more traditional park activities. Circulation throughout the park would be via a two lane bike and walking path identical in construction to the Prospect Heights Bike Path. This path would in fact be an offshoot of the PH Bike Path, and would loop through the park while providing improved access into the park through the adjacent church, through Derbyshire Lane, and through smaller, private entrances for neighboring residents.

Meanwhile, to address stormwater management on the site, the three existing detention basins, which serve their purpose well from a practical standpoint, would be kept but replanted with a suitable seed mix. More importantly however, systems designed to naturally filter, purify, and infiltrate runoff water would be implemented along Palatine Road and the church parking lot which borders the park. These two areas are the primary pollutant concerns, and these stormwater management systems would prevent any contaminated water originating there from entering McDonald Creek.



Figure 9.04 - The Inspiring Vision

MASTER PLAN DESIGN SOLUTIONS



Figure 10.01 - Capital City Trail in Fitchburg, WI

DISCUSSION ON NATURAL CORRIDOR IDEAS AND BENEFITS

Of course, to truly be successful and impactful in the larger community, Somerset has to be more than a simple park. The ultimate intent of this project is to create a template for future parks throughout Prospect Heights, which over the course of a few decades, will form together to create an interconnected corridor of parks and natural spaces. This corridor, by following Somerset Park's design template, will not only accomplish PHNRC's driving mission to incorporate natural spaces in the city, but will help to connect the people of Prospect Heights to nature, and to themselves in ways not commonly seen in the suburban landscape.

Moving beyond the previously discussed importance of reconnecting people with nature via Environmental Education, vast interconnected natural areas are rare in suburban areas, and to be home to one would provide

Prospect Heights with a unique and admirable asset. What's more, by continuing Somerset's theme of blending experiential and environmental needs, this corridor will be as much about people as it is about nature.

The individual physical and mental health benefits of having access to quality natural spaces have already been well-established, but there are many community-building and economic benefits as well (Johnson, Julie M., Jan Hurley, 2002). Such a corridor could serve to connect distant neighborhoods, become a rallying point for the community, draw local tourists from other communities, and even serve as an example for other communities elsewhere.

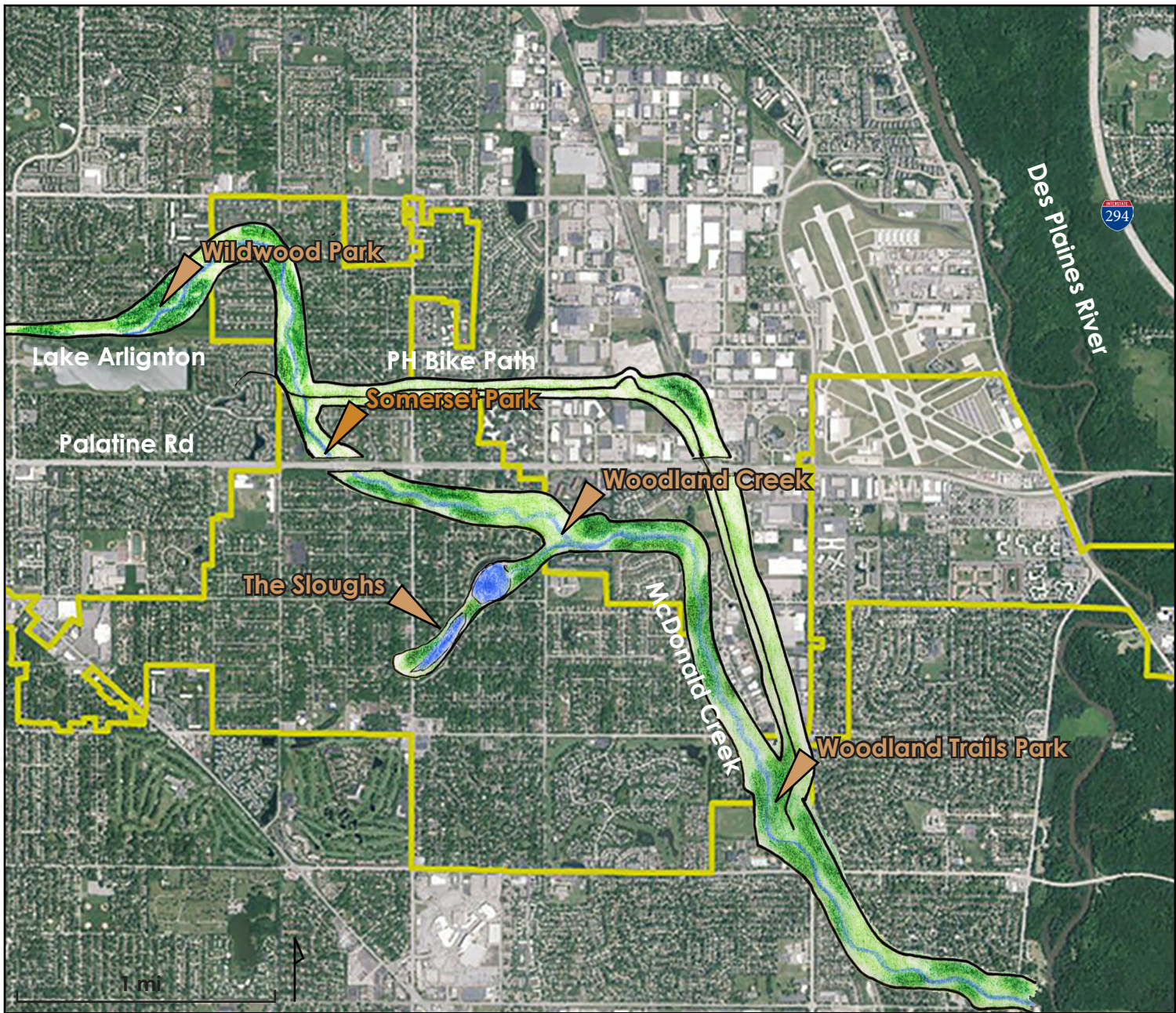


Figure 10.02 - Natural Corridor Master Plan

MASTER PLAN IMPLEMENTATION STRATEGIES

In a fifty to one-hundred-year timeline, this vision for a network of natural spaces and public parks can be achieved relatively straightforwardly. Using the existing framework of McDonald Creek and the Prospect Heights Bike Path, a natural corridor could be established which would thread up from the Des Plaines River corridor, throughout the city, and up to the headwaters of McDonald Creek. This would provide even more thorough bike and pedestrian connections throughout the city and neighboring communities, protect the waters of McDonald Creek from start to finish, and create a continuous natural corridor allowing for wildlife habitat and movement.

The implementation of this master plan would occur at a variety of stages. After the establishment of Somerset Park, the logical next step would be to focus efforts on the existing natural spaces and the Prospect Heights Bike Path. The existing spaces along the proposed corridor include Wildwood Park near Lake Arlington, the woods in the Woodland Creek neighborhood, Woodland Trails Park at the intersection of the PH Bike Path and McDonald Creek, and "The Sloughs," a past restoration project. These spaces would simply require varying degrees of restorative measures or public infrastructure such as paths in order for them to fit the template of Somerset.

Prospect Heights Bike Path already has the infrastructure and public use needed and is successful in its own right. However, the fact that it runs along a ComEd right-of-way and a railroad line means that the land around it must stay clear. This provides a perfect opportunity for an extensive and continuous prairie restoration project running from Somerset Park to Woodland Trails Park. In fact, the PHNRC already recognized this opportunity when they chose the area for their most recent prairie restoration project. As public opinion of natural spaces improves with time, that restoration project could expand in stages until one vast restored prairie runs along the length of the bike path.

The more difficult, but conversely more important stage of the master plan comes into play along the course of McDonald Creek. While there is a spattering of very small parks and blank areas similar to the existing conditions of

Somerset Park, much of the area is majorly overgrown or is too constricted by private properties to allow for the implementation of park space with enough room to accommodate both wildlife and human circulation. This is where the fifty to one-hundred-year timeline truly comes into play. This section of the masterplan can be completed piecemeal, with the city buying the lots in question as they naturally come onto the housing market. At that point, the PHNRC can take over and begin the restoration process in the form of small pocket parks, with the larger paths and human uses being implemented as the corridor fills in over time. Where the stretch along the PH Bike Path was ideal for prairie restorations, this stretch will allow for more woodland themed restorations, resulting in a more diverse natural corridor overall.

While Chicago is well-known for its park and natural preserve systems, with this masterplan Prospect Heights would be unique in having a park system which so thoroughly blends human and natural uses. The Prospect Heights Natural Corridor would challenge the long-held notion that nature must be kept separated from humans to remain viable. Rather, Prospect Heights would boldly prove that nature and suburban sprawl can coexist in a seamless way, much to the benefit of both.

