

A 21ST CENTURY CAMPUS AESTHETIC:
PHOTOGRAPHY. MEMORY. PERFORMANCE.

by

SARAH JUSTINE FLYNN

A REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture/Regional and Community Planning
College of Architecture, Planning and Design

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2013

Approved by:

Major Professor
Laurence A. Clement, Jr.

ABSTRACT

Advancements in technology, architecture, landscape, planning and design, and education are being pursued in the 21st century. Unfortunately, the campuses of higher education institutions, which promote such advancements, do not reflect the vision of innovation and creativity. Rather, the exterior environments on college campuses portray a 19th century gardenesque landscape aesthetic, which emphasizes a “park-like” appearance and discounts ecological functions. The Kansas State University campus evidences a gardenesque aesthetic that arguably is not performing socially or ecologically to its fullest potential. This Master’s Project and Report uses an open space on K-State’s campus, Coffman Commons, to challenge its aesthetic performance. Campus landscape aesthetic performance can be improved by designing a community amenity that celebrates ecological processes, especially regarding stormwater, and involves the campus community in the design process.

A conceptual framework, rooted in the Vitruvian Triad, directs the project’s methodology. Methods of photojournalism and design are conducted. Photojournalism is used to collect aesthetic responses of Coffman Commons from K-State students, faculty, and staff. Their photographic and textual responses inform the design process. The photography method allows each participant to confer importance to aspects of the landscape that moved them. Through photographic coding and content analysis, commonalities are discovered in the landscape with which each person identifies. The participants’ written descriptions further inform an understanding of expectations and hopes for Coffman Commons.

Influenced by the photographic research and guided by set goals and objectives, the design method allows the innovation of a contextually specific and personable design solution for Coffman Commons. The design exhibits two community amenities which invite social activity to Coffman Commons. The amenities incorporate visible water systems (rain gardens and dry swales) - increasing the ecological performance of the Commons, and provide research opportunities for piezoelectric technology. The design also features inscriptions which honor Dr. Coffman and K-State Distinguished Faculty. This Master’s Project and Report transforms a gardenesque campus landscape into a high-performance landscape that responsibly manages stormwater and enriches user experience.



A 21st Century Campus Aesthetic

photography. memory. performance.

written + designed by sarah justine flynn

Copyright

Sarah Justine Flynn

College of Architecture, Planning and Design
Department of Landscape Architecture/
Regional and Community Planning

Kansas State University

{ 2013 }

Supervisory Committee:
Laurence A. Clement, Jr.
Jon Hunt
Shreepad Joglekar

Abstract

Advancements in technology, architecture, landscape, planning and design, and education are being pursued in the 21st century. Unfortunately, the campuses of higher education institutions, which promote such advancements, do not reflect the vision of innovation and creativity. Rather, the exterior environments on college campuses portray a 19th century gardenesque landscape aesthetic, which emphasizes a “park-like” appearance and discounts ecological functions. The Kansas State University campus evidences a gardenesque aesthetic that arguably is not performing socially or ecologically to its fullest potential. This Master’s Project and Report uses an open space on K-State’s campus, Coffman Commons, to challenge its aesthetic performance. Campus landscape aesthetic performance can be improved by designing a community amenity that celebrates ecological processes, especially

regarding stormwater, and involves the campus community in the design process.

A conceptual framework, rooted in the Vitruvian Triad, directs the project’s methodology. Methods of photojournalism and design are conducted. Photojournalism is used to collect aesthetic responses of Coffman Commons from K-State students, faculty, and staff. Their photographic and textual responses inform the design process. The photography method allows each participant to confer importance to aspects of the landscape that moved them. Through photographic coding and content analysis, commonalities are discovered in the landscape with which each person identifies. The participants’ written descriptions further inform an understanding of expectations and hopes for Coffman Commons.

Influenced by the photographic research and guided by set goals and objectives, the design method allows the innovation of a contextually specific and personable design solution for Coffman Commons. The design exhibits two community amenities which invite social activity to Coffman Commons. The amenities incorporate visible water systems (rain gardens and dry swales) - increasing the ecological performance of the Commons, and provide research opportunities for piezoelectric technology. The design also features inscriptions which honor Dr. Coffman and K-State Distinguished Faculty. This Master’s Project and Report transforms a gardenesque campus landscape into a high-performance landscape that responsibly manages stormwater and enriches user experience.

Table of Contents

abstract	. iii
list of figures	. vi
list of tables	. xi
list of abbreviations	. xi
acknowledgements	. xiii
dedication	. xv
preface	. xvi

01 Introduce

background + dilemma + thesis	. 002
operational definitions	. 004
design process + methodology	. 005

02 Confirm

literature review	. 010
-------------------	-------

03 Frame

conceptual framework	. 016
----------------------	-------

04 Orient

project site	. 025
dr. james coffman	. 028
history of coffman commons	. 030

05 Discover

methodology	. 034
-------------	-------

06 Find

participant results	. 042
personal results	. 066
concluding statements	. 085

07 Design

site inventory + analysis	. 088
precedent studies	. 100
goals + objectives	. 105
a new aesthetic	. 108
synthesis of components	. 142

08 Conclude

MP+R findings	. 156
discussion + limitations	. 157
further research	. 157
implications + contributions	. 158

image sources	. 160
---------------	-------

references cited	. 166
------------------	-------

Appendices

precedents	. 174
annotated bibliography	. 186
photo journal entries	. 206
photo diagram app	. 208
design process	. 210
stormwater calculations	. 216

List of Figures

- {6} **Figure 01.01:**
Project Timeline (by author)
- {7} **Figure 01.02:**
Design Process (by author)
- {13} **Figure 02.01:**
Literature Map (by author)
- {16} **Figure 03.01:**
*Vitruvian Triad Variations
(by author, adapted from Capon
1999, 20)*
- {17} **Figure 03.02:**
Conceptual Framework (by author)
- {27} **Figure 04.01:**
*Map Series of Locating Coffman
Commons at a variety of scales
(by author)*
- {29} **Figure 04.02:**
*Plaque Commemorating Dr.
Coffman (by author)*
- {31} **Figure 04.03:**
*Location of razed Denison Hall
(by author)*
- {35} **Figure 05.01:**
*Expanded Literature Map
(by author)*
- {46} **Figure 06.01:**
*Coded photographs format
(by author)*
- {47} **Figure 06.02: Anthology**
(Participant 1, 2012)
- {48} **Figure 06.03: Anthology**
(Participant 1, 2012)
- {49} **Figure 06.04: Anthology**
(Participant 1, 2012)
- {50} **Figure 06.05: Anthology**
(Participant 2, 2012)
- {51} **Figure 06.06: Anthology**
(Participant 2, 2012)
- {52} **Figure 06.07: Anthology**
(Participant 3, 2012)
- {53} **Figure 06.08: Anthology**
(Participant 3, 2012)
- {54} **Figure 06.09: Anthology**
(Participant 4, 2012)
- {55} **Figure 06.10: Anthology**
(Participant 4, 2012)
- {56} **Figure 06.11: Anthology**
(Participant 5, 2013)
- {57} **Figure 06.12: Anthology**
(Participant 5, 2013)
- {58} **Figure 06.13: Anthology**
(Participant 6, 2013)
- {59} **Figure 06.14: Anthology**
(Participant 6, 2013)
- {61} **Figure 06.15:**
*Photo emphasis diagram
(by author)*
- {62} **Figure 06.16:**
*Strong connections to buildings;
the buildings form the space
(by author)*
- {62} **Figure 06.17:**
*Enjoyed experience of walking
through trees (by author)*
- {62} **Figure 06.18:**
*Feeling of grandeur as user walks
past Hale Library (by author)*
- {63} **Figure 06.19:**
*Favored closeness to building
(by author)*
- {63} **Figure 06.20:**
*Appreciated seasonality of trees,
pictures taken in winter (by author)*
- {63} **Figure 06.21:**
*Winding walkways were a pleasant
experience (by author)*
- {64} **Figure 06.22:**
*Coffman Commons not a space
itself - Hale is too cumbersome
(by author)*
- {64} **Figure 06.23:**
*Juncture of building to lawn needs
to be softened by vegetation
(by author)*
- {65} **Figure 06.24:**
*Elevation change alters the
experience of the landscape*
- {65} **Figure 06.25:**
*Trees can create defensible space
(by author)*
- {68} **Figure 06.26:**
*October 16, 2012 Site Visit
(by author)*
- {69} **Figure 06.27: Visibility**
(by author)
- {70} **Figure 06.28:**
*October 17, 2012 Site Visit
(by author)*
- {72} **Figure 06.29:**
*October 24, 2012 Site Visit
(by author)*
- {73} **Figure 06.30:**
*November 5, 2012 Site Visit
(by author)*
- {73} **Figure 06.31:**
*November 8, 2012 Site Visit
(by author)*
- {74} **Figure 06.32:**
*November 14, 2012 Site Visit
(by author)*
- {75} **Figure 06.33: Whole Space**
Majestic Hale Facade (by author)
- {76} **Figure 06.34:**
*Ground plane Inscriptions
(by author)*
- {76} **Figure 06.35:**
Encourage lawn use (by author)
- {77} **Figure 06.36:**
Maintenance vehicle (by author)
- {77} **Figure 06.37:**
*Maintenance vehicles access (by
author)*
- {78} **Figure 06.38:**
Lone Rider (by author)
- {78} **Figure 06.39:**
*Density of West Sidewalk
(by author)*
- {79} **Figure 06.40: Collective Activity**
Path Vacancy (by author)
- {80} **Figure 06.41: Individual Activity**
Enabling movement (by author)
- {81} **Figure 06.42:**
*January 30, 2013 Site Visit
(by author)*
- {82} **Figure 06.43:**
*February 27, 2013 Site Visit
(by author)*
- {89} **Figure 07.01:**
*Modified Design Process Diagram
to Show Chapter's Components
(by author)*
- {91} **Figure 07.02:**
*Ratio of hardscape to softscape
(by author)*
- {92} **Figure 07.03:**
Swale adjacent to Hale (by author)

- {93} **Figure 07.04:**
Water flow (by author)
- {94} **Figure 07.05:**
Shadow Study Map Series (by author)
- {96} **Figure 07.06:**
Major Approach/Entry views
- {96} **Figure 07.07:**
Groundplane advertisements (by author)
- {97} **Figure 07.08:**
Narrowed view corridors on site (by author)
- {98} **Figure 07.09:**
Hierarchy of movement (by author)
- {99} **Figure 07.10:**
Sparse amenities offered (by author)
- {100} **Figure 07.11:**
Biodesign Institute (Moore, 2008)
- {100} **Figure 07.12:**
Butler College (Lelsie, n.d.)
- {101} **Figure 07.13:**
Sonoran Landscape Laboratory (Timmerman 2010)
- {101} **Figure 07.14:**
Sidwell Friends School (Vecerka 2009)
- {101} **Figure 07.15:**
Diana Memorial Fountain (Zilchoo, n.d.)
- {109} **Figure 07.16:**
Coffman Commons Master Plan (by author)
- {110} **Figure 07.17:**
Coffman Commons Amenities (by author)
- {113} **Figure 07.18:**
Circulation Alterations (by author)
- {116} **Figure 07.19:**
Redirected downspout to dry swale (by author)
- {118} **Figure 07.20:**
Ecological systems implemented (by author)
- {121} **Figure 07.21:**
Water Utility Mapping (by author)
- {122} **Figure 07.22:**
Plant Zones Reference Maps (by author)
- {124} **Figure 07.23:**
Dry Zone Seasonal Bloom Chart (by author)
- {126} **Figure 07.24:**
Rain Garden Seasonal Bloom Chart (by author)
- {128} **Figure 07.25:**
Dry Swale Seasonal Bloom Chart (by author)
- {130} **Figure 07.26:**
Location of inscriptions (by author)
- {131} **Figure 07.27:**
Engravings in limestone end cap inscriptions (by author)
- {131} **Figure 07.28:**
K-State university's distinguished faculty inscriptions (by author)
- {132} **Figure 07.29:**
Coffman Commons at night (by author)
- {135} **Figure 07.30:**
Lighting Design Master Plan (by author)
- {137} **Figure 07.31:**
Curvilinear Seating (Gollins, 2012)
- {137} **Figure 07.32:**
Water Runnel Walls (Timmerman, n.d.)
- {137} **Figure 07.33:**
Elevated Seat Wall (StudioThomas, n.d.)
- {137} **Figure 07.34:**
KSU Lamp Pole (Participant 2, 2012)
- {138} **Figure 07.35:**
Movement pressure intensities (by author)
- {139} **Figure 07.36:**
Location of piezo sensors (by author)
- {139} **Figure 07.37:**
Piezoelectric system process (by author)
- {140} **Figure 07.38:**
Night Landscape (by author)
- {145} **Figure 07.39:**
Design Construction Attributes (by author)
- {147} **Figure 07.40:**
Social Utility Attributes (by author)
- {149} **Figure 07.41:**
Aesthetic Response + Meaning Attributes (by author)
- {151} **Figure 07.42:**
Ecological Performance Attributes (by author)
- {152} **Figure 07.43:**
The New Aesthetic for Coffman Commons (by author)
- {158} **Figure 08.01:**
A New Campus Aesthetic - Starting with Coffman Commons (by author)
- {174} **Figure 09.01:**
Biodesign Institute (Moore, 2008)
- {174} **Figure 09.02:**
Butler College (Lelsie, n.d.)
- {175} **Figure 09.03:**
Sonoran Landscape Laboratory (Timmerman 2010)
- {175} **Figure 09.04:**
Sidwell Friends School (Vecerka 2009)
- {175} **Figure 09.05:**
Diana Memorial Fountain (Zilchoo, n.d.)
- {176} **Figure 09.06:**
Irrigation system is celebrated with exposed irrigation cistern (Ten Eyck Landscape Architects, Inc. n.d.)
- {177} **Figure 09.07:**
Differentiation of materials in sunken amphitheater distinguish functions (Ten Eyck Landscape Architects, Inc. n.d.)
- {177} **Figure 09.08:**
Sense of enclosure through corridor to destination (Ten Eyck Landscape Architects, Inc. n.d.)
- {178} **Figure 09.09:**
Terraced edges defined by materials; contrast in color + texture is strong (Wilson n.d.)
- {179} **Figure 09.10:**
Views into courtyard are framed by architecture (MVVA n.d.)
- {180} **Figure 09.11:**
Steel runnel exposing conveyance of water (Terry, n.d.)
- {181} **Figure 09.12:**
Vertical scrim (dually providing shade and surface for creeping foliage (Timmerman, n.d.)
- {181} **Figure 09.13:**
Vegetative screen enclosing small gathering space (Timmerman, n.d.)

{182} Figure 09.14-15:
Wetland and circulation paths are clearly separate (Andropogon n.d.)

{184} Figure 09.16:
Smooth, curvilinear lines (Wolfsavord, 2009)

{185} Figure 09.17:
Accessibility to water feature (Wolfsavord, 2009)

{185} Figure 09.18:
Form offers seating at raised levels (Wolfsavord, 2009)

{208} Figure 09.19:
ArtStudio App icon (Lucky Clan, n.d.)

{208} Figure 09.20:
ArtStudio app screen shots (by author)

{211} Figure 09.21:
Schematic Design Drawings (by author)

{212} Figure 09.22:
Design Development Clay Modeling (by author)

{215} Figure 09.23:
Conceptual Grading Plan (by author)

{217} Figure 09.24:
Manhattan Rainfall Intensities (by author)

List of Tables

{20} Table 03.01:
Conceptual Framework Matrix (by author)

{39} Table 05.01:
Research Strategies Framework (by author, adapted from Swaffield + Deming 2010, 37)

{44} Table 06.01:
Participant Photographic Response Matrix (by author)

{67} Table 06.02:
Personal Photographic Response Matrix (by author)

{102} Table 07.01:
Precedent Study Matrix (by author)

{106} Table 07.02:
Design goals + objectives (by author)

{123} Table 07.03:
Plant Palettes (Shaw + Schmidt 2003)

{217} Table 09.01:
Occurrences + Probabilities (USGS 2013)

{217} Table 09.02:
Manhattan Rainfall Intensities (by author)

{218} Table 09.03:
Rainfall Volumes (by author)

{219} Table 09.04:
Stormwater Infiltration (by author)

List of Abbreviations

MP+R (Master's Project and Report)

K-State (Kansas State University)

Acknowledgements

The strength of this master's project and report is attributed to the support and guidance I received from a community of individuals.

The Department of Landscape Architecture and Regional and Community Planning is composed of a talented group of faculty members. I appreciate each member's efforts in providing me with a great education. Thanks to my graduate supervisory committee who pushed me to realize my full potential as an emerging design professional: Laurence Clement, Jon Hunt, and Shreepad Joglekar.

To Dr. Jana Fallin whose zealous commitment to Dr. Coffman and Coffman Commons inspired me to invest in the improvement of this landscape.

The friendships I have cultivated in studio mean so much to me. I am thankful for their creativity, honesty, and support.

To my father and mother for their dedication and investment in my personal

growth and academic career. To my sister, Julia, for her friendship and endearing character.

The affirmation, listening ear, and support I received from my husband during this process was a true blessing. I am forever grateful for Jake's love for me.

Lastly, and most importantly, to my Savior Jesus Christ. My faith cannot be separated from my academic work. Trusting in his proven Truth gave me peace and passion to pursue my interests in landscape architecture. He created the landscape; I discover and design it.

To my Savior
To Jake and my Family
run with patience . hebrews 12:1

Preface

A new aesthetic, rooted in the 21st century, is being proposed for Kansas State University's Coffman Commons. This new aesthetic is manifested through a high-performance landscape design which enriches user experience, commemorates Dr. James Coffman, and manages stormwater responsibly. The design proposal challenges the aesthetic performance (socially and ecologically) of the campus space. To assist in the generation of the design, photography is conducted as a research method.

A technique called photojournalism is used to collect aesthetic responses of Coffman Commons from K-State students, faculty, and staff. These aesthetic

responses help inform design decisions for Coffman Commons's new aesthetic. The design is centered on a community amenity which fosters both collective and individual activity. It also visibly celebrates stormwater on site.

This Master's Project and Report (MP+R) documents the process of creating this 21st century aesthetic for Coffman Commons. Those in the design profession with interest in campus design could take interest in this MP+R. The document is also relevant for landscape architects with a passion for photography. They can learn how to use photography as an act of discovery and informant for design solutions. Lastly, this MP+R positions itself towards Kansas

State University leadership. The document fashions a design which challenges the current standard for campus landscape performance. The presented new aesthetic could start an initiative for the advancement of University exterior environments.

The culmination of my work is laid out into seven chapters. A preface of each chapter is offered below.

Chapter *02 Confirm* presents the scholarly literature which substantiates and authenticates my design efforts. The literature confirms the need for coupling aesthetics and ecological processes in landscape architecture practice.

The conceptual framework is presented in *03 Frame*. The framework guides, directs, and narrows research and design efforts. It allows the MP+R to maintain consistency, as each project action is run through the framework.

The project site, Coffman Commons, is introduced in *04 Orient*. It also shares a brief background on Dr. James Coffman and the history of the Commons.

Chapter *05 Discover* discusses the photography methodology used for research. The research was conducted in sessions with K-State students, faculty, and staff. I also participated in the photography research method.

The research results are displayed in chapter *06 Find*. The photographs are accompanied by interpretations and mathematical findings.

Chapter *07 Design* exhibits the new aesthetic which has been created for Coffman Commons. The final design achieves a created set of goals and objectives. The design is graphically represented in this chapter.

Lastly, *08 Conclude* wraps up the MP+R. It consists of project findings, implications, contributions, and further research.

The *Appendices* include the finer details of the MP+R. It holds the precedent studies,

an annotated bibliography, photo journal entries, explanation of an iPad application, design process drawings, and stormwater calculations.

May this MP+R inspire the use of photography in design efforts; uphold commemorative intentions; and promote high-performance landscapes.

Introduce 01

This chapter starts with the driving forces that shape this project. The background is followed by my dilemma and thesis. This chapter also defines my operational definitions and design process.

A 21st Century Campus Aesthetic

The 21st century has brought progressive efforts of change and advancement to architecture, education, technology, landscapes, planning and design. However, the exterior environments of higher education institutions, which foster such change in the hearts and minds of students, have remained visually stagnant in a 19th century aesthetic. Universities across the United States embody the aesthetic ideals of a gardenesque landscape. This was promoted back in the 1960s by the United States National Environmental Policy Act which assures “for all Americans...aesthetically and culturally pleasing surroundings,’ federal agencies made the [gardenesque] image explicit” (Nassauer 1992, 242).

Today landscapes are challenged to be not only amiable or pleasant in appearance but also to function well ecologically. The landscape architecture profession is flooded with discussions on aesthetic performance. Aesthetic beauty is now recognized as offering a landscape value beyond appearance. Leading landscape

architecture scholars are inquiring about the relationship between aesthetic beauty and ecological function. The driving force of this Master’s Project and Report (MP+R) is at the intersection of aesthetic performance and ecological function.

Kansas State University (K-State) is the selected campus for this MP+R. While this selection may seem too convenient, the location enables immediate and repeated access that contributes to deeper project richness. Accessibility of resources and contacts added to the feasibility of data collection and site analysis justifies this ideal project location.

Furthermore, this MP+R generates a design proposal that can contribute to K-State’s discussions on the campus’s future as safe and beautiful but also a high-performing environment from the social and ecological perspectives. This aligns with K-State’s initiatives of “building toward the future” and the master plan update (K-State 2013). Numerous expansions and renovations to K-State’s

infrastructure are underway: the College of Business Administration, Engineering, Architecture Planning and Design, Memorial Stadium West, K-State Welcome Center, Peter’s Recreation Center, and West Stadium. These architectural efforts connected with a high-performance landscape will contribute K-State’s achievement of its goal to be a Top 50 public research university.

Dilemma

K-State’s campus aesthetic is accepted and resolved, and management procedures are in place to maintain this aesthetic. However, here lies an emerging opportunity to challenge the campus aesthetic to marry social and ecological performance criteria. Coupling social living with ecological systems is a missed opportunity for K-State’s exterior environments.

K-State’s landscape aesthetic is not performing socially or ecologically to its fullest potential.

There are two parts to this dilemma:

the social component and the ecological component. The campus’s wide open spaces do not provide amenities for students, faculty, and staff to use. They simply become transitory spaces; users commit to the sidewalks and hardly wander onto open lawns for relaxation or utility. While circulation is crucial for a college campus, the open spaces hold the capacity to serve users with more versatility.

The ecological component’s issue is hidden conceptually and physically. While the act of beautifying the landscape is a goal for the University, the landscape’s natural processes are masked. The natural process selected for this project is stormwater. Instead of being managed on site, stormwater is currently sheeted quickly to storm drains and piped offsite. K-State seems to hold an “out-of-sight, out-of-mind” position with managing stormwater.

Thesis

This MP+R introduces a high-performance landscape to K-State that evokes aesthetic pleasure. The Grounds Maintenance

Department’s mission is “to provide a safe, functional, and aesthetically-pleasing exterior environment for the students, faculty and staff of Kansas State University” (K-State, 2010). The department’s mission statement excludes any language of maintaining a landscape which performs well ecologically – making it less of a priority – or any language promising campus amenities.

Redefining the campus’s aesthetic with selected green infrastructure components can increase landscape performance (in ecologically responsible ways). Performance can be boosted by water conservation. Conserving water can be accomplished in numerous ways. In this project, visible water systems (rainwater harvesting, runnels, rain gardens, and dry swales) are explored for this purpose.

Campus landscape aesthetic performance can be improved by designing a community amenity that celebrates ecological processes, especially regarding stormwater, and

involves the campus community in the design process.

Visibly celebrating stormwater on site enables people to identify with an ecological process. The users’ response to the landscape should be one of identification and appreciation for sustainable ecological objectives involving stormwater (Nassauer 1992, 240). Appreciation and support for ecological initiatives can only be earned when people positively perceive the initiatives within a familiar place (Gobster, et al 2007, 969). In order to gain support for ecological initiatives, the campus community should be involved in the design process for the reimagining of a campus landscape aesthetic.

Operational Definitions

Before proceeding forward, key operational definitions need to be established.

These terms are repeatedly used in this document. Their definitions have been adapted from relevant literature and the Oxford English Dictionary.

Appearance

Perceivable with sight, this term is based on visual stimulus. The most concise, appropriate definition of appearance for this MP+R is “an impression given by [...] something” paired with the act of “becoming visible” (Oxford University Press 2012a).

Performance

Performance is measured by the landscape’s capabilities and successes (Oxford University Press 2012b). These are defined by the quality of ecological function connected with user experience which is influenced by impressions (Czerniak 2001 & Meyer 2008). Emphasis is on the didactic experience of the landscape not just the transient qualities of appearance.

Aesthetics

Elizabeth Meyer determines that “aesthetics” is at the intersection of appearance and performance and can be defined as “the philosophy and science pertaining to sensuous perception and the criticism and appreciation of the beautiful”

(Meyer, 2008, 22). Aesthetics pertains to the ephemeral and enduring experiential qualities of the landscape.

Methodology

A 21st Century Campus Aesthetic is a Master’s Project and Report (MP+R) that fulfills the landscape architecture departmental degree requirements of K-State’s College of Architecture, Planning, and Design (APDesign).

The MP+R process has been led by Laurence Clement, Jon Hunt, Shreepad Joglekar, and many others. My supervisory committee, composed of the professors named, guided the project process and made certain all APDesign completion requirements were fulfilled. Four checkpoints offered a formal discussion of project progress. Numerous informal meetings with committee members ensured transparent communication and

on-course project development. The depth and meaning of this project is attributed to each professor’s commitment to the success of this MP+R.

The entire academic year has been dedicated to this MP+R. Personal research and development of project interests began in August 2012. Efforts in the fall were directed toward reviewing relevant literature, establishing a project framework, and formulating and conducting research methods. These efforts culminated into a project proposal.

The two research methods employed were photo journalism and design. The spring semester focused on research analysis and

the design of a new campus landscape aesthetic. Each project task in relation to time can be viewed in Figure 01.01. The key components in the design process and their relationship to one another are illustrated in Figure 01.02. These two diagrams illustrate an organized, expeditious project.

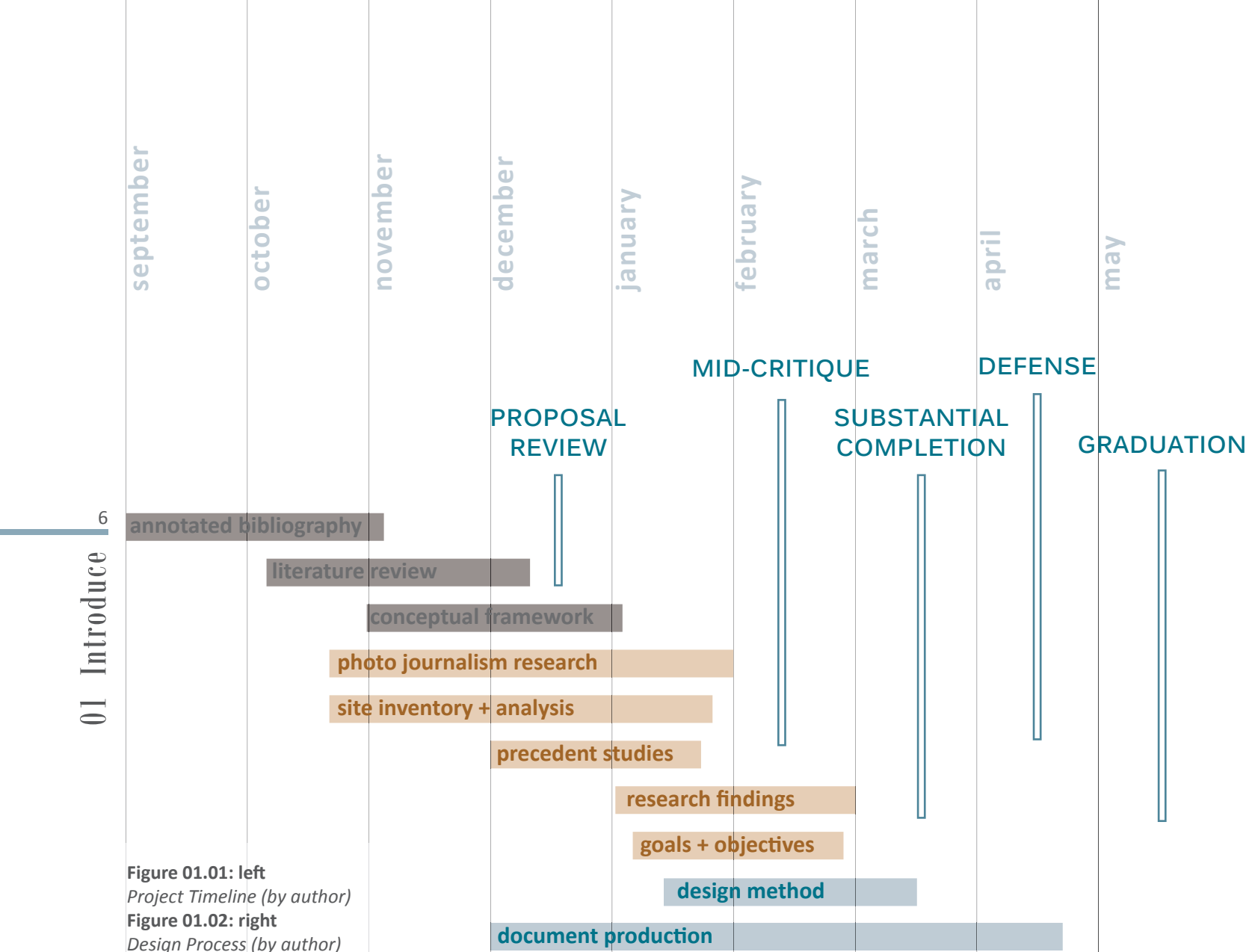


Figure 01.01: left
Project Timeline (by author)

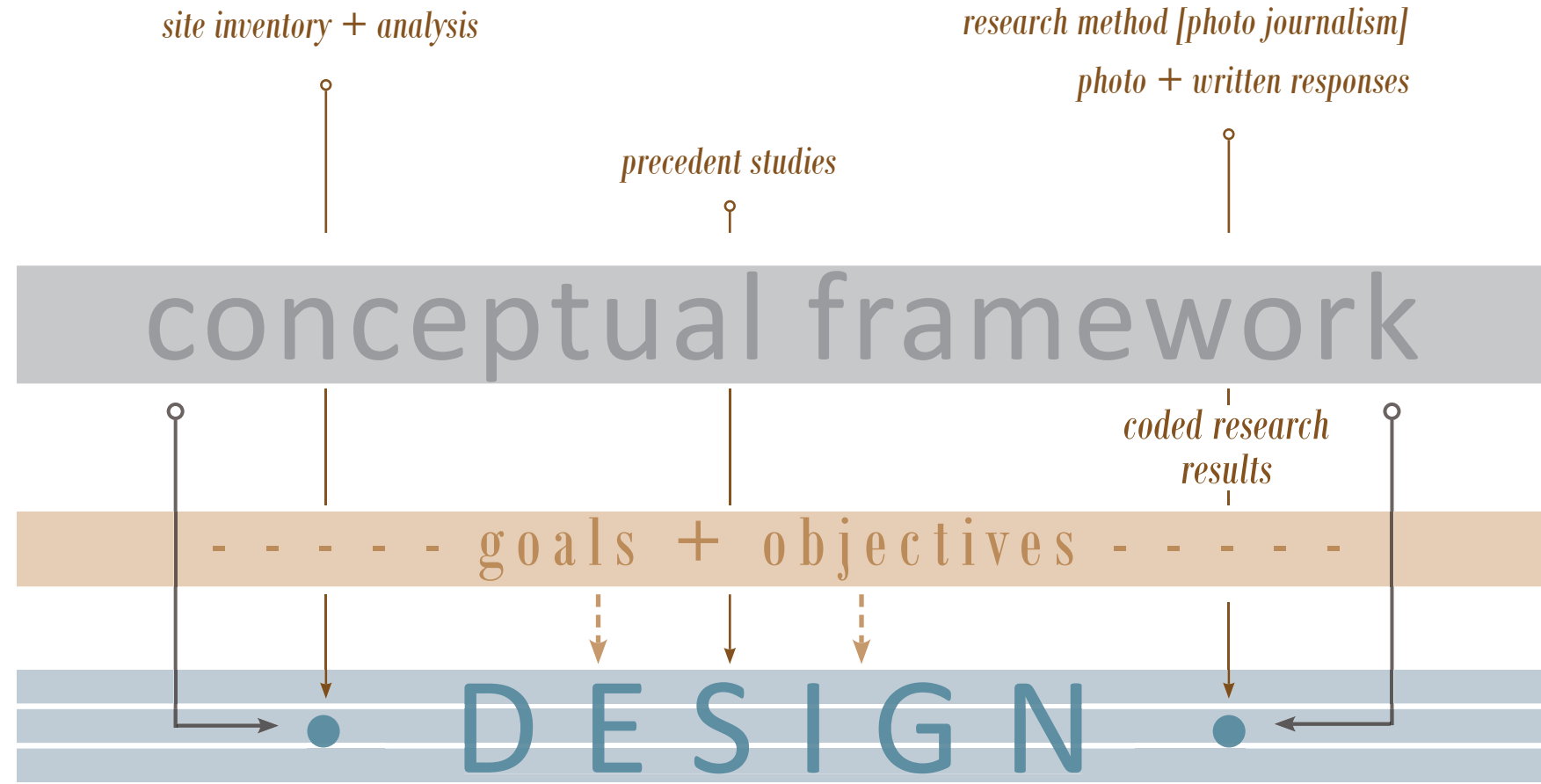


Figure 01.02: right
Design Process (by author)

Confirm 02

This chapter presents the literature review. It was created by synthesizing the annotated bibliography in Appendix B.

Literature Review

Familiarizing myself with scholarly literature on the topics my MP+R is addressing helps to validate my design efforts. After researching, reading, and analyzing, I created an annotated bibliography of all the literature. This can be viewed in *Appendix B*. The annotated bibliography helped me synthesize the large body of text into a literature review that is concise, analytical and informative. The literature review is broken up into four sections: pairing of aesthetics and ecology, landscape perception and change, identification, and design. Figure 02.01 graphically illustrates the literature.

Pairing of Aesthetics + Ecology

To start, Elizabeth Meyer’s manifesto, “Sustaining Beauty – The Performance of Appearance,” truly draws out the heart of many other authors in this literature review. The overarching position is that aesthetics matter. Beauty holds value beyond appearance, but appearance itself cannot be discredited. Meyer argues that appearance can perform (Meyer 2008, 9). Beauty will always move people’s emotions and contribute to their experience of a place.

While beauty and appearance are being upheld by many authors (Spirn 1988, Nassauer 1992, Gobster, et al, 2007, Meyer 2008), these same landscape

architects are still advocating for ecologically conscious designs. The literature is clearly pairing aesthetics and ecology. It is noted that the trend is swinging toward this pairing, rather than separating the two. In the past, ecological systems and features were hidden or camouflaged by what was coined beautiful. Beautiful landscape features were used to hide “landscape functions that might be perceived as unattractive” (Nassauer 1992). Ecological system management was dodged by the “out of sight, out of mind” mentality. An example is the management of stormwater in urban settings. Traditionally water is sheeted offsite and directed towards storm drains which carry the water to

a distant treatment facility. The new approach would be to responsibly manage the water on site.

Aesthetic appearance is what people notice in the landscape. This talk of adding ecology to aesthetics means that ecological features must become noticeable. To become noticeable to the untrained eye, ecological components must be physically visible. It is the designer’s role to create visible ecological systems. Thus making what was unperceivable perceivable (Mozingo 1997).

Some authors continue to formulate and improve this design theory (the coupling of ecology and aesthetics) while others have materialized this theory into

designed projects. Theory-based authors are rich in this literature review (Gobster, et al 2007, Nassauer 1992, Meyer 2008, Spirn 1988). Authors who have analyzed or embedded this theory into designed projects include Stuart Echols (2008) and Eliza Pennypacker (2008), Anita Berrizbetia and Michael Van Valkenburgh Associates (2009), and Robert France (2003).

Design

Design theory is foundational, yet it needs to be put into practice. Design interventions, as an approach, can encourage better alignment of human values, social living and ecological goals (Gobster, et al, 2007). Designs can reach this alignment by revealing and

embedding ecological solutions into social routines and spatial practices (Meyer 2008, 50). Echols and Pennypacker’s creation of artful rainwater design is a precedent for a forward-thinking design solution. Their designs go further by introducing an amenity to the community while simultaneously exposing and celebrating the ecological process of rainwater. The amenity is the spatial area that invites social gatherings that before was nonexistent or underutilized.

Louise Mozingo identifies design criteria that can be used to better align social-cultural patterns and ecological makeup. The design criteria include: visibility, temporality, reiterated forms,

expression, and metaphor (1997, 50). By addressing these design criteria socially and ecologically, landscapes can become iconic. Becoming iconic allows the design to make a social statement while still embodying ecological goals.

Landscape perception + change

Advocating the pairing of a beautiful appearance and sustainable ecological features suggests changing the existing landscape. Changing the landscape without consulting and addressing the needs/expectations of the community is unwise. Therefore, designers should consider the community's response to a landscape and the acceptability of altering it. Perceiving landscape features, through

the senses, dictates the users' response to the landscape. Designers need to remember that landscape perception is a social process (Nassauer 1992). People's perception is based on past experiences, memories, stimulated senses, and relationships with other users.