SITE PLAN

DESIGN SOLUTIONS



Figure 11.01 - A Tall Grass Prairie in Bloom

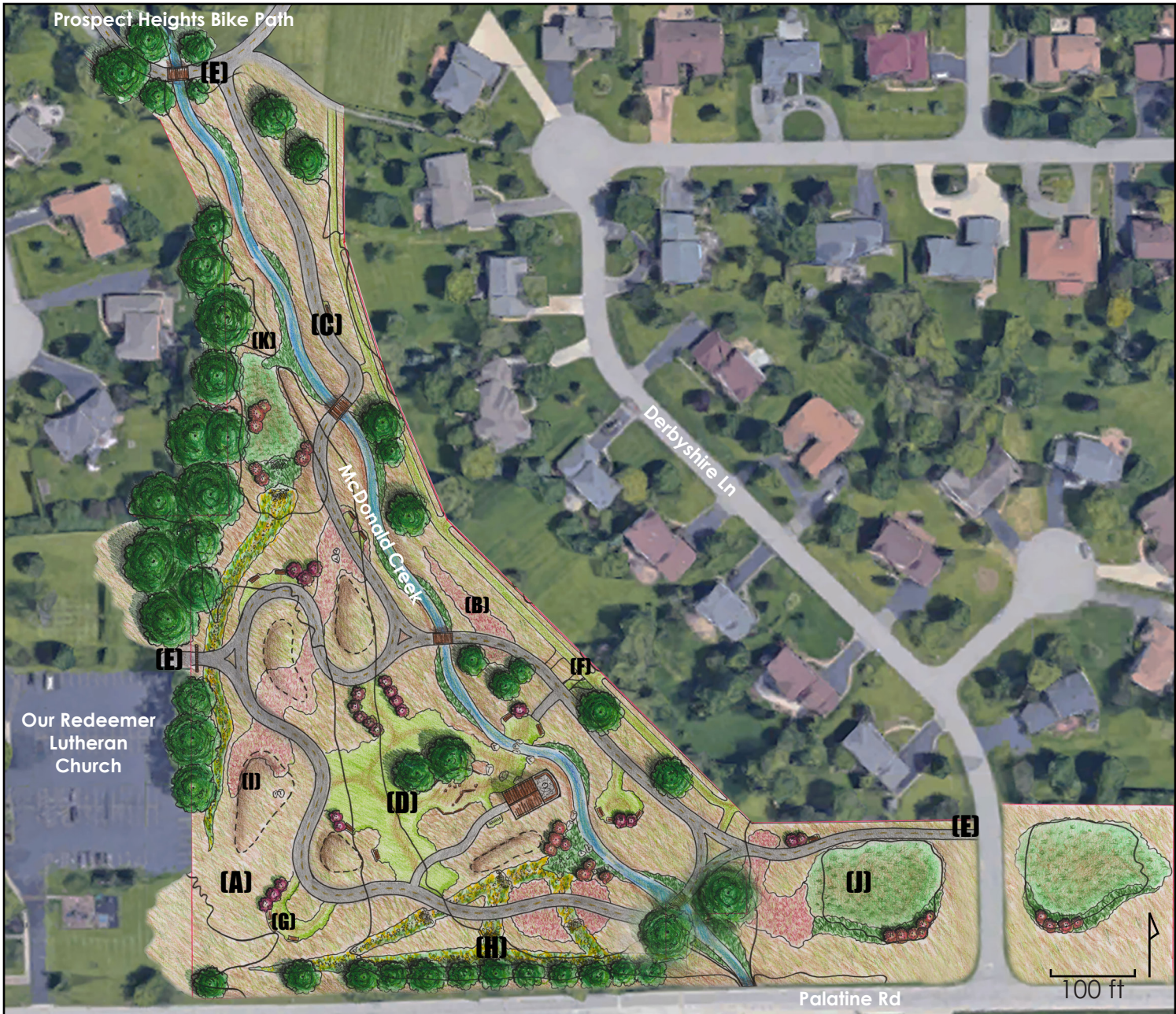


Figure 11.02 - Somerset Park Site Plan

SOMERSET PARK SITE PLAN

The final site design for Somerset Park was created with inspiration from some of the principles behind Japanese Garden design. Namely, creating a space which looks and feels natural, but is designed to be aesthetically pleasing. Only, rather than using temperate woodland plants, the palate is made of native Midwestern prairie species. Using this as the design base, the new park will contain the following key elements.

(A) Tall Grass Prairie Plantings

The dominant element of the site, this area will use completely native species, but with a higher concentration of tall grasses. This will create the evocative imagery of prairies that is commonly envisioned by most people, while still creating ecologically viable habitat.

(B) Forbe Prairie Plantings

These smaller planting areas also consist of native plant species, but with a higher concentration of forbes and flowers. With shorter vegetation, they are located strategically to allow for extended views down sections of the site, and when in bloom they create large continuous swaths of color.

(C) Walking and Biking Path

This path will be an offshoot and continuation of the PH Bike Path, using the same dimensions and materials. It will be completely ADA accessible, and will meander through the site while highlighting each element of the site at least once.

(D) Public Gathering Space

The central hub for recreational activities, this area located at the heart of the park will feature a beautiful shelter, a public lawn, natural playground, and a native fruit orchard. This area is discussed in greater detail on page 54.

(E) Public Access Points

The primary entrance of the park will be off of the parking lot of Our Redeemer Lutheran Church. Using the church parking lot as public access for the park makes good use of an area which is largely unused during most hours of the day, and the church gets the benefit of having prime entrance to the park. Other access points are off of the PH Bike Path and off of Derbyshire Lane.

(F) Private Access Points

It was important for this design to not distance the park from the adjacent properties, as the people living there consider Somerset to be an extension of their backyards. Therefore, all properties on the East side of the park have their own private access points through a discrete mown grass path.

(G) Recessed Seating Areas

Set just off of the main path, these seating nodes are intended to give park goers a quieter, more private space to enjoy, and are designed to immerse people in the prairie plantings.

(H) Stormwater Management Channels

These channels which run along the park's border with Palatine Road and the church parking lot serve to collect all runoff coming from those two areas and filter and infiltrate it before it reaches McDonald Creek. This ensures that all water entering the creek from the site has been purified. When dry, these will appear as dry stone streams, and the plants in these areas were chosen to bloom yellow and in the same season. When in bloom, these features will create bright golden ribbons through the site.

(I) Constructed Berms

Constructed using the cut soil from the shelter foundation and stormwater channels, these small berms help to create some topographical interest on an otherwise flat site, while helping to direct runoff into the stormwater channels.

(J) Detention Basins

These retain their existing characteristics, but are planted with suitable plant species and phytoremediators so that they become lush, green areas which hold and clean runoff.

(K) Switchgrass Beds

Planted along the cut banks of McDonald Creek and at the tail ends of the stormwater channels, these planting beds serve as erosion controllers and as a last resort filtration measure.

Section A - Main Transect



SITE SECTIONS

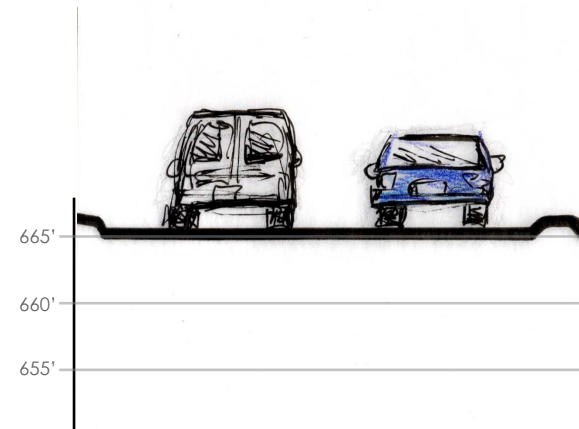
The three sections shown here provide a ground-level view of various key aspects of the site.

Section A is a general transect through Somerset, showing the general topography, or lack thereof, as well as the spatial relations between some of the primary site elements.

Section B warrants the most consideration as it depicts the stormwater management channel off of Palatine Road. While the more precise working of this system will be discussed on page 65, this section provides a general overview of the system. Runoff coming off of Palatine Road will flow downhill through a series of tiers and basins. The first tier serves to slow the water and let heavy contaminants settle out. Should the water overflow the first tier, it will flow to the second, which is designed to filter and infiltrate water into the ground quickly via a level spreader. In an extreme storm event, the water will continue to the final tier which again works to filter and infiltrate, but continues to flow into McDonald Creek to prevent overland flooding. Along the entirety of this system are carefully selected plants which are able to absorb various pollutants via phytoremediation.

Section C depicts the effect a constructed berm has on the topography, views, and water flow. A subtle raise in elevation creates topographical interest, slightly obscures views outside of the park, and directs considerably more runoff into the stormwater management channels.