Identification

Landscape perception is based on what people identify with. People identify with familiarity and what they are drawn to in a landscape. Russ Parsons and Terry Daniel have conducted psychological research in "Good Looking: In Defense of Scenic Landscape Aesthetics" which proves that people prefer scenic landscapes (2002, 53). These two researchers state that

people's preferences for scenic landscapes are not trivial or highly malleable (53). People will always be drawn to beauty which cycles back to Meyer's argument: beauty itself performs. Beauty performs because it is what people can identify with and stimulates emotional reactions. Because beauty is so influential it cannot be discounted, but must be the catalyst to the identification of ecological systems. Identification in beauty and ecology will hopefully encourage positive "environmental attitudes and ecologically responsible behaviors" (54).

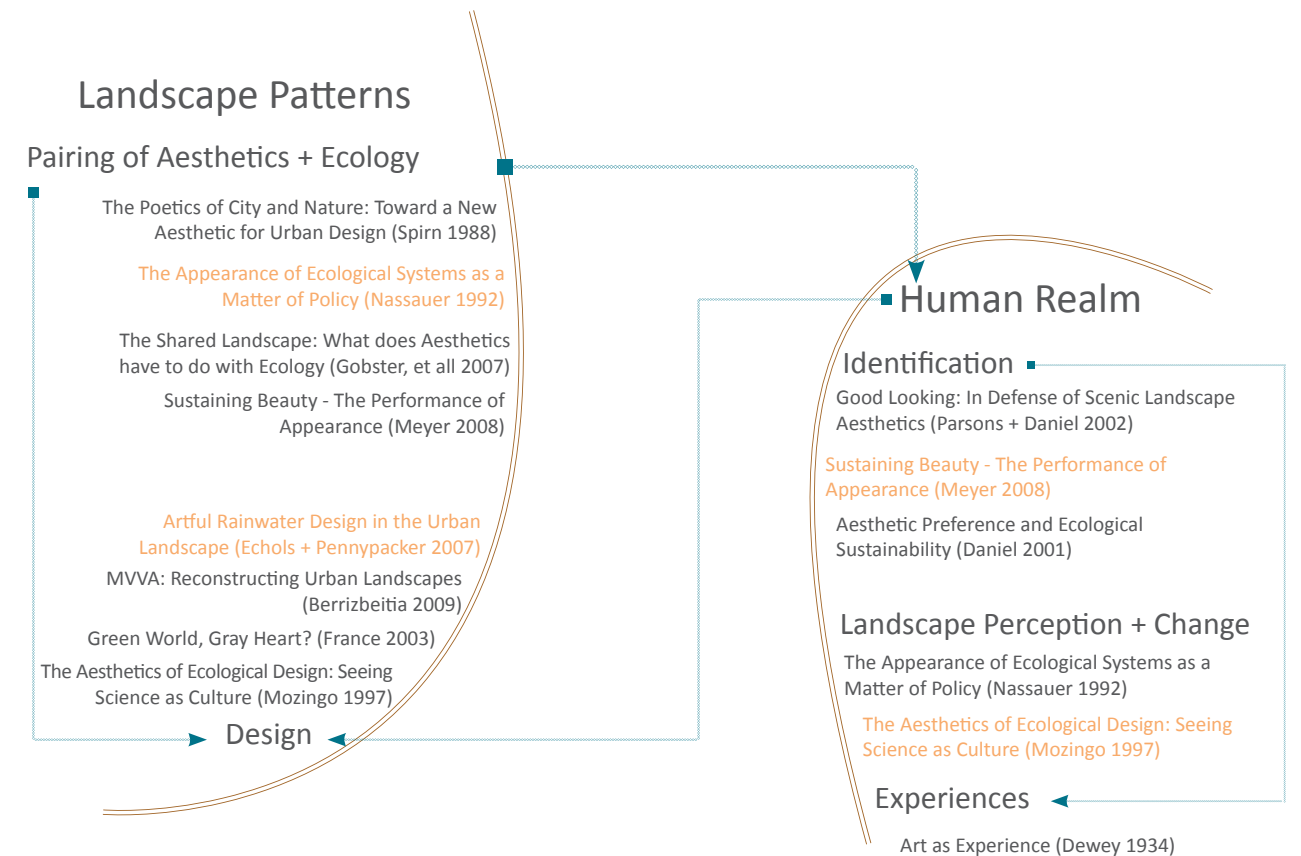


Figure 02.01:
Literature Map (by author)

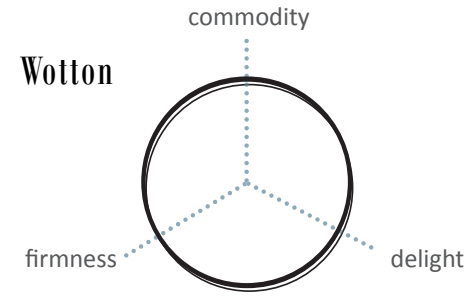
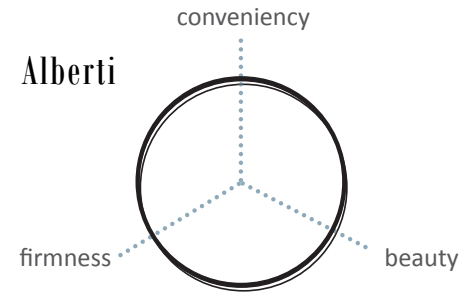
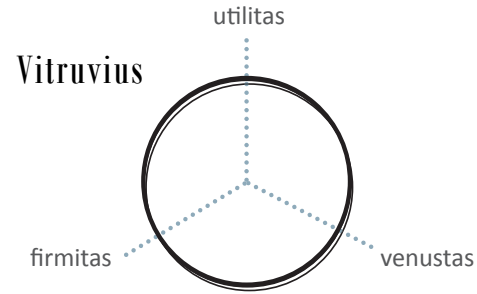
Frame 03

This chapter outlines the conceptual framework that informs my methodology. The framework is expressed in written descriptions, diagrammatic, and matrix form.

Conceptual Framework

A conceptual framework guides, directs, and narrows design efforts toward design solutions. It references scholarly work to increase design validity. A framework normally includes a series of categories.

This MP+R models its underlying framework from the Vitruvian Triad for good building design “firmitas, utilitas, and venustas”(Capon 1999, 30-1). Architectural theory has used this triad for centuries. It has undergone processes of modification and variation. Leon Alberti was one of the first to modify Vitruvius’ categories to “firmness, conveniency, and beauty” in the 15th century (25-7). In the early 17th century, Henry Wotton created the well-known English categories of



“firmness, commodity, and delight” (21-2). He credits his work to Alberti and Vitruvius. Figure 03.01 displays the progression and linkages from one framework to the next; each framework is represented as a wheel with three spokes/categories.

The wheel’s three categories are modified again for this MP+R. Wotton’s “firmness, commodity, and delight” are modified into “design construction, social utility, and aesthetic response + meaning.” My conceptual framework also adds a fourth category: ecological performance. As discussed in the literature review, ecology (alongside aesthetics) is a critical component of a comprehensive landscape design (Meyer 2008). To understand

the complexity and importance of each category, attributes have been assigned. The attributes play an important role as in the project’s methodology. Descriptions of each attribute are listed below; each is paired with a collection of keyword examples. This conceptual framework is illustrated in Figure 03.02.

The following written descriptions are supplemented by a matrix which concisely lists each framework category, attribute, and associated keywords (see Table 03.01 for reference).

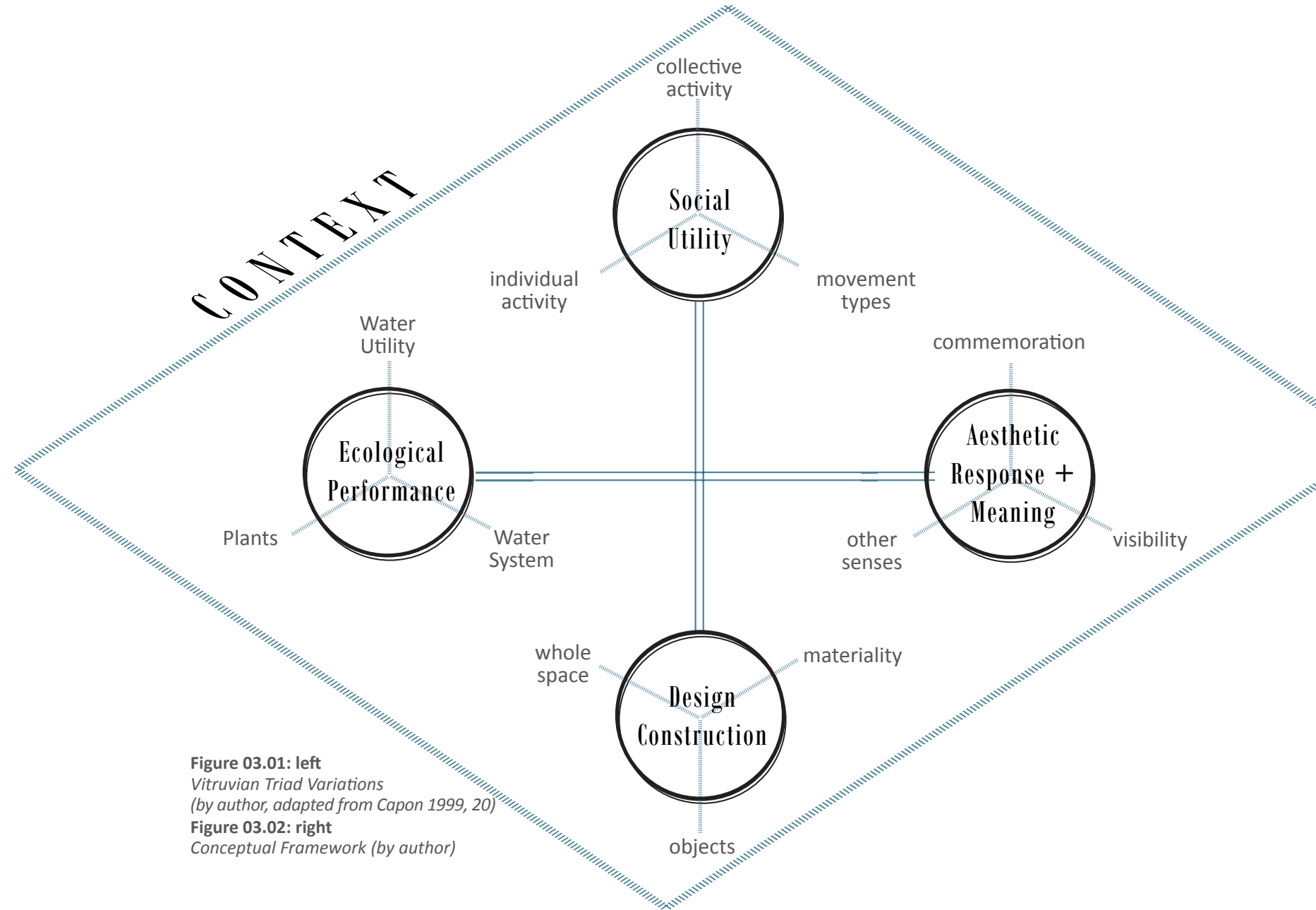


Figure 03.01: left
Vitruvian Triad Variations
(by author, adapted from Capon 1999, 20)

Figure 03.02: right
Conceptual Framework (by author)

Design Construction

Materiality

Materiality refers to the surface of design elements present on site. Color, texture, finish, porosity, density, and aging are all important factors to observe. An intricate variety of materiality conditions is an important criterion for design construction (Berrizbetia 2009) and exhibits care for the designed landscape (Nassauer 1992). Attention to detail at this small scale greatly impacts the overall appearance at a site scale. *Keywords: concrete, metal, stone, wood, glass, turf, bark, foliage*

Objects

Objects in a landscape can be evaluated individually for their function and durability. They can also be observed collectively. Objects can relate to one another by being a part of the same design series (different shapes/functions yet consistent aesthetic character). Individual objects can be stationary or moveable in the landscape. *Keywords: light poles, trash receptacles, furniture, directory, plaque*

Whole Space

Collective observation of the whole space's design construction takes place at the largest scale. Design details merge together to create a character or aesthetic. Observing the site as a holistic composition helps to identify dominant features and the subtle elements that define the site's spatial character (rustic, contemporary, traditional, naturalistic). *Keywords: architectural character, composition of trees and shrubs*

Social Utility

Collective Activity

The site can offer space for community activities and social gatherings. People will use a space for a social gathering if it accommodates their activity. These communal activities range in size and can be planned or spontaneous. *Keywords: academic class, meeting, interview, party, recreational sport*

Individual Activity

People can actively participate in a space by themselves. Their activity in the

landscape can be service related or not. Service related activities most likely are connected with employment. Activities unrelated with work or service are commonly identified as leisurely. *Keywords for Leisure: walk, run, bike, people watch, read, sleep; Keywords for service: landscape maintenance, custodial duties*

Movement Types

Circulation is always a critical component of design utility. The mode of travel people choose to use through a space needs to be noted. The site should not have to be navigated; circulation paths need to be clearly defined. The landscape should offer efficient routes to popular destinations while also prioritizing a pleasurable experience through the site. *Keywords: walk, run, skateboard, bike, drive*

Aesthetic Response + Meaning

Visibility

Based on a user's location, orientation, and elevation, the site can be viewed in different ways. Design elements can frame views to emphasize a landscape

feature (Ching 2007, 179). While traveling through a space, a sequence of views could be a journey in itself. Views can also be unobstructed to allow a user to experience a vast space. Most importantly, the quality of light a space receives influences visual perception. Night lighting especially can detract from or enhance a user's aesthetic response. *Keywords: views, vistas, panoramas, Zen views, amount of light*

Other senses

While sight is a critical component of aesthetic response, a user's experience on site is also influenced by other senses. An interesting observation – people can respond to their environment due to a sensed smell or sound that is not even in the space they are standing in – making adjacent spaces influential. *Keywords for Sound: music, wildlife calls, rain, people; Keywords for Smell: food aromas, rain; Keywords for Touch: hardscape, softscape*

Commemoration

A space could serve the purpose of commemorating an individual, group of

people, or event. Commemoration can be accomplished through an object, scene, or textual design feature. The materiality and setting of the commemorative space or object sets the tone for what is being remembered or honored. The site's appearance also influences the meaning of the space. *Keywords: plaque, inscription, metaphor*

Ecological Performance

Water Utility

Water is used and moved in numerous ways on a project site. Traditional urban landscapes do not focus on water's utility; they tend to manage water by collection, conveyance and disposal in storm drains, and embrace the "out of sight, out of mind" mentality. Ecological performance is increased when water is kept on the surface as much as possible. *Keywords: conveyance, detention, retention, filtration, infiltration*

Water System

Stormwater management systems strive to recreate nature's water management

process in an urban setting. Onsite water management is a priority for ecological performance. The selection of systems to implement is based upon the utility needed (water storage, decreased runoff, groundwater recharge, or water away from the building) (Echols and Pennypacker 2008, 270). *Keywords: irrigation, storm drains and pipes, bioswales, rain gardens, harvesting cisterns, constructed wetlands, porous pavement*

Plants

To have the highest ecological performance value, a landscape's plant palette should be native to the region. The plant types also need to complement the function of the space: shade, filter, screen, or space definer. A successful plant palette will also be contingent on how much water it will receive. *Keywords: native, non-native, invasive, drought-tolerant, water loving*

This variation to Vitruvian Triad will guide my design process. Balance will be desired as I juggle the four aspects of performance: design construction, social utility, aesthetic response + meaning, and ecological performance. It is important to note that Vitruvius, Alberti, and Wotton expressed little regard to context (it may have been assumed or implicit in their writings). However context, as Francis Ching emphasizes, is crucial to any balanced and informed design (Ching 2007, XIII). The large ring encompassing the framework wheel represents context (Figure 03.02).

The social and ecological context of K-State, Manhattan, and the Flint Hills region must influence the design. A design that is contextually specific can then become culturally relevant and sensitive to the community's expectations and the landscape's needs.

Table 03.01:
Conceptual Framework Matrix (by author)

Framework Category	Subcategory	Description	Keywords
Design Construction	Materiality	The surface(s) of design elements	concrete, metal, stone, wood, glass, turf, bark, foliage, petals
	Objects	Individual objects present on site	light poles, trash receptacles, furniture, directory,
	Whole Space	Collective observation of the whole site for design construction	architectural character, composition of trees and shrubs
	Social Utility	Collective Activity	Activities the site offers for community activities and social gatherings
Individual Activity		Activities an individual partakes in (either service related or not)	<i>Leisure:</i> walk, run, bike, people watch, read, sleep <i>Service:</i> landscape maintenance, custodial duties
Movement Types		Modes of travel through the site	walk, run, bike, skateboard, drive (gator for maintenance)
Aesthetic Response + Meaning	Visibility	Ways the site is being viewed	views, vistas, panoramas, Zen view, amount of light
	Other Senses	Stimulated senses other than sight	<i>Sound:</i> music, wildlife calls, people <i>Smell:</i> food aromas, rain, gasoline <i>Touch:</i> hardscape, softscape plaque, inscription, metaphor
	Commemoration	Particular ways to commemorate	
Ecological Performance	Plants	Plant type used on site	native, non-native, invasive, drought-tolerant, water loving
	Water Utility	Use of water	conveyance, detention, retention, filtration, infiltration
	Water System	Management of water on site	irrigation, storm drains and pipes, bioswales, rain gardens, harvesting cisterns, constructed wetland

Orient 04

This chapter introduces the project site: K-State's Coffman Commons. A brief background on Dr. James Coffman is presented and the history of Coffman Commons is shared.

Project Site

This MP+R the design of a community amenity for K-State's Coffman Commons. Coffman Commons is the green space located south of Hale Library and east of Seaton Hall. It is adjoined to the central spine of campus (running against Seaton) which activates its western edge. It also serves as the transitory space for users on the east side of campus to reach the Union. Figure 04.01 maps the location of Coffman Commons at four scales (within Riley County, the city of Manhattan, and K-State's campus).

Coffman Commons is highly trafficked but rarely do people stay in the space longer than the time required to move through it. Hale Library and the Student Union are key destinations, with the Commons floating in the middle. Yet this space could house a community amenity that enhances the users' journey as well as creates a new destination for social gathering.

This site also has potential to highlight rainwater as it slopes steadily towards Mid-Campus Drive (as an east-facing slope).

The slope will allow gravity to activate the designed visible water systems.

The opportunity to commemorate Provost James Coffman is another advantage to selecting this site. Dr. James Coffman became Provost in 1987 and served for seventeen years, prior to that he was the Dean of the College of Veterinary Medicine. K-State's current provost April Mason complimented Coffman's emphasis on promoting "K-State's strength as a true student-centered research university" (Richardson 2010). To show its great appreciation of Dr. Coffman, the university community renamed and dedicated this space to him in November of 2010.

Kansas State University, Manhattan, Kansas

coffman commons

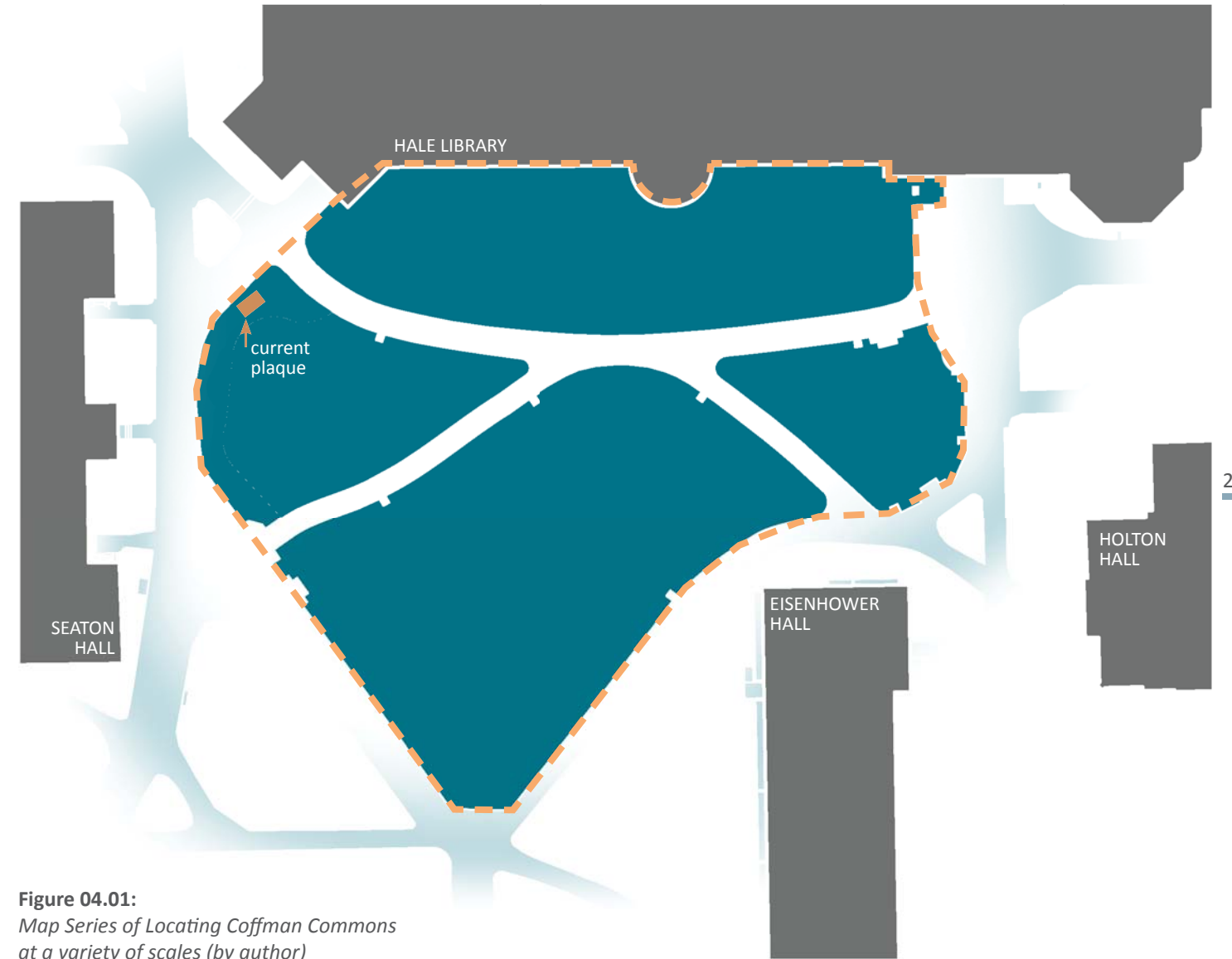


Figure 04.01:
Map Series of Locating Coffman Commons
at a variety of scales (by author)

Dr. James Coffman

To commemorate Dr. Coffman, a small plaque rests in the planting bed on the northwest end of the site (Figure 04.02).

The plaque rests on a piece limestone. It is nestled in with the grasses and shrubs adjacent to Hale’s loggia entry. Dr. Coffman’s profile is etched in front of a sketch of the Commons. The text is written below:

*“Coffman Commons
Named in 2004 to honor Provost James R. Coffman. The area south of Hale Library was named Coffman Commons in recognition of Dr. Coffman’s many valued contributions to Kansas State University. This area was restored to green space for use by the K-State community for outdoor activities and studying.”*

Dr. James R. Coffman received his B.S., D.V.M. and M.S. degrees from Kansas State University in 1960, 1962, and 1969, respectively. He was in equine practice in Wichita (1962-65) and Oklahoma City (1969-71) before joining the faculty at the University of Missouri in 1971 to 1984,

dean of the College of Veterinary Medicine from 1984 to 1987, and provost of Kansas State University from 1987 to 2004.”

I had the honor of meeting Dr. Coffman, thanks to Dr. Jana Fallin. During our meeting, I gathered Dr. Coffman’s love for teaching. His priority is honoring teaching excellence in K-State’s faculty, which mirrors K-State’s “commitment to excellence in undergraduate teaching and learning” (Kansas 2012).

When I spoke of my MP+R, he became excited thinking of Coffman Commons’s potential. In response to my inquiry of his wishes for the space, he once again spoke not of himself but for others. He desires for the Commons to hold a pronounced display for distinguished faculty.

Each year the University awards a superior faculty member the title of Distinguished Teaching Scholar. For his or her elected year, the recipient scholar acts as the Coffman Chair for University Distinguished Teaching Scholars. The Coffman Chair works

to “advance the interests of undergraduate teaching and learning at Kansas State” (K-State 2012). This Chair was named in honor of Dr. Coffman because of his dedication and exemplary leadership in scholastic teaching and learning.

Currently, the University exhibits these scholars on a plaque in the entry hall at Hale Library alongside other University distinctions. Bringing this display to the adjacent exterior space will complement the indoor hall of recognition.

Incorporating this display of distinguished faculty in Coffman Commons will serve a number of beneficial purposes: honor to these faculty members, accountability for excellence, and respect for Dr. Coffman.



Figure 04.02: (by author)
Plaque Commemorating Dr. Coffman

History of Coffman Commons

The landscape that has been dedicated to Dr. Coffman has not always been a place. Until 2004, Denison Hall spanned most of Coffman Commons. Denison Hall, servicing the Department of English, was completed in 1960 (University Archives 2012). Farrell Library (now known as Hale Library) was just north of the English building.

Over time the Library has received multiple additions. The most recent expansion/renovation was in 1997 (2012) by Brent Bowman a Kansas State alumnus in architecture (CAPD 2002). Because of Denison Hall's proximity and orientation, the Library's new southern façade had to be manipulated to comply with the English building. This explains Hale's long western entrance through the loggia and the lower eastern entrance. Figure 04.03 models Denison Hall's location on the site.

In 2004, Denison Hall was demolished (University Archives 2012). For six years, the green space south of Hale did not have a name but served as a Great Lawn. In 2010 this Great Lawn was dedicated in

honor of Dr. Coffman. Thus, the site is now known as Coffman Commons.

Envisioning a community amenity for this space will be prototypical for K-State and could spur action for rethinking the performance of other open spaces on campus. Furthermore, a performance-driven design for Coffman Commons will enrich the space set apart to honor Dr. Coffman. Using Coffman Commons for this MP+R also complements his efforts for promoting a student-centered research university. Performance research conducted in this space will inform a design that can stimulate learning and increase enjoyment of the place.

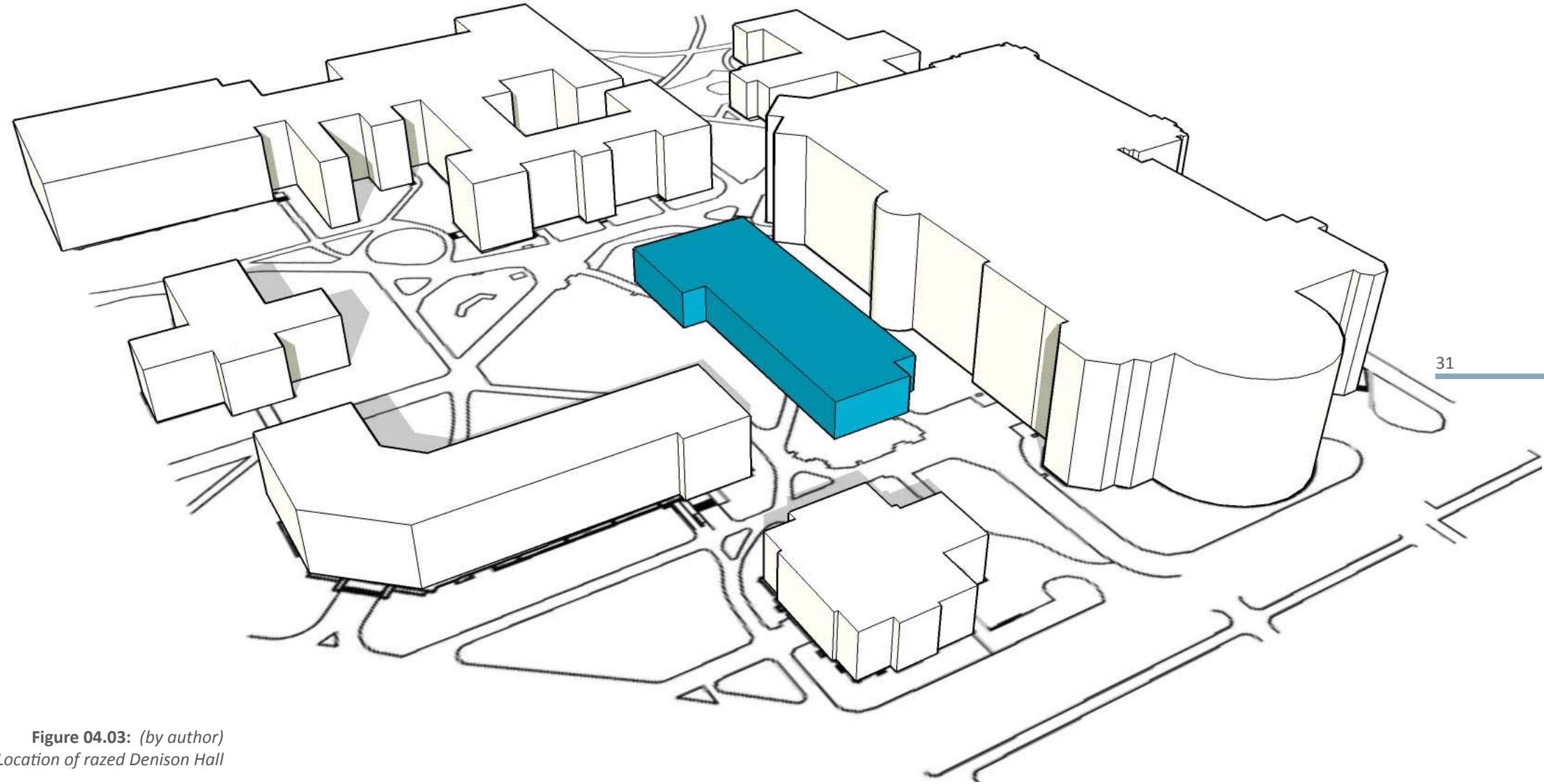


Figure 04.03: (by author)
Location of razed Denison Hall

Discover 05

Through research discoveries are made. This chapter introduces the research methodology for this MP+R.

Research Methodology

An aesthetic change to Coffman Commons is being proposed in this MP+R. Understanding the aesthetic response to this place is crucial before proposing landscape change or expecting it to manifest (Gobster, et al, 2007, 971). I cannot know how a landscape is performing socially without communicating with its people. The local residents of a landscape can offer the most valuable opinions of their aesthetic preferences and expectations. There must be a line of communication open with students, faculty, and staff who are familiar with Coffman Commons.

Aesthetic responses of students, faculty, and staff needed to be collected as well

as my own aesthetic response as the designer of this space. A photography-based research method was conducted for this MP+R to learn of aesthetic responses. Photography is a medium which allows someone to “confer importance” to an object, scene, or process (Sontag 2005, 22, 146). Anne Spirn emphasizes that photography is an act of discovery; discovery of that which is being photographed as well as a journey for the photographer (Spirn 2012). She notes that photographs themselves “record experience, embody ideas, often ‘something I didn’t know I knew,’ and [...] chart a path to be divined” (12).

Photography-based research methods

are not new, but one method is an emerging favorite for understanding people’s responses and experiences to the landscape. Instead of the researcher taking the photos and giving them to people for a response (known as visual preference studies – normally with a survey or interview), researchers are now asking their subjects to take the pictures as a response to the landscape. This method is called Visitor Employed Photography. Visitor employed photography (VEP) was created in the 1970s by Gabriel Cherem “as a technique for the collection of public images of the landscape” (Chenoweth 1984, 136). The method is described in detail in the annotated bibliography in *Appendix B*. In

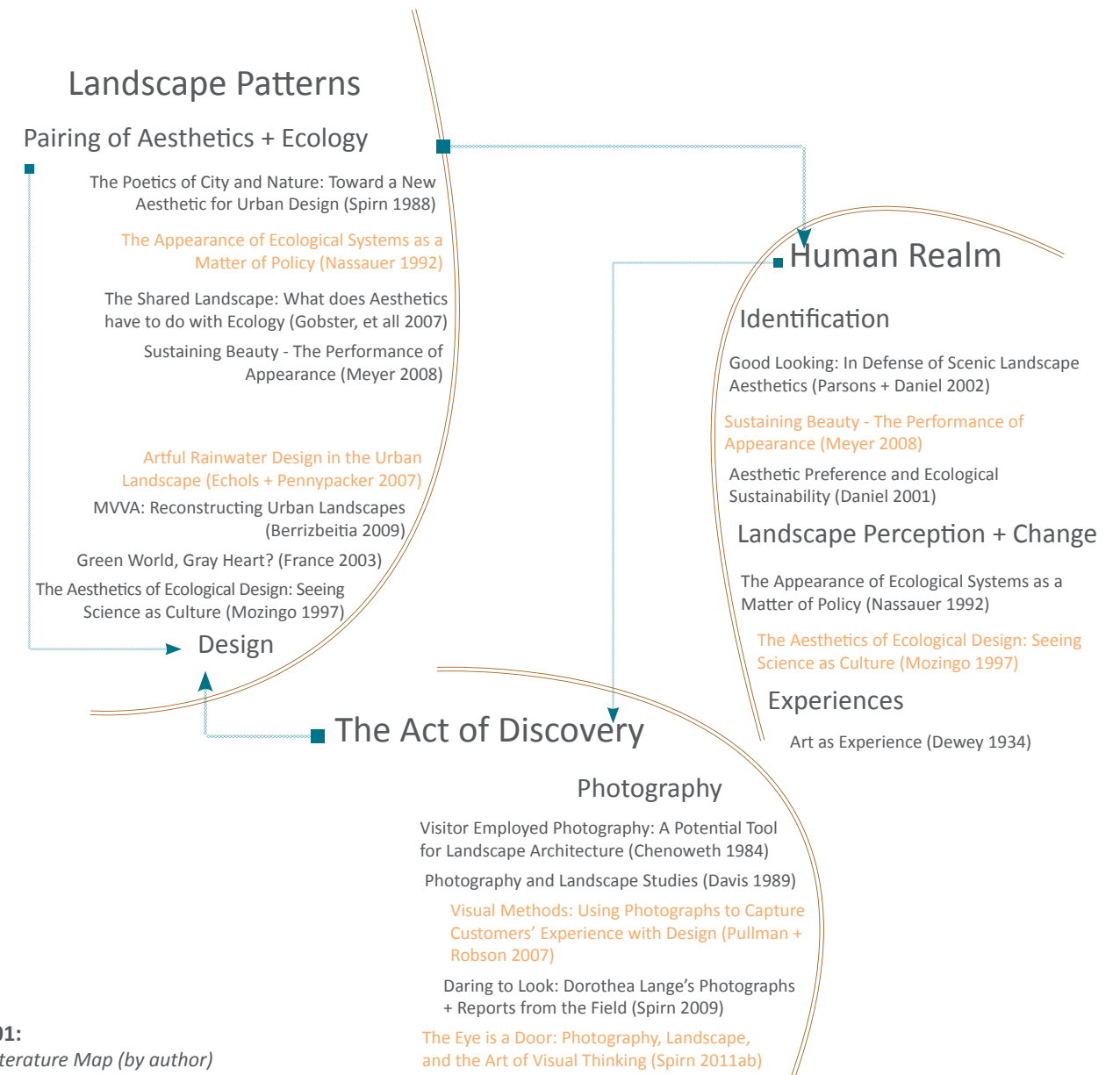


Figure 05.01:
Expanded Literature Map (by author)

terms of landscape aesthetics, on which this MP+R was focused, VEP “appear[ed] to deserve serious consideration [...] for understanding people’s reactions to the landscape and for preserving, maintaining, restoring, or enhancing scenic beauty” (142). This MP+R fastened with VEP because of the dense literature supporting it (Cherem 1977, Chenoweth 1984, Pullman and Robson 2007).

While it might seem to be separate, this literature is interconnected with the aesthetics literature discussed in chapter 03 *Confirm*. Photography, as an act of discovery can influence the design of aesthetics and ecology. Photography also is appreciated and ultimately controlled by the human realm. People choose to use photography to help identify with, perceive, or change an aspect of the landscape. Literature relationships are expanded in Figure 05.01 as it maps the connections between photography, the human realm, and the pairing of aesthetics and ecology.

Researchers have distinguished “three photography-based research methodologies, namely, photo journaling, photo interviewing, and photo surveying” (Pullman and Robson 2007, 124). These are essentially three techniques for performing visitor employed photography. In this project photo journaling was the primary technique for acquiring aesthetic responses of Coffman Commons.

Photo Journalism

This technique combines the act of taking photographs and keeping a journal. Timing can vary for when the journal is created. It can be simultaneous, where the observer documents thoughts, questions, and insights as photos are taken. Alternately, the observer can create the journal after a period of photography sessions as a reflection of his/her experience.

This technique was applied to myself, the designer. I desired to journey on this “act of discovery” as Sprin mentioned to discover aspects of Coffman Commons that otherwise would have been unnoticeable

to me. Participating in this technique allowed me to constructively document my thought process which directly informed and aided my design process.

The photo journaling technique also was conducted with K-State students, faculty, and staff. Collecting their aesthetic responses to Coffman Commons supplemented my aesthetic responses to influence the design. The procedure for the research participants follows: The participants met with me in Coffman Commons. The day and time were modified to fit each participant’s schedule. The photo journaling session was about thirty minutes long. I gave the research participants three prompts; two of which had a journalism task following.

- **Prompt #1:** Orient yourself with the site by capturing a few photographs of Coffman Commons (perhaps you will discover something you have not noticed before).
- **Prompt #2:** Photograph aspects of Coffman Commons that you perceive

as aesthetically pleasing.

- **Journalism task:** Document in writing your reactions, thoughts, and ideas about Coffman Commons after capturing its pleasing aspects.
- **Prompt #3:** Photograph aspects of Coffman Commons that you perceive as aesthetically displeasing.
- **Journalism task:** Document in writing your reactions, thoughts, and ideas about Coffman Commons after capturing its displeasing aspects.

The prompts and tasks were adapted from Madeleine Pullman and Stephani Robson’s photography-based research for the hotel business (2007); a summary of their research can be found in the annotated bibliography in *Appendix B*. For each prompt I encouraged the participants to take approximately 5-10 photos. This forced each person to have a critical eye and be selective; it also made the photographic analysis process manageable for me. Once I collected the participants’ written responses from prompt #2 and #3, we made arrangements for me to receive

their photographs. After this was settled, the participants were free to leave as the research study had ended.

With timing being a limiting factor, only a small group of individuals were asked to engage in this study. Having a small number of participants increased the need for strategic selection. Key individuals were identified by their involvement, knowledge, and appreciation for Coffman Commons. An inquiry to participate in the research study was presented to ten individuals, six of them accepted and participated. A limitation to this method was that four individuals did not participate, as they never responded to the inquiry.

This photography-based research method, photo journalism, was carried out to inform the design of a community amenity by gaining an understanding of the aesthetic responses to Coffman Commons. To inform the design, content analysis was conducted of the photographs and written responses. This

analysis process was also adapted from Pullman and Robson’s research (2007).

All photographs were separated out in reference to their prompts: initial reaction, aesthetically pleasing, aesthetically displeasing. After being clustered into these three groupings, the photos were inventoried and analyzed using the conceptual framework (Figure 03.01). The attributes of the framework become the criteria for content coding of each photograph:

- **Materiality:** the surface(s) of design elements
- **Objects:** individual objects present on site
- **Whole space:** collective observation of the whole site for design construction
- **Collective Activity:** activities the site offers for community activities and social gatherings
- **Individual Activity:** activities an individual partakes in (either service related or not)

- **Movement Types:** modes of transportation through the site
- **Visibility:** ways the site is being viewed
- **Other Senses:** stimulated senses other than sight
- **Commemoration:** particular ways to commemorate
- **Plants:** plant type used on site
- **Water Utility:** use of water
- **Water System:** management of water on site

After each photograph was coded, the data was quantified. The coded results are revealed in the following chapter.

Design

After completing the photo journalism method, the method of design was conducted. The design method was used to envision the new aesthetic for Coffman Commons which offers social and ecological design solutions. This method is described in detail in chapter *07 Design*.

My research methods combine objective and subjective actions. Simon Swaffield and Elen Deming have analyzed landscape architecture research strategies and classified them into a framework (see Table 05.01). The vertical axis relates to epistemology – “that is, how we know what we know” (Swaffield and Deming 2010, 36-7); the horizontal axis

is concerned with the relationship to theory. My conceptual framework in combination with my method places me somewhere in the middle of inductive-deductive relationships to theory and towards constructive-subjective research strategies. I have highlighted my approach in Table 05.01. My method acts as a tool for discovery. The following chapter, *06 Find*, discusses what was discovered during the photographic research.

Table 05.01:

Research Strategies Framework (by author, adapted from Swaffield + Deming 2010, 37)

	Inductive	Reflexive	Deductive
Objective	Description	Modeling	Experimentation
Constructive	Classification	Interpretation	Evaluation + Diagnosis
Subjective	Engaged Action	Design Projection	Logical Systems

Find 06

This chapter presents the aesthetic response results from the photographic research method, photojournalism. Participant research results and findings are presented followed by my own.

Aesthetic Response Research Results

The aesthetic response results from the research participants are presented in the following section. As noted in chapter 05 *Discover*, each photograph from the aesthetically pleasing and displeasing prompts was coded based on the conceptual framework (Figure 03.01). The coding process was articulated through thorough content analysis of each photograph and by referencing the participant's journal entries (found in *Appendix C*). A matrix was then created to display the results of the coding process (see Table 06.01). The matrix documents the number of photographs taken according to each of the framework's attributes. To understand the distribution of the attributes photographed, the sum

of the pictures and percentage of the whole are given.

Patterns began to emerge here. Collectively, the degree of interest pointed to the plants attribute in the Design Construction category of the framework. (Italics are used in reference to the framework's attributes in the following text). The highest proportion of all the photographs taken was plants at 31%. The subsequent attributes with significant participant interest included: *whole space* at 21%; *materiality* at 16%, and *objects* at 13%. Notice these three attributes are all under the Design Construction category.

The emerging pattern was the participants'

emphasis on cosmetic features of the site. Less attention seemed to be given to the site's social performance (pictures of people or user activities). Noticeably even less attention was placed on *water systems* and *utility* of the site. The presence of plants is the only ecological feature of interest to the participants. As so, it is assumed the favoritism towards *plants* rather than the vegetation's ecological contribution to the site.

Behind the attributes for the Design Construction category, *individual activity* photographs represented 8% of the whole collection. While this number suggests that little attention was given

to site users, it has been noted that no research participant scheduled his/her session during "rush hour." Rush hour was defined as the ten minute period between university classes, where Coffman Commons becomes full of commuting people. As schedules did not work out, no research participant photographed during rush hour. Instead, they participated when classes were in session.

No photographs were coded according to these attributes: *other senses*, *commemoration*, and *water utility*. *Other senses* and *water utility* are understandable, as they are difficult to photograph. (These attributes were added to the framework to help in the

design process). Interestingly though, no photographs captured *commemoration*. During the research session brief, each participant was informed of the site's name and purpose, and Dr. Coffman's contribution at K-State. The memorial plaque for Coffman Commons was also pointed out. Even with this introduction, not one photograph was taken of this plaque in response to the aesthetically pleasing and displeasing prompts.

It is important to note that while the majority of the photographs seamlessly fit into one of the coded categories, a few photographs did not. It has been decided that some photographs stand alone as a "beautiful image." Here the photographer

was trying to capture the "inherent value" of the landscape in a single image. To maintain consistency in coding, these photographs were coded as *whole space*.

Participant Photographic Response Matrix

Table 06.01 (by author)

- aesthetically pleasing photographs
- aesthetically displeasing photographs

Framework Category	Attribute	Participant 1		Participant 2		Participant 3		Participant 4		Participant 5		Participant 6		Pictures Total	Proportion %
Design Construction	Materiality	2	5	1	1			1	2	2	1	4	1	13	16%
	Objects		2		4					2	1		1	10	13%
	Whole Space	3		2		5		1	2			4	1	17	21%
Social Utility	Collective Activity					1								1	1%
	Individual Activity	4				1				1				6	8%
	Movement Types							1					1	2	3%
Aesthetic Response + Meaning	Visibility	1		2		2								5	6%
	Other Senses													0	0%
	Commemoration													0	0%
Ecological Performance	Plants	1		2		6		1	1	4	3	4	3	25	31%
	Water Utility													0	0%
	Water System					1								1	1%

Participant Photographs

The participant photographs are shared here. The photographs are expressed as an anthology, or collection, based on a shared theme – in this case: the aesthetically pleasing and displeasing research prompts. This presentation of images is derived from photographer Dorothea Lange’s work (who has been a role model for Anne Spirn’s photography). Spirn writes of Lange’s method of grouping photographs to communicate a greater message. Lange accomplished this by “juxtaposing multiple photographs” which makes their complexity of meaning visible (Spirn 2009, 39). Exhibiting the photographs in this fashion allows the reader to recognize the themes of interest as the response matrix mathematically shows (Table 06.01).

Each picture in the anthology is noted with the associated attribute from the framework (see Figure 06.01). A brief statement accompanies the photograph collection with my interpretation and observations of these photographs and their accompanying journal entries. I do not address each individual photo. Rather, my written descriptions are in response to the anthology. Patterns are noted and support the compiled response matrix (Table 06.01).

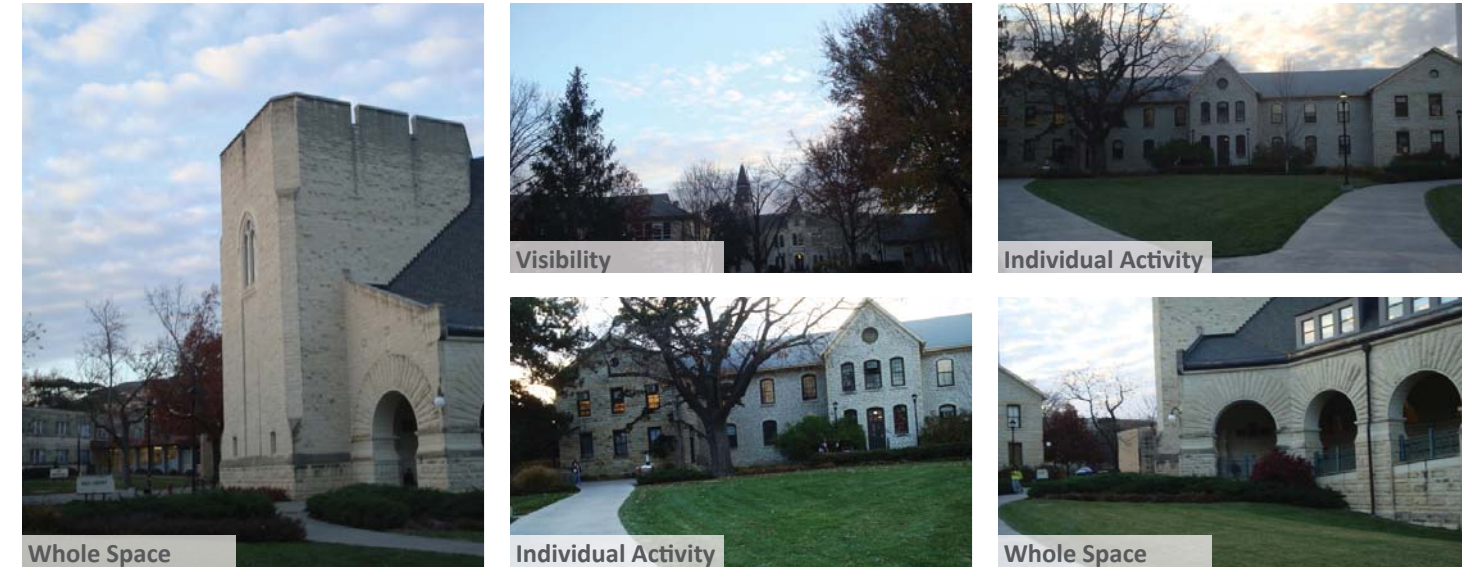
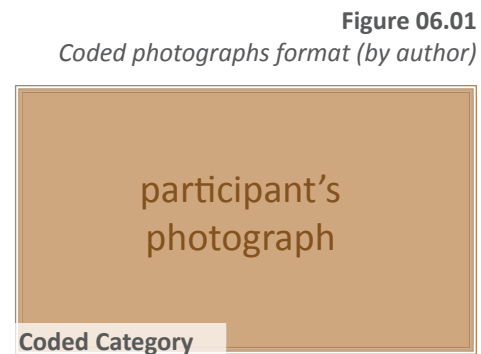


Figure 06.02: Anthology (Participant 1, 2012)

aesthetically pleasing

Participant 1 wrote her thoughts in metaphors. She mentioned her appreciation for the walkways that lead directly into the building; they reminded her of Dr. Coffman’s strength in establishing connections with others. She also appreciated Hale’s character for its history.

Participant 1

Female | K-State Interim Director for the Center for the Advancement of Teaching and Learning



Figure 06.03: Anthology (Participant 1, 2012)

aesthetically pleasing

Half of Participant 1's pictures during this prompt captured vegetation. She singled out two of the largest trees, commenting on their symbol of strength (Participant 1, 2012). She noted that this characteristic also reminded her of Dr. Coffman. The open lawn was also an interest in two of the photographs.

Participant 1

Female | K-State Interim Director for the Center for the Advancement of Teaching and Learning

aesthetically displeasing

Participant 1 chose to focus her attention on the material quality of Coffman Commons's site furnishings. For example, she snapped a photograph of the chalked description on the light pole and the inconsistent wood paneling on the trash receptacle. With the instructions of taking five to ten photos per prompt, Participant 1 took considerably more aesthetically pleasing photos than displeasing. The conclusion is that Participant 1 was more satisfied than not with Coffman Commons's aesthetic.

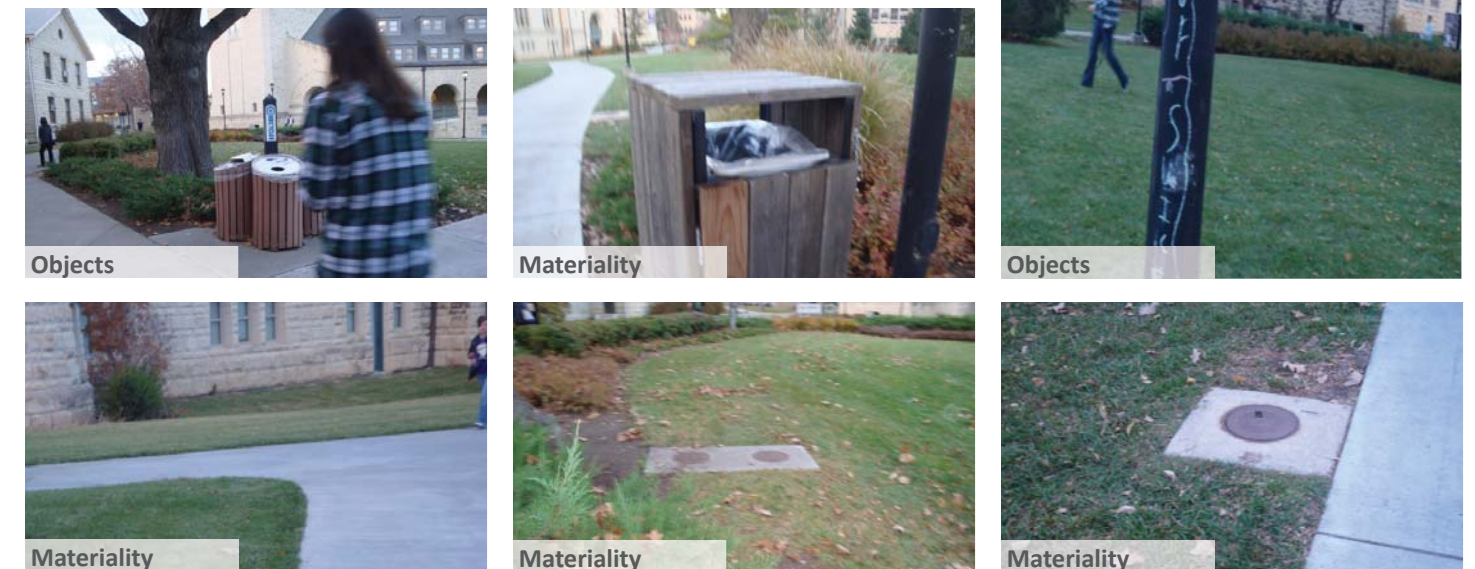


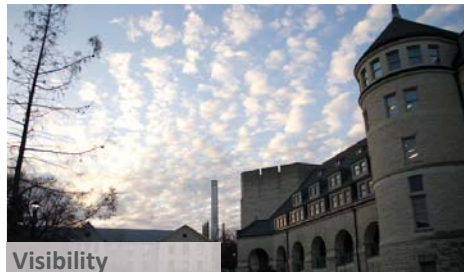
Figure 06.04: Anthology (Participant 1, 2012)

aesthetically pleasing

Participant 2's affection for Hale was evident, as the façade was in every photograph. Her written description backs this assumption. Interestingly, she spoke highly of Hale during this prompt but not of the landscape (besides the mature trees). Instead she chose to say "the lawn/grass/walkway are more of a complement to the library rather than a space in itself" (Participant 2, 2012). I understood this statement to mean that Coffman Commons is not a "space" to her.



Materiality



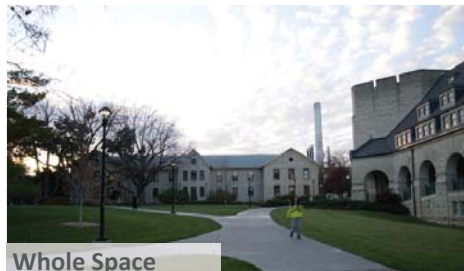
Visibility



Plants



Whole Space



Whole Space



Plants

Participant 2

Female | K-State student studying art with an emphasis in photography

Figure 06.05: Anthology (Participant 2, 2012)



Visibility

Figure 06.06: Anthology (Participant 2, 2012)



Objects

aesthetically displeasing

The focus on this prompt for Participant 2 was the site furnishings' placement on site. She notes in her journal entry that she recognizes the need for the furnishings yet is displeased with the placement of them.



Materiality



Objects



Objects



Objects

Participant 3 took photographs on his own time without the research prompts (also discussed in *Appendix C*). Written descriptions were not completed during the photo session. During a follow-up interview, I took notes as he spoke of his experience during the photo session. The following interpretation of his anthology of photographs is based upon this interview and his photographs. (Note: the photographs are presented in sequential order: left-to-right; top-to-bottom).

Participant 3 was highly sensitive to the relationship between the landscape and the buildings. Coffman Commons's wide-open space was "primitive" or "utilitarian" in nature to him (Participant 2012). He

found the right angle edge that is created where Hale and the lawn meet to be unresolved and unpleasant.

His photographs under the evergreens and in Hale's loggia promote his interest in a sense of enclosure or "defensible space" or a sense of enclosure (Participant 2012). Most of Coffman Commons does not offer such enclosure, as the rest of his photographs display.

Participant 3

Male | Assistant Professor, Photography Area Coordinator in the Department of Art, College of Art and Sciences, and a professional photographer



Collective Activity



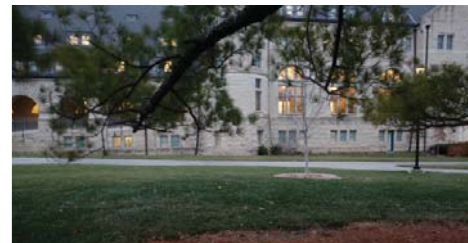
Individual Activity



Water System



Whole Space



Plants



Plants

Figure 06.07: Anthology (Participant 3, 2012)



Whole Space



Plants



Plants



Whole Space



Visibility



Whole Space



Plants



Plants



Whole Space



Visibility

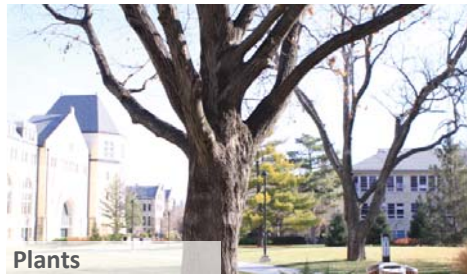
Figure 06.08: Anthology (Participant 3, 2012)

aesthetically pleasing

During both prompts Participant 4 was highly selective while taking photographs, as he chose to take a minimal number of three per prompt. During the aesthetically pleasing prompt he divided his attention on the content of the photographs. Each photograph clearly represents a different attribute of the landscape: character, vegetation, and materiality. He notes in his journal entry that close proximity of the buildings to the sidewalks is favorable (Participant 4, 2012).



Whole Space



Plants

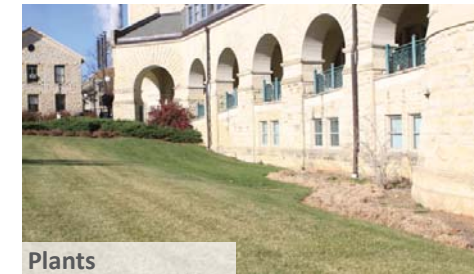


Materiality

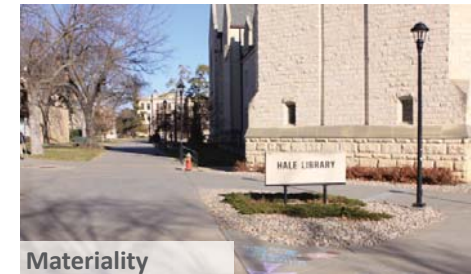
Figure 06.09: Anthology (Participant 4, 2012)

Participant 4

Male | Manhattan resident,
working single



Plants



Materiality



Materiality

Figure 06.10: Anthology (Participant 4, 2012)

aesthetically displeasing

Participant 4 was displeased with the cosmetic materiality adjacent to two of Hale's features. The vegetative base of Hale's turret lacks interest for him. His journal entry does not mention anything of the season (as the grasses had been mowed for the winter). The material choice at the base of Hale's sign was a "bland" choice for him (Participant 4, 2012).

aesthetically pleasing

The bulk of photographs taken by Participant 5 have trees in them. She seemed to maintain her attention on the different trees in Coffman Commons as she moved around the site. Her written description also commented on the historic character of the Commons based on Hale's façade and site furnishings (lamp posts and clock) (Participant 5, 2013).

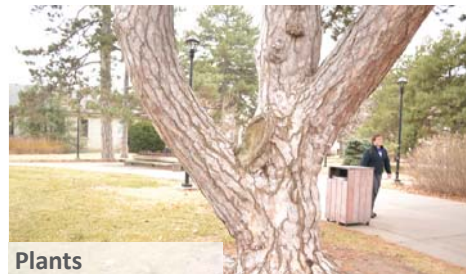
Objects



Plants



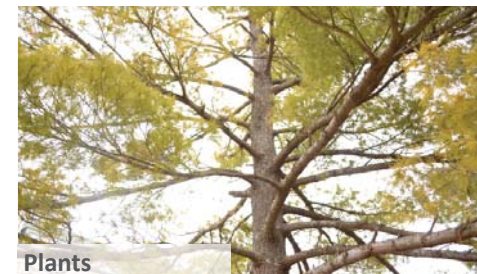
Plants



Plants



Objects



Plants



Whole Space



Whole Space

Figure 06.11: Anthology (Participant 5, 2013)

Participant 5

Female | Manhattan resident, K-State Human Ecology alumna



Plants



Plants



Plants



Individual Activity



Materiality



Objects

Figure 06.12: Anthology (Participant 5, 2013)

aesthetically displeasing

Half of the photos from this prompt consisted of vegetation, yet the majority were of shrubs not trees. Participant 5 recognized the temporary presence of a maintenance vehicle, yet still chose to note this as an undesired presence.



Whole Space



Plants



Plants



Whole Space



Plants



Whole Space

aesthetically pleasing

Figure 06.13: Anthology (Participant 6, 2013)



Plants



Whole Space



Objects

aesthetically displeasing

As in the previous prompt, her concentration was on vegetation. While she was satisfied with the evergreens, she found the deciduous woody plants displeasing. Participant 6 was the first to take notice of the bicycle parking just east of the site. Assuming that she advocates biking, Participant 6 was documenting the clutter of bikes due to overcrowding.

aesthetically pleasing

Very similar to Participant 5, Participant 6 also maintained an interest in trees – particularly evergreens. In her written description, she commented on her appreciation for vegetation in each season (Participant 6, 2013). She is the first participant to mention seasonality (her photographs were taken during the winter). The remainder of her aesthetically pleasing photos was composed to showcase the character of the Commons (primarily of Hale).



Plants



Movement Types



Plants



Plants

Figure 06.14: Anthology (Participant 6, 2013)

Participant 6
 Female | K-State student
 studying Family Studies

Participant Research Findings

After interpreting the photographs, I can now make holistic observations from all six participants. Collectively the participants displayed an admiration of the University's character: historic architecture, Great Lawns, and mature trees.

While the boundaries of Coffman Commons were clearly defined, most participants focused their attention on Hale's façade. Between these pictures and the written descriptions, it was evident that Hale remained the focal point and, notably, the western half of Hale.

Each participant also took great interest in photographing the vegetation present on site, predominately trees. Some chose to

photograph trees within the context of the landscape; others cropped the photograph to only capture the tree or a portion of the plant. Figure 06.15 maps the content in the participants' photographs (portions of Hale's façade and certain trees).

While participant identification with vegetation and Hale's character was expected, I was surprised by the lack of attention on people. Their perception of "aspects of the landscape" was clearly pointed towards the appearance of the landscape in lieu of people. I had expected a few participants to capture people in the landscape as an "aesthetically pleasing" or "displeasing" aspect of the landscape.

Lastly, I chose to diagram my interpretations of the participants' aesthetic responses for use during my design process. Spatial cues were taken from the participants' photo anthologies and journal entries. The created mappings and vignettes are displayed in Figures 06.16-25. A caption describing the graphic accompanies each.

This concludes the participant photographic research results. My personal research results are presented in the next section.

■ *Content in photographs*

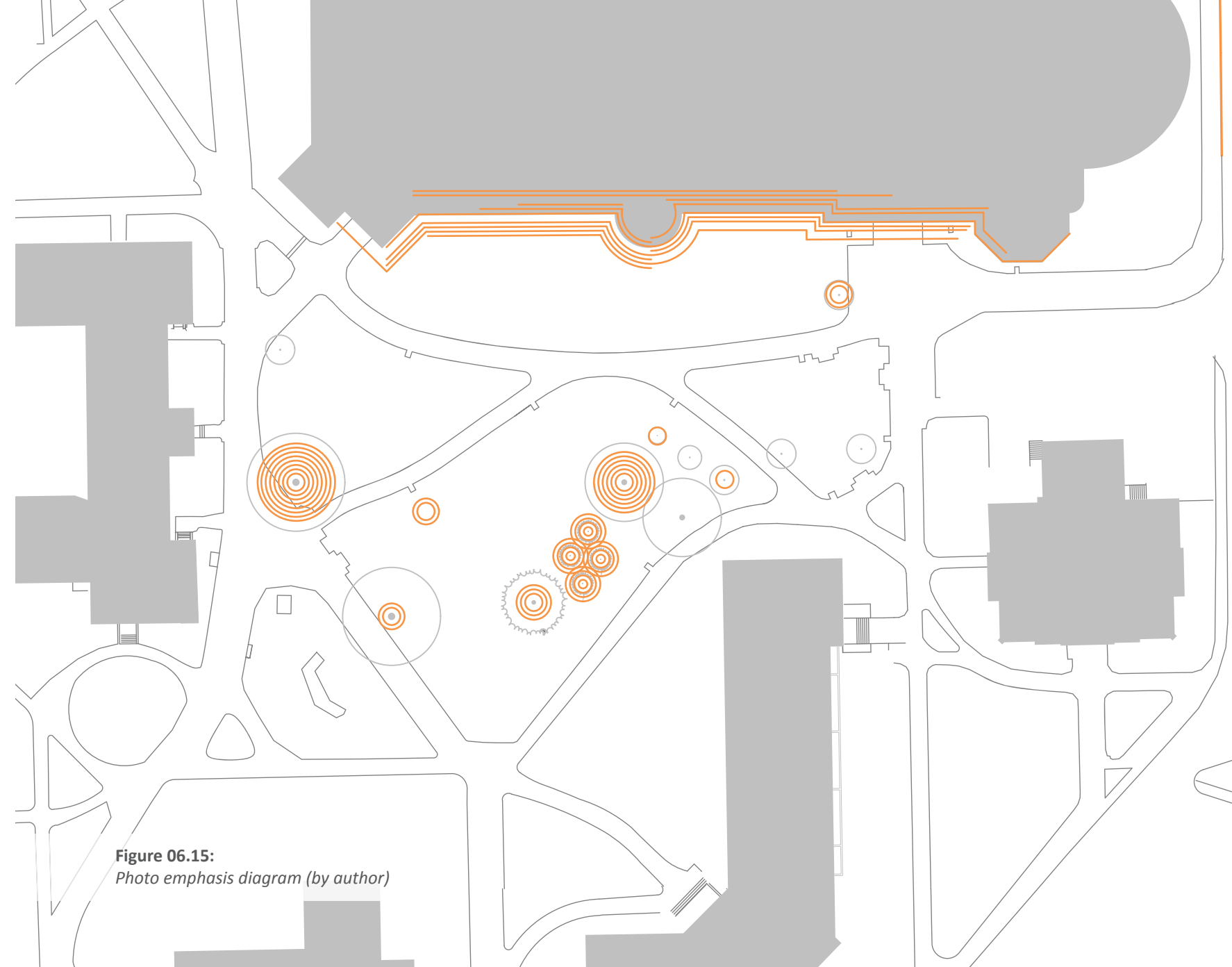


Figure 06.15:
Photo emphasis diagram (by author)

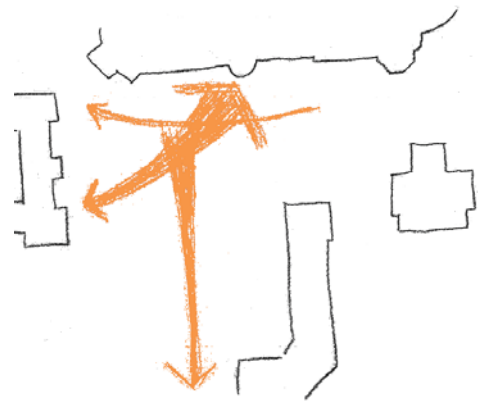


Figure 06.16
Strong connections to buildings; the buildings form the space (by author)



Figure 06.17
Enjoyed experience of walking through trees (by author)

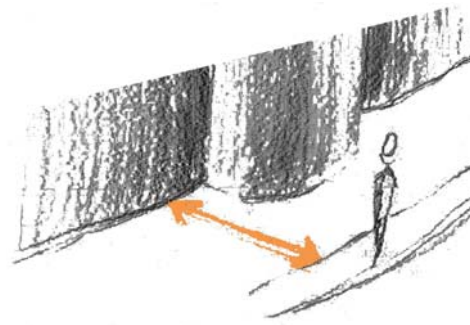


Figure 06.18
Feeling of grandeur as user walks past Hale Library (by author)

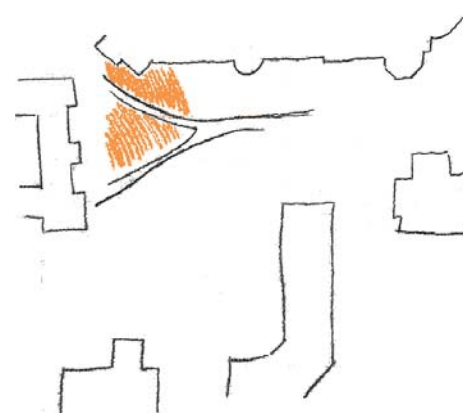


Figure 06.19
Favored closeness to building (by author)

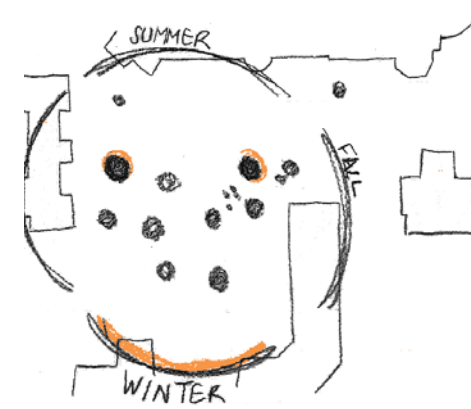


Figure 06.20
Appreciated seasonality of trees, pictures taken in winter (by author)

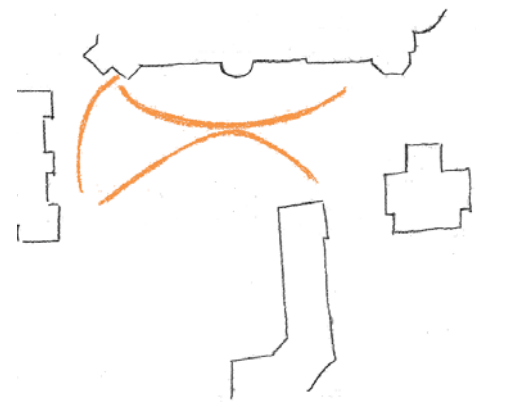


Figure 06.21
Winding walkways were a pleasant experience (by author)



Figure 06.22
Coffman Commons not a space itself -
Hale is too cumbersome (by author)



Figure 06.23
Juncture of building to lawn needs to be
softened by vegetation (by author)

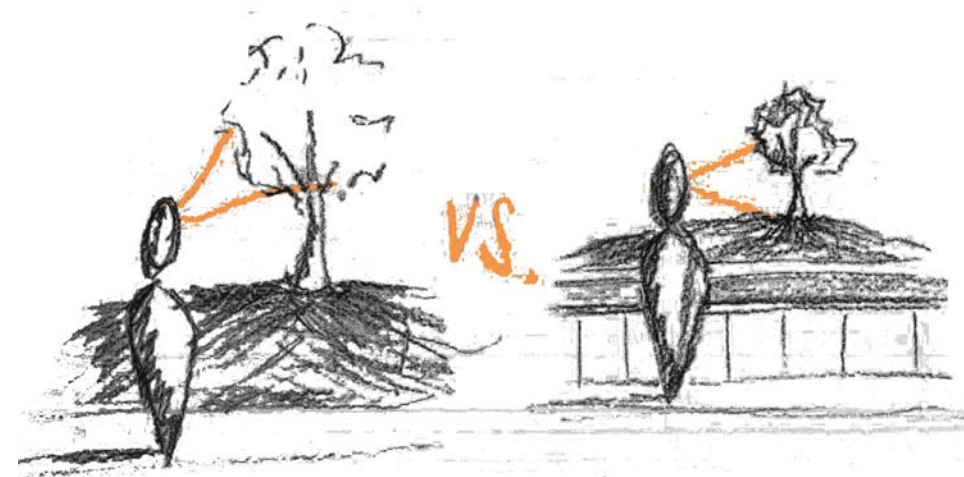


Figure 06.24
Elevation change alters the experience of
the landscape (by author)



Figure 06.25
Trees can create defensible space
(by author)

Aesthetic Response Personal Results

Patterns have meaning and photography can find such patterns through significant details (Spirn 2011b, 10). The detail alludes to a larger pattern. The larger pattern can be the bridge between site knowledge and the creation of a sensitive, complementary design. The patterns act as context to influence and guide design decisions which impress or enhance meaning of the place. This captures the essence of my experience as a photojournalist of Coffman Commons. Patterns emerge through my photographs and journal entries.

The following section discusses my research results as I participated in the photojournalism method. Anthologies of photographs are displayed first. These are grouped by date, as I visited the site multiple times. Each photograph in the anthology is coded from the framework's attributes, as the research participants' photographs were. My field observations and journal entries influenced how each photograph was coded.

Just as with the participant research results, a table was compiled for my coded photographs (Table 06.02). The table mathematically represents the distribution of the attributes photographed, and the sum of the pictures and percentage of the whole are given. The highest proportion of all the photographs taken was under the *plants* attribute at 14%. This seems low because the second highest proportion was a four-way tie between attributes at 13%: *whole space*, *collective activity*, *water utility*, *water system*. The attribute that came after these was *materiality* at 8%.

Following the anthologies are my photo diagrams. Photo diagrams are a form of communication that combines a photograph, text, and drawing/sketch. I used photo diagrams to communicate field observations, thoughts, and ideas. The iPad application (app) "ArtStudio" simulates Adobe Photoshop. With this app, I can draw directly on top of the photographs I take with the iPad. (Further explanation of this process can be found in *Appendix D*). Photo diagrams become easy to create onsite or

off because of the iPad's portability. Each photo diagram is supplemented with text describing my intentions or reflections of the photo diagram.

The anthology of photographs and photo diagram series act as a part of my site inventory and analysis. The drawn observations and conclusions made here supplement the mappings discussed in the next chapter, *07 Design*.

Personal Photographic Response Matrix

Table 06.02 (by author)

Framework Category	Attribute	Total of Pictures	Emphasis %
Design Construction			
	Materiality	5	8%
	Objects	4	6%
	Whole Space	8	13%
Social Utility			
	Collective Activity	8	13%
	Individual Activity	4	6%
	Movement Types	2	3%
Aesthetic Response + Meaning			
	Visibility	4	6%
	Other Senses		0%
	Commemoration	3	5%
Ecological Performance			
	Plants	9	14%
	Water Utility	8	13%
	Water System	8	13%
	Total:	63	100%

The fall color was beautiful during this site visit; the maple near Hale's west entrance captured my attention. My focus in this anthology was the attribute of viewsheds. I particularly took notice of the views from Hale's loggia. I stood in three different portals to photograph what I saw outside of them. While it is not entirely visible, I appreciated the visual connection to Anderson Hall behind the trees.

Figure 06.26:
October 16, 2012
Site Visit (by author)



Visibility



Visibility



Whole Space



Commemoration



Whole Space



Figure 06.27: Visibility
(by author)

Figure 06.28:
October 17, 2012
Site Visit (by author)



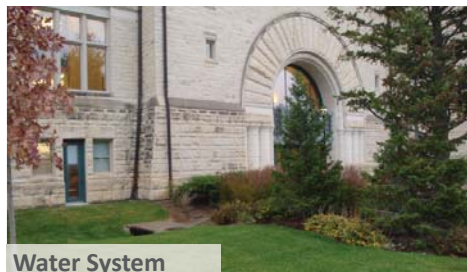
Materiality



Objects



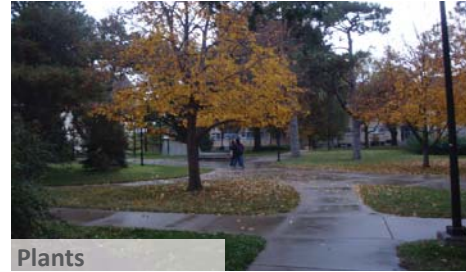
Water Utility



Water System

Because stormwater management was going to be an important design component for Coffman Commons, photographing in the rain was crucial. The lawn surfaces are servicing infiltration, but the impervious sidewalks are not.

Stormwater is being transported off-site with topography to a city storm drain (a few feet south of Hale Library). Unfortunately, pedestrians are walking parallel to this drainage swale. This takes away any opportunity for people to notice (or care) where the water is going. Understandably, pedestrians also speed up their walking during a rainstorm. Many people did not have umbrellas, apparently they were not expecting the quick storm.