Section B - SWM Channel



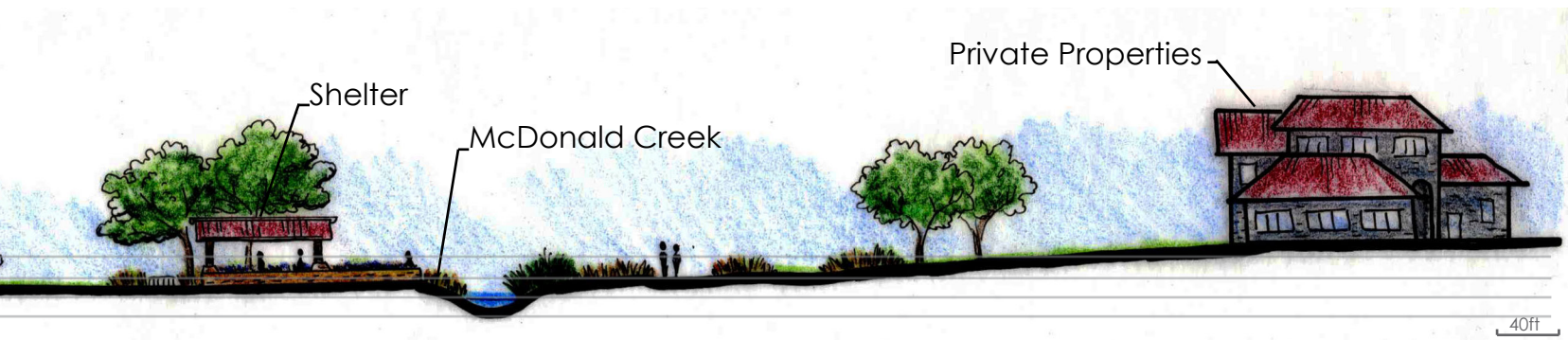


Figure 11.03 - Main Transect Section

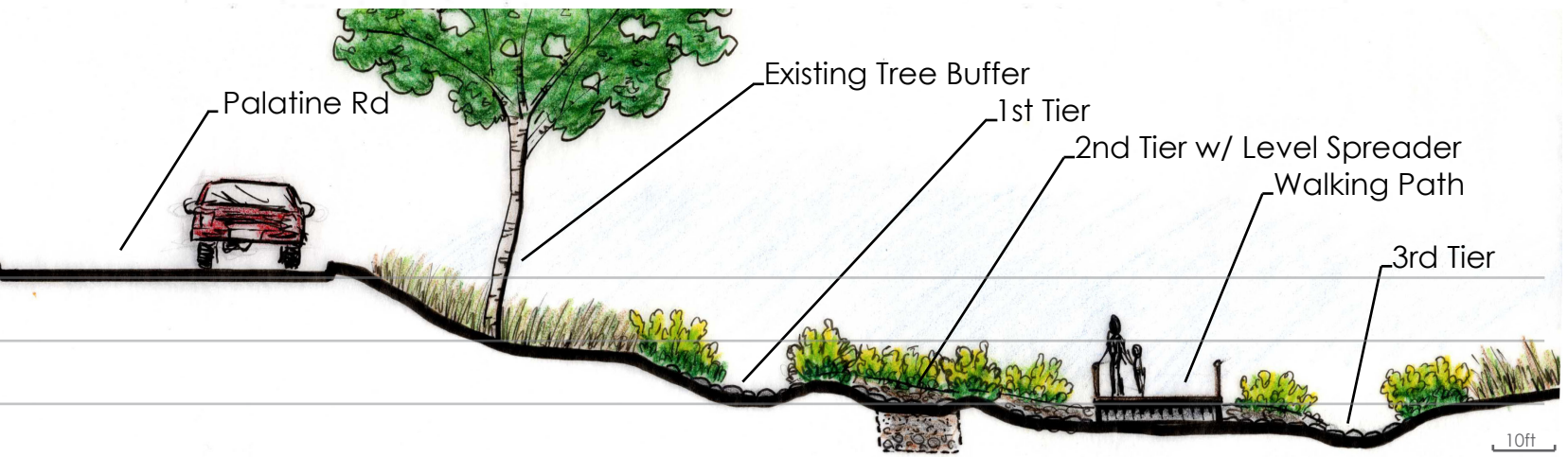


Figure 11.04 - SWM Section

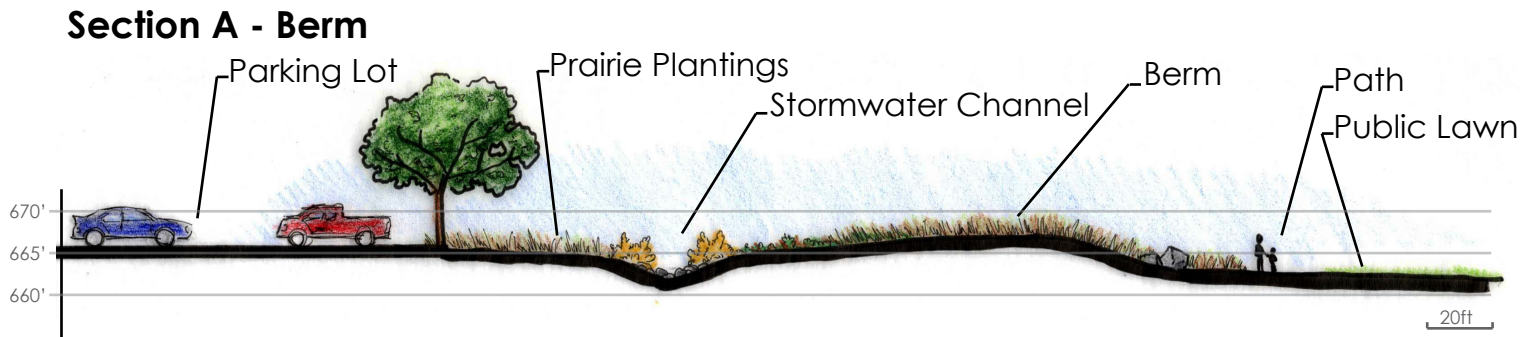


Figure 11.05 - Berm Section



Figure 11.06 - Gathering Space Insert

THE PUBLIC GATHERING SPACE

Centrally located in the park, this hub area will feature a variety of amenities focused more on traditional park recreational activities, along with a few novelties. The base for this area will be a large public lawn, which will afford users ample space for a variety of more active recreational activities and sports. Acting as the centerpiece for the site will be a medium-sized shelter, the design of which will embody Somerset's larger vision of blending natural and formal design.

Adjacent to the shelter will be a natural playground area, which uses natural materials such as logs, stumps, and

boulders to create play spaces. This feature is particularly important to the park's environmental education mission, as play can be one of the most influential modes of education for young children.

Other features of the area include a native plum orchard, a stepping stone crossing of the creek, and two specimen bur oaks for shade. The orchard allows users to actively interact with the natural world with more senses, while the creek crossing brings people into direct contact with the water. Seating benches and a bike rack are also offered in this area.

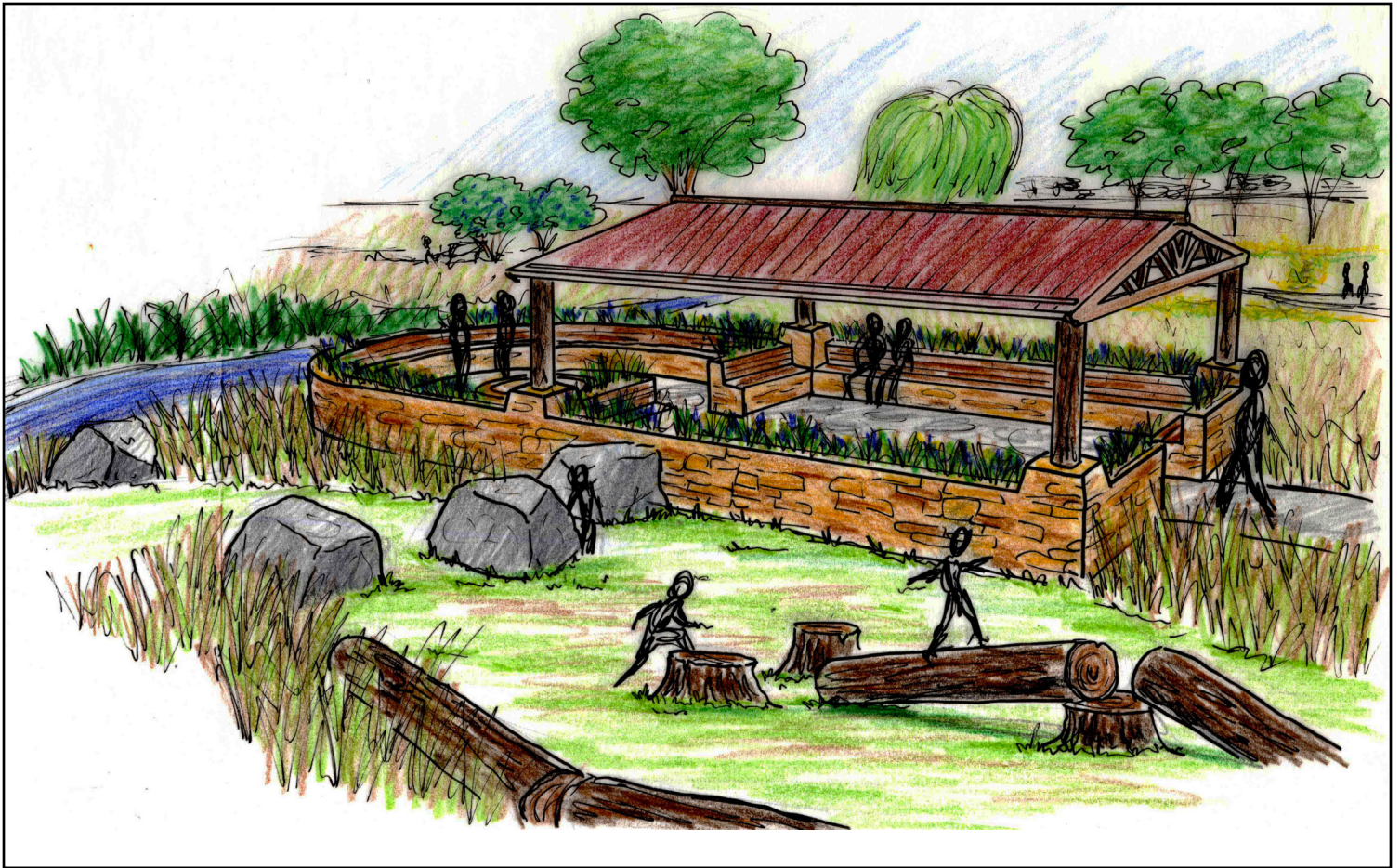
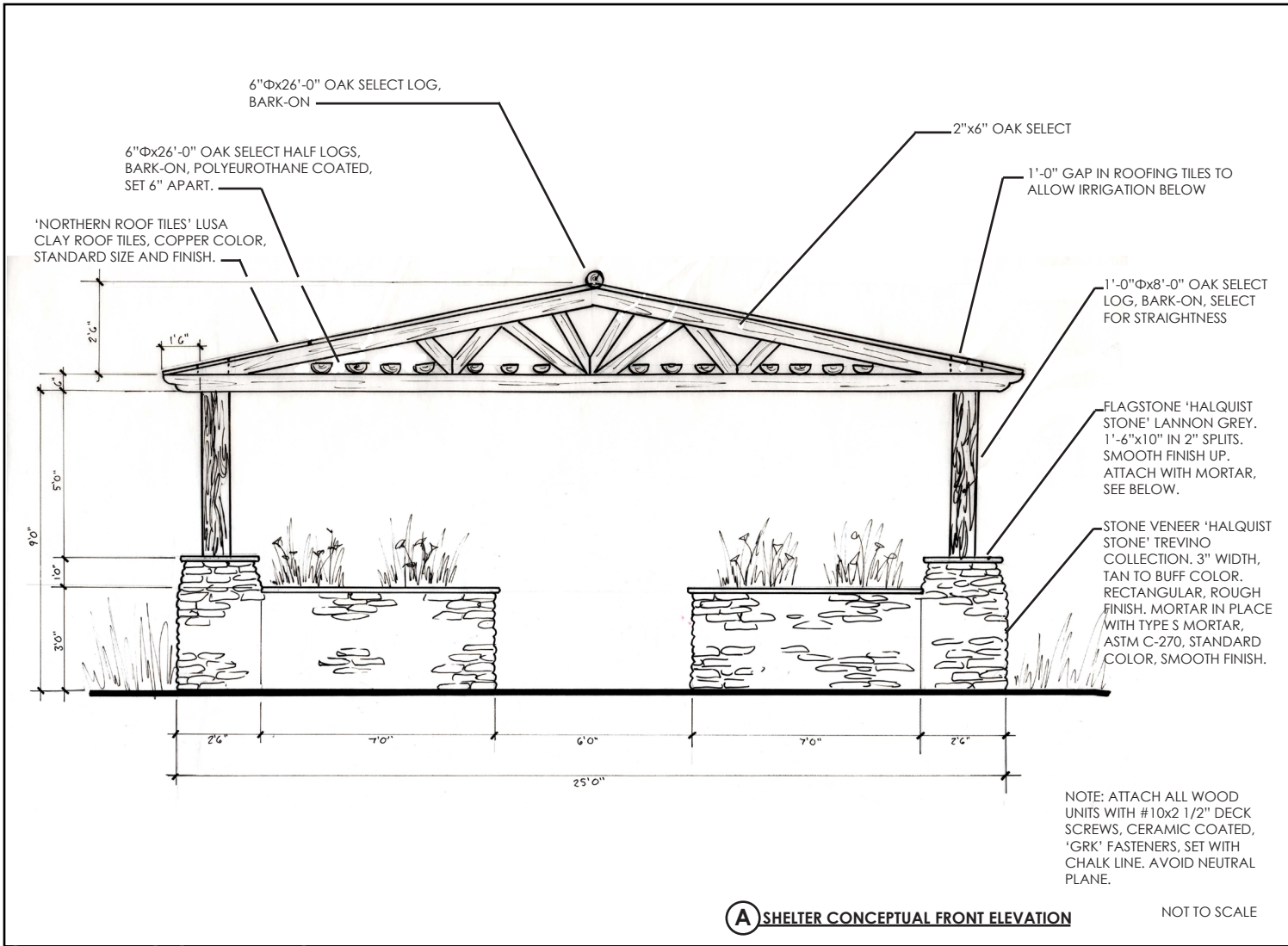


Figure 11.07 - Shelter and Playground Perspective

THE SHELTER AND PLAYGROUND

The public shelter will act as the centerpiece of Somerset Park. Designed to comfortably accommodate groups of around twenty people, it will consist of both a covered interior area and a more open area to the rear which overlooks McDonald Creek and houses a large bonfire pit. The exterior walls double as seating for the shelter, affording seating throughout the space. They would also contain planting beds which create a synergy between the structure and the prairie around it.