Plants



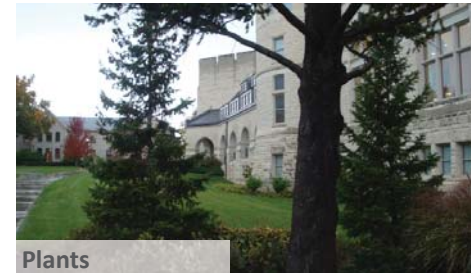
Plants



Objects



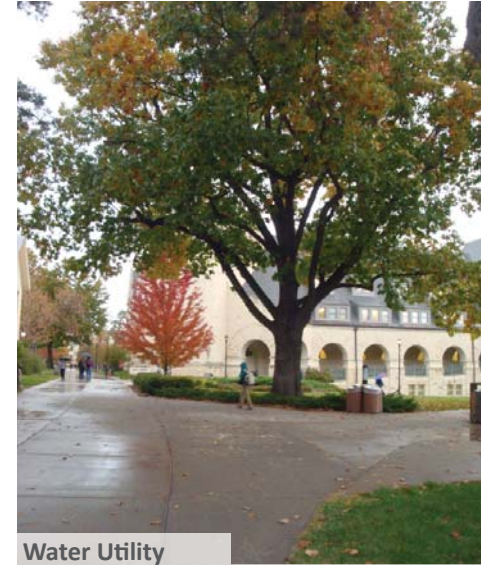
Individual Activity



Plants



Collective Activity



Water Utility



Water Utility



Collective Activity



Movement Types



Collective Activity

Figure 06.29:
October 24, 2012 Site Visit (by author)

My interest on this day was social utility – how people are using Coffman Commons. The pedestrians stuck to the sidewalks. In contrast, the cyclist chose to cut through the lawn to reach her destination north east of the site.



Plants



Whole Space



Plants

Figure 06.30:
November 5, 2012 Site Visit (by author)

This week all of campus truly showed off. Autumn color was of pointed interest on these two days. The evergreens became a contrasting backdrop for the deciduous colors. I tried to capture all different angles of Coffman Commons's color, as it was soon going to fall. I knew once winter came my attention on site would shift to other aspects of the landscape.

Figure 06.31:
November 8, 2012 Site Visit (by author)



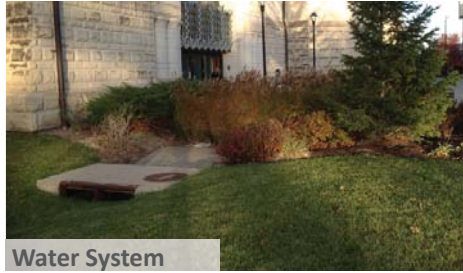
Collective Activity



Materiality



Visibility



Water System



Objects



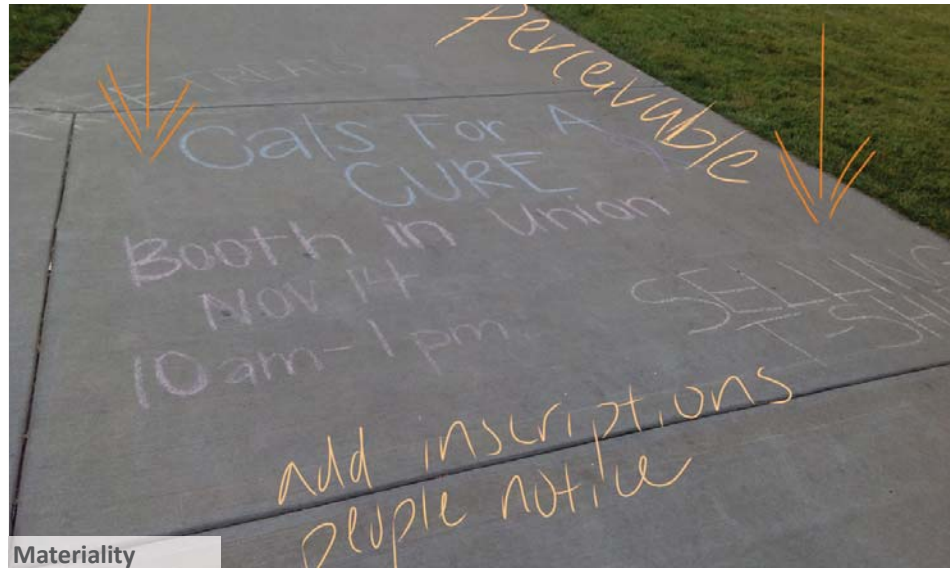
Plants

On this day I had no photographic intention other than photographing new aspects of the landscape. I discovered a pitched concrete surface behind the storm drain. The old clock at the southwest end of the Commons was a new find. The grasses were in a season of change. Lastly, the sun flashed beautifully across Hale's façade during the late afternoon.

Figure 06.32:
November 14, 2012 Site Visit (by author)



Figure 06.33: Whole Space
Majestic Hale Facade (by author)



Materiality

Let the ground speak

While it could be natural to look at their feet as people walk, media devices have only encouraged this tendency. Since people's focus is downward, people have begun chalking to communicate ideas, events, meetings, and artwork. Intentionally placing inscriptions in the pavement could become the most successful way of communicating information in the space (Figure 06.34).

Figure 06.34:
Ground plane inscriptions (by author)



Individual Activity

Creative guidance needed

It has been established that Coffman Commons is a commuter space. Perhaps people need help with stepping off the path. Figure 06.35 playfully represents a way to redirect attention towards the green space. Rarely do I see someone venture onto Coffman Commons's lawn. People may need a creative directive to think of using the space for more than commuting.

Figure 06.35:
Encourage lawn use (by author)



Individual Activity

Re-Park

Grounds maintenance on campus is a necessity. Maintenance crews travel around campus in gators. Frequent stops are made dependent on the driver's task. Coffman Commons does not offer an ideal place for maintenance vehicle parking. Figure 06.36 shows how the driver parked the vehicle right in the middle of a pedestrian intersection.

Figure 06.36:
Maintenance vehicle (by author)



Individual Activity

Keep it wide

Primary campus corridors must remain a certain width for maintenance vehicles. Coffman Commons's north sidewalk is ten feet wide (Figure 06.37). With this path serving as the primary circulation route for the site, it needs to remain this wide, even if the diagonal path is narrowed.

Figure 06.37:
Maintenance vehicles access (by author)



Collective Activity

Rush hour movement patterns

Twenty minutes past the hour on any given weekday starts the ten minute campus rush hour. Coffman Commons fills with bustling commuters during this short interlude. The two primary movement types are walking and biking.

Figure 06.38:
Lone Rider (by author)



Collective Activity

During the rush hour, dozens of people fill Coffman Commons. However, a pattern is emerging for which sidewalks are taken for travel. The sidewalk that dissects the Commons seems to be minimally used compared to the density of travelers on the North and West sidewalks. Figures 06.38-40 portray this pattern. This hierarchy could open opportunities for an adjustment to the secondary diagonal path.

Figure 06.39:
Density of West Sidewalk (by author)



Figure 06.40: Collective Activity
Path Vacancy (by author)



Figure 06.41: Individual Activity
Enabling movement (by author)

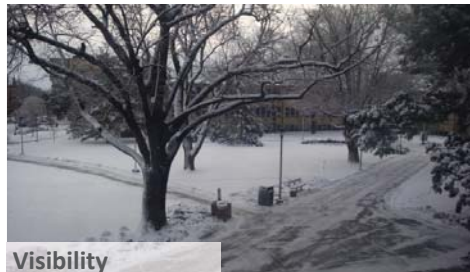


Plants

Twenty-four hours after a beautiful 50 degree day in Kansas, a frigid winter storm blew in. Coffman Commons was a delight to see clothed in snow. However, the space becomes even less inviting and functional. Figure 06.41 showed me how maintenance becomes crucial for campus mobility. With four inches of snow over night, the gators worked to clear paths – enabling safe and dry movement. During these winter months, the maintenance vehicles serve the campus users rather than the campus grounds.



Whole Space



Visibility



Plants



Movement Types



Materiality

Figure 06.42:
January 30, 2013 Site Visit (by author)

After another snowstorm, accumulating eleven inches this time, I waited longer before visiting Coffman Commons. The sidewalks were cleared of snow, but the lawn space was still heavy laden. It is interesting what clues snow can offer about a site. No one had sat on the site benches, as the snow had not been disturbed. Snow disturbance was noticeable on the south lawn. Tracks could be followed to the middle of the lawn where a circle of footprints had been slightly refilled with snow – remnants of a collective activity. Capturing student commuters during rush hour was promising as I noted the tendency to walk in groups to combat the bitter wind.



Commemoration



Objects



Materiality

Figure 06.43:

February 27, 2013 Site Visit (by author)



Plants



Individual Activity



Collective Activity



Collective Activity



Materiality



Collective Activity

Personal Research Findings

It was beneficial to partake in the photo journalism method as well as conduct the research with K-State participants. Photo journalism expanded my capacity for understanding and knowing the project site. I was pushed to see, learn, and observe more of the landscape.

The coding process for my photographs was straightforward, as my intention for each photograph was known. By late fall, my conceptual framework was established and I had decided to code the photographs by its attributes. I believe this decision influenced my photographic process. While I tried not to, I began thinking of the framework's attributes as I photographed the site. Depending

on the perspective, this could be viewed as a limitation or asset to the research study. On the former, knowledge of the attributes muddled my natural process of photographing. For the latter, keeping the attributes in mind maintained a clear focus – explicitly showcasing an aspect of the landscape in each photograph.

The photo diagrams were extremely useful in communicating my site observations, insights, design ideas and solutions. The “ArtStudio” app enabled me to create quick and easy graphic expressions.

The most exciting component of my individual research was the emergence of site patterns. My greatest discovery

was a series of individual photographs, placed together into an anthology, could reveal patterns that otherwise would have been overlooked. Social, ecological, and physical patterns truly emerged through the photograph anthologies. The landscape began to tell a story through these series of images. Knowing this story invoked a rooted appreciation and understanding of the project site which would enrich the proposed design.

Concluding Statements

This chapter presents the results of the photojournalism research method. The research was not a strictly linear process. While there was scientific structure in the quantitative aspects of the research (compilation and counting of coded images), there remained a qualitative aspect too. The actual coding process was determined to be systematically driven, but was confronted with the need for interpretation. The statements that accompanied each anthology reflect a qualitative approach to photo interpretation. I found the dance between objective and subjective behavior during this research process rather appropriate as my goal was to form an understanding of Coffman Commons through others (not just myself).

Photography was used to discover Coffman Commons – scientifically and artistically. Through studying my research participants' photographs and my own, I have come to know Coffman Commons intimately. Understanding the aesthetic responses of a small group of K-State students, faculty, staff - and my own - to Coffman Commons was accomplished with the photojournalism method. This intimate understanding of the site has enabled me to design a new aesthetic for Coffman Commons with greater confidence. The following chapter introduces the new design for K-State's Coffman Commons.

Design 07

This chapter exhibits the new aesthetic for Coffman Commons. The design process and solution for this high-performance landscape are graphically presented. The design process consists of: site inventory + analysis, precedent studies, goals + objectives + the design components.

Design

This chapter exhibits the new aesthetic for Coffman Commons – a 21st century campus aesthetic. Design is the staple method for creating a new landscape aesthetic. A clearly defined and executed design process ensures the success of the final design solution.

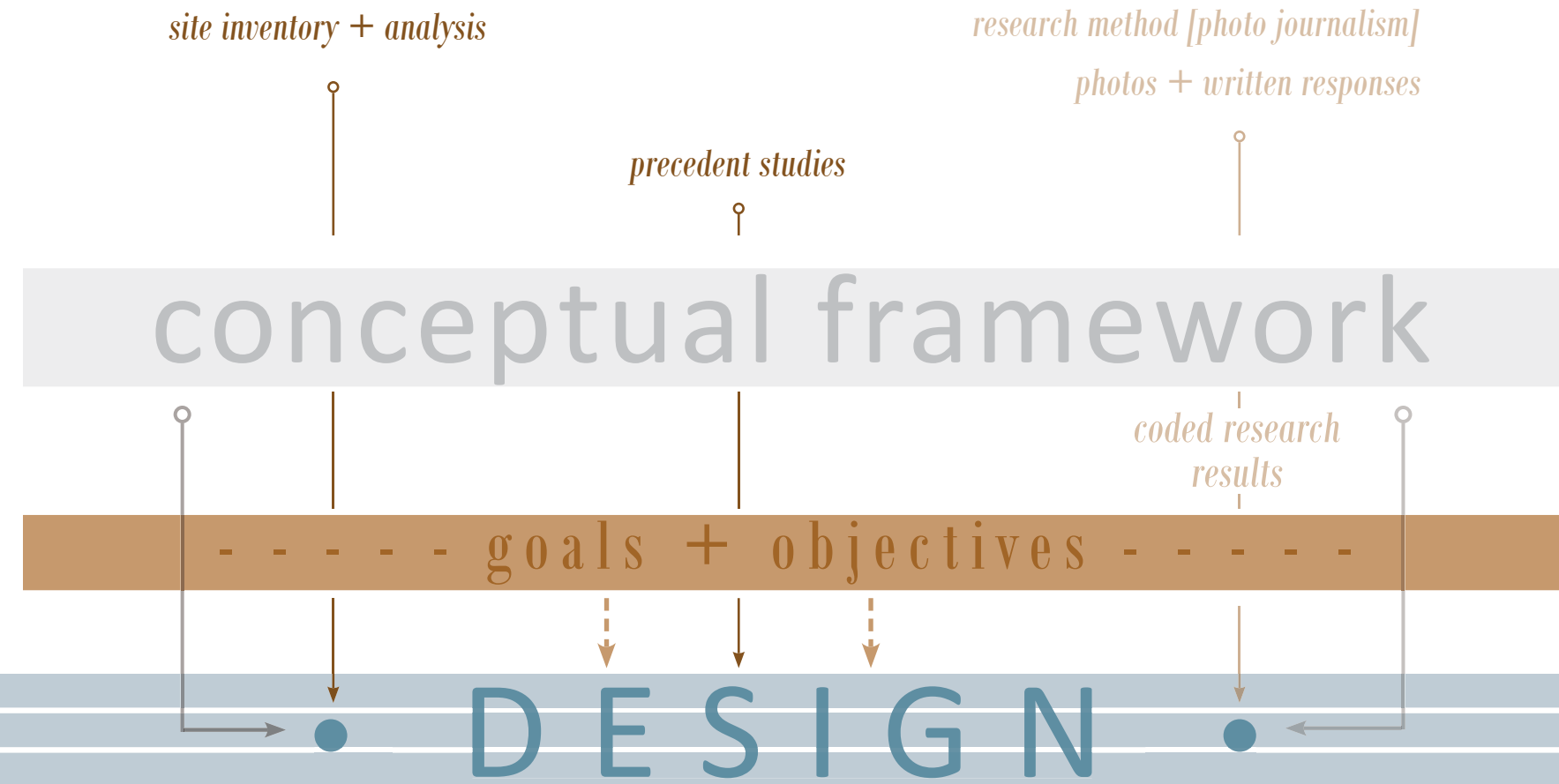
The design process that this MP+R underwent can be referenced in chapter 01 *Introduce* (Figure 01.02). Figure 07.01 on the right highlights the design process components present in this chapter.

The design process consisted of site inventory and analysis, precedent studies, formation of design goals and objectives, and the master plan design. All of these components influenced the schematic, design development, and documentation phases of this MP+R (*Appendix E*).

The following sections present the design process culminating with the master plan design for Coffman Commons’s new campus aesthetic.

Figure 07.01:
Modified Design Process Diagram to Show Chapter’s Components (by author)

schematic design
design development
documentation



Site Inventory + Analysis

With the MP+R seeking to increase the social and ecological performance of Coffman Commons, the space's current performance must be evaluated. Frequent site visits and field observation are fundamental to understanding the Commons. My site visits consist of photographing, journaling, note-taking on site map, and diagramming on my photographs. The majority of my pictures are taken on my iPad. The app similar to Photoshop, "ArtStudio," allows me to draw directly on my photographs. See [Appendix D](#) for information.

Ecological Performance

The assessment of Coffman Commons's ecological performance involves the

inventory and analysis of its natural processes: water, biodiversity, and climate.

Social Performance

Evaluating social performance requires observation of people within the site.

During the inventory + analysis process I asked a series of questions addressing ecological and social performance.



Biodiversity

The tone of the softscape in the Commons is monotonous. Figure 07.02 inventories the ratio of hardscape to softscape. Note that the majority of the softscape is turf with a sprinkling of trees and shrubs. Plant palette is lacking diversity and overall prominence on site.

What is the diversity of the softscape in the Commons?

ecological

Figure 07.02:

Ratio of hardscape to softscape (by author)

Water Flow

The answer to water travel in Coffman Commons is an interesting one. The whole site slants down to the northeast. The puzzling part is that all the water on site water is sheeted straight towards Hale Library. Within ten feet of the building façade, the water is caught in a swale and directed towards a storm drain which pipes the water offsite (see Figure 07.03-04). The proximity of the swale and the building could explain previous problems with water entering the building. For reference, Manhattan, Kansas receives approximately 33 inches of rainfall annually (USGS, 2013).



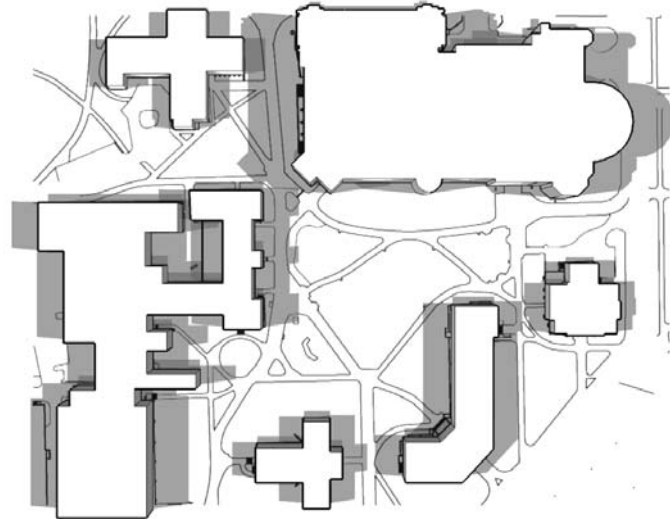
(07.03)

Where does the water go?
ecological



Figure 07.03:
Swale adjacent to Hale (by author)

Figure 07.04:
Water flow (by author)

March 15th ShadowsJune 15th ShadowsSeptember 15th ShadowsDecember 15th Shadows

ecological

How sunny is Coffman Commons?

Figure 07.05:
Shadow Study Map Series (by author)

Sunniness

Coffman Commons is a sunny space. An analysis of the adjacent buildings' shadows from 9 a.m. to 3 p.m. is shown in Figure 07.05. Only in the late winter months do the shadows creep into the heart of the Commons. The sunny and shady spots will be useful for my placement and orientation of the community amenity.

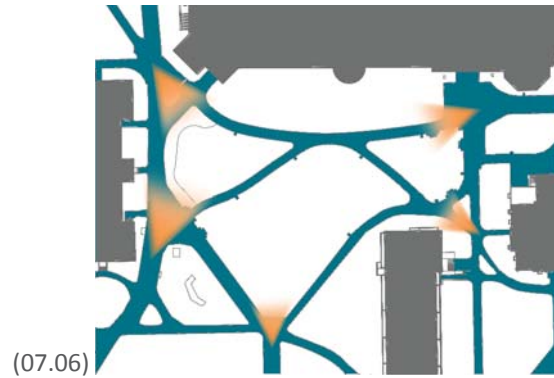
Viewsheds

With circulation being the predominant function of the space, I began watching people's mannerisms as they moved through the site. After much observation, I noticed a pattern of people looking straight ahead or down at the ground (or at their cell phones). From this I conclude that people are not engaged while in Coffman Commons, they merely are shuffling through it. Figure 07.08 diagrams the narrow view-triangles of users as they transect the Commons. The diagram shows how little of the landscape is viewed during passage through the space.

Clever marketers have taken advantage of a traveler's habit of looking at the ground by chalking advertisements and events on the concrete (see Figure 07.07). Therefore the groundplane's marketing and chalk art are performance benefits of Coffman Commons and should be utilized.

How do individuals interact with others while in the site, or do they?

social



(07.06)



(07.07)

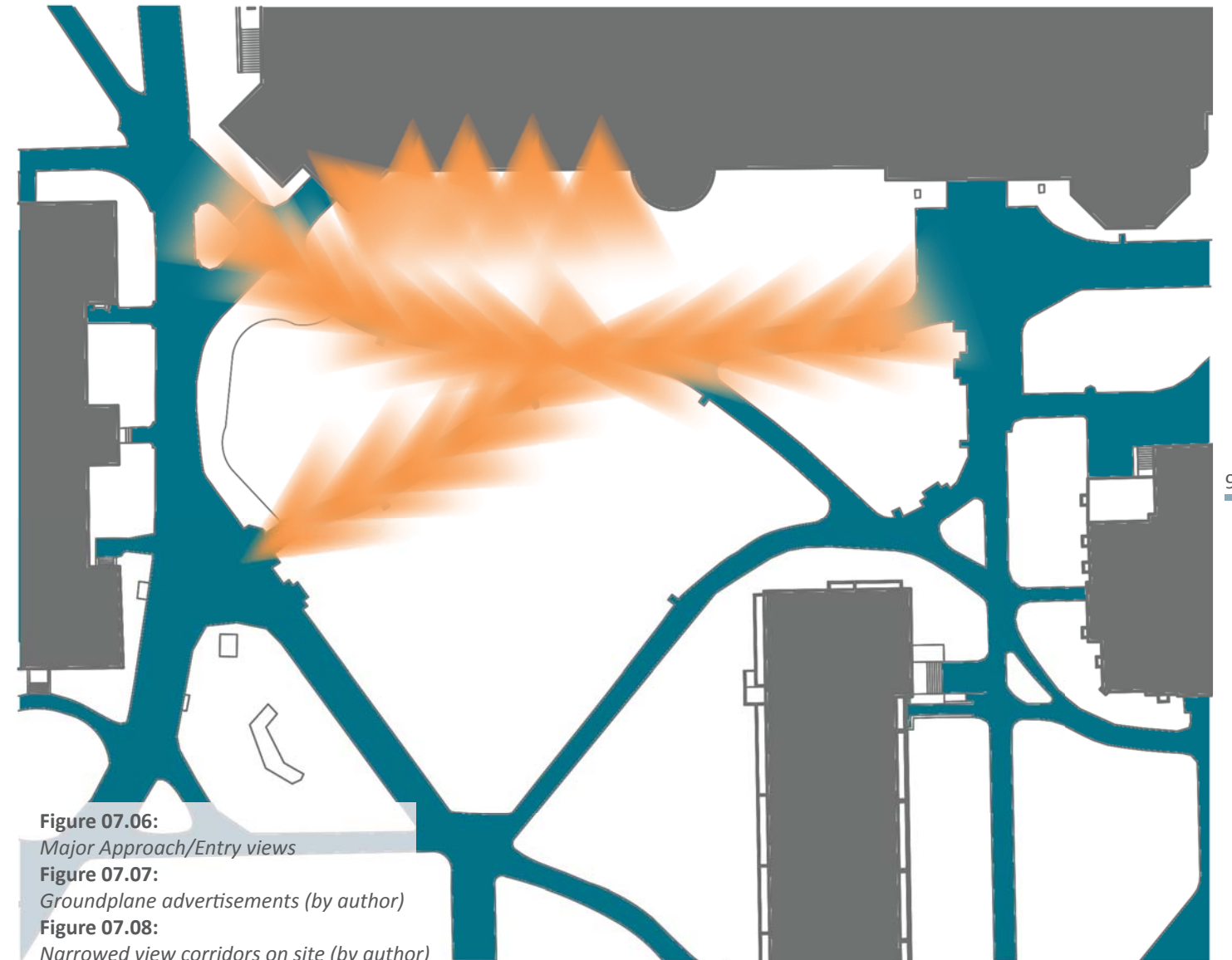


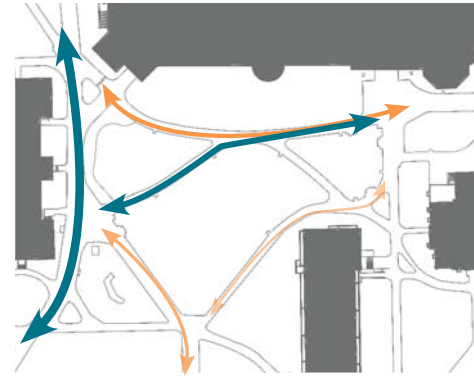
Figure 07.06:
Major Approach/Entry views

Figure 07.07:
Groundplane advertisements (by author)

Figure 07.08:
Narrowed view corridors on site (by author)

social

■ primary circulation
■ secondary circulation



Are offered amenities in Coffman Commons sufficient or lacking?

social

What do people do in Coffman Commons?

Movement

Coffman Commons performs efficiently as a transitory space. Student, faculty, and staff pass through Coffman Commons to get to their next destination. Close destinations are namely Hale Library, the Student Union, and the buildings in the Quadrangle. The sidewalks vary in width to adapt to the density of people; their orientations cut diagonally across the site to offer the shortest route for travelers (Figure 07.09). Coffman Commons offers everyone accessibility to their destination. On site, maintenance crews work at various times. They move through the space either by foot or on gators.

Figure 07.09:
Hierarchy of movement (by author)

Nearly Seatless

The site's amenities are minimized down to the essentials: trash receptacles, light poles, and benches. The lack of seating could explain the persistence of speedy travelers and lack of site engagement. Only offering three short benches in a 1.3 acre site can discourage people from gathering in the space. Three lawns dominate the Commons, yet rarely have I seen people using them (actively or passively). Figure 07.10 notes all the existing service amenities on site.

■ trash cans
■ stationary benches



Figure 07.10:
Sparse amenities offered (by author)

Precedent Studies

Precedents of built landscapes can be extremely valuable, especially when analyzing their performance and design features. Design precedents can be studied in assorted ways.

For my MP+R I found it useful to utilize my conceptual framework (rooted in Vitruvius and Ching): design construction, social utility, aesthetic response + meaning, and ecological performance. The categories' attributes were used as the evaluation criteria; just as they were used during the content analysis of the aesthetic response photographs (see *06 Find*). Each precedent has been analyzed using this matrix (Table 07.01). Keeping the precedents in one matrix allows cross comparison.

Precedent selection was based on two factors: the community amenity it offers and creative solutions to managing stormwater on-site. With these criteria, five precedents were chosen (the designers are in parentheses).

- Biodesign Institute at Arizona State University (Ten Eyck Landscape Architects)
- Butler College at Princeton University (Michael Van Valkenburgh Associates)
- Sonoran Landscape Laboratory at University of Arizona (Ten Eyck Landscape Architects)
- Sidwell Friends School in Washington D.C. (Andropogon Associates)
- Diana Memorial Fountain in London, England (Gustafson Porter)

Collectively the precedents offer design inspiration for Coffman Commons. Three specific insights are noted.

The *definition of space* is strategically crafted for each project. All projects, except for the Diana Memorial Fountain, are enclosed by building architecture. Yet, they create sub-spaces within the enclosed environment. The Diana Memorial Fountain expresses spatial definition in its own form of the fountain "necklace." Secondly, *materiality* is contextually specific. The material palette for each project complements the environment in which it is situated. Lastly, while being responsibly managed, the *water is celebrated* on site. Each



Biodesign Institute

(07.11)



Butler College

(07.12)



Sonoran Landscape Laboratory

(07.13)



Sidwell Friends School

(07.14)



Diana Memorial Fountain

(07.15)

project differs in how it showcases water. The precedent studies can be viewed in *Appendix A*. Moving forward, these insights will help to inform and inspire my design efforts for Coffman Commons.

Figure 07.11: (Moore, 2008)

Figure 07.12: (Leslie, n.d.)

Figure 07.13: (Timmerman 2010)

Figure 07.14: (Vecerka 2009)

Figure 07.15: (Zilchoo n.d.)

framework category	subcategory	description	precedents					
Design Construction	Materiality	The surface(s) of design elements	bluestone, turf, brick, evergreen foliage	<i>Butler College: Princeton Univ.</i>	<i>Biodesign Institute: AZ State Univ.</i>	<i>Sonoran Landscape Laboratory: Univ. of AZ</i>	<i>Sidwell Friends Elementary School</i>	<i>Diana Memorial Fountain</i>
	Objects	Individual objects present on site	solitary trees		water irrigation cisterns, trash receptacles, benches, light poles	engraved concrete, perforated steel, water, stabilized decomposed granite	stone, turf, grasses, steel, water	running water, stone
	Whole Space	Collective observation of the whole site for design construction	rhythm of stone + turf terraces		earthy tone (rough/spiky textures + muted colors)	granite table + benches, runnels, scrim, concrete ledges, bridge/decking, outdoor stairway	stone benches, biology pond, stone retention wall (terraced)	elegant fountain form
Social Utility	Collective Activity	Activities the site offers for community activities and social gatherings	performance, academic class, event meeting, dance party		lecture, research, academic class, event meeting, study group	academic class, gathering (at entrance), study group, research	academic class, research, lunch	picnic, frisbee, water play
	Individual Activity	Activities an individual partakes in (either service related or not)	study, sleep, people watch, sun bathe, eat		study, research, people watch, read, eat	study, research, people watch, read, eat	play, study, research, read, eat	water play, read, sunbathe
Aesthetic Response + Meaning	Movement Types	Modes of travel through the site	walk and steps (ramped terraces)		walk, run, skateboard, bike, drive	walk	walk; paths separated from wetland	walk, bike
	Visibility	Ways the site is being viewed	framed views from bedroom windows + pedestrian corridors: open air		view corridors (defined by vegetations - canopy trees w/ tall shrubs) with filtered light	disrupted views (with vegetative screens and steel scrim) - filtered light	vistas from upper classrooms looking down; open air	uninterrupted views (open space)
	Other Senses	Stimulated senses other than sight	wildlife calls, people, music		spiky plants, wildlife calls, people, traffic	water trickling, school bell, people, wildlife calls	people, school bell, water	fountain water, children's laughter
Ecological Performance	Commemoration	Particular ways to commemorate				inscriptions		inscriptions
	Plants	Plant type used on site	native		drought-tolerant	drought-tolerant (creepers for scrim)	water loving, water cleansing	turf grass
	Water Utility	Use of water	retention, conveyance, infiltration		retention, conveyance, infiltration	conveyance, retention, detention, filtration, infiltration	conveyance, filtration, infiltration, retention, detention, recirculation	conveyance
Table 07.01: <i>Precedent Study Matrix (by author)</i>	Water System	Management of water on site	5,000 gal. storage tank stores stormwater for irrigation		harvesting cisterns for irrigation (roof stormwater + condensate)	porous paving, constructed wetland, storage tank, retention pond, bioswales	constructed wetland, stormwater and condensate harvesting cistern	fountain recycles water

Design Goals + Objectives

Direction was needed while designing Coffman Commons's new space to ensure an appropriate and informed design solution. To guide the design process, a set of goals and objectives were created. These goals and objectives were inspired from the research participants' and my own aesthetic responses, site inventory and analysis, precedent studies, and the diagrammatic spatial cues.

The influence of these on the goals and objectives list was somewhat intangible. The process of creating a holistic list of goals and objectives stemmed from both artistic and technical inspirations.

To maintain consistency in this MP+R,

the conceptual framework was again used to configure the design goals and objectives. A goal was articulated for each framework category. Each category's attribute was given at least one objective. Please see Table 07.02 for the established design goals and objectives. The goals acted as a guiding purpose for design intentions. The objectives offered design solutions to consider. This format was adapted from Stuart Echols and Eliza Pennypacker's goals and objectives tables in "From Stormwater Management to Artful Rainwater Design" (2008, 270-84).

Collectively if followed, these goals and objectives would comprehensively guide the production of a high performance

landscape which enhances user experience and maintains a positive University image as a top research and teaching institution.

<i>Framework Category</i>	<i>Attributes</i>	<i>Goals and Objectives</i>
Design Construction	Materiality	Respect the University's historic character Continue using limestone and metal used on Hale
	Objects	Update site furnishings Introduce more creative lighting solutions
	Whole Space	Strengthen the visual + physical relationship between Hale and Coffman Commons
Social Utility	Collective Activity	Promote social engagement opportunities Offer a space to gather Create more seating options
	Individual Activity	Maintain maintenance and ADA accessibility Present opportunities for use of the landscape beyond commuting
	Movement Types	Establish one pedestrian route that slows traffic to stop and notice commemorative feature
Aesthetic Response + Meaning	Visibility	Design purposefully to enhance Coffman Commons' image and meaning Capitalize on views from Hale's loggia Maintain unobstructed view into Coffman Commons + to Hale façade Maintain visual connections to surrounding buildings
	Other Senses	Offer a variety of surfaces for textural interest
	Commemoration	Exhibit infrastructure to commemorate Dr. Coffman and Distinguished Faculty
Ecological Performance	Plants	Boost Coffman Commons' water management Introduce more foliage: drought tolerant and water species
	Water Utility	Increase efficiency of site conveyance, filtration, and infiltration
	Water System	Implement visible water systems: bioswale, rain garden, harvesting cistern, and porous pavement

Table 07.02:
Design goals + objectives (by author)

A New Aesthetic for Coffman Commons

A 21st century campus aesthetic for Coffman Commons is presented here. This campus space is transformed into a high-performance landscape that enhances user experience and celebrates ecological processes – particularly stormwater. The illustrative master plan for the Commons can be seen on the right (Figure 07.16).

A sequence of systems works to create an elegant design solution with subtle complexity. Coffman Commons's design components include: social systems, ecological systems, a commemoration emphasis, and lighting systems. Each proposed design component is discussed in the following pages.



Figure 07.16:
Coffman Commons Master Plan (by author)

Social Systems

To promote social engagement opportunities in Coffman Commons, spaces to gather and sit are implemented. The two primary gathering spaces are the curvilinear seating and the elevated lawn.

Taking advantage of the existing topography, terraced limestone seating stretches across the site. The seating offers opportunity for individual user activities as well as group activities. The sidewalk, which wraps around the rain garden, can serve as a stage for a performance, lecture, concert, or movie on the lawn.

The elevated lawn offers a defined space for relaxation, study, or socialization. Raised two and a half feet, people can perch on the perimeter's limestone cap or venture toward the middle lawn space.

These two amenities are pointed out in the section on the right (Figure 07.17).



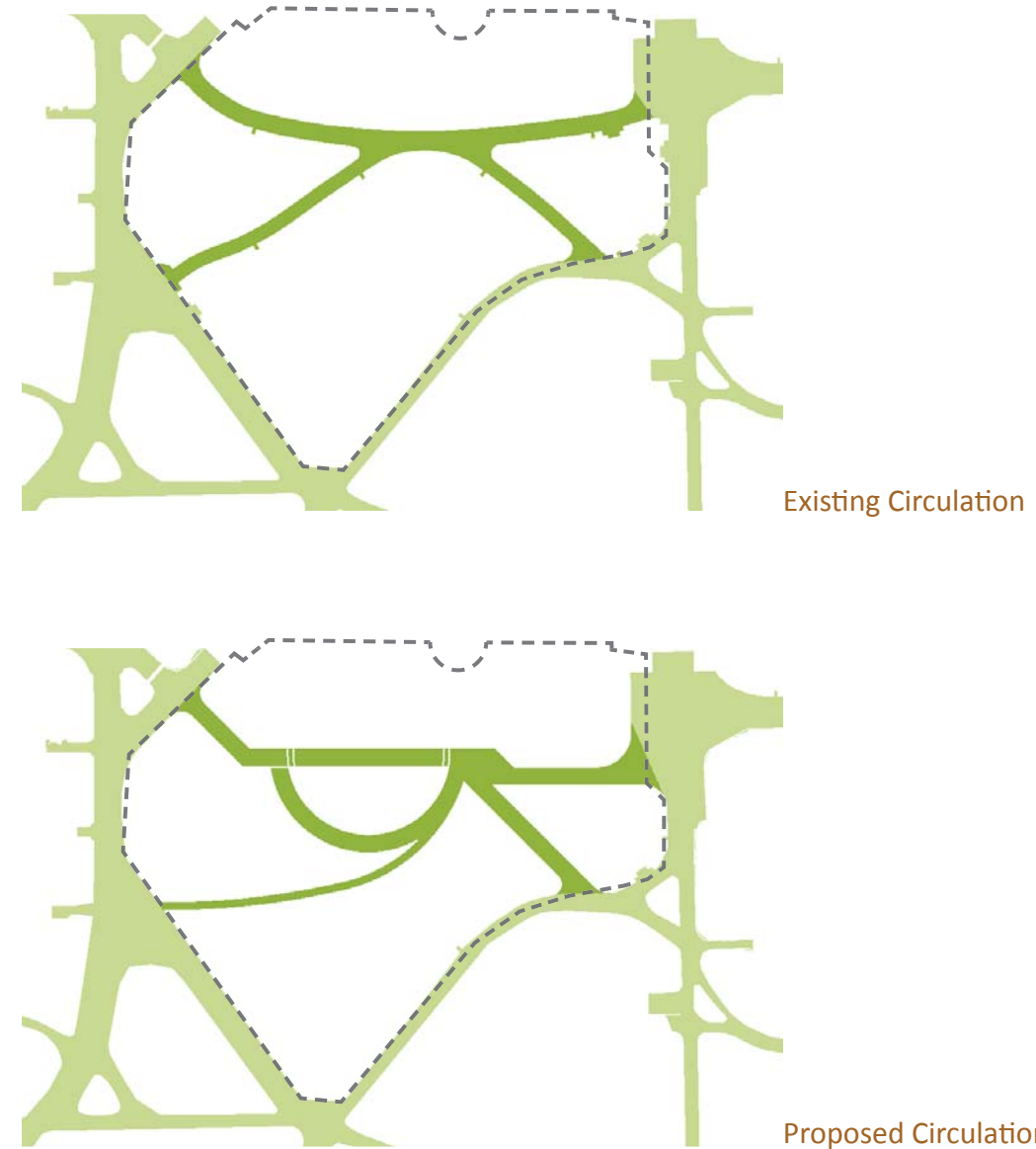
Figure 07.17:
Coffman Commons Amenities (by author)

While these programmed spaces will increase user activity on site, circulation still remains a high priority. Commuters need to travel through the site with ease. Two pathways exist on site currently. It was discovered through photojournalism that the diagonal sidewalk does not receive nearly as much traffic as the north sidewalk (reference Figures 06.38-40).