The natural playground would sit directly adjacent to the shelter, allowing parents easy supervision of their playing children. The playground would feature a few 'rooms,' differentiated by large boulders and planting beds. An active area would provide ample running space and a log climbing course. Large climbing boulders act as a fun entrance into the shelter and as a gateway to a smaller, quieter play area which would have a larger emphasis on interactions with the prairie plantings.

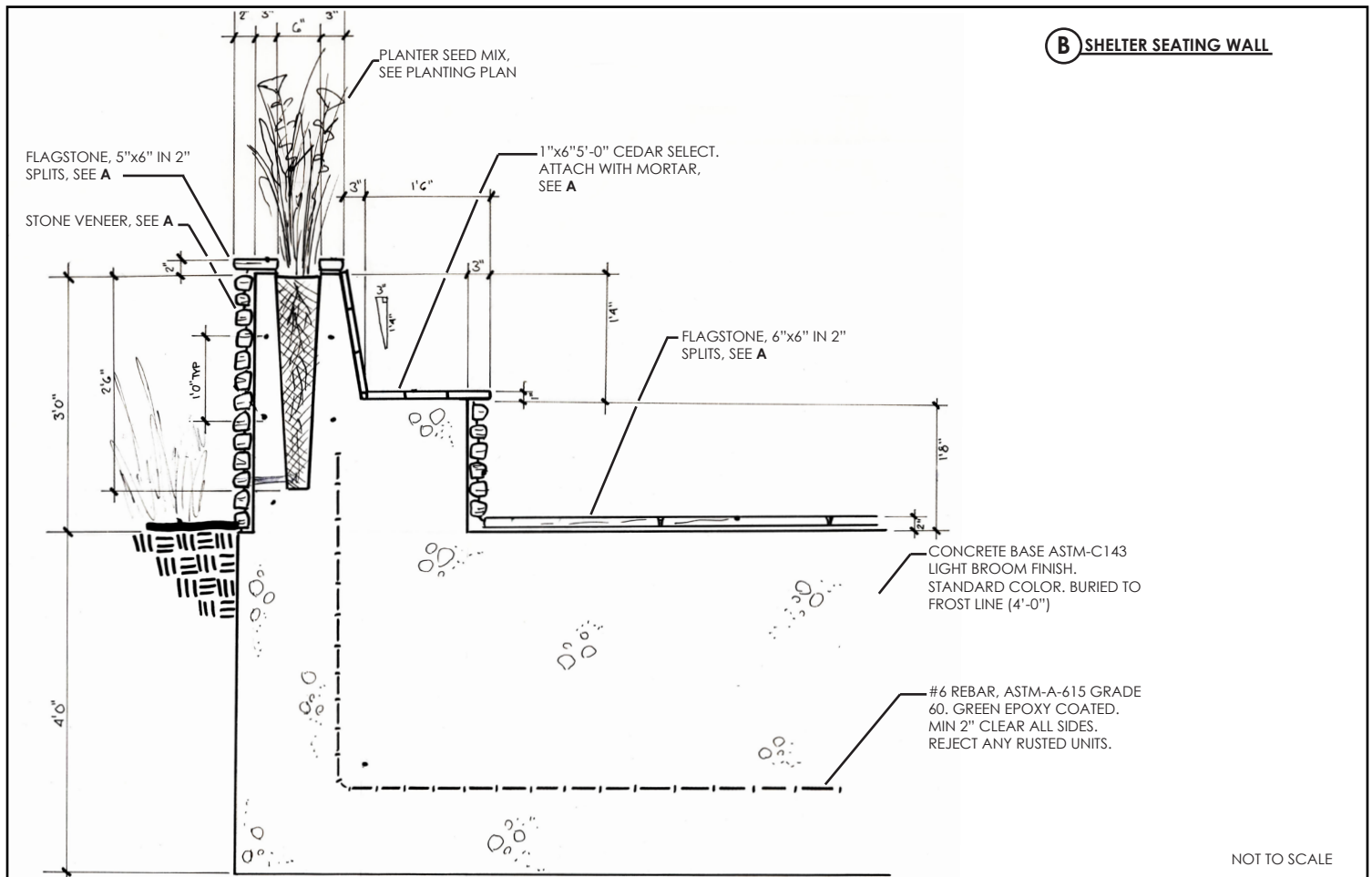


SHELTER DESIGN DETAILS

Figure 11.08 - Shelter Elevation Detail

Again, this shelter is designed to accommodate about 20 or so people, and is twenty-five feet wide and fifty feet long; half of which is covered and half is uncovered. The base structure will be of concrete construction with local

stone veneer and a flagstone floor, while the roof utilizes unhewn logs, wood, and clay tiles. The structural form draws inspiration from ranch and Japanese styles, while the material choices follow the prairie style.



SEATING WALL DETAILS

Figure 11.09 - Shelter Seating Wall Detail

The exterior walls of the shelter serve as structure, seating, and planting beds all in one. On the outside edge, these walls stand three feet tall and are designed to be just over the height of the prairie plantings around the shelter. Housed inside the structure of these walls are deep planting beds which will accommodate ornamental prairie flowers and grasses with their deep roots. Wooden seating benches run along the entire interior perimeter of these walls.

Because the planting beds on these walls are located under a roof and are intended for dry soil plants, some measure of engineering was required for both irrigation and drainage. Rather than having a gutter, the roof of the shelter will have a slot along its edge so that runoff from the roof becomes the irrigation for the planting beds below. Meanwhile a discreet pipe covered by filter fabric will allow water to drain out of the bottom of the beds, preventing stagnation.

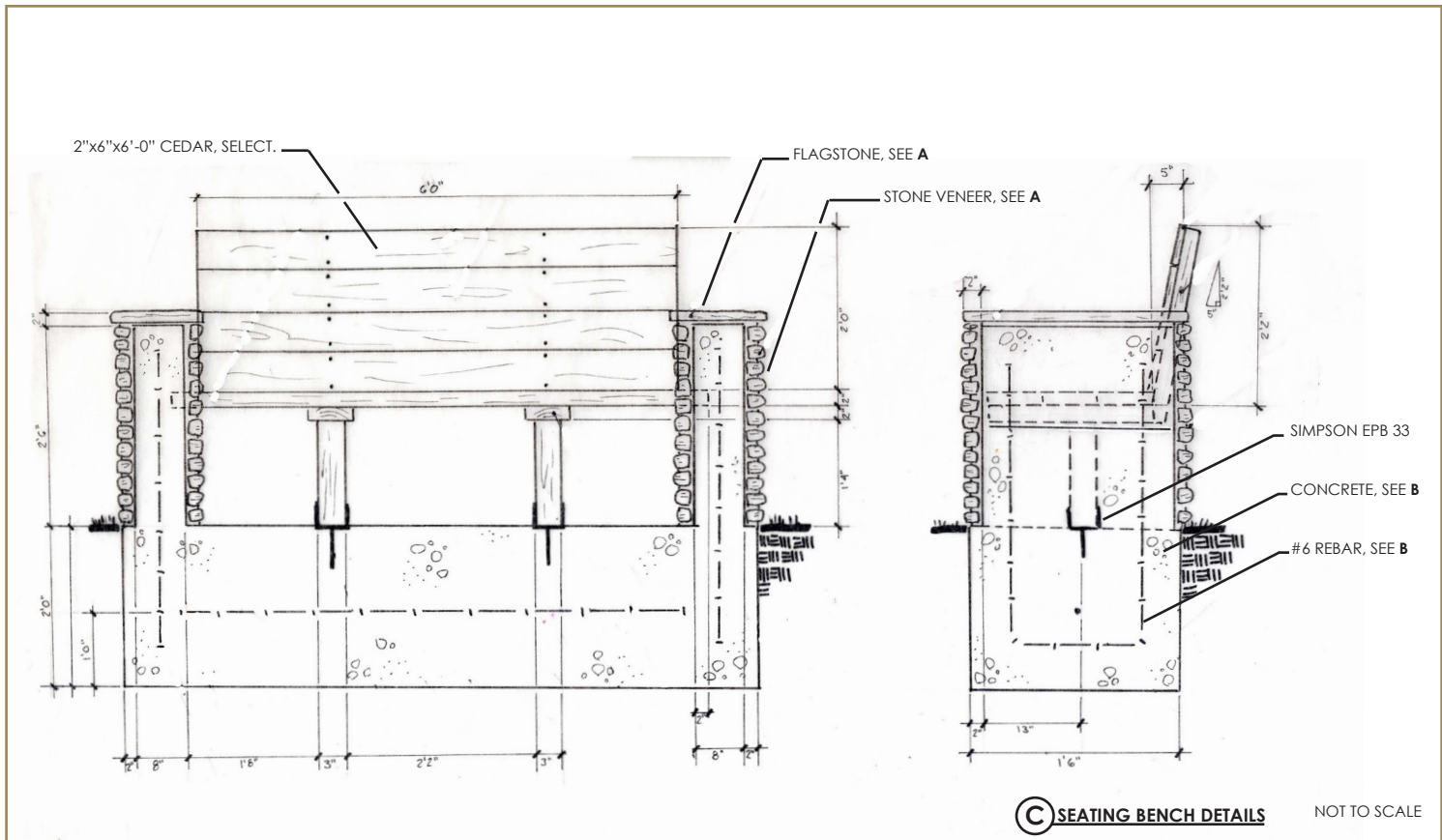


Figure 11.10 - Bench Detail

BENCH AND GATEWAY ARCH DETAILS

To maintain a unified look and character for the park, it was important for all site elements to adhere to the same design style, as can be seen here in the details for the park benches and the gateway arch.

The park benches, which will be placed at the recessed seating nodes and in the main public space, are of a simple design which uses a very standard park bench coupled with stone veneered arms. Again, the materials used in these benches are identical to those used in the shelter, resulting in a simple, but rustically elegant seating option.

The gateway arch, located at the main entrance to the park is a bit more impressive. Approximately eleven feet tall and eight feet wide, this arch is very directly inspired by the entrance gates of western ranches and by Shinto Torii gates. The western inspiration speaks to the culture of the prairies of America, while the Torii gate imagery is meant to inspire a sense of serenity and transcendence when entering the park. The stone veneered base, which has the same dimensions as the shelter walls, supports tall, uncut log pillars and a wooden lattice above.

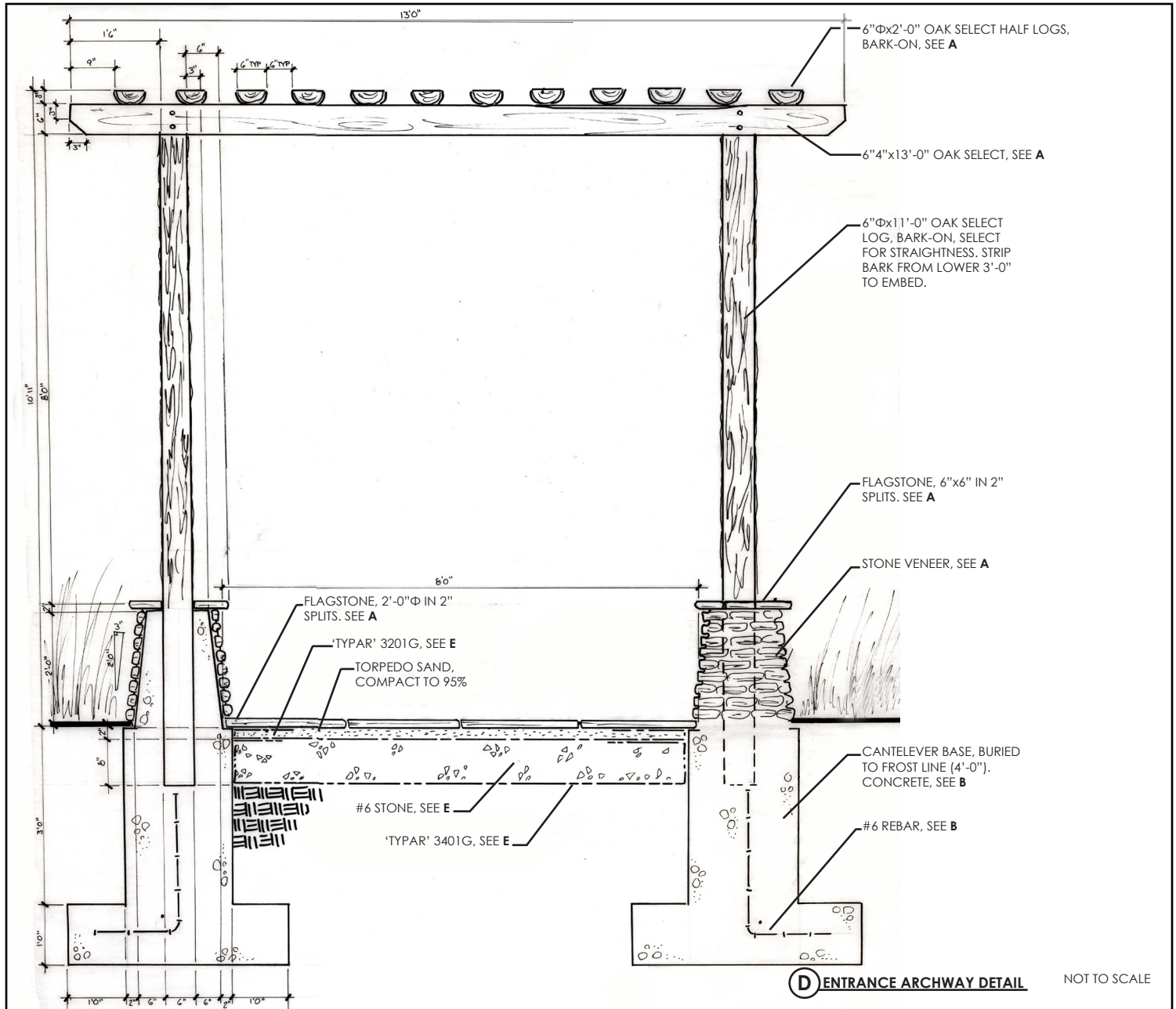


Figure 11.11 - Gateway Arch Detail



Figure 11.12 - Somerset Planting Plan

PLANT LEGEND

-  - Tall Grass Prairie Mix
-  - Forbe Prairie Mix
-  - Retention Basin Mix
-  - Phytoremediation Mix
-  - Switch Grass— *Panicum virgatum*
-  - Buffalo Grass— *Buchloe dactyloides*
-  - Shelter Planting Bed Mix
-   - Bur Oak— *Quercus macrocarpa*
-   - Wild Plum— *Prunus Americana*
-   - Pussy Willow— *Salix discolor*

PLANT SELECTION DISCUSSION

The planting plan for the park consists almost entirely of large swaths of seed mixes, with a very few specimen trees. All species chosen for the site are completely native and are available through the PHNRC's seed bank. A heavy emphasis was placed on selecting a variety of phytoremediators such that no section of this site does not contain at least one such species.

A key aspect of this plan is the loose and organic nature of the planting beds. With the exception of the lawn, the planting beds are to be allowed to mingle and spread naturally. At the initial implementation of the design, the plantings are meant to be visually appealing rather than authentic in order to ease the public into the notion of natural spaces in their community. However, as time goes by and Somerset and natural spaces become valued assets to the community, the planting beds will naturally disperse into each other, eventually creating a truly authentic native Illinois prairie.



Figure 11.13 - Big Bluestem



Figure 11.14 - Indian Grass



Figure 11.15 - Switchgrass



Figure 11.16 - Goldenrod



Figure 11.17 - Coneflower



Figure 11.18 - Blazingstar



Figure 11.19 - Wild Plum



Figure 11.20 - Pussy Willow

PLANTING SCHEDULE

Prairie Mix (23 species)

PM1—75%Grasses/25%Forbes
4.11 acres = 40lbs of seed

PM2—24%Grasses/75%Forbes
0.39 acres = 4lbs of seed

Grasses (6 species)

- Big Bluestem—*Andropogon gerardii*
- *Sideoats Gramma—*Bouteloua curtipendula**
- *Silky Wild Rye—*Elymus villosus**
- *Nodding Fescue—*Festuca subverticillata**
- *Indian Grass—*Sorghastrum nutans**
- Prairie Cordgrass—*Spartina pectinata*

Forbes (15 species)

- *Nodding Wild Onion—*Allium cernuum*
- Sky Blue Aster—*Aster azureus*
- Smooth Blue Aster—*Aster laevis*
- Side Flowering Aster—*Aster sagittifolius*
- Short's Aster—*Aster shortii*
- Pale Purple Coneflower—*Echinacea pallida*
- Purple Headed Coneflower—*Echinacea purpurea*
- Prairie Blazing Star—*Liatris pycnostachya*
- Grey Headed Coneflower—*Ratibida pinnata*
- Black-Eyed Susan—*Rudbeckia hirta*
- Sweet Black-Eyed Susan—*Rudbeckia subtomentosa*
- *Ridell's Goldenrod—*Solidago riddellii**
- *Stiff Goldenrod—*Solidago rigida**
- *Showy Goldenrod—*Solidago speciose**
- *Elm Leaved Goldenrod—*Solidago ulmifolia**

Retention Basin Mix (20 species)

BM—Even Dispersal
0.44 acres = 4lbs 6oz of seed

Grasses (2 species)

- Big Bluestem—*Andropogon gerardii*
- *Switchgrass—*Panicum virgatum**

Forbes (18 species)

- *Nodding Wild Onion—*Allium cernuum**
- Common Milkweed—*Asclepias syriaca*
- Sky Blue Aster—*Aster azureus*
- Smooth Blue Aster—*Aster laevis*
- Side Flowering Aster—*Aster sagittifolius*
- Short's Aster—*Aster shortii*
- Prairie Blazing Star—*Liatris pycnostachya*
- Great Blue Lobelia—*Lobelia siphilitica*
- Wild Bergamont—*Monarda fistulosa*
- Grey Headed Coneflower—*Ratibida pinnata*
- Black-Eyed Susan—*Rudbeckia hirta*
- Sweet Black-Eyed Susan—*Rudbeckia subtomentosa*
- Rosinweed—*Silphium integrifolium*
- Prairie Dock—*Silphium terebinthinaceum*
- *Stiff Goldenrod—*Solidago rigida**
- Smooth Ironweed—*Vernonia fasciculata*
- Culver's Root—*Veronicastrum virginicum*
- Golden Alexanders—*Zizia aurea*

Phytoremediation Mix (7 species)

RM—Even Dispersal
0.17acres = 2lbs of seed

Grasses (2 species)

- *Switch Grass—*Panicum virgatum**
- *Indian Grass—*Sorghastrum nutans**

Forbes (5 species)

- *Downy Sunflower—*Helianthus mollis**
- *Ridell's Goldenrod—*Solidago riddellii**
- *Stiff Goldenrod—*Solidago rigida**
- *Showy Goldenrod—*Solidago speciose**
- *Elm Leaved Goldenrod—*Solidago ulmifolia**

Creek Bank Buffer (1 species)

0.11acres = 1lbs of seed

Grasses (1 species)

- *Switch Grass—*Panicum virgatum** **Pv**

Lawn (1 species)

0.72acres = 70 pallets of sod

Grasses (1 species)

- Buffalo Grass—*Buchloe dactyloides* **Bd**

Shelter Planter Mix (4 species)

SM—Even Dispersal
80ft² = 1oz of seed

Grasses (2 species)

- Vanilla Sweet Grass—*Hierochloe odorata*
- Little Bluestem—*Schizachyrium scoparium*

Forbes (2 species)

- Prairie Blazing Star—*Liatris pycnostachya*
- Smooth Ironweed—*Vernonia fasciculata*

Trees (3 species)

Large Shade Trees (1 species)

- Bur Oak—*Quercus macrocarpa* **Qm**
2 10" caliper trees

Small Ornamental (2 species)