Because of this discovery, the diagonal path was narrowed to five feet and curved more. The north path shifted slightly to complement the underlying design geometry but maintains its width of ten feet. This sidewalk continues to be the primary circulation path for Coffman Commons. Figure 07.18 compares the

existing circulation to the proposed circulation. These design decisions allow the landscape to become the users' focus not the hardscaped paths. Traveling through Coffman Commons is now a memorable experience rather than a transitory and forgotten one.

Figure 07.18:
Circulation Alterations (by author)



Ecological Systems

Stormwater is to be celebrated in the landscape, not sheeted quickly away and piped underground. The Environmental Protection Agency (EPA) lists a number of stormwater best management practices (BMPs) that can be employed (EPA 2012a, b):

- Bioretention cells or [rain gardens](#)
- Curb and gutter elimination
- [Grassed swales](#)
- Green parking design
- Infiltration trenches
- Inlet protection devices
- Permeable pavement
- Permeable pavers
- Rain barrels and cisterns
- [Redirected downspouts](#)
- Riparian buffers

- [Runnels](#)
- Sand and organic filters
- Soil amendments
- Stormwater planters
- Tree box filters
- Vegetated filter strips
- Vegetated roofs

The highlighted BMPs were determined most suitable for stormwater management in Coffman Commons and are now discussed.

Rain garden

Rain gardens provide opportunity for infiltration, pollutant removal and runoff detention. They typically are constructed as a “depressed area with porous backfill

[...] under a vegetated surface” (EPA 2012a). This BMP is ideal for managing the water that flows down Coffman Commons’s sloping lawn. The rain garden can be seen in Figure 07.20. The rain garden is 1,676 square feet and can hold 618 cubic feet of water from a one year-24 hour storm event. The water from this rain event will be treated and infiltrated in just over one day. See [Appendix F](#) for stormwater calculations.

Redirected downspouts

The purpose for redirecting downspouts is to allow water infiltration on site rather than being piped elsewhere. The EPA encourages water to be redirected to “gardens, grassy areas, [or] rain barrels”

(MARC n.d.). Currently, rainwater that falls on Hale’s roof is collected in gutters and piped underground to meet a storm drain. The four downspouts on Hale’s south façade are to be directed to linear runnel walls. These walls drop the water into dry swales for filtration and infiltration (Figure 07.19). Approximately 659 cubic feet of water will be redirected to the dry swales from Hale’s southern-facing roof (during a one year-24 hour storm event).

Dry swale

Dry swales are “open, vegetated channels that are designed to filter and slow stormwater” (Shaw and Schmidt 2003, 37). Three dry swales are proposed next to Hale’s façade. The dry swales receive

the channeled stormwater from the redirected downspouts. Figure 07.20 illustrates the conveyance of stormwater from Hale’s façade to the dry swales. Combined, the dry swales take up 1,871 square and can collectively hold the redirected 654 cubic feet of water from a one year-24 hour storm event. In less than two days the stormwater will be filtered and infiltrated. Please see [Appendix F](#) for water calculations.

Runnels

Runnels are “surface depressions in sidewalks that safely channel small amounts of stormwater runoff” (EPA 2012b). They convey water from one vegetated area to the next. A runnel is

placed in the center of Coffman Commons. If the water storage capacity is exceeded in the rain garden, water will spill into the runnel, crossing the north sidewalk, and be carried to the dry swale. The runnel is artistically covered by a metal grate. Site users can follow the runnel and discover how water can be transported. The artistic runnel can be seen in Figure 07.20.



Figure 07.19:
*Redirected downspout
to dry swale (by author)*



Rain Garden

Runnel

Dry Swale

Figure 07.20:
*Ecological systems
implemented (by author)*

where does the water go now in coffman commons?

water movement

LEGEND:

Water Utility: Description

Infiltration:
water permeates into soil


rain garden 

Filtration:
water is slowed - increasing filtration

dry swale 

Conveyance:
movement of water on site

water sheeted over turf 

*water transported through runnel/
redirected downspout on hale facade* 


*water drops into dry swale through
holes in the wall* 

Figure 07.21 diagrams how water flows across Coffman Commons through established BMPs. It also points out the water utility options: infiltration, filtration, and conveyance.

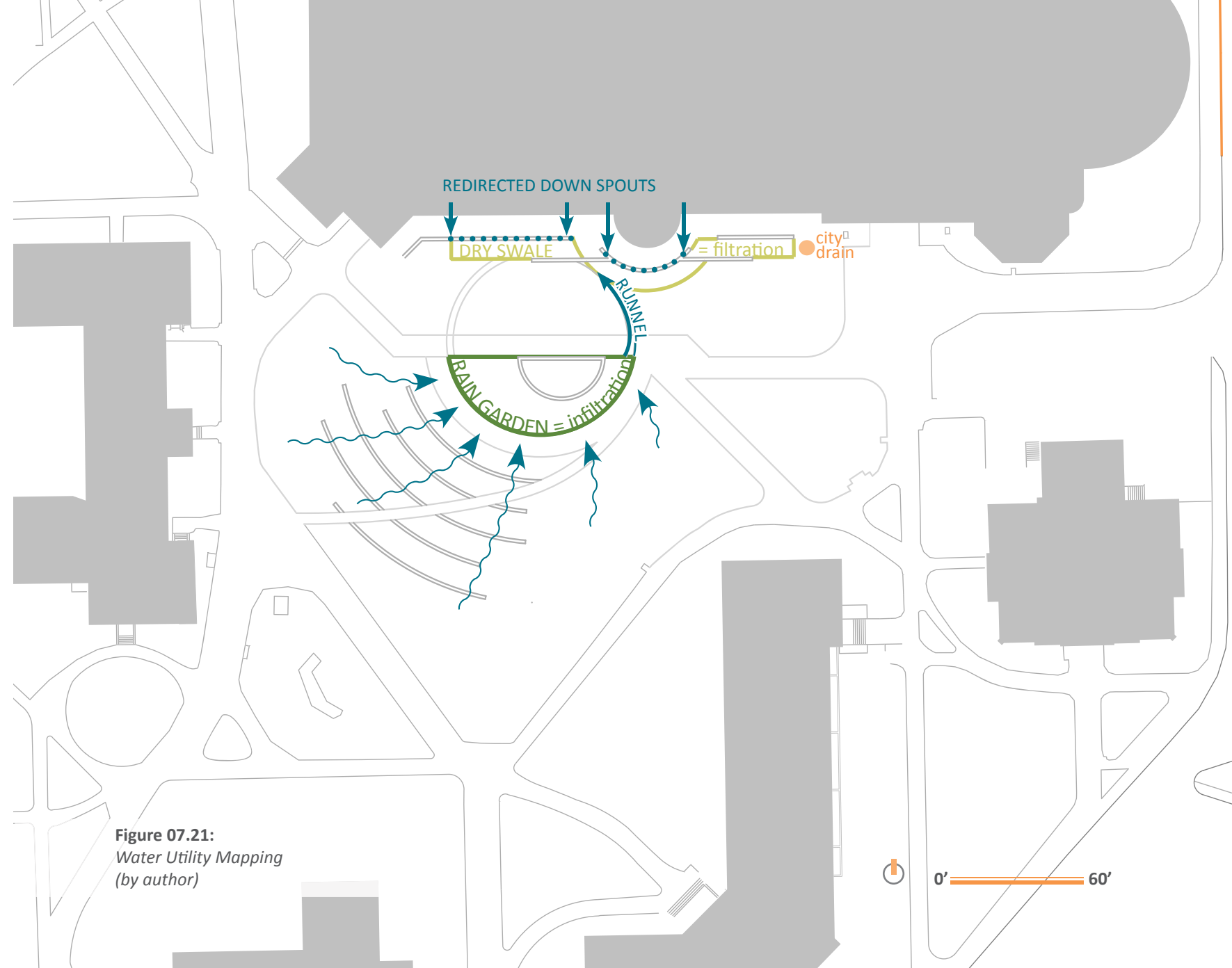


Figure 07.21:
Water Utility Mapping
(by author)

Plant Palette

Three plant zones exist in the new Coffman Commons design: dry zone, rain garden, and dry swale. Figure 07.22 highlights where each zone is located. Each of these zones are composed of different plant species – primarily dependant on their water tolerance. Table 07.03 lists the plant species represented in each plant zone. A mix of flowers, forbs, and grasses are present. The majority of these plants are native to the Kansas.

The dry zones are located at the highest elevations of Coffman Commons, which happen to be the edges of the green space. They consist of plant species with low water tolerances.

A rain garden's plant palette ranges from

dry- and mesic-prairie to wet meadow species. The dry- and mesic-prairie plants are placed along the sides of the rain garden. The wet meadow species rest in the rain garden's basin (Shaw and Schmidt 2003, 39).

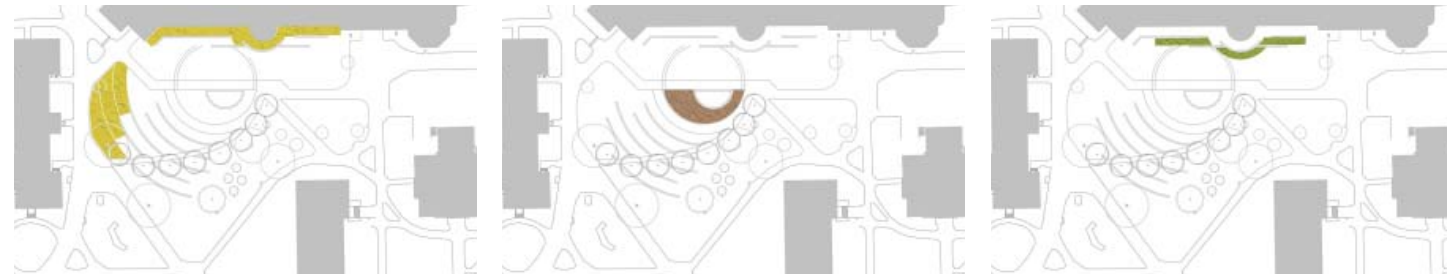
The dry swales mainly contain grasses with a sprinkling of flowers and forbs. Grasses are most appropriate for dry swales because "they have many stems to slow water flow and can be repeatedly mown during the growing season" (37). The planted species also have a higher variety of water tolerance – ranging from dry-medium to medium-wet.

The Kentucky Coffee Tree 'Espresso' will be planted in the curvilinear row of trees.

This Kansas native's scientific name is *Gynocladus dioicus* 'Espresso'. It is drought tolerant, requires full sun, and will reach 35-40' spread and a 50-60' height (Arbor Day Foundation n.d.). Filtered sunlight through its foliage will create a dappled shade for site users.

On the following pages, Figures 07.23-25 visualize the plant zones' seasonality. Coffman Commons will be in bloom from May to October, as a variety of species are present for visual interest.

Figure 07.22: top
Plant Zones Reference Maps (by author)
Table 07.03: right
Plant Palettes (Shaw + Schmidt 2003)



Dry Zone

Rain Garden

Dry Swale

Dry Zone

Scientific Name

Aquilegia canadensis
Echinacea pallida
Echinacea purpurea
Euphorbia corollata
Petalostemum purpureum
Rudbeckia hirta
Schizachyrium scoparium

Common Name

Wild Columbine
Pale Purple Coneflower
Purple Coneflower
Flowering Spurge
Purple Prairie Clover
Black-eyed Susan
Little Bluestem

Type

Flower/Forb
Flower/Forb
Flower/Forb
Flower/Forb
Flower/Forb
Flower/Forb
Grass

Height

3 ft
3ft
1 ft
3 ft
1.5 ft
3 ft
3 ft

Water Tolerance

Dry
Dry
Dry
Dry
Dry
Dry
Dry

Rain Garden

Scientific Name

Aster novae-angliae
Carex vulpinoidea
Glyceria striata
Liatris ligulistylis
Liatris pycnostachya
Rudbeckia subtomentosa
Silphium perfoliatum
Sorghastrum nutans
Veronica fasciculata
Zizia aurea

Common Name

New England Aster
Fox Sedge
Fowl Manna Grass
Meadow Blazingstar
Prairie Blazingstar
Sweet Black-eyed Susan
Cup Plant
Indian Grass
Ironweed
Golden Alexanders

Type

Flower/Forb
Grass
Grass
Flower/Forb
Flower/Forb
Flower/Forb
Flower/Forb
Grass
Flower/Forb
Flower/Forb

Height

5 ft
2 ft
4 ft
3.5 ft
4 ft
5 ft
6 ft
7 ft
5 ft
2 ft

Water Tolerance

Medium
Medium
Medium-Wet
Medium-Wet
Medium
Medium
Medium-Wet
Medium-Wet
Medium
Medium-Wet

Dry Swale

Scientific Name

Baptisia australis
Carex vulpinoidea
Elymus virginicus
Glyceria striata
Lobelia siphilitica
Sporobolus heterolepis
Verbena hastata

Common Name

Blue False Indigo
Fox Sedge
Virginia Wild Rye
Fowl Manna Grass
Blue lobelia
Prairie Dropseed
Blue Vervain

Type

Flower/Forb
Grass
Grass
Grass
Flower/Forb
Grass
Flower/Forb

Height

4 ft
2 ft
3 ft
4 ft
2.5 ft
2.5 ft
3 ft

Water Tolerance

Dry-Medium
Medium
Medium
Medium-Wet
Medium
Dry-Medium
Dry-Medium

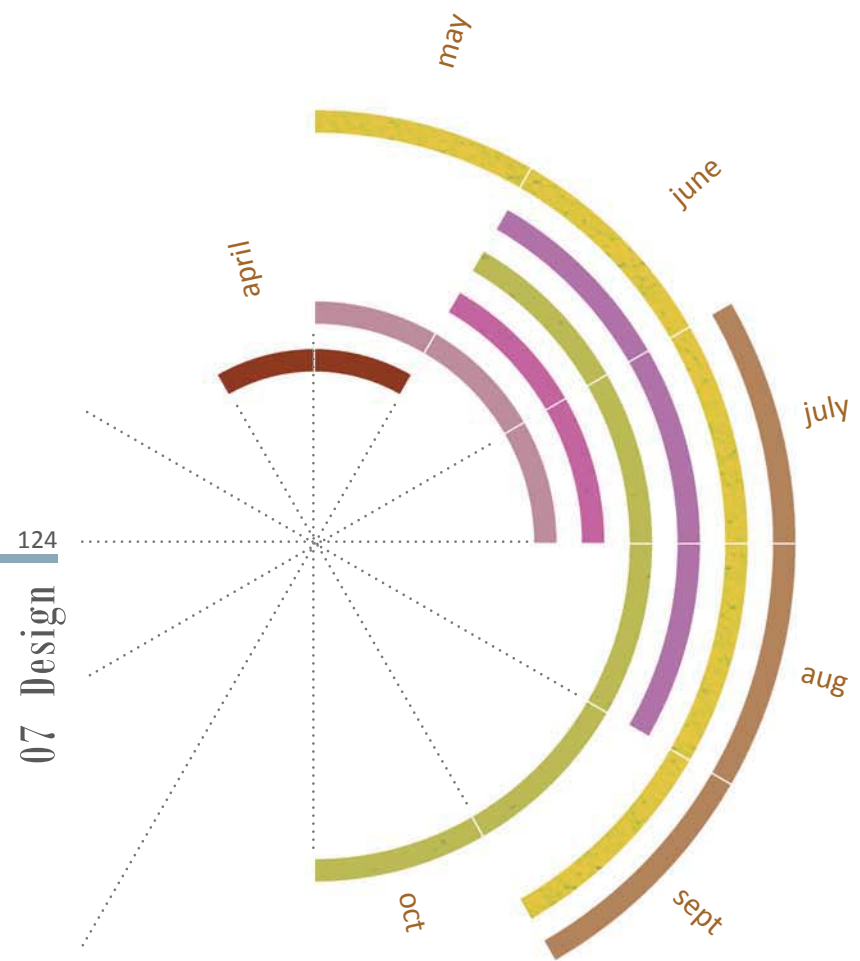
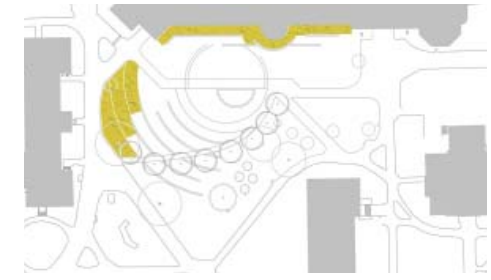
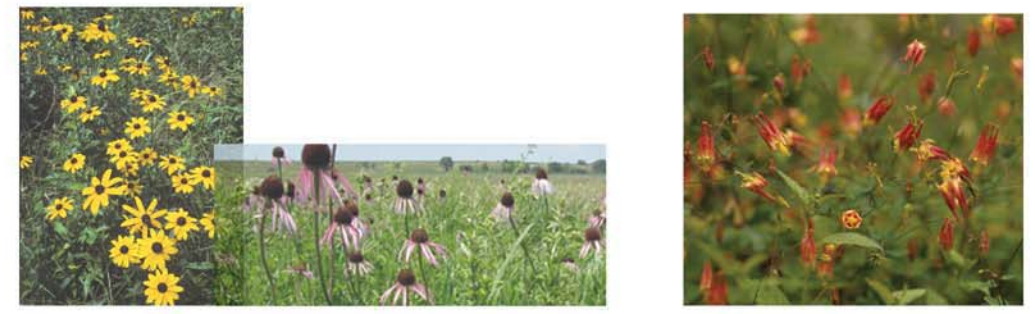


Figure 07.23:
 Dry Zone Seasonal Bloom Chart (by author)
 Note: Diagram format adapted from StossLU (Lee 2009, 65)

dry zone



spring



summer



rain garden

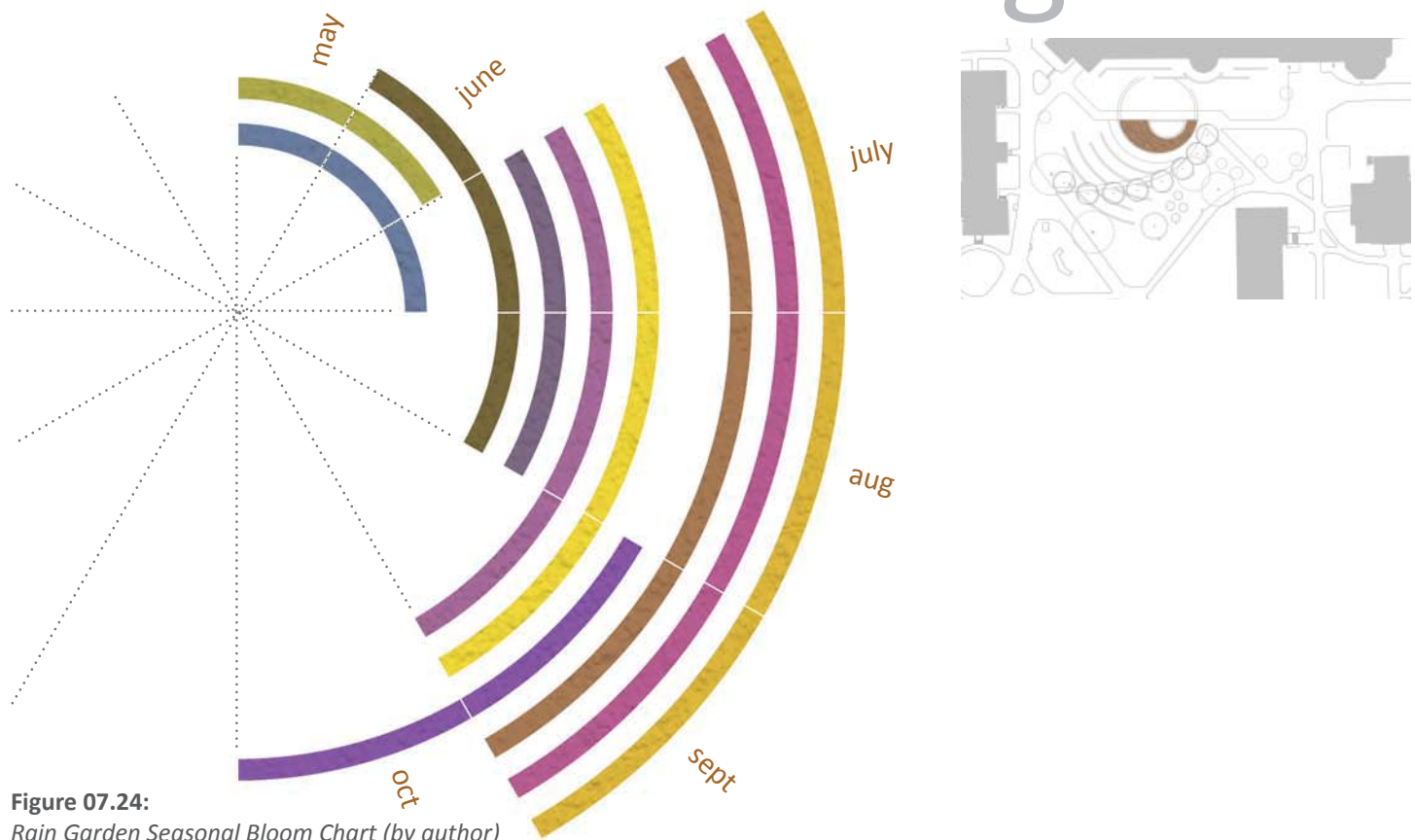


Figure 07.24:
Rain Garden Seasonal Bloom Chart (by author)
 Note: Diagram format adapted from StossLU (Lee 2009, 65)

spring



fall



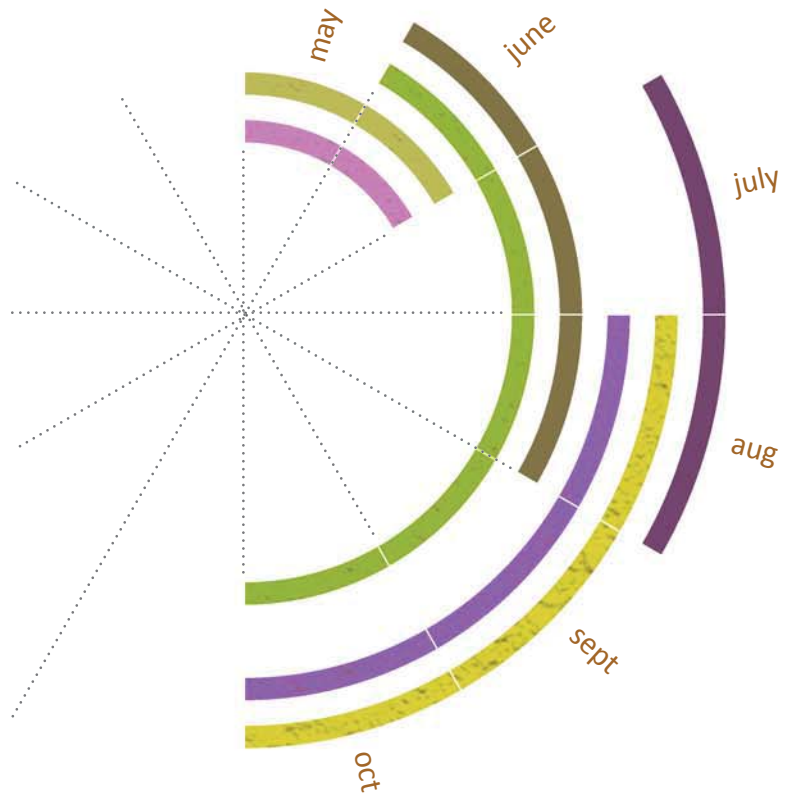
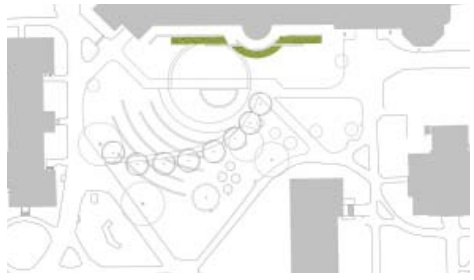


Figure 07.25:
 Dry Swale Seasonal Bloom Chart (by author)
 Note: Diagram format adapted from StossLU (Lee 2009, 65)

dry swale



spring



fall



Commemoration Emphasis

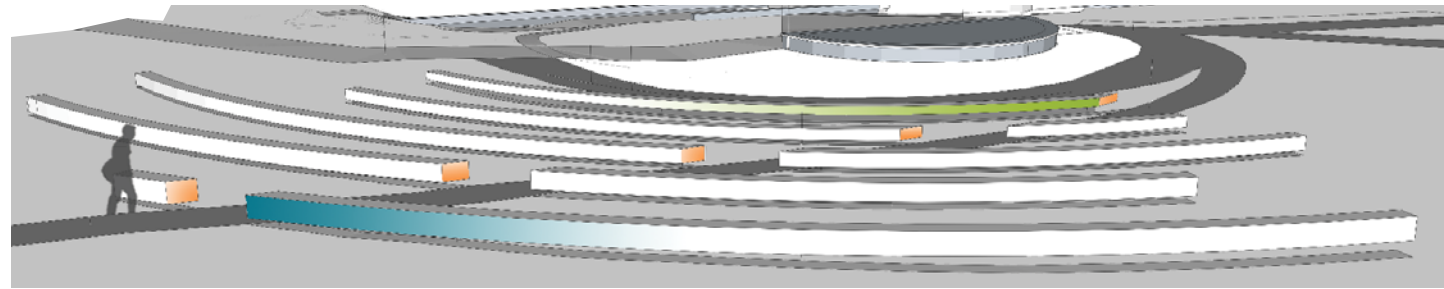
Dr. James Coffman desires for the Commons to hold a pronounced display for K-State's Distinguished Teaching Scholars. He is a renowned equine surgeon, who proactively promoted teaching excellence while he served as Dean of the College of Veterinary Medicine and University Provost. His commitment to excellence needs to be celebrated by honoring the faculty members who have received this prestigious award. As discussed in Chapter 04 *Orient*, each Coffman Chair for University Distinguished Teaching Scholars is inscribed on a small plaque in Hale's entry hall. This plaque remains, but a more prominent location for these names will be present in Coffman Commons.

As people walk by, or perch on the elevated lawn, they will also notice the Distinguished Faculty inscriptions on the limestone cap. The elevated lawn is in the center of Coffman Commons. Placing the inscriptions on this focal point allows for visibility and hopefully fosters greater appreciation for these faculty members. Etched into the elevated lawn's plexiglass wall reads "Coffman Commons." Today few students, faculty, and staff know the name of this green space - a disservice to Dr. Coffman. Offering this simple feature, on a modernized surface will help brand the space. Figure 07.28 shows these inscriptions.

To make known the ideals of K-State

and Dr. Coffman, visionary statements are inscribed on the curvilinear limestone seats. Figure 07.26 displays the inscriptions to be used and their placement on the curvilinear seating. The interior end caps of the seating are engraved with gestural curves inspired by the profiles of horses (Figure 07.27).

As students, faculty, staff, and visitors travel through the site they can quickly grasp the vision of K-State's commitment to teaching excellence. At night the seating is lit up from underneath - showcasing the inscriptions (Figure 07.29).



LEGEND:

Coffman Commons | University commitment to excellence in teaching and learning | Horse engravings



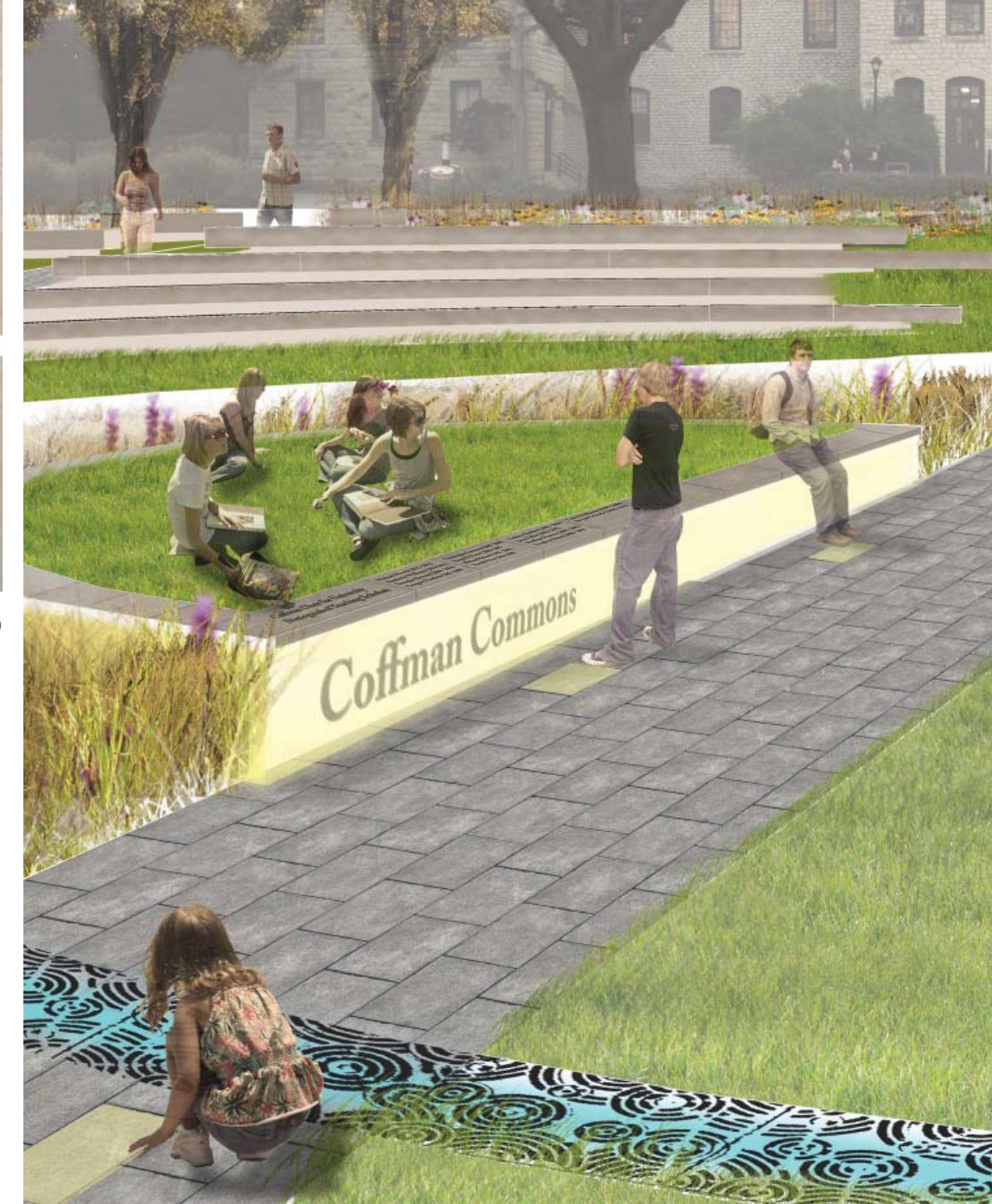
Horse Engravings In Limestone End Cap

Figure 07.26: left
Location of inscriptions (by author)

Figure 07.27: above
Engravings in limestone end cap
inscriptions (by author)

Figure 07.28: right
K-State university's distinguished faculty
inscriptions (by author)

Figure 07.29: next page
Coffman Commons at night (by author)





Lighting Systems

K-State's campus is active around the clock. Intentionally designing user experience in daylight and at night is important. The need for lighting on campus at night is essential for safety. Light can also be celebrated as an artful expression. The new aesthetic for Coffman Commons offers lighting design that addresses safety, aesthetics and a third benefit – sustainability. Figure 07.30 on the right illustrates the master lighting plan. The lighting features are labeled on the plan. The following pages discuss the lighting features for each of Coffman Commons's design elements.

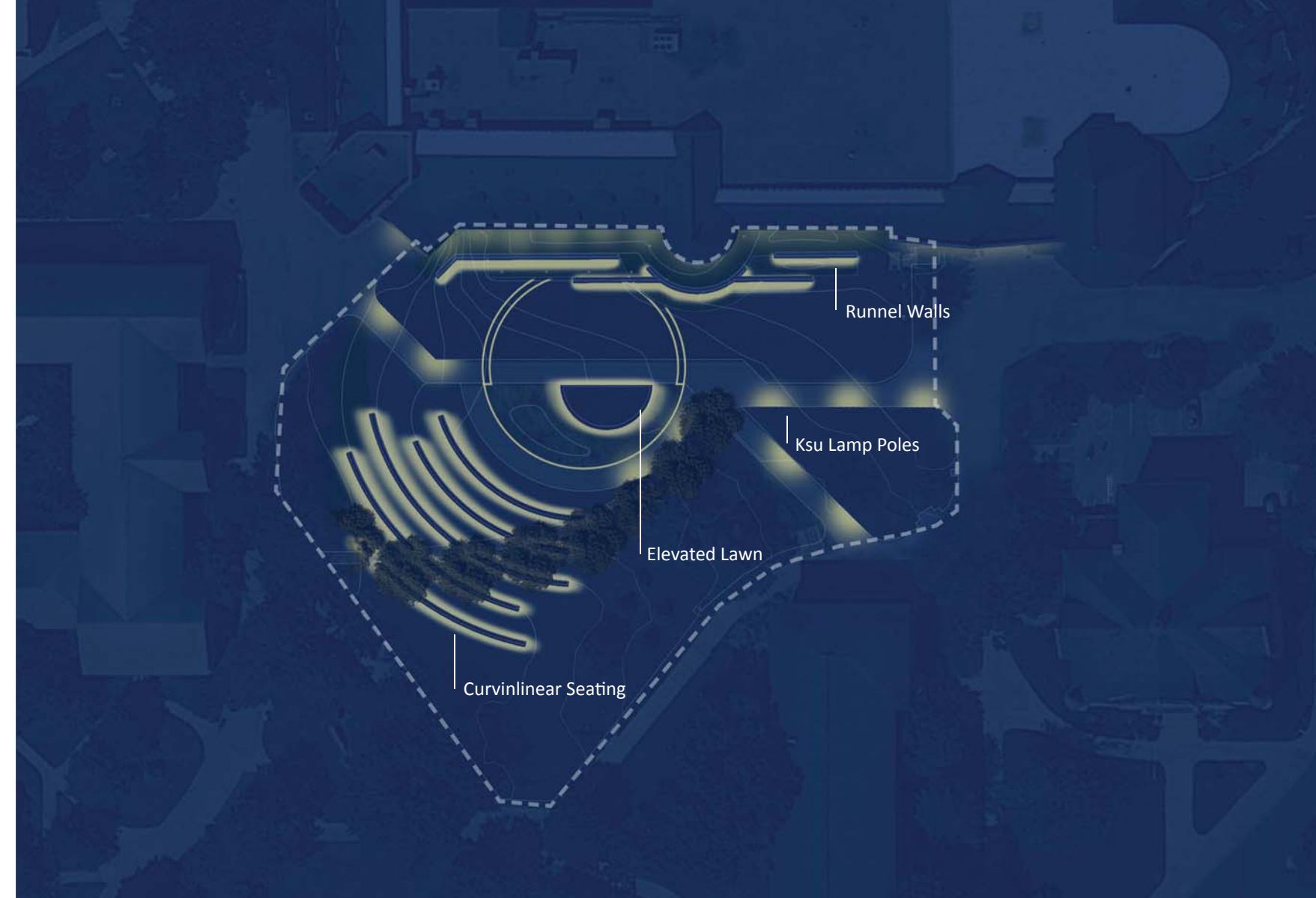


Figure 07.30:
Lighting Design Master Plan (by author)

Lighting Features

A mixture of traditional and modern lighting fixtures is used in the new design of Coffman Commons. Each site feature's lighting fixture is discussed below with a supplemental image on the right.

Curvilinear Seating

Rope lighting wraps under each side of the curvilinear seating – accentuating the seat element's clean lines. With the source light coming from the bottom, the limestone benches begin to look as if they are hovering over the ground. This concept can be seen in Figure 07.31.

Runnel Walls

The stormwater runnel walls next to Hale's façade have small spot lights shining on

them. An example of this type of lighting can be seen in Figure 07.32. They highlight the limestone façade and silhouette the dry swale's plantings in front.

Elevated Lawn

In the center of the Commons is the elevated lawn. The walls are veneered with plexiglass. It illuminates beautifully at night as lighting is placed behind the plexiglas – creating a linear light box (see Figure 07.33 for an example). The light box becomes the focal point by drawing the eye into the space and showcasing the silhouetted plantings in the rain garden.

Sidewalk Entrances

Toward the edges of Coffman Commons,

the sidewalks house the standard K-State light poles. This design decision insures consistency across campus. The same light pole is repeated throughout the entire campus. It portrays a traditional aesthetic. Figure 07.34 is a picture of a K-State light pole currently in Coffman Commons.



Figure 07.31:
Curvilinear Seating (Gollins, 2012)



Figure 07.32:
Water Runnel Walls (Timmerman, n.d.)



Figure 07.33:
Elevated Seat Wall (StudioThomas, n.d.)