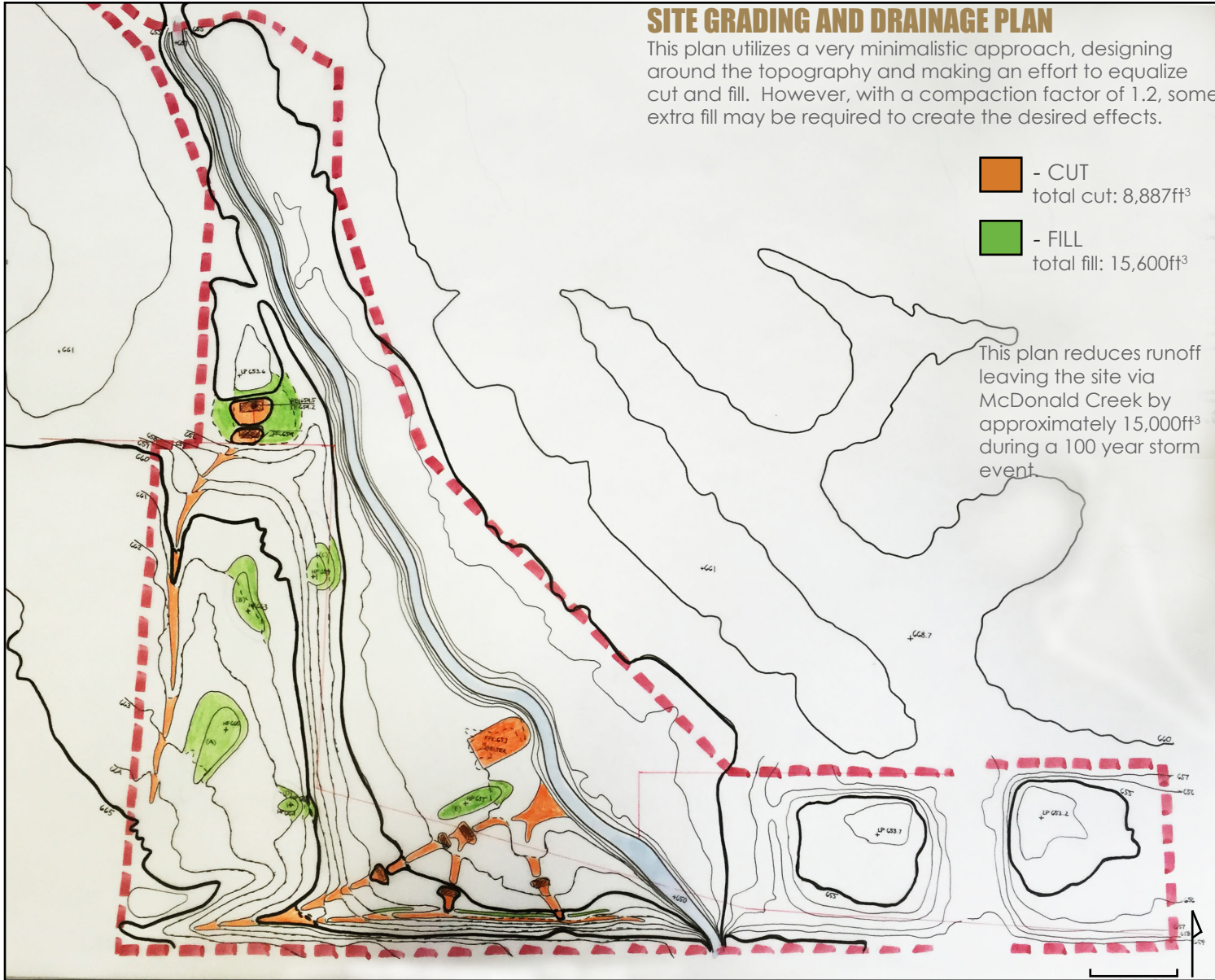
- Wild Plum—*Prunus Americana* **Pa**
22 cut sprigs
- *Pussy Willow—*Salix discolor** **Sd**
24 cut sprigs

SITE GRADING AND DRAINAGE PLAN

This plan utilizes a very minimalistic approach, designing around the topography and making an effort to equalize cut and fill. However, with a compaction factor of 1.2, some extra fill may be required to create the desired effects.

-  - CUT
total cut: 8,887ft³
-  - FILL
total fill: 15,600ft³

This plan reduces runoff leaving the site via McDonald Creek by approximately 15,000ft³ during a 100 year storm event



C.I. = 1'0"

100 ft

Figure 11.21 - Grading and Drainage Plan

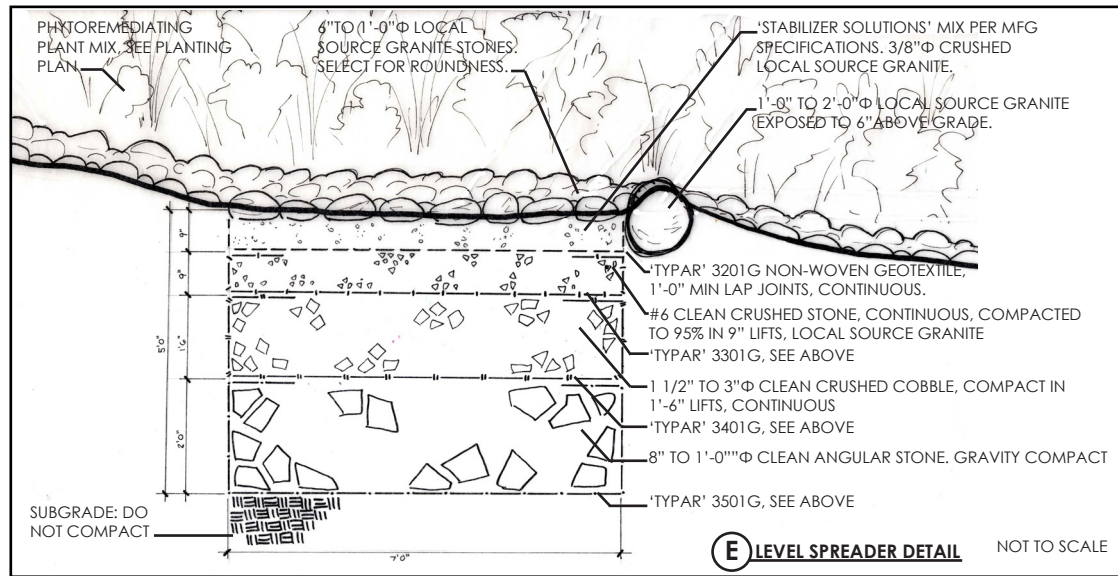


Figure 11.22 - Level Spreader Detail

STORMWATER MANAGEMENT SOLUTIONS

As overviewed earlier, the primary stormwater management solution for the park is in the form of constructed channels which are made up of a series of basins and tiers. The function of these channels is to filter and infiltrate polluted runoff coming onto the site from Palatine Road and the adjacent parking lot. Achieved through a variety of measures, this system ensures that all water coming into McDonald Creek through the park has been cleaned.

The channel itself is to be about a foot deep and lined with medium-sized stones, giving it a “dry creek bed” look. Meanwhile, the basins will be about another six inches deep. The stones and the basins function to tumble and slow stormwater, forcing larger, heavier contaminants to settle out of the water, and during lighter rainfalls, the first tier will be sufficient to filter, hold, and slowly infiltrate runoff.

In a larger storm event however, runoff will overflow the first basin and proceed down the channel to the second tier. At this second stage basin, a level spreader will serve to very quickly filter and infiltrate water. A level spreader, as seen above, is a series of layers of crushed stone and geotextiles.

The geotextiles assist in filtration while the layers of stones allow water to infiltrate into the ground at a quicker than natural rate.

A third, backup basin similar to the first basin exists further down, and is designed to handle the runoff of all but the most catastrophic storms. However, in an extreme situation, the channels continue on to McDonald Creek, where thick switchgrass plantings act as a last-resort filter and buffer.

The seed mix specified to plant these channels consists entirely of known phytoremediating species. Phytoremediators are plants which are naturally and safely able to absorb various pollutants through their water uptake, and the species chosen for these planting beds are each known to take up a different pollutant. This assures that even as runoff is infiltrated into the earth, that water will be even further purified, helping to reduce the pollutants entering the groundwater as well as the creek system. This completely natural process has been very successful in numerous reclaimed brownfield projects, and is an elegant and simple strategy for Somerset Park.

SITE PLAN IMPLEMENTATION SOLUTIONS

GENERAL CONSTRUCTION AND MANAGEMENT

The construction and implementation of Somerset Park is intended to be a rather loose, organic process. Many of the natural elements of the site such as the berms and planting beds do not require exact dimensions, and much of the grading work could reasonably be done without the use of heavy machinery.

All prairie plants should be locally sourced, and depending on the timeframe of the construction and availability, the seed base for the site could be entirely provided, or at least supplemented by the PHNRC's own seed bank. As discussed on page 61, the planting beds themselves should be allowed to spread into each other naturally. Because of this, the exact dimensions of the planting beds are not overly important as they will rapidly change anyway.

Along those same lines, the construction of the berms is also not an exact process. All cut created from the stormwater channels and the shelter base will be used to create the berms throughout the site. The general placement and relative size of these berms is very important, as they have been designed to frame specific views and to direct runoff. However, so long as the specified high points are present, their exact forms are unimportant. In fact, it is desired that these berms end up looking incidental and natural rather than engineered.

Any hardscape and architectural elements however must be constructed with utmost care and detail. Somerset Park and the larger master plan vision are part of a mission with a likely timeframe of several decades. As the crowning pieces of the park, it is important that these architectural elements remain to see the plan through.

Regarding maintenance, the tall grass planting beds can initially be mown to preserve the aesthetic. However, as the park evolves into a more natural prairie, burning will likely have to be utilized. Meanwhile, the stormwater channels must be periodically cleaned, for which a simple shop vacuum should suffice. All stormwater channels are easily reachable from the bike path, which is wide enough to allow a maintenance truck or emergency vehicle to pass through. The phytoremediating plants along the channels should also be harvested, removed, and replanted every few growing seasons. Doing so allows for the complete removal of all contaminants they have taken up from the site.

One of the key goals of the park is to facilitate environmental education, and the close proximity of three schools to Somerset provides a variety of opportunities. Collaborations between the PHNRC and local schools or after school organizations could result in any number of chances for science classes, for example, to come to the site during the implementation phase for firsthand experience with restoring a prairie or learning about stormwater management. Art or shop classes could create smaller site elements such as bird or bee houses to be put up and displayed in the park. Also, after the park is complete it would be a perfect local field trip location with opportunities to learn about botany, ecology, and conservation.

GRANT OPPORTUNITIES

While not a comprehensive list by any means, below are listed a few grants and funding opportunities which could prove to be helpful in financing the construction of Somerset Park.

EPA 319 Grant

-funding allotted for watershed improvement efforts.

ComEd Green Regions Grant

-granted from projects which improve ComEd right-of-way lands.

Open Space Lands Acquisition & Development and Land & Water Conservation Programs

-granted by the IDNR to local governments for a variety of park and natural area projects.

Park and Recreational Facility Construction Grant Program

-also through the IDNR, this fund assists local governments in acquiring land for park projects, which could assist in the master plan implementation.