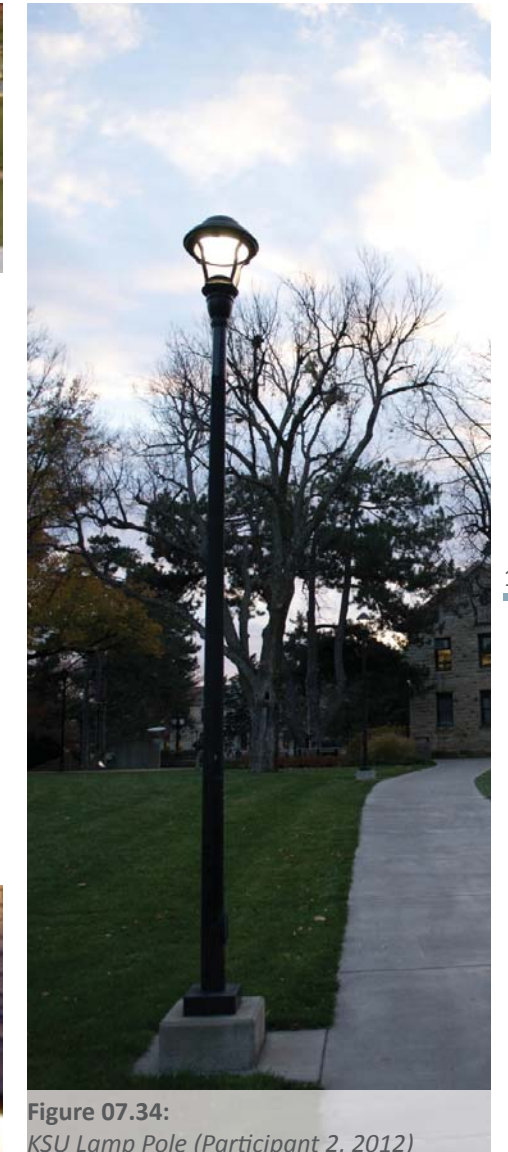


Figure 07.34:
KSU Lamp Pole (Participant 2, 2012)

Piezoelectric Technology

What is it?

Walking, running, biking, dancing – all of these are kinetic movements which exert energy. Kinetic energy can be harvested from such movements through piezoelectricity. What is piezoelectricity? It is the “science of drawing power from mechanical stress, including motion” (Gaylord 2007). Piezo is derived from the Greek word piezein which means to push, press, or squeeze (Piezo 2013). Thus, piezoelectricity is created under pressure.

How does it work?

An electrical charge is produced when certain crystals undergo a mechanical strain or receive a certain amount of pressure. The crystals actually shift or

move – causing the electric polarization (Lind 2006). The pressure and vibration exuded in physical motion is enough to create an electrical charge which can be stored or used right away.

How is it used?

Walkable floor applications have begun to test piezoelectric applications which transform “sidewalks and roads into electric generators” in the United States, Europe, and Japan (Patron 2008, Gaylord 2007). This MP+R proposes a piezoelectric flooring system for Coffman Commons’s northern sidewalk (Figure 07.36). This sidewalk is appropriate for it receives heavy traffic during rush hour by commuters on foot, bike, and gator. The

system process is diagrammed in Figure 07.37. Figure 07.35 identifies the assorted pressures made by users.

What purpose is it used for?

The electricity generated from Coffman Commons’s commuters is primarily to be used for the site’s night lighting. The night lighting fixtures are powered by the electricity that was stored during the day. Secondly, a fraction of the electricity will light up pavement tiles to engage the user in his/her journey across the site. The tile that lights up is in front of the tile the user steps on, encouraging the person to keep moving forward – avoiding fascination that results in traffic congestion.

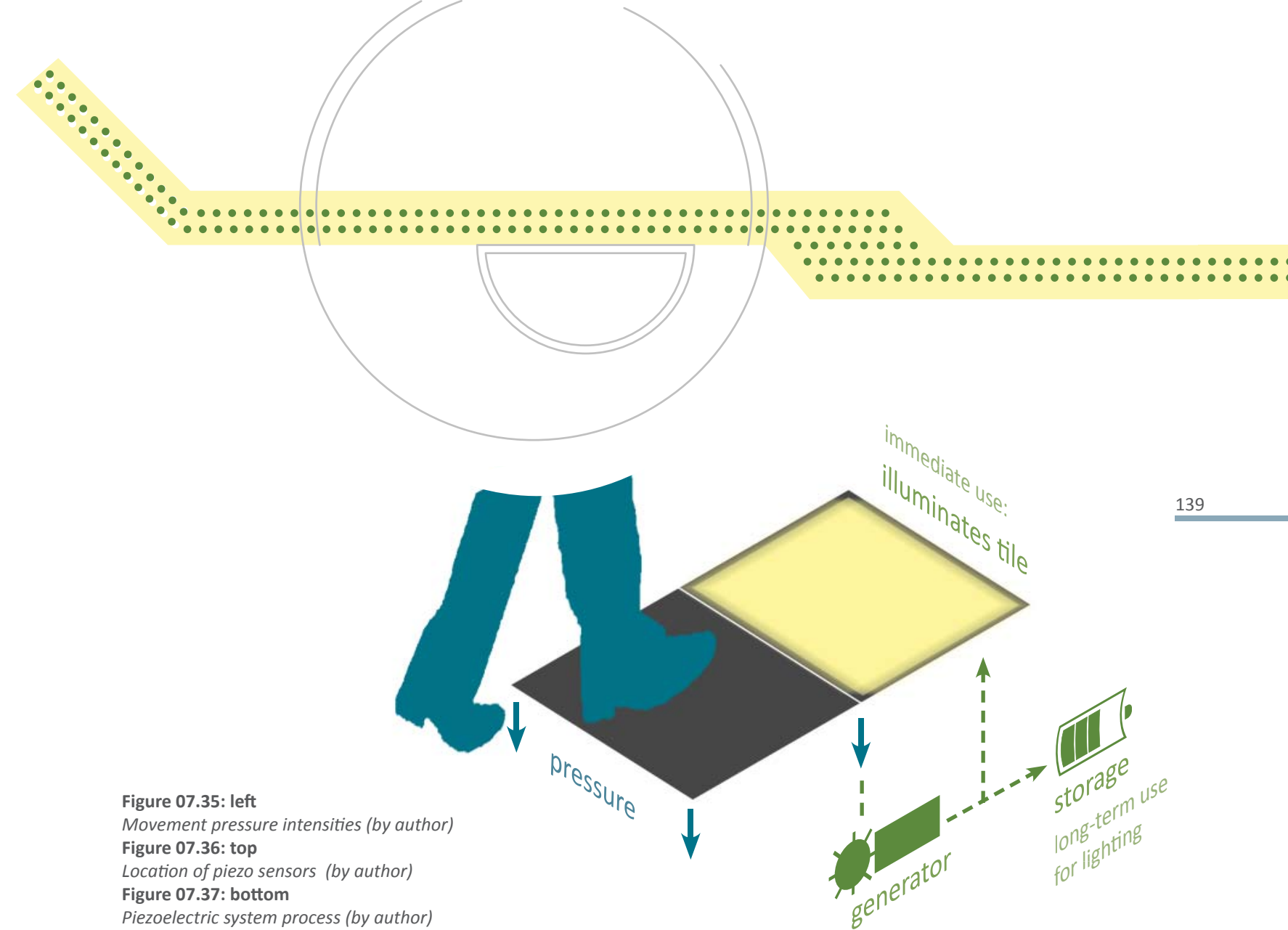
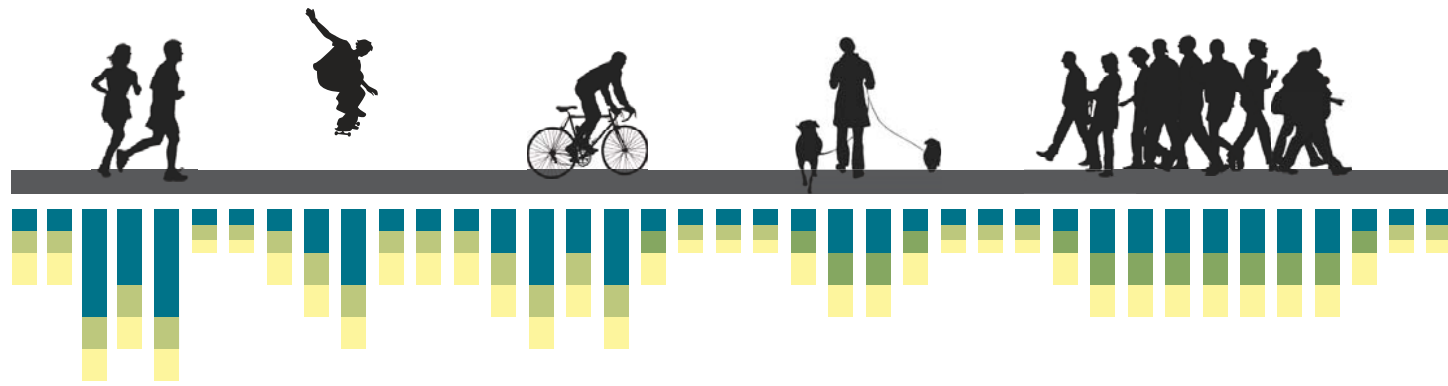


Figure 07.35: left
Movement pressure intensities (by author)

Figure 07.36: top
Location of piezo sensors (by author)

Figure 07.37: bottom
Piezoelectric system process (by author)

Throughout the day commuters charge the batteries by walking or biking across the pavement. The highest capacity for electricity generation is during campus rush hours. The immediate piezoelectric effect is visible to all site users as the pavement tiles in front of them light up. Figure 07.38 illustrates this effect. The majority of the electricity stored during the day is used to power the lighting fixtures at night. Figure 07.38 visualizes the light box which illuminates from the day's stored electricity.

Piezoelectricity is an emerging technology which has not proven to be entirely efficient or cost-effective yet. However, this idea of harvesting foot traffic should not be dismissed. K-State is pushing hard to claim a place as a top 50 research institution. Implementing the piezoelectric technology in Coffman Commons would help support the University's research-oriented vision as the Commons would become a hub for piezoelectric technology. This installation would also support collaborative efforts between landscape architecture and engineering departments on campus. Securing funding grants from a federal agency would seem to be possible given the installation's research and collaborative purposes. Thus, this new technology will spur further initiatives at K-State to increase its campus' landscape performance.

Figure 07.38:
Night Landscape (by author)



Synthesis of Components

The design components that comprise the new aesthetic for Coffman Commons include: social systems, ecological systems, commemoration emphasis, and lighting systems. Their functionality and aesthetic aspects complement each other. The design components do not perform separately, rather they perform together.

The social systems, curvilinear seating and elevated lawn, are placed within the ecological systems (planting zones and water runnels). This enables site users to engage in the ecological process of stormwater. People can observe and discover how stormwater can be responsibly managed on site. The ecological systems offer a softer and more

inviting aesthetic to Coffman Commons while simultaneously conveying, filtering, and infiltrating stormwater.

Having the commemorative inscriptions embedded in the site elements adds another layer of meaning to Coffman Commons. It celebrates the accomplishments of faculty and also calls for continued commitment to excellence in teaching and learning.

The lighting systems engage the social systems and highlight the commemoration emphasis. With piezoelectric technology, the campus community can actively participate in the generation of electricity for Coffman Commons's lighting. The lit

pavement tiles, which respond to foot pressure, activate the users' experience and impress them with a new technology to understand and appreciate.

The relationships between the design components are subtle yet influential. The design is complex and carefully articulated, but this is not objectionable to site users; instead cohesion, simplicity, and elegance are perceived.

Design Goals + Objectives Made Manifest



The design goals and objectives, outlined earlier in this chapter, are revisited at this time (for review see Table 07.02). They were to assist and direct design decisions to ensure an appropriate design. The set goals proposed design intentions. The objectives offered design solutions to apply. The following mappings diagram how each goal and objective manifested in the new design (Figures 07.39-42). The detailed legends explain the physical implementation of each objective. The established goals and objectives did promote clarity, sensitivity, and direction during the design process.

design construction



goal: respect the university's historic character

LEGEND:
Framework Attribute: Objective

Materiality:
 continue using limestone
 and metal used on Hale

walls + seating are limestone 
 circle form repeated 

Objects:
 update site furnishings + introduce
 more creative lighting solutions

rope lighting under all walls 
 illuminating the curves 

Whole Space:
 strengthen the visual + physical
 relationship between Hale +
 Coffman Commons

linear + diagonal lines mirrored from Hale 

circle form repeated 

visual relationship of amenity to Hale 

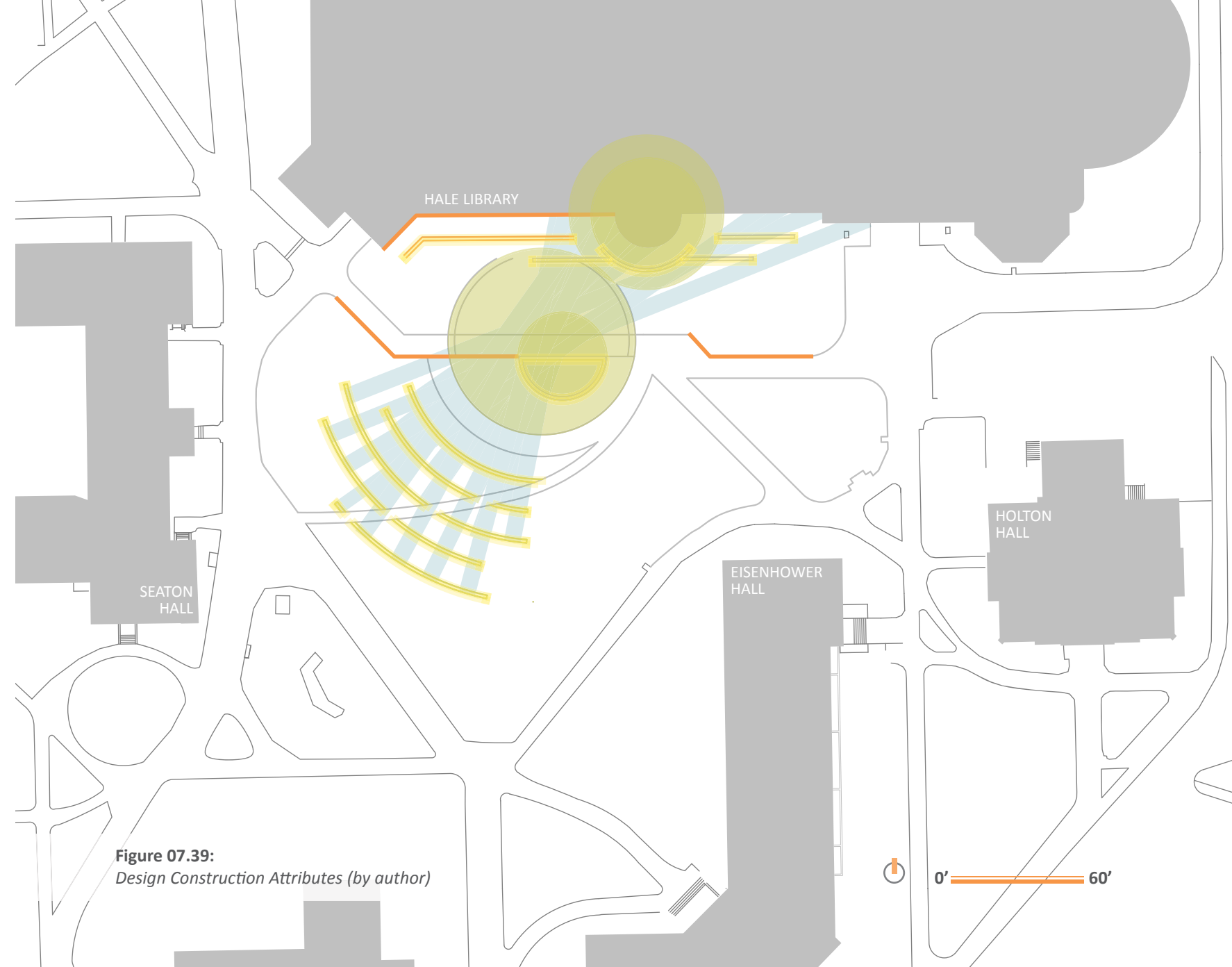


Figure 07.39:
 Design Construction Attributes (by author)

goal: promote social engagement opportunities

social utility

LEGEND:

Framework Attribute: Objective

Collective Activity:
offer a space to gather + Create
more seating options

various spaces are physically
defined for gathering areas

curvilinear seating

Individual Activity:
maintain maintenance
+ ADA accessibility

all paths remain accessible
to all site users

Movement Types:
establish one pedestrian route
that slows traffic to stop + notice
commemorative feature

narrowed path moves through
the curvilinear seating bands with
commemorative inscriptions

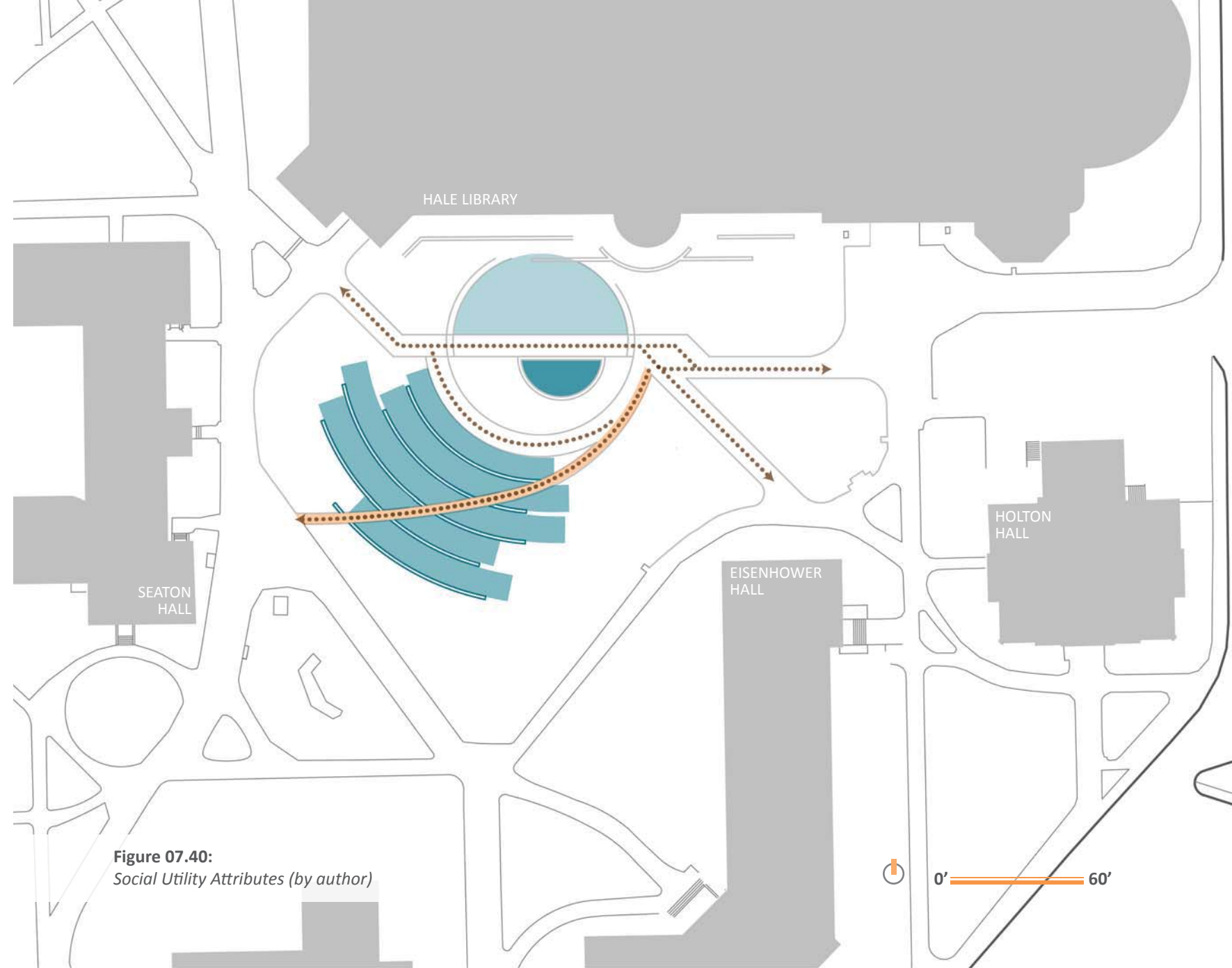


Figure 07.40:
Social Utility Attributes (by author)

goal: design purposefully to enhance the image and meaning of Coffman Commons
aesthetic response + meaning

LEGEND:

Framework Attribute: Objective

Visibility:

capitalize on views from
 Hale's loggia + unobstructed
 view of Hale's facade

*viewsheds from Hale's loggia and
 Coffman Commons's amenity*

Other Senses:

offer a variety of surfaces
 for textural interest

- curvilinear limestone seating* 01
- limestone walls with metal accents* 02
- limestone stepping stones* 03
- rain garden* 04
- elevated lawn* 05
- piezoelectric lighting technology* 06

Commemoration:

exhibit infrastructure to
 commemorate Dr. Coffman +
 Distinguished Faculty

*curvilinear seating bands are inscribed
 with commemorative inscriptions*

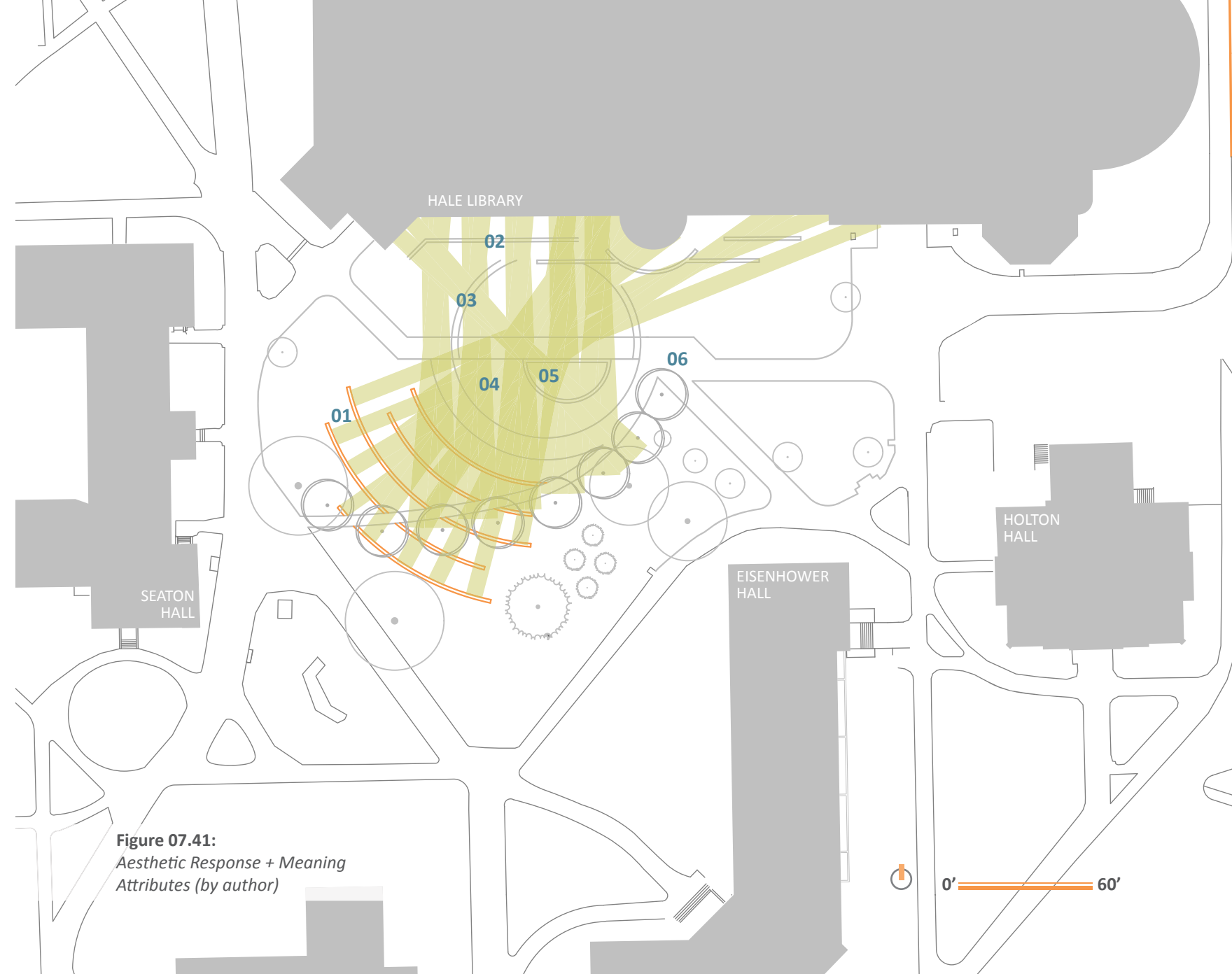


Figure 07.41:
*Aesthetic Response + Meaning
 Attributes (by author)*

goal: boost Coffman Commons's water management
 ecological performance

LEGEND:
 Framework Attribute: Objective

Plants:
 introduce more foliage: drought tolerant + water species

Kentucky Coffee Tree 'Espresso' ■

water species for rain garden ■

Water Utility:
 Increase efficiency of site conveyance, filtration, + infiltration

downspout rerouted through wall system ●●●

rain garden increase filtration + infiltration ■

Water System:
 implement visible water systems

lawn ■

rain garden + permeable paving ●●●

disconnecting downspouts + runnels ■

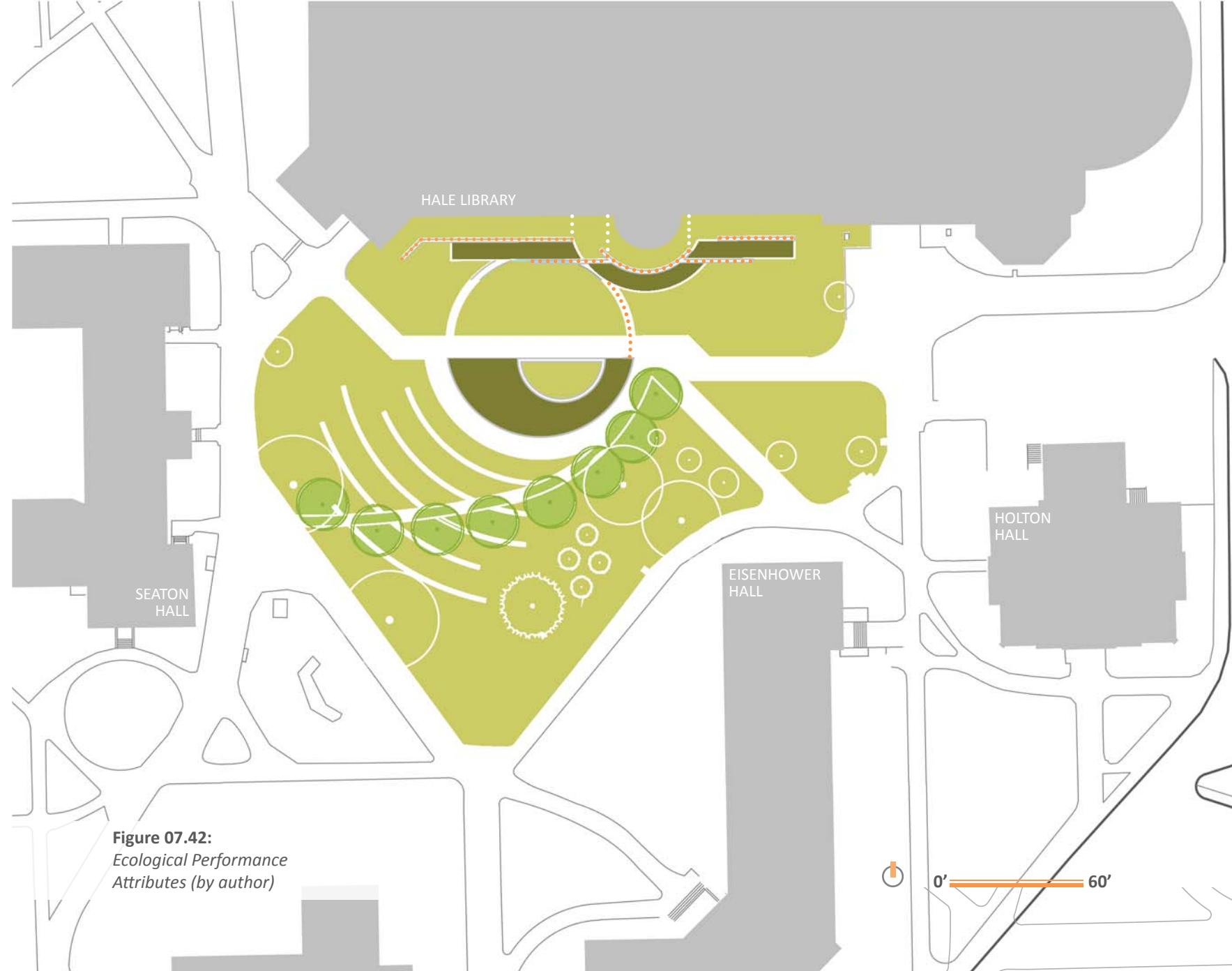


Figure 07.42:
 Ecological Performance
 Attributes (by author)

Review of the Design

Implementing a 21st century campus aesthetic is needed to complement the progressive efforts of the University. The design of Coffman Commons is a high-performance landscape that accomplishes these benefits: activates user experience, celebrates ecological processes, offers research opportunities for piezoelectric technology, and commemorates K-State teaching achievements. Coffman Commons can stand as a precedent for future improvements to K-State's landscape. Lastly, this campus design exemplifies K-State's initiative to qualify as a top 50 research and teaching institution.

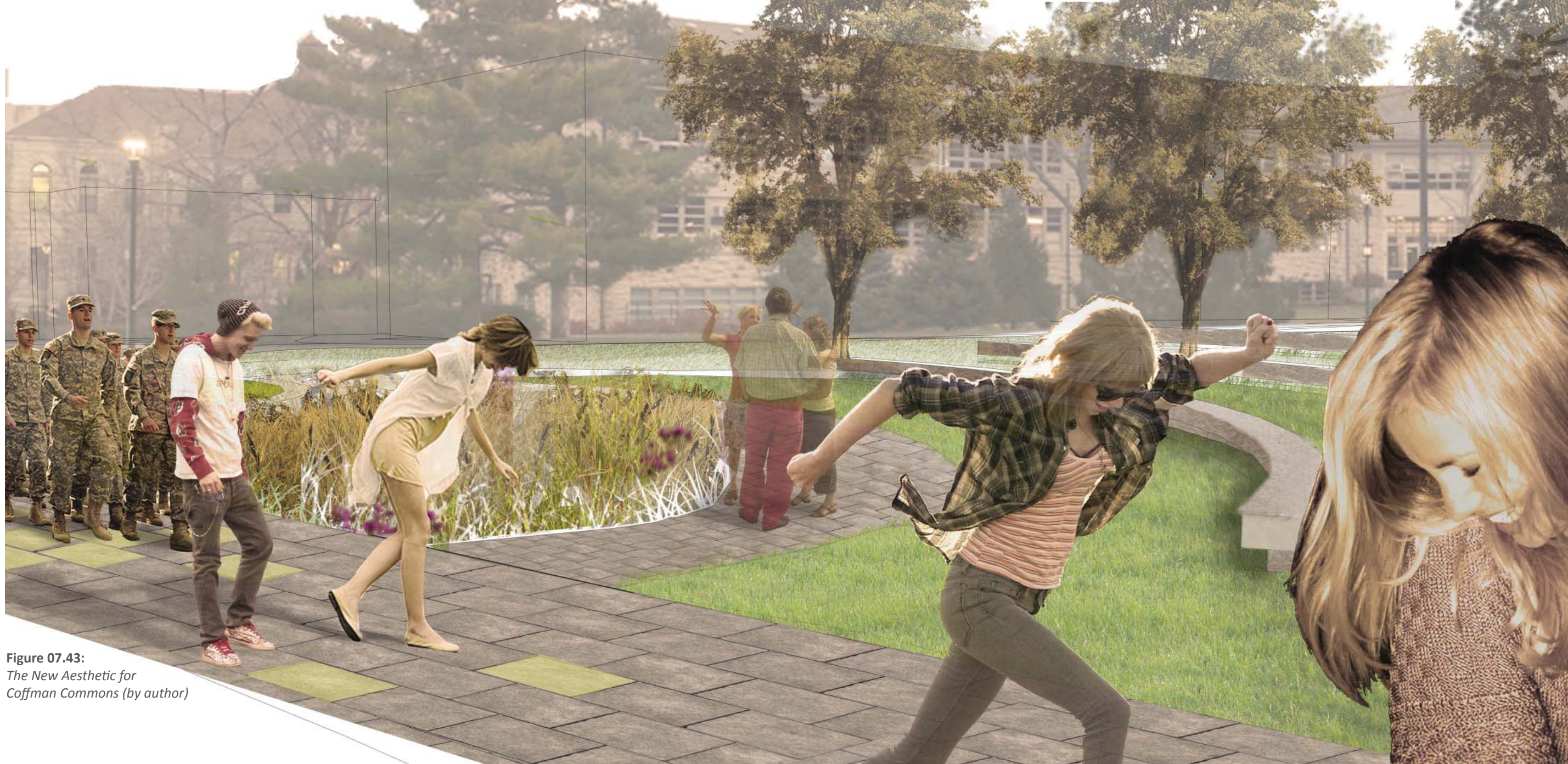


Figure 07.43:
*The New Aesthetic for
Coffman Commons (by author)*

Conclude 08

This chapter wraps up the MP+R.
It discusses findings, design
implications and contributions,
limitations, and further research.

MP+R Findings

The culmination of this MP+R is difficult to put into words. The complexity, thoughtfulness, struggles, and discoveries contributed to a rich and sometimes mysterious process. The experience and results were rewarding in professional and personal ways. Below I reflect on the entire process.

The conceptual framework enabled cohesion and structure, and ultimately ordered a manageable approach for this MP+R. It touched nearly every aspect of the MP+R process. The framework's hierarchy (four categories with twelve attributes) permitted a deeper level of thought and meaning in each project decision.

The greatest insights came from using photography in my research process. After hearing Anne Spirn speak of photography as an "act of discovery" so keenly, I held photography in high esteem and began crafting it into a research method (Spirn 2012). I believed using photography as a research method would culminate into this

epiphany that I otherwise would not have experienced. However, this anticipation was misguided as my discoveries were more subtle. The observations and interpretations I formed from participant photographs and my own were not ground-breaking, but still significant in influencing the design process. The subtle nature of the photographic discoveries in itself was a discovery for me.

Using photography as research did alter the way I approached Coffman Commons. Knowing that photojournalism was my primary research method kept me accountable in visiting Coffman Commons regularly. While I did not photograph or journal during each visit, my train of thought was influenced by the method.

Before this project, my tendency when photographing a site was monotonous and unfeeling. The goal was to document site characteristics rather than capture site character or performance patterns. I believe this research process attuned me to composing photographs of the site

which can tell a story, rather than a simple, empty photographic inventory.

I carried expectations into the photographic research process. Some of these were confirmed, others turned out to be misguided. I assumed participants would respond to the landscape differently than I would through photography. My assumption was confirmed. Collectively the participants focused on the visual and textural qualities of Coffman Commons, while I focused more on how the landscape was performing socially and ecologically.

I have come to understand photography as a tool with techniques to learn, promote, convey, or add emphasis to an idea, concept, object, or pattern. Photography to me now is much more than a means to an end. I see now that it can leave open ended questions that, as a result, can launch a design forward into a rich and iterative design process.

Photographic research brought

confirmation, redirection, and surprises to my MP+R. It served as refreshment to my research efforts and inspiration to my design efforts. It was a unique experience and resulted in an act of discovery as Spirn had noted in her lecture (Spring 2012).

During the design process I discovered another benefit of my photographic research. Photography enhanced my drawing skills. As I sketched design possibilities I realized I was drawing site vignettes with ease. I attribute this to my familiarity with Coffman Commons as I have captured and reviewed numerous photographs of the site. This was an encouraging discovery.

The design process for Coffman Commons was not without its difficulties. A particular challenge arose as schematic designs were being created. Tension existed between prioritizing the design of a pragmatic, implementable landscape and one that pushes feasibility and showcases ingenuity and artistic flair. The goal was to marry the two approaches

to create a thoughtfully artistic, engaging design which could realistically be built.

Discussion + Limitations

The photographic research method ran an unprecedented course. Minimal literature exists on photography's potential as a research method for landscape architecture projects. Thankfully, this MP+R modeled its process after Pullman and Robson's research in the hotel and restaurant business (2007). Execution of the photojournalism method fell into place smoothly. Difficulty arose when I began trying to apply the photographic research results to the design method. At first, I expected it to be a linear process with quantitative efforts. Instead, I learned it was an iterative process that danced the line of subjective and objective decision-making. I discovered that qualitative insights can be just as informative to the design process as quantitative results.

With time being a limiting factor, I did not reach as many participants as I had

hoped for. Only six K-State individuals completed the photo session. The photographic results could have been more substantiated if there was a larger sample group. Even with a larger group of participants the demographics would remain K-State students, faculty, and staff.

Further Research

The community involvement process through photo journalism was engaging and helpful. It enabled my design efforts to be responsive to the campus community's aesthetic expectations. To further enrich contextual specificity, I would return to each research participant and conduct a follow-up survey gaging reactions to a new aesthetic for Coffman Commons. Their responses would undoubtedly be interesting and informative. Their collective responses would also enable me to grasp their receptiveness to a new aesthetic and acceptance of change.

Implications + Contributions

Incorporating photography as a defined research method to inform my design process was a beneficial decision. Hopefully this MP+R will encourage other landscape architects to utilize photography as an important tool for landscape discovery and design.

The design complexity and meaning of this MP+R are a tribute to Dr. Coffman and K-State's Distinguished Faculty. These individuals' commitment to excellence in teaching is to be honored in this space.