Federal Recreational Trails Program

-awarded by the IDNR for trail construction programs.

Bike Path Grant Program

-funds the construction of bike paths specifically, and could help with the master plan. Also through the IDNR.

These few grants alone could offer a considerable amount of financial support for the project, and are a good starting point for further opportunities.





Figure 12.01 - Lower McDonald Creek

CONCLUSION AND REFLECTION

A PERSONAL REFLECTION

Working on this project with the PHNRC and the community of Prospect Heights has been an amazing year-long journey for me. Somerset Park was a truly unique space to work with; small enough to get to know every inch of it, yet with so many opportunities to substantially impact the larger region. I really came to love and care for the site, and I am very proud and confident in what I have created for this place.

Because of the small scale of the site and the nature of the design, I was able to follow an organic and reactionary design process, which was a very unique and eye-opening departure from more standard paths I had experienced previously in my education. The process of creating an intentionally fluid design allowed me to think more creatively. What's more, because the process wasn't bogged down by making sure that every measurement was exact, I was able to put that time and effort into making sure the intent of the design was successful in every aspect. Because of this, every aspect of this design has multiple layers of reason, purpose, and significance to an extent which I couldn't possibly fully explain in this document.

Going through the process of this capstone project has of course done wonders to broaden my experiences with all of the expected things such as design, time management, public input, and all the other topics which this class was intended to teach. However, this project also affected me on a more personal level and helped to change my perspective on the interactions between people and nature.

Coming from a background far removed from cities and urban sprawl, I had long held the notion that the natural world and dense populations of people were, and always would be, at odds with each other. However, in envisioning and believing in the ultimate goals of the master plan for the Prospect Heights Natural Corridor, I came to realize that this did not have to be the case. I envisioned a new kind of suburbia which could integrate healthy, functional natural spaces with all of the human amenities that make the suburbs so desirable to many people. What's more, I saw how with a little bit of successful environmental education

efforts, just how easy it could be to create this new suburban landscape. This is a vision and goal which I will carry with me throughout my life, and one which I will strive to achieve in my profession. Were it not for this project, there is no telling if these thoughts would have otherwise come to me, and for that I am grateful.

This was all surely inspired in part by my clients. The passion and excitement which Agnes and Dana brought into this project was astonishing, and kept me motivated when the nights in studio dragged on far into the morning. I truly cared about creating something wonderful for them, and I was very overjoyed by their overwhelmingly positive reaction to the design I presented them with.

This was a very fulfilling project, and I am proud to say that it was also initially well-received by the Parks Department and that the project might very well move ahead. I plan on continuing to work with this project at least into the summer, and I have high hopes that Somerset Park can and will be implemented sometime in the near future. I look forward to seeing this project brought into fruition.

Sean McMillion

Department of Landscape Architecture
May 2015

APPENDIX

LIST OF FIGURES

Figure 0.01 - Somerset Park, Sean McMillion
Figure 0.02 - Somerset Park Pedestrian Bridge, Sean McMillion
Figure 0.03 - Sean McMillion, Sean McMillion

Figure 1.01 - Bird's Eye View of Somerset Park, Bing Maps
Figure 1.02 - Children Learning About the Environment,
<http://childreninnature.mo.gov/>
Figure 1.03 - A Prairie Garden, Savanna Designs
Figure 1.04 - Native Prairie Plant Community, Savanna
Designs
Figure 1.05 - Workflow Diagram, Sean McMillion

Figure 2.01 - Prospect Heights Logo, City of Prospect Heights
Figure 2.02 - PHNRC Logo, PHNRC
Figure 2.03 - Overgrown McDonald Creek, Sean McMillion
Figure 2.04 - Somerset Park, Sean McMillion
Figure 2.05 - Small Gathering Space, Savanna Designs
Figure 2.06 - Gilkey Creek Restoration, Smith Group JJR
Figure 2.07 - 1938 Aerial Photo, PHNRC
Figure 2.08 - 1960 Aerial Photo, PHNRC
Figure 2.09 - 2015 Aerial Photo, PHNRC

Figure 3.01 - Children Learning About the Environment,
<http://childreninnature.mo.gov/>

Figure 5.01 - Regional Map, Sean McMillion

Figure 6.01 - Community Inventory Map, Sean McMillion
Figure 6.02 - Community Analysis Map, Sean McMillion
Figure 6.03 - Typical House Near Somerset Park, Google
Maps
Figure 6.04 - Med. Income Map, Connect to Cook
Figure 6.05 - Ethnic Diversity Map, Connect to Cook
Figure 6.06 - Population Density Map, Connect to Cook
Figure 6.07 - Med. Age Map, Connect to Cook

Figure 7.01 - Somerset Park Aerial, Bing Maps
Figure 7.02 - Somerset Park Features Map, Sean McMillion
Figure 7.03 - Somerset Park Topo and Utilities, City of
Prospect Heights
Figure 7.04 - Middle Depression, Sean McMillion
Figure 7.05 - Palatine Rd Incline, Sean McMillion

Figure 8.01 - Lower McDonald Creek, Sean McMillion
Figure 8.02 - Upper McDonald Creek, Sean McMillion

Figure 9.01 - Early Conceptual Sketches, Sean McMillion
Figure 9.02 - Early Conceptual Sketches, Sean McMillion
Figure 9.03 - Conceptual Layout, Sean McMillion
Figure 9.04 - The Inspiring Vision, [https://www.flickr.com/
photos/aeranthos/3690408485](https://www.flickr.com/photos/aeranthos/3690408485)

Figure 10.01 - Capital City Trial in Fitchburg, WI, Fitchburg
Chamber of Commerce
Figure 10.02 - Natural Corridor Master Plan, Sean McMillion

Figure 11.01 - A Tall Grass Prairie in Bloom, Dakota County
Technical College
Figure 11.02 - Somerset Park Site Plan, Sean McMillion
Figure 11.03 - Main Transect Section, Sean McMillion
Figure 11.04 - SWM Section, Sean McMillion
Figure 11.05 - Berm Section, Sean McMillion
Figure 11.06 - Gathering Space Insert, Sean McMillion
Figure 11.07 - Shelter and Playground Perspective, Sean
McMillion
Figure 11.08 - Shelter Elevation Detail, Sean McMillion
Figure 11.09 - Shelter Seating Wall Detail, Sean McMillion
Figure 11.10 - Bench Detail, Sean McMillion
Figure 11.11 - Gateway Arch Detail, Sean McMillion
Figure 11.12 - Somerset Planting Plan, Sean McMillion
Figure 11.13 - Big Bluestem, Prairie Nursery
Figure 11.14 - Indian Grass, Prairie Nursery
Figure 11.15 - Switchgrass, Prairie Nursery
Figure 11.16 - Goldenrod, Prairie Nursery
Figure 11.17 - Coneflower, Prairie Nursery
Figure 11.18 - Blazingstar, Prairie Nursery
Figure 11.19 - Wild Plum, Prairie Nursery
Figure 11.20 - Pussy Willow, Prairie Nursery
Figure 11.21 - Grading and Drainage Plan, Sean McMillion
Figure 11.22 - Level Spreader Detail, Sean McMillion

Figure 12.01 - Lower McDonald Creek, Sean McMillion

TIME LOG (FALL SEMESTER)

Day Date Task/Work Code Hours Worked Travel Time Cumulative Totals
 Code: D (design), P (presentation/prep), M (meeting), T (travel), O (organization/research), W (writing), other.

| Day | Date | Task/Work Code | Hours Worked | Travel Time | Cumulative Totals |
|----------------------|----------|----------------|--------------|-------------|-------------------|
| Week 1 | | | | | |
| Total week 1 | | | 0.00 | 0.00 | 0.00 |
| Week 2 | | | | | |
| | 09.11.15 | M | 0.50 | 0.00 | 0.5 |
| Total week 2 | | | 0.50 | 0.00 | 0.50 |
| Week 3 | | | | | |
| | 09.15.15 | M | 0.50 | 0.00 | 0.5 |
| | 09.17.15 | M | 0.50 | 0.00 | 0.5 |
| Total week 3 | | | 1.00 | | 1.50 |
| Week 4 | | | | | |
| | 9.21.15 | M | 0.50 | 0.00 | 0.5 |
| | 9.22.15 | O | 4.00 | 0.00 | 4 |
| Total week 4 | | | 4.50 | | 6.00 |
| Week 5 | | | | | |
| | 9.27.15 | M | 1.50 | 5.00 | 6.5 |
| Total week 5 | | | 1.50 | | 7.50 |
| Week 6 | | | | | |
| | 10.4.15 | W | 2.00 | 0.00 | 2 |
| | 10.6.15 | W | 1.00 | 0.00 | 1 |
| | 10.7.15 | O | 1.00 | 0.00 | 1 |
| Total week 6 | | | 4.00 | | 11.50 |
| Week 7 | | | | | |
| | 10.11.15 | O | 3.00 | 0.00 | 3 |
| | 10.15.15 | W | 1.50 | 0.00 | 1.5 |
| Total week 7 | | | 4.50 | | 16.00 |
| Week 8 | | | | | |
| | 10.17.15 | M | 1.00 | 0.00 | 1 |
| | 10.18.15 | M | 2.00 | 0.00 | 2 |
| | 10.18.15 | O | 5.00 | 0.00 | 5 |
| | 10.19.15 | P | 2.00 | 0.00 | 2 |
| | 10.21.15 | O | 1.50 | 0.00 | 1.5 |
| Total week 8 | | | 11.50 | | 27.50 |
| Week 9 | | | | | |
| | 10.24.15 | O | 3.00 | 0.00 | 3 |
| | 10.25.15 | O | 4.00 | 0.00 | 4 |
| | 10.26.15 | O | 5.00 | 0.00 | 5 |
| | 10.27.15 | O | 5.00 | 0.00 | 5 |
| Total week 9 | | | 17.00 | | 44.50 |
| Week 10 | | | | | |
| | 10.29.15 | O | 2.00 | 0.00 | 2 |
| | 10.30.15 | O | 3.00 | 0.00 | 3 |
| | 11.2.15 | O | 1.50 | 0.00 | 1.5 |
| | 11.3.15 | O | 4.00 | 0.00 | 4 |
| Total week 10 | | | 10.50 | | 55.00 |
| Week 11 | | | | | |
| | 11.5.15 | O | 2.50 | 0.00 | 2.5 |
| | 11.10.15 | O | 3.00 | 0.00 | 3 |
| Total week 11 | | | 5.50 | | 60.50 |
| Week 12 | | | | | |
| | 11.13.15 | P | 10.00 | 0.00 | 10 |
| | 11.14.15 | M | 2.50 | 5.50 | 8 |
| | 11.15.15 | P | 12.00 | 0.00 | 12 |
| Total week 12 | | | 24.50 | | 85.00 |

| | | | | | | |
|-----------------------|----------|-----|--|--------------|------|--------|
| Week 13 | | | | | | |
| | 11.19.15 | P | | 6.00 | 0.00 | 6 |
| | 11.20.15 | P | | 10.00 | 0.00 | 10 |
| | 11.21.15 | P | | 11.50 | 0.00 | 11.5 |
| | 11.23.15 | O | | 3.00 | 0.00 | 3 |
| | 11.24.15 | O,P | | 8.50 | 0.00 | 8.5 |
| Total week 13 | | | | 39.00 | | 124.00 |
| Week 14 | | | | | | |
| | 11.27.15 | P | | 8.00 | 0.00 | 8 |
| | 11.28.15 | P | | 19.00 | 0.00 | 19 |
| | 11.30.15 | P | | 5.50 | 0.00 | 5.5 |
| Total week 14 | | | | 32.50 | | 156.50 |
| Week 15 | | | | | | |
| | 12.4.15 | P | | 3.00 | 0.00 | 3 |
| | 12.5.15 | P | | 7.00 | 0.00 | 7 |
| | 12.7.15 | P | | 3.00 | 0.00 | 3 |
| Total week 15 | | | | 13.00 | | 169.50 |
| Week 16 | | | | | | |
| | 12.11.15 | P | | 8.00 | 0.00 | 8 |
| | 12.12.15 | P | | 7.50 | 0.00 | 7.5 |
| | 12.14.15 | P | | 10.50 | 0.00 | 10.5 |
| Total week 16 | | | | 26.00 | | 195.50 |
| Week 17+ | | | | | | |
| | 12.23.15 | W | | 2.00 | 0.00 | 2 |
| | 12.24.15 | W | | 4.00 | 0.00 | 4 |
| | 12.25.15 | W | | 2.00 | 0.00 | 2 |
| | 12.28.15 | W | | 10.00 | 0.00 | 10 |
| Total week 17+ | | | | 18.00 | | 213.50 |

TIME LOG (SPRING SEMESTER)

| Day | Date | Task/Work Code | Hours Worked | Travel Time | Cumulative Totals | Fuel Expense | Cumulative Expenses |
|------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|--------------|-------------|-------------------|--------------|---------------------|
| Code: D (design), P (presentation/prep), M (meeting), T (travel), O (organization/research), W (writing); other. | | | | | | | |
| Week 1 | 1.19.16 | D | 4.00 | 0.00 | | | |
| | 1.21.16 | D | 4.00 | 0.00 | | | |
| | Total week 1 | | 8.00 | | 8.00 | | |
| Week 2 | 1.25.16 | D | 3.00 | 0.00 | | | |
| | 1.26.16 | D | 4.00 | 0.00 | | | |
| | 1.28.16 | D | 4.00 | 0.00 | | | |
| | Total week 2 | | 12.00 | | 20.00 | | |
| Week 3 | 2.1.16 | D | 3.00 | 0.00 | | | |
| | 2.2.16 | D | 4.00 | 0.00 | | | |
| | 2.4.16 | D | 3.00 | 0.00 | | | |
| | 2.5.16 | D | 4.00 | 0.00 | | | |
| | Total week 3 | | 14.00 | | 34.00 | | |
| Week 4 | 2.8.16 | D | 4.00 | 0.00 | | | |
| | 2.9.16 | D | 4.00 | 0.00 | | | |
| | 2.10.16 | D | 4.50 | 0.00 | | | |
| | 2.11.16 | D | 4.50 | 0.00 | | | |
| | Total week 4 | | 17.00 | | 51.00 | | |
| Week 5 | 2.15.16 | D | 4.50 | 0.00 | | | |
| | 2.16.16 | D | 4.00 | 0.00 | | | |
| | 2.18.16 | D | 3.50 | 0.00 | | | |
| | 2.19.16 | D | 4.00 | 0.00 | | | |
| | Total week 5 | | 16.00 | | 67.00 | | |
| Week 6 | 2.22.16 | D | 5.50 | 0.00 | | | |
| | 2.23.16 | D | 5.00 | 0.00 | | | |
| | 2.25.16 | D | 6.00 | 0.00 | | | |
| | Total week 6 | | 16.50 | | 83.50 | | |
| Week 7 | 2.29.16 | D | 7.00 | 0.00 | | | |
| | 3.1.16 | D | 5.50 | 0.00 | | | |
| | 3.3.16 | D | 9.00 | 0.00 | | | |
| | 3.4.16 | D | 8.00 | 0.00 | | | |
| | 3.5.16 | D | 10.50 | 0.00 | | | |
| | Total week 7 | | 40.00 | | 123.50 | | |
| Week 8 | 3.7.16 | D | 4.50 | 0.00 | | | |
| | 3.8.16 | D | 9.00 | 0.00 | | | |
| | 3.9.16 | D,O | 11.00 | 0.00 | | | |
| | Total week 8 | | 24.50 | | 148.00 | | |
| Week 9 | 3.17.16 | O | 2.50 | 0.00 | | | |
| | Total week 9 | | 2.50 | | 150.50 | | |
| Week 10 | Total week 10 | | 0.00 | | 150.50 | | |
| Week 11 | 3.28.16 | D | 3.00 | 0.00 | | | |
| | 3.29.16 | D | 4.00 | 0.00 | | | |
| | 3.31.16 | D | 4.00 | 0.00 | | | |
| | 4.1.16 | D | 5.00 | 0.00 | | | |
| | Total week 11 | | 16.00 | | 166.50 | | |
| Week 12 | 4.4.16 | W | 6.00 | 0.00 | | | |
| | 4.5.16 | D | 3.50 | 0.00 | | | |
| | 4.7.16 | P | 7.00 | 0.00 | | | |
| | 4.8.16 | P | 9.00 | 0.00 | | | |
| | 4.9.16 | P | 6.00 | 0.00 | | | |
| | 4.10.16 | P | 14.00 | 0.00 | | | |
| | Total week 12 | | 45.50 | | 212.00 | | |
| Week 13 | 4.11.16 | P | | | | 18.00 | 0.00 |
| | 4.12.16 | P | | | | 6.00 | 0.00 |
| | 4.14.16 | P | | | | 4.00 | 0.00 |
| | 4.16.16 | M | | | | 2.00 | 5.50 |
| | Total week 13 | | | | | 30.00 | 242.00 |
| Week 14 | 4.18.16 | D | | | | 3.00 | 0.00 |
| | 4.19.16 | P | | | | 6.00 | 0.00 |
| | 4.21.16 | P | | | | 8.00 | 0.00 |
| | 4.22.16 | P | | | | 7.00 | 0.00 |
| | 4.23.16 | P | | | | 11.00 | 0.00 |
| | 4.24.16 | P | | | | 17.00 | 0.00 |
| | Total week 14 | | | | | 52.00 | 294.00 |
| Week 15 | 4.25.16 | P | | | | 18.00 | 0.00 |
| | 4.26.16 | P | | | | 5.00 | 0.00 |
| | 4.28.16 | P | | | | 4.00 | 0.00 |
| | 4.29.16 | P | | | | 3.00 | 0.00 |
| | 5.1.16 | P | | | | 3.00 | 0.00 |
| | Total week 15 | | | | | 33.00 | 327.00 |
| Week 16 | 5.2.16 | P | | | | 4.00 | 0.00 |
| | 5.3.16 | P | | | | 4.00 | 0.00 |
| | 5.5.16 | W | | | | 4.00 | 0.00 |
| | 5.6.16 | W | | | | 8.00 | 0.00 |
| | 5.7.16 | W | | | | 6.00 | 0.00 |
| | 5.8.16 | W | | | | 6.00 | 0.00 |
| | Total week 16 | | | | | 32.00 | 359.00 |
| Week 17 | 5.9.16 | W | | | | 9.00 | 0.00 |
| | 5.10.16 | W | | | | 10.00 | 0.00 |
| | 5.11.16 | W | | | | 9.00 | 0.00 |
| | 5.12.16 | W | | | | 18.00 | 0.00 |
| | Total week 17+ | | | | | 46.00 | 405.00 |

Total Fall Hours:

213.50

Total Spring Hours:

405.00

Total Hours = 618.50 hours

SWM CALCULATIONS

Total Site Area = 302,400sqft
= 6.942acres

Pre Q

I=6in/hr
Q=CIA/43560
Volume=Q x 60sec x 60mins

C-Values

C-Turf=0.6
C-Creek=0.95

Areas(A)

A-Turf=292,400sqft
A-Creek=10,000sqft

Q-Values

Q-Turf=21.69cfs
Q-Creek=1.31cfs

Total Pre Q = 23.00cfs

Pre Runoff Volume = 82,800 ft³

Post Q

I=6in/hr
Q=CIA/43560
Volume=Q x 60sec x 60mins

C-Values

C-Prairie=0.37
C-Basin=0.7
C-LevelSpreader=0.02
C-Creek=0.95
C-Path=0.95
C-Shelter=0.85
C-Turf=0.4

Areas(A)

A-Prairie=213,200sqft
A-Basin=19,200sqft
A-LevelSpreader=4,800sqft
A-Creek=10,000sqft
A-Path=22,400sqft
A-Shelter=1,600sqft
A-Turf=31,200sqft

Q-Values

Q-Prairie=10.87cfs
Q-Basin=1.85cfs
Q-LevelSpreader=0.01cfs
Q-Creek=1.31cfs
Q-Path=2.93cfs
Q-Shelter=0.19cfs
Q-Turf=1.72cfs

Total Post Q = 18.88cfs

Δ Q = -4.12cfs

Post Runoff Volume = 67,968 ft³

Δ Volume = -14,832 ft³

CUT/FILL VOLUMETRIC CALCULATIONS

Cut

ShelterCut:

1,120sqft x 4ft depth
=4,482 ft³

SWMChannelCut:

1,060ftL x 3ftW x 1ftD
=3,180 ft³

LevelSpreaderCut:

(7ftL x 5ftW x 5ftD) x 7
=1,225 ft³

Total Cut = 8,887ft³

Fill

ApproxBasinFill:

=3,200 ft³

ApproxBurmFill:

(A)4,000 ft³+(B)2,000 ft³+(C)1,600 ft³+(D)1,000 ft³+(E)1,200 ft³
=9,800 ft³

Total Fill = 13,000 x 1.2CompactionFactor

=15,600 ft³

Δ Fill = 6,713 ft³

Approximate Needed Fill = 7,000 ft³

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