The new aesthetic proposed here stands as a promotion for K-State to begin rethinking the performance potential of its campus's exterior environments. Just as at Coffman Commons, other spaces on campus can be transformed into high-performance landscapes (Figure 08.01).

Lastly, the most critical component of this MP+R is its contribution to my continuing passion for working with the campus landscape. The next generation of

innovators and discoverers walk through college campuses each day. The campus landscape should inspire: it should reflect the innovation, creativity, and responsibility of its users.

The Campus Landscape must be sensitive and appropriate to the community's expectations and needs. It also needs to intertwine social and ecological performance while simultaneously expressing University ideals and character. Kansas State University's Coffman Commons holds the potential to be this 21st century landscape.

Figure 08.01:
A New Campus Aesthetic - Starting with Coffman Commons (by author)



Image Sources

Figure 04.01: “Vitruvius Triad Variations.” 2012. Figure by Sarah Flynn. Adobe InDesign. Adapted from: Capon, David. 1999. *Architectural Theory: Volume 1*. 20. John Wiley and Sons.

Figure 04.04: Flynn, Sarah 2012. “Plaque Commemorating Dr. Coffman.” Digital photograph.

Table 05.01: “Research Strategies Framework” 2012. Table by Sarah Flynn. Adobe InDesign. Adapted from: Swaffield, Simon and M. Elen Deming. 2011. “Research strategies in landscape architecture: mapping the terrain.” *Journal of Landscape Architecture*, (Spring 34-35)

Figure 06.02: Participant 1. 2012. “Anthology.” Digital Photographs by Dr. Jana Fallin.

Figure 06.03: Participant 1. 2012. “Anthology.” Digital Photographs by Dr. Jana Fallin.

Figure 06.04: Participant 1. 2012. “Anthology.” Digital Photographs by Dr. Jana Fallin.

Figure 06.05: Participant 2. 2012. “Anthology.” Digital Photographs by Bekah Bailey.

Figure 06.06: Participant 2. 2012. “Anthology.” Digital Photographs by Bekah Bailey.

160

Figure 06.07: Participant 3. 2012. “Anthology.” Photographs by Shreepad Jogelkar.

Figure 06.08: Participant 3. 2012. “Anthology.” Photographs by Shreepad Jogelkar.

Figure 06.09: Participant 4. 2012. “Anthology.” Photographs by Eric Zoeller.

Figure 06.10: Participant 4. 2012. “Anthology.” Photographs by Eric Zoeller.

Figure 06.11: Participant 5. 2013. “Anthology.” Photographs by Hana Johnson.

Figure 06.12: Participant 5. 2013. “Anthology.” Photographs by Hana Johnson.

Figure 06.13: Participant 6. 2013. “Anthology.” Photographs by Diana Reichuber.

Figure 06.14: Participant 6. 2013. “Anthology.” Photographs by Diana Reichuber.

Figure 06.26: Flynn, Sarah 2012. “October 16, 2012 Site Visit.” Digital photograph.

Figure 06.27: Flynn, Sarah 2012. “Visibility.” Digital photograph.

Figure 06.28: Flynn, Sarah 2012. “October 17, 2012 Site Visit.” Digital photograph.

Figure 06.29: Flynn, Sarah 2012. “October 24, 2012 Site Visit.” Digital photograph.

Figure 06.30: Flynn, Sarah 2012. “November 5, 2012 Site Visit.” Digital photograph.

Figure 06.31: Flynn, Sarah 2012. “November 8, 2012 Site Visit.” Digital photograph.

Figure 06.32: Flynn, Sarah 2012. “November 14, 2012 Site Visit.” Digital photograph.

Figure 06.33: Flynn, Sarah 2012. “Whole Space.” Digital photograph.

Figure 06.34: Flynn, Sarah 2012. “Ground plane Inscriptions.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 06.35: Flynn, Sarah 2012. “Encourage lawn use.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 06.36: Flynn, Sarah 2012. “Maintenance vehicle.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 06.37: Flynn, Sarah 2012. “Maintenance vehicle access.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 06.38: Flynn, Sarah 2012. “Lone rider.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 06.39: Flynn, Sarah 2012. “Density of West Sidewalk.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 06.40: Flynn, Sarah 2012. “Collective Activity: Path vacancy.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 06.41: Flynn, Sarah 2013. “Individual Activity: Enabling movement.” Digital photograph.

Figure 06.42: Flynn, Sarah 2013. “January 30, 2013 Site Visit.” Digital photograph.

Figure 06.43: Flynn, Sarah 2013. “February 27, 2013 Site Visit.” Digital photograph.

Figure 07.03: Flynn, Sarah 2012. “Swale adjacent to Hale.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 07.07: Flynn, Sarah 2012. “Ground plane advertisements.” Digital photograph and Diagram with iPad app “ArtStudio.”

Figure 07.11: “Shades of spring with Pala breas in bloom.” 2008. Digital photograph by Terry Moore. Courtesy of ASLA “Accessed February 11, 2013. Reproduced from “General Design Category” <http://www.asla.org/2009awards/487.html>

Figure 07.12: Untitled. n.d. Digital photograph by Unknown author. Courtesy of Leslie E. Robertson Associates. Accessed February 11, 2013. Reproduced from “Princeton University, Butler College Dormitories.” <http://www.lera.com/projects/edu/princetonbutler.htm>

Figure 07.13: Untitled. 2010. Digital photograph by Bill Timmerman. Courtesy of ASLA. “ Accessed February 11, 2013. Reproduced from “Underwood Family Sonoran Landscape Laboratory.” <http://www.asla.org/2010awards/316.html>

161

Figure 07.14: “Steward Middle School, Sidwell Friends School, constructed wetland.” 2009. Digital photograph by Vecerka/Esto, Albert. Courtesy of Arch Daily. Accessed February 11, 2013. Reproduced from “AD Interviews: Kieran Timberlake.” <http://www.archdaily.com/32490/ad-interviews-kieran-timberlake/>

Figure 07.15: “Princess Diana Memorial Fountain.” n.d. Courtesy of Zilchoo London. Accessed April 19, 2013. Reproduced from “Garden Parks Farms.” <http://www.zilchoo.com/gardens-parks-and-farms.html>

Figure 07.23: “Dry Zone Seasonal Bloom Chart.” 2013. Diagram by Sarah Flynn. Digital photographs in diagram were cropped and ordered from left-to-right and top-to-bottom:

Rudbeckia hirta. 1991. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Rudbeckia hirta*,” http://www.wildflower.org/gallery/result.php?id_image=24334

Echinacea pallida. 2010. Photograph by Thomas L. Muller. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Echinacea pallida*,” http://www.wildflower.org/gallery/result.php?id_image=28334

Aquilegia canadensis. n.d.. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Rudbeckia hirta*,” *Aquilegia canadensis*,” http://www.wildflower.org/gallery/result.php?id_image=21318

Petalostemum purpureum. 2011. Photograph by R.W. Smith. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from: “*Petalostemum purpureum*,” http://www.wildflower.org/gallery/result.php?id_image=31758

Schizachyrium scoparium. 1987. Photograph by Benny Simpson. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from: “*Schizachyrium scoparium*,” http://www.wildflower.org/gallery/result.php?id_image=18101

Euphorbia corollata. 1994. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from: “*Euphorbia corollata*,” http://www.wildflower.org/gallery/result.php?id_image=22472

Echinacea purpurea. 1995. Photograph by Doug Sherman. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from: “*Echinacea purpurea*,” http://www.wildflower.org/gallery/result.php?id_image=2085

Figure 07.24: “Rain Garden Seasonal Bloom Chart.” 2013. Diagram by Sarah Flynn. Digital photographs in diagram were cropped and ordered from left-to-right and top-to-bottom:

Glyceria striata. n.d.. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from: “*Glyceria striata*,” http://www.wildflower.org/gallery/result.php?id_image=22641

Fox sedge. n.d. Photograph by unknown author. Courtesy of Spence restoration nursery. Accessed March 12, 2013. Reproduced from “Biotretention,” <http://www.spencenursery.com/Index/plantSearch.php?community=Bioretention>

Zizia aurea. n.d. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Zizia aurea*,” http://www.wildflower.org/gallery/result.php?id_image=25135

Aster novae-angliae. n.d.. Photograph by unknown author. Courtesy of Prairie moon nursery. Accessed March 12, 2013. Reproduced from “Product details,” <http://www.prairiemoon.com/seeds/wildflowers-forbs/aster-novae-angliae-new-england-aster/>

Liatris ligulistylis. n.d.. Photograph by unknown author. Courtesy of Prairie moon nursery. Accessed March 12, 2013. Reproduced from “Product details,” <http://www.prairiemoon.com/seeds/wildflowers-forbs/liatris-ligulistylis-meadow-blazing-star/>

Vernonia fasciculata. n.d. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Vernonia fasciculata*,” http://www.wildflower.org/gallery/result.php?id_image=24984

Sorghastrum nutans. 2010. Photograph by Nana Hampton. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Sorghastrum nutans*,” http://www.wildflower.org/gallery/result.php?id_image=28752

Liatris pycnostachya. 2000. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Liatris pycnostachya*,” http://www.wildflower.org/gallery/result.php?id_image=23074

Silphium perfoliatum. 2000. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Silphium perfoliatum*,” http://www.wildflower.org/gallery/result.php?id_image=24608

Rudbeckia subtomentosa. 2010. Photograph by R.W. Smith. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Rudbeckia subtomentosa*,” http://www.wildflower.org/gallery/result.php?id_image=31446

Figure 07.25: “Dry Swale Seasonal Bloom Chart.” 2013. Diagram by Sarah Flynn. Digital photographs in diagram were cropped and ordered from left-to-right and top-to-bottom:

Baptisia australis. n.d.. Photograph by Benny Simpson. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from: “*Baptisia australis*,” http://www.wildflower.org/gallery/result.php?id_image=17901

Glyceria striata. n.d.. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from: “*Glyceria striata*,” http://www.wildflower.org/gallery/result.php?id_image=22641

Sporobolus heterolepis. 1994. Photograph by Sally and Andy Wasowski. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from “*Sporobolus heterolepis*,” http://www.wildflower.org/gallery/result.php?id_image=24729

Blue Vervain. n.d. Photograph by unknown author. Courtesy of Wildflower farm. Accessed March 12, 2013. Reproduced from “Wildflower seeds,” <http://www.wildflowerfarm.com/index.php?p=product&id=110...1>

Lobelia siphilitica. 2002. Photograph by W.D. Bransford. Courtesy of Lady Bird Johnson Wildflower Center. Accessed March 12, 2013. Reproduced from "Lobelia siphilitica," http://www.wildflower.org/gallery/result.php?id_image=16683

Virginia Wild Rye. n.d. Photograph by unknown author. Courtesy of Agreed: Native seed, plants & restoration. Accessed March 12, 2013. Reproduced from "Virginia wild rye (elymus virginicus) - seed," http://www.agrecol.com/Virginia-Wild-Rye-Elymus-virginicus-Seed_p_120.html

Figure 07.31: "Lawns of River Quay." 2012. Photograph by John Gollins. Courtesy of Detail Daily. Accessed March 20, 2013. <http://www.detail-online.com/daily/take-a-break-from-the-northern-winter-at-the-river-quay-queensland-australia-2207/>

Figure 07.32: "Bradley Residence." n.d. Photograph by Timmerman Photography, Inc. Courtesy of 180 degrees design + build. Accessed April 1, 2013. <http://www.180degreesinc.com/degrees/bradley-residence/images/3>

Figure 07.33: Untitled. n.d. Photograph by StudioThomas. Courtesy of AIA Chicago: 2011 Small Project Awards. Accessed April 1, 2013. <http://www.aiachicago.org/spa/2011/awards.asp?subID=38>

Figure 07.34: Participant 2. 2012. "K-State Light Pole." Digital Photograph by Bekah Bailey.

Figure 09.01: "Shades of spring with Pala breas in bloom." 2008. Digital photograph by Terry Moore. Courtesy of ASLA "Accessed February 11, 2013. Reproduced from "General Design Category" <http://www.asla.org/2009awards/487.html>

164 **Figure 09.02:** Untitled. n.d.. Digital photograph by Unknown author. Courtesy of Leslie E. Robertson Associates. Accessed February 11, 2013. Reproduced from "Princeton University, Butler College Dormitories." <http://www.lera.com/projects/edu/princetonbutler.htm>

Figure 09.03: Untitled. 2010. Digital photograph by Bill Timmerman. Courtesy of ASLA. " Accessed February 11, 2013. Reproduced from "Underwood Family Sonoran Landscape Laboratory." <http://www.asla.org/2010awards/316.html>

Figure 09.04: "Steward Middle School, Sidwell Friends School, constructed wetland." 2009. Digital photograph by Vecerka/Esto, Albert. Courtesy of Arch Daily. Accessed February 11, 2013. Reproduced from " AD Interviews: Kieran Timberlake." <http://www.archdaily.com/32490/ad-interviews-kieran-timberlake/>

Figure 09.05: "Princess Diana Memorial Fountain." n.d. Courtesy of Zilchoo London. Accessed April 19, 2013. Reproduced from "Garden Parks Farms." <http://www.zilchoo.com/gardens-parks-and-farms.html>

Figure 09.06ab-.08: "Untitled Photograph of Biodesign Insitute." n.d. Photograph by Ten Eyck Landscape Architects, Inc. Accessed November, 26, 2012. "Reproduced from College of Architecture and landscape Architecture, University of Arizona." <http://www.teneyckla.com/projects/academic/biodesign-institute-at-arizona-state-university/>

Figure 09.09: "Untitled Photograph of Butler Memorial Court." n.d. Photograph by Brian Wilson Accessed November 26, 2012. Reproduced from "From top to bottom, Butler will be a living environmental laboratory," <http://www.princeton.edu/main/news/archive/S25/01/12M89/index.xml?secon=featured>

Figure 09.10: "Untitled Photograph of Butler College courtyard. " n.d. Photograph by Michael Van Valkenburgh Associates, Inc. MVVA. Accessed November 26, 2012. Reproduced from "Princeton University," <http://www.mvvainc.com/project.php?id=95&c=campuses>

Figure 09.11: "Untitled Photograph of Sonoran Steel Runnel." n.d. Photograph by Judeen Terry. Accessed November 26, 2012. Reproduced from "Underwood Family Sonoran Landscape Laboratory," <http://www.archityperreview.com/20-landscape-architecture-/projects/599-underwood-family-sonoran-landscape-laboratory>

Figure 09.12: "Untitled Photograph of Sonoran Green Screen." n.d. Photograph by Bill Timmerman. Accessed November 26, 2012. Reproduced from "Underwood Family Sonoran Landscape Laboratory," <http://www.archityperreview.com/20-landscape-architecture-/projects/599-underwood-family-sonoran-landscape-laboratory>

Figure 09.13: "Untitled Photograph of Sonoran Encolusre." n.d. Photograph by Bill Timmerman. Accessed November 26, 2012. Reproduced from "Underwood Family Sonoran Landscape Laboratory," <http://www.archityperreview.com/20-landscape-architecture-/projects/599-underwood-family-sonoran-landscape-laboratory>

Figure 09.14: "Untitled photograph of Sidwell Friends School wetland adjacent to seating." n.d. Photograph by Andropogon. Accessed November 26, 2012. Reproduced from "Sidwell Friends School, Middle School Addition," <http://andropogon.com/sidwell-friends-school-middle-school-addition>

Figure 09.15: "Untitled photograph of Sidwell Friends School circulation path." n.d. Photograph by Andropogon. Accessed November 26, 2012. Reproduced from "Sidwell Friends School, Middle School Addition," <http://andropogon.com/sidwell-friends-school-middleschool-addition>

Figure 09.16: "Diana, princess of Wales memorial fountain." 2009. Photograph by Wolfsavard. Accessed January 29, 2013. Reproduced from "Flickr," <http://www.flickr.com/photos/wolfsavard/3251057317/sizes/l/in/photostream/>

Figure 09.17: "Diana, princess of Wales memorial fountain." 2009. Photograph by Wolfsavard. Accessed January 29, 2013. Reproduced from "Flickr," <http://www.flickr.com/photos/wolfsavard/3251872576/>

Figure 09.18: "Diana, princess of Wales memorial fountain." 2009. Photograph by Wolfsavard. Accessed January 29, 2013. Reproduced from "Flickr," <http://www.flickr.com/photos/wolfsavard/3251053569/>

Figure 09.19: ArtStudio. n.d. Photograph of iPad application by Lucky Clan. Courtesy of About.com. Accessed March 27, 2013. Reproduced from "ArtStudio Art App Review," <http://graphicssoft.about.com/od/iphoneandipodtouchapps/fr/artstudio.htm>

Figure 09.20: Flynn, Sarah 2013. "ArtStudio app screen shots." Digital photographs.

Figure 09.22: Flynn, Sarah 2013. "Design development clay modeling." Digital photographs.

References Cited

Andropogon. n.d. "Sidwell Friends School, Middle School Addition." Accessed December 1, 2012. <http://andropogon.com/sidwell-friends-school-middle-school-addition>

Arbor Day Foundation. n.d. "Coffeetree, Kentucky: *Gymnocladus dioicus*." Accessed April 2, 2013. <http://www.arborday.org/treeguide/treeDetail.cfm?id=133>

Berrizbeitia, Anita, ed. 2009. *Michael Van Valkenburgh Associates: Reconstructing Urban Landscapes*. New Haven, CT: Yale University Press.

CAPD (College of Architecture, Planning and Design). 2002. "Brent Bowman: 2002 Distinguished Service Award." Accessed March 12, 2013. <http://www.capd.k-state.edu/about/award-details/distinguished-service/56>

Chenoweth, Richard. 1984. "Visitor Employed Photography: A Potential Tool for Landscape Architecture," *Landscape Journal*, 3(2): 136-143).

Capon, David. 1999. *Architectural Theory: Volume 1*. 20. New Jersey: John Wiley and Sons.

Cherem, Gabriel. 1972. "Looking Through the Eyes of the Public, or Public Images as Social Indicators of Aesthetic Opportunity." *Proceedings, Aesthetics Opportunity Colloquium*. P.J. Prown, ed. Logan, Utah: Utah State University.

166 Ching, Francis. 2007. *Architecture: Form, Space, and Order*. New Jersey: John Wiley and Sons.

City of Manhattan. 2013. "Stormwater." Accessed March 1, 2013. <http://www.ci.manhattan.ks.us/index.aspx?NID=307>

Czerniak, Julia. 2001. "Introduction: Appearance, Performance: Landscape at Downsview," *CASE: Downsview Park Toronto*. Edited by Julia Czerniak, 12-21. Munich: Prestel.

Daniel, Terry. 2001. "Chapter Two: Aesthetic Preference and Ecological Sustainability," *Forests and Landscapes: Linking Ecology, Sustainability and Aesthetics*. Sheppard, S. R. J., and H. W. Harshaw. CABI.

Davis, Tim. 1989. "Photography and Landscape Studies," *Landscape Journal*, 8(1): 1-12.

Dewey, John. 1934. *Art as Experience*. New York: Van Rees Press.

Echols, Stuart and Eliza Pennypacker. 2008. "From Stormwater Management to Artful Rainwater Design," *Landscape Journal*, 27(2-008): 268-290.

EMS-I. 2013. "Runoff Coefficient Table." Accessed April 4, 2013. http://www.ems-i.com/wmshelp/wms80.htm#Hydrologic_Models/Models/Rational/Equation/Runoff_Coefficient_Table.htm

EPA (Environmental Protection Agency). 2012a. "Stormwater Management Best Practices." Accessed April 2, 2013. http://www.epa.gov/oaintntr/stormwater/best_practices.htm#bioretentioncells

EPA (Environmental Protection Agency). 2012b. "Stormwater Management Techniques in Use at EPA Headquarters." Accessed April 2, 2013. <http://guides.lib.k-state.edu/content.php?pid=343115&sid=2805777>

France, Robert. 2003. "Green World, Gray Heart?: The Promise and the Reality of Landscape Architecture in Sustaining Nature," *Harvard Design Magazine*, no. 18 (Spring/Summer).

Gaylord, Chris. 2007. "Power Harnessed One Step at a Time." Accessed March 30, 2013. <http://www.csmonitor.com/2007/0926/p14s02-stgn.html?page=1>

Gobster, Paul, Joan Nassauer, Terry Daniel, Gary Fry. 2007. "The Shared Landscape: What does Aesthetics have to do with Ecology?" *Landscape Ecology*, 22: 959-972.

Gustafson Porter. n.d. "Diana, Princess of Wales Memorial Fountain." Accessed April 8, 2013. http://www.gustafson-porter.com/projects/project5_princesswales/holder.html

Haddock, Mike. 2012. "Kansas Wildflowers & Grasses." Accessed March 11, 2013. <http://www.kswildflower.org/>

Hershfield, David. 1961. "Rainfall Frequency Atlas of the United States." U.S. Department of Commerce. Accessed April 4, 2013. http://www.nws.noaa.gov/oh/hdsc/PF_documents/TechnicalPaper_No40.pdf

Hill, Kristina. 2003. "Green Good, Better, and Best: Effective Ecological Design in Cities," *Harvard Design Magazine*, no. 18 (Spring/Winter): 37-40.

Indiana Lake Michigan Coastal Program. n.d. "Rain Garden Plant Zones." Accessed March 11, 2013. http://www.in.gov/dnr/files/Im-Plant_List.pdf

K-State (Kansas State University). 2012. "Coffman Chair for University Distinguished Teaching Scholars." Accessed January 25, 2013. <http://www.k-state.edu/provost/enrichment/scholars/>

K-State (Kansas State University). 2013. "Master Plan Update." Accessed April 4, 2013. <http://www.k-state.edu/masterplan/>

K-State (Kansas State University). 2010. "Services: Grounds Maintenance." Date of Access: 12 September 2012. <http://www.k-state.edu/facilities/depts/services/grounds.html>

Lee, Uje, ed. 2009. *StossLU*. Seoul, Korea: C3 Publishing Company, 53.

Lind, Theodore. 2006. "Piezoelectricity." Accessed March 30, 2013. <http://www.tedlind.net/Piezoelectricity.htm>

MacPherson, Kita. 2009. "From Top to Bottom, Butler will be a Living Environmental Laboratory," *News at Princeton*. Accessed December 1, 2012: <http://www.princeton.edu/main/news/archive/S25/01/12M89/index.xml?section=featured>

MARC. n.d. "Get the Most Out of Rain: Ideas for Creating a Rain-Friendly Yard." Accessed April 2, 2013. http://cfpub.epa.gov/npstbx/files/KSMO_DisconnectReconnectyourdownspouts.pdf

Meyer, Elizabeth K. 2008. "Sustaining Beauty – The Performance of Appearance," *Journal of Landscape Architecture*, 98 (10): 6-23.

MVVA (Michael Van Valkenburgh Associates, Inc.). n.d. "Princeton University." Accessed December 1, 2012: <http://www.mvvainc.com/project.php?id=95&c=campuses>

Mozingo, Louise A. 1997. "The Aesthetics of Ecological Design: Seeing Science as Culture," *Landscape Journal*, 16 (1): 46–59.

Nassauer, Joan. 1992. "The Appearance of Ecological Systems as a Matter of Policy," *Landscape Ecology*, 6 (4): 239-250.

Oxford University Press. 2012a. "Appearance." Accessed October 23, 2012. <http://oxforddictionaries.com/definition/english/appearance?q=appearance>

Oxford University Press. 2012b. "Performance." Accessed October 23, 2012. <http://oxforddictionaries.com/definition/english/performance?q=performance>

Patron, Luis. 2008. "Let's Generate Electricity by Walking!" Accessed March 30, 2013. http://ourworld.unu.edu/en/lets_generate_electricity_by_walking/

Parsons, Russ, Terry Daniel. 2002. "Good Looking: in Defense of Scenic Landscape Aesthetics," *Landscape and Urban Planning*, 60 (1): 43-56.

Participant 1. 2012. Journal entry by Dr. Jana Fallin.

Participant 2. 2012. Journal entry by Bekah Bailey.

Participant 3. 2012. Journal entry by Shreepad Joglekar.

Participant 4. 2013. Journal entry by Eric Zoeller.

Participant 1. 2013. Journal entry by Diana Reichuber.

Participant 1. 2013. Journal entry by Hana Johnson.

"Piezo-." 2013. The Free Dictionary by Farlex. Accessed April 1, 2013. <http://www.thefreedictionary.com/piezo->

Pullman, Madeleine, Stephani Robson. 2007. "Visual Methods: Using Photographs to Capture Customers' Experience with Design." *Cornell Hotel and Restaurant Quarterly* (48): 121-144.

Richardson, Ralph. 2010. "Dedication Ceremony for Coffman Commons Nov. 11." Accessed January 21, 2013. <https://www.k-state.edu/media/newsreleases/nov10/coffman110410.html>

Shaw, Daniel, Rusty Schmidt. 2003. *Plants for stormwater management: Species selection for the upper Midwest*. Saint Paul: Minnesota pollution control agency.

Simo, Melanie. 2000. "Ranges of Light and Time: What can Alan Ward's photography teach landscape architects?" *Landscape Architecture*, 90(3): 122-123.

Spirn, Anne Whiston. 1988. "The Poetics of City and Nature: Toward a New Aesthetic for Urban Design," *Landscape Journal*, 7 (2): 108-126.

Spirn, Anne Whiston. 2009. *Daring to Look: Dorothea Lange's Photographs and Reports from the Field*. Chicago: First Ed. University of Chicago Press.

Spirn, Anne Whiston. 2011a. "Photography and the Art of Visual Thinking." *The Eye is a Door: Photography, Landscape, and the Art of Visual Thinking*. Chapter Excerpt. Accessed December 1, 2012. <http://theeyeisadoor.com/>

Spirn, Anne Whiston. 2011b. "Significant Detail." *The Eye is a Door: Photography, Landscape, and the Art of Visual Thinking*. Chapter Excerpt. Accessed December 1, 2012. <http://theeyeisadoor.com/>

Spirn, Anne Whiston. 2012. "Reading and Telling the Landscape: Photography as a Tool of Discovery and Design." American Society of Landscape Architects Annual Meeting Lecture.

Sontag, Susan. 2005. *On Photography*. New York: Rosetta Books.

Swaffield, Simon and M. Elen Deming. 2011. "Research Strategies in Landscape Architecture: Mapping the Terrain." *Journal of Landscape Architecture*, (Spring):34-45.

Ten Eyck Landscape Architects, Inc. 2012a. "College of Architecture and Landscape Architecture, University of Arizona." Accessed December 1, 2012: <http://www.teneyckla.com/projects/academic/the-underwood-family-sonoran-landscape-at-the-college-of-architecture-and-landscape-architecture-cala-university-of-arizona/>

Ten Eyck Landscape Architects, Inc. 2012b. "College of Architecture and Landscape Architecture, University of Arizona." Accessed December 1, 2012: <http://www.teneyckla.com/projects/academic/the-underwood-family-sonoran-landscape-at-the-college-of-architecture-and-landscape-architecture-cala-university-of-arizona/>

USDA (United States Department of Agriculture). 2013. Source data: Natural Resources Conservation Service. "Soil_ks161." <http://soildatamart.nrcs.usda.gov/Survey.aspx?County=KS161> Accessed April 1, 2013.

USGS (United States Geological Survey). 2013. "Floods: Recurrence Intervals and 100-Year Floods." Accessed April 5, 2013. <http://ga.water.usgs.gov/edu/100yearflood.html>

University Archives and Manuscripts, Richard L. D. and Marjorie J. Morse Department of Special Collections, Kansas State University. 2012. History of Anderson Hall. "University Archives & Manuscripts – Facts & Flyers: K-State Buildings." Accessed February 28, 2013. <http://www.lib.k-state.edu/depts/spec/flyers/ksu-bldgs.html>

Weatherbase. 2013. "Manhattan, Kansas." Accessed April 1, 2013. <http://www.weatherbase.com/weather/weather.php3?s=55427&cityname=Manhattan-Kansas-United-States-of-America>

XP Solutions. 2011. "Minimum (Asymptotic) Infiltration Rate." Accessed April 4, 2013. http://www.xpsoftware.com/webhelp/xpswmm.htm#SECTION_11__GLOBALS/11_4_Infiltration/Asymptotic_Infiltration_Rate_H1_WLMIN.htm

Yamashita, Sampei. 2002. "Perception and Evaluation of Water in Landscape: Use of Photo-Projective Method to Compare Child and Adult Residents' Perceptions of a Japanese River Environment." *Landscape and Urban Planning*, 62: 3-17.

Precedent Studies

Precedents of built landscapes can be extremely valuable, especially when analyzing their performance and design features. The following five precedents helped to inform and inspire the design of Coffman Commons.

An overview of each precedent is given following this introduction. Paired with the overview are photographs of the project. Highlighted portions of the project (in either orange, blue, or brown) represent the aspects that align with my precedent matrix (Table 07.01). The following presents the order of the precedents.



Biodesign Institute

(09.01)



Butler College

(09.02)



Sonoran Landscape
Laboratory

(09.03)



Sidwell Friends School

(09.04)



Diana Memorial Fountain

(09.05)

Figure 09.01: (Moore, 2008)

Figure 09.02: (Leslie, n.d.)

Figure 09.03: (Timmerman 2010)

Figure 09.04: (Vecerka 2009)

Figure 09.05: (Zilchoo, n.d.)

Biodesign Institute

Location: Arizona State University,
Tempe, AR | Circa 2008

Designers: Ten Eyck Landscape Architects

Overview

The Biodesign Institute building and its landscape at Arizona State University are both new construction. Ten Eyck's master plan for the Biodesign Institute's exterior environment includes a sunken amphitheater, entry plazas, and several niches for small gatherings (Ten Eyck 2012b). The amphitheater is nestled into a rainwater harvesting garden. The building's roof water and air conditioner condensate are collected, along with rainwater, to irrigate the landscape. Irrigation is not hidden in this design; it is celebrated. Irrigation cisterns are sprinkled throughout the project and make the act of irrigating artistically visible for site users. The irrigation cisterns are fed from a 5,000 gallon underground tank (2012b). The plant palette is contextually specific to the biomes in the desert area and provides a shady respite for students, faculty, and staff (2012b).



(09.06)



(09.07)



(09.08)

Figure 09.06:
Irrigation system is celebrated with exposed irrigation cistern

Figure 09.07:
Differentiation of materials in sunken amphitheater distinguish functions

Figure 09.08:
Sense of enclosure through corridor to destination

(All images: Ten Eyck Landscape Architects, Inc., n.d.)

Butler Memorial Courtyard

Location: Princeton University
Princeton, NJ | 2009

Designers: Michael Van Valkenburgh +
Associates

Overview

The Butler Memorial Courtyard offers a gathering space for residents of Princeton University. The 283 student residents of the Butler Complex can look out their bedroom window and see this unique space. The courtyard holds a series of ramped lawns edged by bluestone (MacPherson 2009). The space is multi-functional; it can serve as an amphitheater for larger, more formal gatherings or it offers space for students to study or socialize. Beneath the landscape is a 5,000 gallon storage tank which stores stormwater collected from the building's roof. The stored rainwater is used to irrigate the courtyard's landscape. The complex also serves an additional purpose – connectivity to the existing campus by “strengthening and connecting walkways and vistas” (MVVA n.d.)

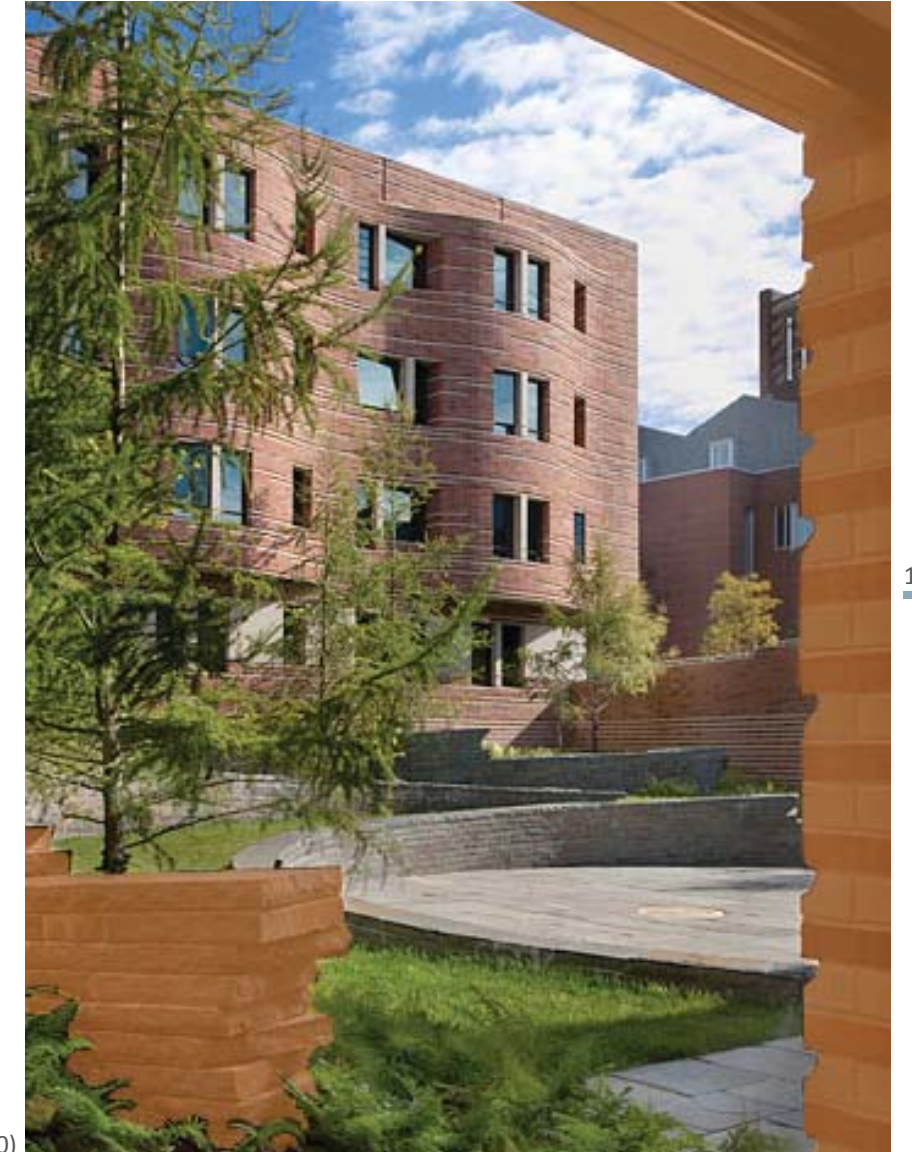


(09.09)

Figure 09.09:
*Terraced edges defined by materials;
contrast in color + texture is strong
(Wilson n.d.)*

Figure 09.10:
*Views into courtyard are framed by
architecture (MVVA n.d.)*

(09.10)



Sonoran Landscape Laboratory

Location: The College of Architecture + Landscape Architecture, University of Arizona, Tempe, AR | Circa 2009

Designers: Ten Eyck Landscape Architects

Overview

This space adjacent to the College of Architecture + Landscape Architecture serves as an entry and an outdoor classroom. A variety of seating options provides a range of possibilities for social gatherings (at different scales). Before construction the space was a parking lot which sloped towards the site of the new building. Ten Eyck took advantage of these existing site conditions and focused their efforts on designing a space with a sustainable water systems program. The site harvests, stores, and conveys stormwater, greywater, and condensate from air conditioners (Ten Eyck 2012a). This system is notable as it successfully performs in a desert habitat.



(09.11)



(09.12)

(09.13)



181

Figure 09.11:
Steel runnel exposing conveyance of water (Terry, n.d.)

Figure 09.12:
Vertical scrim (dually providing shade and surface for creeping foliage (Timmerman, n.d.)

Figure 09.13:
Vegetative screen enclosing small gathering space (Timmerman, n.d.)

Sidwell Friends School

Location: Washington, D.C. | Circa 2006
Designers: Andropogon

Overview

This middle school encloses a central courtyard which houses a constructed wetland. The wetland was created to cleanse storm- and wastewater from the school building. Andropogon's purpose was to imitate nature's process of cleansing stormwater, increase ecological performance on site, and educate the students about the process. The design firm coined this wetland to be a "working landscape" (Andropogon, n.d.). Site functions are clearly defined; the wetland stands alone with a clear circulation path around it. Students can circle around the wetland and observe the water being filtered through the terraces down into the biology pond. (Andropogon, n.d.)



Figure 09.14-15
 Wetland and circulation paths are clearly separate (Andropogon n.d.)

Diana Memorial Fountain

Location: London, England | 2004

Designers: Gustafson Porter

Overview

The memorial fountain is in remembrance of Princess Diana of Wales in Hyde Park. Gustafson Porter's design exudes elegance and beauty. It is oval in shape, resembling a necklace or ring. The material palette is simple: stone, water and turf. The fountain carries water through a system of effects. The water is accessible and thus becomes a magnet for park users to engage with. People can walk, lie, or sit in the water. Resting on sloped land, the fountain water ends at the bottom in a still basin. This basin reflects "various qualities of the Princess' life" (Gustafson Porter n.d.). The design focuses on life not death. While still being a space for remembrance, it thrives with activity and laughter.



(09.16)



(09.17)

(09.18)



Figure 09.16:
Smooth, curvilinear lines

Figure 09.17:
Accessibility to water feature

Figure 09.18:
Form offers seating at raised levels
(Images: Wolfsavord, 2009)

Introduction to Annotated Bibliography

To maintain consistency and clarity during the literature review process, important components of the literature resource are identified on each sheet: title and subtitle of book/article, author, keywords, summary, relevance, question(s) provoked, and the citation. Keywords help identify the broad topics that each literature source talks about and aids in skimming the literature sources. The summary serves as a quick abstract of the source's main points, claims, arguments, and defined terms. The relevance section links the featured text to the MP+R. It calls out potential for application and largely credits validity to this MP+R. Question(s) provoked is offered for the designer's design process phase as well as another way to link the resource's significance to this project.

The annotated bibliography is broken up into two sections: foundational literature and methodology literature. The foundational literature is the first to be examined; it is also the largest and most comprehensive. This section

includes resources which address and give understanding to the emerging concept of aesthetic performance – the ability for beauty to perform both socially and ecologically. The methodology literature, in the second section, introduces literary work on photography and photography-based research methods. To inform the design of the place, aesthetic response to Coffman Commons needs to be comprehended. To gather aesthetic responses, photography-based research methods were used. Photography, photo methods, and a research precedent are presented in this annotated bibliography section.

Foundational Literature

The Shared Landscape What does Aesthetics have to do with Ecology?

[Paul Gobster, Joan Nassauer, Terry Daniel, Gary Fry]

Keywords | Ecological Aesthetics, Aesthetic Experience, Landscape Change
Summary | The authors of this article outline a conceptual model for an aesthetic-ecology relationship. This relationship lies within the human perceptible realm. In this realm, landscape change occurs because people can consciously and intentionally propose and apply design ideas that in return affect environmental processes.

Context is stressed in this article. Aesthetic experiences differ based upon their situational contexts. The designers also need to understand that situational context also formulates expectations from that community. While landscape change might be desired by the designers, community expectations must be respected and upheld to some degree.

These authors have created a great model for visualizing human-environmental interactions in the landscape (963).

The overarching goal of this article is to present and encourage strategies that better align human values and ecological goals (971). They posit two approaches to reach this alignment: knowledge interventions and design interventions. Interestingly, the authors are split on which approach is most effective. This in return gives validity to trying both. The knowledge approach uses persuasive measures to advocate and essentially negotiate for change. Design interventions, on the other hand, work to “build a closer correspondence between what is perceived” and desired ecological goals (969).

Relevance | This article authenticates my desire to generate a project that performs ecologically but maintains a beautiful aesthetic. The situational context of Coffman Commons needs to be addressed so that I might gain a working understanding of what expectations the

community brings to the space. To acquire this, I will move forward in my method of semi-formal interviews of key stakeholders involved with Coffman Commons. These persons will be able to offer their aesthetic expectations of Coffman Commons as I introduce the potential for landscape change (to create a site amenity and implement ecological goals).

This MP+R will use the design approach to marry aesthetic experience and ecological function (performance). The following quotation speaks to this and also is representative of their graphic model. Their “model stresses that design that aims to meet ecological goals should also strive to deliver positive aesthetic experiences, consistent with public aesthetic expectations for a particular landscape context” (970).

Gobster, Paul, Joan Nassauer, Terry Daniel, Gary Fry. 2007. “The Shared Landscape: What does Aesthetics have to do with Ecology?” *Landscape Ecology*, 22: 959-972.

The Aesthetics of Ecological Design Seeing Science as Culture [Louise Mozingo]

Keywords | Ecological Aesthetics, Perception, Culture

Summary | Louise Mozingo stresses the need for the marriage of ecological processes and aesthetics. He posits them on opposite ends of a continuum and the goal is to eliminate the continuum and merge the two. Landscapes that are ecologically driven must become “iconic.” Becoming iconic allows the landscape to value ecological goals while making a social statement.

Mozingo states that an individual site’s social-cultural patterns and the ecological makeup are “at odds in their conception of visibility, temporality, reiterated forms, expression, and metaphor” (50). All of these deal with the perception of a site. His point is that sites are perceived in two different ways – culturally and ecologically (if people even recognize ecology). Yet he wants this divergence to merge into

a “culturally integrated aesthetic of ecological design” (50).

Visibility | In order for ecological design to be perceivable to the untrained eye, ecological components must be visible. It is the designer’s role to create visible ecological systems. Thus making what was unperceivable perceivable.

Temporality | To harmonize aesthetics and ecology, a site needs to have continuity of certain elements year after year balanced with a fluctuation of other elements. The constant elements are the baseline to keep the site feeling “familiar” but then the temporality of the space becomes intriguing.

Reiterated Forms | Cultures communicate common values and shared meanings through “redundancy” (53). Redundancy or reiterated forms also create this baseline of familiarity (as discussed in temporality). Being comfortable in a site is key. If everything is new and unfamiliar there will be little support of a new

aesthetic or ecological component.

Expression | Designing a landscape that evokes emotion is always a goal. While ecological landscapes are tuned to perform ecologically, they also need to stir up feeling in its users.

Metaphor | Ecological design is normally prescribed for utility purposes. Yet landscape design creates symbols, infused with meaning, in order to forecast a vision or to honor culture. Mozingo wants for ecological designs to be metaphoric as well, so they might go beyond function and perform socially too.

Relevance | This MP+R does desire to join ecological goals with aesthetic beauty. The project will try to explore as many of these perceived components as possible during the design process. Key components include: visibility, temporality, and expression.

Mozingo, Louise A. 1997. “The Aesthetics of Ecological Design: Seeing Science as Culture,” *Landscape Journal*, 16 (1): 46–59.

The Appearance of Ecological Systems as a Matter of Policy [Joan Nassauer]

Keywords | Environmental Policy, Perception, Identification

Summary | Before landscape architects can begin altering the appearance of ecological systems, they need to understand that landscape perception is a social process. Understanding this thought allows designers to observe how we see ecological systems and can then inform transformations of them (change).

Nassauer points out a key concept to be aware of: “we identify nature with beauty, and of course, we identify ecological systems with nature. Consequently, we assume that healthy ecological systems are beautiful” (240). From this passage, designers can conclude that people make assumptions based on what they identify with.

The expectation for nature to always be beautiful is not ill-conceived; federal agencies and landscape architects,

nominally Frederick Law Olmsted elicited the picturesque image of nature. Olmsted’s well-favored parks stand to this as does the United States National Environmental Policy Act which assures “for all Americans...aesthetically and culturally pleasing surroundings” (242). This aesthetic began to socialize designers into hiding ecological functions. This invited the attitude of “out of sight, out of mind” for designed landscapes.

Nassauer reasons against this picturesque aesthetic by calling it superficial and unethical; it hides “the ecological consequences of our actions” (243). She argues to stop the generation of invisible ecological systems and instead to reveal ecological systems. Allow the landscape to be a communications device (as coined by Kevin Lynch in 1971) (239). Take advantage of the social process of landscape perception. Make ecological systems visible in an aesthetically pleasing manner which then will probe people to adapt their expectations to uphold ecological health. Hopefully then allowing people to

identify with not only natural beauty but also ecological function.

Relevance | This literature validates the project’s intentions of creating visible water systems at Coffman’s Commons. Making the invisible visible will hopefully broaden perception of the space from only aesthetic to also ecological. While designing, I will distinguish Coffman Commons as a communications device for aesthetic performance. Throughout the duration of the MP+R, especially while interviewing, I need to be sensitive to K-State traditions because their aesthetic perception is rooted in it (245). Finally, this article offers direction for my MP+R which seeks to couple “expected characteristics of landscape beauty and care...[with] characteristics of ecological health” (248).

Question(s) Provoked | The method of maintaining the landscape becomes “invisible but the effect of the design” is expected (242). With the gardenesque appearance of campus, do users now assume this image as nature?

Nassauer, Joan. 1992. "The Appearance of Ecological Systems as a Matter of Policy," *Landscape Ecology*, 6 (4): 239-250.

From Stormwater Management to Artful Rainwater Design
[Stuart Echols + Eliza Pennypacker]

Keywords | Stormwater Techniques, Aesthetics, Amenity

Summary | These two authors are the creators of a new stormwater design technique "artful rainwater design." This fresh design approach uses rainwater as an amenity for a landscape that in return adds site attractiveness and value (267). Artful rainwater design (ARD) should be counted as a new, evolving, and emerging design subject.

Treating stormwater as an amenity calls for a visible network of stormwater strategies. Celebrating the water on the surface of the site calls attention to it – bringing forth opportunities for education and enjoyment. The delight comes from the care taken in the design to increase attractiveness of the site.

Echols and Pennypacker present five amenity goals for ARD: education, recreation, safety, public relations, and aesthetic richness. They derived these from twenty case studies that exemplify "stormwater management as a site amenity" (267). Beyond text and visual imagery, they have created a matrix table for each amenity goal. Each goal has main objectives and design techniques. These tables are extremely useful in delineating the goal's objectives and paring up the appropriate design techniques to accomplish them. Below is their concise definition of each goal (272- 84).

Education | "Create conditions to learn about rainwater and/or stormwater runoff-related issues"

Recreation | "Create conditions for interacting with the stormwater system in a way that is relaxing, amusing, and/or refreshing"

Safety | "Promote safe interaction with stormwater treatment system by mitigating danger associated with water"

Public Relations | "Create symbolic

stormwater statements about the values and qualities of those who created and own the site"

Aesthetic Richness | "Create an interesting experience of beauty or pleasure focused on the stormwater"

Relevance | This approach to stormwater management as a site amenity is in direct alignment to my MP+R. In order to implement a new stormwater management system to Coffman Commons, an amenity or amenities need to be present. Also, the space must maintain or improve in perceived attractiveness. Finally, the design must add value to the space (socially and ecologically). When I reach my schematic design and programming phases next spring I will revisit these amenity goals tables – they will be an excellent reference.

Echols, Stuart and Eliza Pennypacker. 2008. "From Stormwater Management to Artful Rainwater Design," *Landscape Journal*, 27(2-008): 268-290.

Sustaining Beauty. The Performance of Appearance

A manifesto in three parts
[Elizabeth Meyer]

Keywords | Aesthetics, Beauty, Performance, Ethics, Sustainability

Summary | Elizabeth Meyer's manifesto is looking at the reintroduction of aesthetics into sustainability discussions. She organizes it into three parts. A summary of the key points are as follows:

Part one | Here she lays the premise of her work: launching aesthetics into sustainability talk. Her claim is "aesthetic experience can lead to recognition, empathy, love, respect and care for the environment" (7). This claim brings a new depth to aesthetics; appearance can perform (9). It can perform socially and in return impact ecological and economic performance by stirring up recognition, empathy, care and the other sentiments above. Beauty is what performs because it is what people can identify with and react to. Meyer points to Fredrick Law

Olmsted as an example for being sensitive to environmental conditions but also highlighting experiences. Meyer feels as if contemporary theory holds "little regard for the performance of appearance, particularly beauty" (7).

Part two | Meyer classifies the attitudes of American designers towards sustainability into four categories:

- Yawn: acknowledge + continue on
- Embrace: adapt + proselytize
- Dismiss: avoid + denigrate
- Distain: adopt in private + distance in public

While this may seem to cover all the bases of designers' attitudes, Meyer introduces a fifth approach:

- Sustaining beauty: aesthetic experience of landscape

Part three | Meyer offers eleven components for her design philosophy/ approach to sustainability: sustaining beauty. Two that are significant to my MP+R are "beyond ecological performance" and "the performance

of beauty." The former component speaks to the need for social/cultural performance in conjunction to ecological performance. Design should reveal and embed environmental practices into social routines and spatial practices (16). The latter component resonates with the acknowledgement that aesthetic experience has performance values.

Beauty evokes emotions which in return evokes response. The designer must always remember that the experience of beauty is grounded in the senses. In her notes, Meyer addresses her repetitive use of two terms "performance" and "appearance." She defines these in terms of "aesthetics." Her definition of aesthetics is adopted from the Oxford English Dictionary: "aesthetics, the philosophy and science pertaining to sensuous perception and the criticism and appreciation of the beautiful" (22).

Relevance | My MP+R needs to use terms that are current in contemporary landscape design theory (22) and to define them explicitly. To increase validity

of my terms I will base them in the work of reputable designers, like Meyer. This definition of aesthetics is complimentary to my project's stance so it will most likely be adopted. This project will explore the experience of place, because it is here that emotion is evoked and responses are conveyed (both of which are desirable to me). This article encourages me to design richer spaces that plummet deeper than beautification or ornamentation but rather celebrate and reveal nature's beauty.

Meyer, Elizabeth K. 2008. "Sustaining Beauty – The Performance of Appearance," *Journal of Landscape Architecture*, 98 (10): 6-23.

The Poetics of City and Nature: Towards a New Aesthetic for Urban Design
[Anne Whiston Spirn]

Keywords | New Aesthetic, Urban Design, Culture

Summary | Anne Spirn offers a new

aesthetic for urban design; one that lattices human living (culture) and nature. Meshing these two together creates an underlying framework of dynamic processes that can inform site-specific design. It is adaptive to motion and change and "embraces multiple, rather than singular, visions" (108). These visions entail environmental and social goals. Spirn consistently uses the term "dialogue" to describe this aesthetic. There is an ongoing dialogue between nature and people; designer and design; change over time and expectations. The theory for this new aesthetic also prompts multiple dimensions that are in dialogue with one another "time, change, rhythm, process, pattern, form, making, caring, thinking, dwelling, function, feeling, and meaning" (110-19). Each of these should be given value and be taken into account when designing a place.

Spirn adds supplemental insight to an emerging concept in design literature "place-making." I have organized her ideas into a map to understand how to design a

place with enriched meaning and value.

Relevance | This article builds on other articles regarding the coupling of nature and culture. What will be most useful for my MP+R is this linear diagram that I have created. It helps me visualize the importance of a framework, working vocabulary, and variations in design concepts to create the most appropriate place. This can aid in the content expressed in my proposal and will be a great reference as I start designing schematically.

Question(s) Provoked | What are the underlying cultural processes on K-States campus? [Education in and out of the classroom, social gatherings/events, circulation and access, and marketing]

Spirn, Anne Whiston. 1988. "The Poetics of City and Nature: Toward a New Aesthetic for Urban Design," *Landscape Journal*, 7 (2): 108-126.

Art as Experience
[John Dewey]

Keywords | Aesthetic Experience, Art
Summary | This book does not directly address landscape architecture; however, John Dewey's early twentieth century ideas about art and experience is integral to design theory today. After skimming the table of contents and index, "Chapter three: Having an Experience" stood out to be the most relevant place to start reading. The structure of this literature review is going to be a bit different. Instead of formulating a cohesive summary of the chapter, the content is composed of a collection of statements regarding Dewey's key points.

Experience as a noun is what provokes an aesthetic response (35). Dewey's definition of aesthetic is foundational as his thoughts on aesthetics have been cited by authors included in this literature review. The word "[a]esthetic refers to [...] experience as appreciative, perceiving, and enjoying" (47).

Aesthetic in nature is formed when an experience is controlled (50). This is where the artist/designer comes in. The users perceive the form and function of the designed space and apply meaning in response. The form and function (programming) was all controlled by the artist during her design process. "The sense of relation between nature and man is some form has always been the actuating spirit of art" (339). Anne Spirn references this quote in *The Poetics of City and Nature* (1989, 125). She agrees with Dewey that experience aesthetically comes from everyday living (115). The social processes that encounter nature create the opportunities for aesthetic experience.

Relevance | The design for Coffman Commons will create a space that can provide opportunities for pleasurable experiences. An experience that can hopefully be given a name: that conversation, reuniting that friendship, that lecture (Dewey 1934, 37).

The user must "create his/her own experience" and it must be comparable to the designer's experience during her process (54). So my process in designing Coffman Commons will directly affect the users' experience in the space. My research method of photography could play into this as I self-discover the space through the frame of photography.

Dewey, John. 1934. *Art as Experience*. New York: Van Rees Press.

Good Looking
In Defense of Scenic Landscape Aesthetics
[Russ Parsons + Terry Daniel]

Keywords | Ecological Aesthetics, Psychology, Environmental Perception
Summary | Russ Parsons and Terry Daniel address the shift in today's environmental design practice. They reference Aldo Leopold's writings as initiating this "new normative environmental aesthetics" approach (43). They are concerned with ecological management becoming the

primary driving force of aesthetic care today. These two social scientists find the efforts of replacing the preferred scenic aesthetic with an environmental aesthetic to be premature. While they acknowledge the emerging importance of environmentally-sustainable actions, Parsons and Daniel still call for scenic beauty to be an element in the designed landscape.

This article presents historical, psychological, and neurobiological evidence which “suggests that scenic aesthetic preferences are neither superficial nor highly malleable sociocultural construction” (53). Their point through all this research is that environmental management of design solutions, to create a new environmental aesthetic, will not be received pleasantly by the majority of the public. People prefer and can identify more with scenic beauty rather than ecological health. This being said, “scenic landscapes may have an important role to play in the development of environmental action”

to encourage positive “environmental attitudes and ecologically responsible behaviors” (54).

Essentially they are dismissing the “top-down” approach and proposing one that is “bottom-up”. Parsons and Daniel are suggesting designers embed sustainable environmental actions into preferred landscape aesthetics rather than generate a whole new aesthetic (that is based only on environmental objectives). Below is a graphic that synthesizes their proposal for stirring up the public’s appreciation for sustainability goals.

Relevance | Creating this graphic helped me understand their thinking and hopefully can be applied to my design approach for Coffman Commons. Also, their research evidence affirms valuing the appearance. This is my first piece of research that is rooted in science and psychology rather than landscape architecture theory. This adds another layer of depth to my argument for aesthetic performance for social contexts.

Parsons, Russ, Terry Daniel. 2002. “Good Looking: in Defense of Scenic Landscape Aesthetics,” *Landscape and Urban Planning*, 60 (1): 43-56.

Aesthetic Preference and Ecological Sustainability [Terry Daniel]

Keywords | Aesthetic Preference, Ecology
Summary | This summary comes from chapter two of *Forests and Landscapes: Linking Ecology, Sustainability and Aesthetics*. The chapter starts out by informing the reader of a question that was posed during the Peter Wall Institute for Advanced Studies Workshop. The question was: “do people prefer sustainable landscapes?” (15). This chapter goes deeper than a post-evaluation of the workshop and mainly focuses on underlying factors that make up this question. This summary focuses on the “preference” factor. Two models are used for human preference:

Rational Model | This is the more traditional model for examining human preference. It is based on “logical and computational processes in choice and decision making” (17). When people are exposed to and gain more knowledge on a subject matter, they will then be more inclined to support/prefer that subject matter. For example, if the general public knew more about the importance of a landscape’s ecological health they should be “more likely to prefer sustainable landscapes” (17). Essentially, people make knowledge-based decisions.

Affective Model | Daniel discloses that environmental psychology research has “long acknowledged that affect (emotion) plays a major role in determining human response to environments” (17). An emotional response to something heavily influences and affects decision making. Two philosophical positions on the purpose for aesthetics preference stand:

Formal Position | This position views aesthetics as being the “property of [an]

aesthetic object” (21). It is an objective approach to aesthetics.

Subjective Position | Instead of addressing individual objects, this position views aesthetics in reference to human experience and response. Because of the human involvement element, this position becomes subjective in nature. This position consequently associates “aesthetics with judgments of beauty, or expressions of liking or preference in contexts in which any specific utilitarian motives are set aside” (21).

Relevance | Daniel’s article opens key decisions that need to be made upon my MP+R’s stance. My proposal needs to describe the model it will be using for human preference and the philosophical position it will take. It seems the affective model and the subjective position correlate and I will most likely use these two.

Daniel, Terry. 2001. “Chapter Two: Aesthetic Preference and Ecological

Sustainability,” *Forests and Landscapes: Linking Ecology, Sustainability and Aesthetics*. Sheppard, S. R. J., and H. W. Harshaw. CABI.

MVVA in Context [Anita Berrizbetia]

Keywords | Performance
Summary | Anita Berrizbetia opens *Reconstructing Urban Landscapes with “MVVA in Context.”* The book is an anthology that explores Michael Van Valkenburgh Associates’ (MVVA) landscape projects. Her introduction explains MVVA’s design approach and philosophy for each project disclosed in the book. Her writing emphasizes MVVA’s stance on the performative capacities of a landscape architectural project. MVVA gives credit to aesthetic performance with three design criteria: intricate variety of material conditions, compression and release experience, and references to other landscape experiences (22). For example, when looking at the ground

(soil) of a project site, the firm asks what the performance capacities should be: what does the project need “to do for the landscape above it to grow, evolve, and be self-sustaining over the long term.

Relevance | Berrizbetia’s introduction to the firm’s work will be a great reference for precedents. Her three design criteria can be adopted for this MP+R. Material conditions will manifest late in the design development phase. Compression/release and references to other landscapes can happen during the schematic design phase.

Berrizbetia, Anita, ed. 2009. *Michael Van Valkenburgh Associates: Reconstructing Urban Landscapes*. New Haven, CT: Yale University Press.

**Green World, Gray Heart?
The Promise and the Reality of Landscape
Architecture in Sustaining Nature**
[Robert France]

Keywords | Performance, LEED, Site-Specific Design, Wetlands

Summary | This article is concerned with making a significant environmental impact on individual project sites. Robert France is challenging the role of landscape architects to make such an impact. Landscape architects should assume the title of “stewards of the land” and stop flirting with their romantic ideals of nature and sustainability (2-3).

France cautions designers to be aware of design “fads;” one he alludes to is “green design.” Landscape architects’ design process must be rich; they cannot merely paste a veneer of green onto a project site. They should also be concerned about the performance of the site. France is incredibly enthusiastic about the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) and its

steps toward sustainable design that is performance-based.

One of the roles France assigns to landscape architects is to be a motivator and to inspire people (in great quantity). France believes that gaining the support of the site’s community might be the most effective approach for creating and maintaining sustainable site designs. Lastly, France distinguishes stormwater wetland parks as being an ideal example of coupling performance and artful pleasure (which lobbies public interest). He discusses ten precedents that are success stories in “nature-sustaining landscape architecture” (5).

Relevance | This article is initially relevant to my MP+R based upon the scale and scope the article addresses – site-specific design. My site is Coffman Commons on Kansas State University’s campus. His caution about designing a veneer relates directly to my project. The project must be wary of becoming a façade; the design process will focus on performance criteria.

Perhaps some of these performance criteria can be adopted from LEED. Thus, disabling my research and design efforts to become “sustainable rhetoric” (3).

France, Robert. 2003. “Green World, Gray Heart?: The Promise and the Reality of Landscape Architecture in Sustaining Nature,” *Harvard Design Magazine*, no. 18 (Spring/Summer).

Methodology Literature

The Eye is a Door Photography, Landscape, and the Art of Visual Thinking

[Anne Whiston Spirn]

Keywords | Photography, Discovery
Summary | Anne Whiston Spirn has undergone the process of writing a book to help herself and others understand art and the process of photography. Spirn views photography as a means to discover aspects of a landscape that she would not otherwise notice or value. She summarizes the book by saying it “is about seeing as a way of knowing and photography as a medium of thought and a mode of discovery” (Spirn 2011a, 13). The book is forthcoming, next spring, but today she offers readers excerpts from two chapters of the book. The second section of the book is a collection of verbal essays. These essays emphasize practicing “photography as a means as a form of inquiry, using landscape as the primary subject” (13).

“The Art of Visual Thinking”
Spirn is excited about using photography

as a new way to see the landscape. To see is to experience, formulate an idea, or perhaps discover something new. She notes that photographs themselves “record experience, embody ideas, often ‘something I didn’t know I knew,’ and [...] chart a path to be divined” (12). The path she speaks of is intriguing. The art of visual thinking is a door. Photographs are not taken just to be taken and left alone. They are a passage to something more: a design, idea, installation, exhibition, or concept.

“Significant Details”

A common theme emerges in this excerpt – significant details disclose patterns. The goal for a designer is to find meaning in the landscape. Patterns have meaning and photography can find such patterns through significant details (Spirn 2011b, 10). The detail alludes to a larger pattern. The larger pattern can be the bridge between knowledge of the place and the creation of a sensitive, complimentary design. The patterns act as context to influence and guide design which impresses or enhances meaning of the place.

Relevance | Photographs embody ideas that need to be managed and then communicated. My methodology will allow me to do this. The analysis portion of my research will include “printing, editing, grouping, and sequencing” all which help extract out meaning and ideas (Spirn 2011a, 15). Inspired by her process, I am using photography as a research method (13). However, she is not limiting photography to a research method. The act of discovery and sustained inquiry can be for pleasure or a design process.

Spirn, Anne Whiston. 2011a. “Photography and the Art of Visual Thinking.” *The Eye is a Door: Photography, Landscape, and the Art of Visual Thinking*. Chapter Excerpt. Accessed December 1, 2012. <http://theeyeisadoor.com/>

Spirn, Anne Whiston. 2011b. “Significant Detail.” *The Eye is a Door: Photography, Landscape, and the Art of Visual Thinking*. Chapter Excerpt. Accessed December 1, 2012. <http://theeyeisadoor.com/>

On Photography [Susan Sontag]

Keywords | Photography
Summary | Susan Sontag offers a book of literacy on photography. The book does not contain many notes or references. Sontag is presenting her perspective on photography (from its beginnings to the present-day – which was the 1970s). This summary will assume the same format as Art as Experience. The content is composed of a collection of statements regarding Sontag’s key points on photography.

Sontag opens the book by pinning photography as an “ethics of seeing” (1). Photographs have become the means for people to try to “hold the whole world in our heads – as an anthology of images” (1). Photographs help us to capture and visualize the world. What is valuable to hold in our heads is obviously subjective; photographs confer importance (22). We will only take pictures of what we deem valuable to be photographed.

The purpose of photography to Sontag is the act of discovering something beautiful. The camera has become the tool for beautifying the world. Sontag goes further to say that perhaps photographs have adopted the new standard for beautiful (65). People identify with the beautiful photographs and in response go visit the place.

Sontag proposed two divergent objectives to photographing the world, both with aesthetic advantages – some choose to “embellish the world” others try to “rip off its mask” (80).

Amateur photographers simply seek to second what they see as beautiful by capturing it in a photo. Sontag notes that professional photographers go much deeper. Instead of documenting what they perceive beautiful; they challenge it (74). They attempt to show others “what their own unseeing eyes had missed” (74). Relevance | This last statement is what my MP+R will work towards. I will first document beautiful and unbeautiful elements of Coffman Commons. After I will

go deeper and use the same photographs and perhaps a few more to challenge their performance (a photo-analysis).

Question(s) Provoked | Is my photography process trying to embellish or rip off the mask of Coffman Commons?

Sontag, Susan. 2005. *On Photography*. New York: Rosetta Books.

Visitor Employed Photography A Potential Tool for Landscape Architecture

[Richard Chenoweth]

Keywords | Photography Research Method, Response

Summary | Richard Chenoweth, Associate Professor in Landscape Architecture at the University of Wisconsin, talks about the emerging potential for Visitor Employed Photography to be a tool for landscape architecture research. Visitor employed photography (VEP) was created by Gabriel Cherem in the 1970s. It is a “technique

for the collection of public images of the landscape” (136). The difference between this method and other photography-based research methods is the person taking the photographs. In traditional visual preference studies, questionnaires, or descriptive inventories, the researcher collects photographs and presents them to his subjects. VEP does the opposite; the participants are taking the photographs and the researcher analyzes them.

The idea behind VEP is that the observers themselves “select those areas or aspects of the environment for which they will provide information” (138). The content of these responses will be different than if the researchers selected the photographic content themselves. Chenoweth is not placing VEP as superior to other photography methods; he is simply encouraging landscape architects to consider it as a useful technique if they are investigating “aesthetic aspects of the landscape” and want to understand the community’s perception (137).

Chenoweth addresses potential problems of this method. The one that would be most relatable to my MP+R is that the method requires the participant to do multiple tasks: think about the prompt, take pictures, record observations, and be wary of the time constraint. The amount of work required puts the participant at a disadvantage for they are intended to have a “pleasurable journey” (141). Their experience could be negatively interrupted by having to juggle the camera, journal, and pen while performing the assigned tasks.

Relevance | Chenoweth mentions to those investigating “aesthetic aspects of the landscape” that “at least four fundamental issues must be resolved” (137). Answering the four questions and not swerving from the answers will give my MP+R clarity and direction.

Who shall observe the environment?
Faculty, students, and staff of Kansas State University

What environments shall be observed and how shall they be measured? Coffman Commons and will be measured by the photographs taken by each observer
How shall the environment be presented to the observer (e.g., actual environment versus some form of simulation)? The observer will experience Coffman Commons first hand as he/she takes pictures as directed by the researcher

What type of response is to be elicited from the observer? The response will be a combination of photo interviews [for key individuals] and a photo journal [for me, the designer].

Chenoweth, Richard. 1984. “Visitor Employed Photography: A Potential Tool for Landscape Architecture,” *Landscape Journal*, 3(2): 136-143).

Photography and Landscape Studies *[Tim Davis]*

Keywords | Landscape Scholars, Artistic Photography, Landscape Analysis, Experience

Summary | This article is promoting artistic photography as a tool for the interpretation of experience in the cultural landscape. Photographs should be used for interpretation of meaning not just the validation of perceived appearance. He targets landscape scholars and analysts as his audience. The concept is for photographs to play a key role in the landscape analysis and not just a supplementary artifice. Photography can become an ideal medium “for communicating the symbolic and experiential qualities of geographic places” (1).

It is well known that photography has and is being used to communicate tactile forms, but recognition should also be made of this medium’s power to influence “the ways in which the landscape is experienced and interpreted” (1).

Davis is pleading for pictorial skill not just the use of subsequent illustrative photographs to merely back-up scholarly text. He distinguishes two types of photographs that handle the conveyance of both the “particular and general aspects of human experience” differently – poetic photographs versus illustrative photographs (10). The two types of photographs hold crucial differences in the purpose they serve.

Creative/Documentary Photographs
“Has the capacity for informative interpretation, eloquence, and empathetic rendering of the human condition” (5,7).

Investigative tool (7)
Holds the potential for a “sort of poetic recognition that truly engages the viewer’s empathy and imagination” (9).

“Seeks to discover the significant details that reveal the essence of place” (10).
Allows the “sympathetic viewer [to] reconstruct both the concrete and intangible qualities of the featured experience” (10).

Illustrative Photographs
One that “merely documents appearances” which can already be described in text (8).

Pretty pictures
Assume falsely that “the whole is equivalent to the sum of [its] parts (10)

Fragmented parts of a landscape are photographed and placed into “preconceived categories of architectural elements and styles.” Unfortunately this promotes “abstract and analytical thinking at the expense of a more holistic approach to the complex totalities that constitute humanly experienced places” (10).

Relevance | The challenge in this article could be extremely relevant to my personal discovery of photography’s role in the design process. Davis is encouraging photography to be used as a method with analytical potential for landscape expression and experience, which correlates this with aesthetic response. An aesthetic response stems from an experience.

Question(s) Provoked | Could a series of photographs that capture individual site components represent the site's entirety? Or would these still be considered illustrative photographs.

Davis, Tim. 1989. "Photography and Landscape Studies," *Landscape Journal*, 8(1): 1-12.

Ranges of Light and Time
What can Alan Ward's Photography teach Landscape Architects?
[Melanie Simo]

Keywords | Photography techniques and tips
Summary | In the "Shared Wisdom" Column of Landscape Architecture magazine, writer Melanie Simo sheds light on Alan Ward, a well-known photographer. Alan Ward offers three statements of advice for photographing the landscape: "Study the ways in which photographs can shape the way we see landscapes" (122) | Photographs represent the world, but also

abstractions of the world (122). Frame is crucial here. It shapes what we want to emphasize or cut out (through cropping). "Slow down and look at the landscape" (122) | Here Ward encourages photographers, students in this case, to have the intention to experience the place while photographing. He cautions the urge to arrive on site, snap as many photos as possible and scurry home to evaluate or store them. He urges students to take time to observe spatial and social patterns, plan timing for quality of light, and experiment with where one stands before taking the picture.

"Carefully compose the image" (122) | The structure of a landscape can be exposed by careful observation. This observation remains steady at eye level (123) enabling him to consistently experience a place visually.

Relevance | Ward's advice for students will be useful as I begin photographing Coffman Commons. I do need to slow down and make observations of the place.

I will try to apply each of these three principals to my photography.

Simo, Melanie. 2000. "Ranges of Light and Time: What can Alan Ward's photography teach landscape architects?" *Landscape Architecture*, 90(3): 122-123.

Visual Methods
Using Photographs to Capture Customer's Experience with Design
[Madeleine Pullman, Stephani Robson]

Keywords | Photography-based Research, Customer Feedback
Summary | The researchers in this study are in the field of hotel and restaurant management. They are interested in collecting data on the customers' experience based upon the physical design of a hotel. To elicit such feedback they used a photography-based approach. This report describes in detail their methodology, analysis, findings, and limitations.

Methodology | Since design is a visual medium, photographic documentation can effectively communicate "impressions of the physical world" and is considered the most "beneficial when evaluating experience design issues" (124). The researchers offer three photography-based methodologies that fall under Visitor Employed Photography: photo journaling, photo interviewing and photo surveying. There is variance in these three based upon who is taking the photos: the researcher or the guests (124).

Photo Journaling | This technique pairs the act of taking photographs and keeping a journal or scrapbook. Timing can vary for when the journal is created. It can be simultaneous, where the observer documents thoughts, questions, and insights as photos are being taken. Alternately, the observer can create the journal after a period of photography sessions as a reflection of her experience.
Photo Interviewing | This method combines an interview process with photographs taken by the participant.

Photographs are taken first; in a follow-up session the researcher discusses each photograph with the participant. This method enables the discussion of photographs to "open the way for deeper reflection and discussion during the interview" (125).

Photo Surveying | A survey format is conducted with photos. Guests are asked to take photos of a space and rate or rank the photos based on given criteria such as favorable or displeasing (125). This method is the most suitable for quantitative data.

Once all journals/interviews/surveys are complete and all images are collected, each image must be coded. Coding images equips the researcher for succinct management of photos. The criteria for coding in this precedent is as follows: (1) "every aspect of the images with which the research is concerned must be covered by a category"; (2) "categories must not overlap"; (3) categories must be analytically interesting and coherent"

(126). For qualitative analysis, the coded images need to be counted. How many images across the range of participants fall under each category? After coding the images, a phone interview was conducted with each participant. The participants were asked to "rank five to ten photographs that represented the most significant aspects of their stay" (127).

Analysis | After the research methodologies were complete, the researchers then moved to content analysis of the images. Five categories were defined to describe the guests' evaluations: design, amenities, service, setting, equipment (127).

Findings | The diagram below shows the results of the research categories. Design was very impressionable to the guests. This was a crucial finding for the researchers. The appearance of the hotel was important to most guests.

Limitations | Pertinent limiting factors for this research project include: issues

with privacy of other people who might end up being in the photographs (always a concern in public spaces), some respondents might find it embarrassing to take photographs in a public space, disposable cameras (quality of images and dysfunction of flash), and limited sample size (142).

Relevance | This research project will be used as a precedent for this MP+R. The methodologies of photo journaling and photo interviewing will be adopted. These will enable me to collect aesthetic responses to Coffman Commons.

Their approach to cataloging images and classifying them into categories will be implemented as well for clear management and cohesive analysis. Learning that the guests were very aware of the hotel's design appearance emphasizes aesthetic importance to a place.

Pullman, Madeleine, Stephani Robson. 2007. "Visual Methods: Using

Photographs to Capture Customers' Experience with Design." *Cornell Hotel and Restaurant Quarterly* (48): 121-144.

Daring to Look
Dorothea Lange's Photographs and Reports from the Field
[Anne Whiston Spirn]

Keywords | Photography, Captions, Discovery

Summary | Anne Spirn has created a book to honor and share Dorothea Lange's legacy. Lange was a photographer during the Great Depression. Some of her photographs have become iconic images for America. But notably all of her photographs are gaining recognition lately. The collection of images and captions in this book build a clear representation of our country during the Great Depression and the New Deal Administration.

This summary focuses on Lange's approach to photography, as described by Spirn, rather than the subject matter

from this era. The camera can be used as a tool for self-discovery (45). As much as her photographs influenced others, the act of taking photographs was a method for her too to learn and observe. Lange shot thousands of photographs over her lifetime. The most intriguing piece to her approach is her management of photographs.

As she become more involved with her clients, "her themes deepened," Lange "began to group [her] photographs, not from a purely artistic impulse but because the subject demanded it" (47). Thinking of photographs as a collection instead of individual moments in time is important. Series, sequence, collection, and anthology: all these are groupings that can enrich the story the photographs tell. Photographing "the same thing" can also be an act of discovery; these photographs can become their own series. Lange often took pictures of the same thing mainly to feel "her way into a subject, each successive image a step to the next" (35). This repetitive approach can ultimately

lead to a desired end; the most impactful picture taken likely will culminate at the end of a series. This was the case for "White Angel Breadline" and most likely "Migrant Mother;" two of her most famous photographs.

Lange's photographs embody rich meaning. She accomplishes this by "juxtaposing multiple photographs" which makes their complexity of meaning visible (39). The second layer to enriched photographs is the caption that Lange pairs with each one. Spirn's rhythmic emphasis and commentary on Lange's captions make it seem novel and essential for other photographers to adopt. The photograph and the caption are a pairing; one cannot stand without the other. To tell a story photographs must be organized with clearly assigned captions. Spirn notes that "her strongest captions direct the eye and the imagination beyond the obvious or picturesque or grotesque" (11-2). The words should "give you a different look" not tell "a person what to look for, or [explain] the photograph" (12).

The photograph makes a statement and the supporting caption should act as its "punch line" (12).

Relevance | Following the lead of Lange and Spirn, who is an excellent photographer herself, will be a great process for me during this MP+R. Lange's approach to photography is noteworthy and I will try to replicate her methods in efforts to also create rich meaning to my photographs. I also look forward to the act of self-discovery as I use my camera to capture aesthetic meaning for Coffman Commons.

Spirn, Anne Whiston. 2009. *Daring to Look: Dorothea Lange's Photographs and Reports from the Field*. First Ed. Chicago: University of Chicago Press.

Participant Journal Entries

Participant 1

11.15.13 at 4:45 p.m.

Aesthetically Pleasing

Connections – to the library itself, to Anderson, to other buildings around. Reflecting the roof lines of both Anderson and the library, especially the end square part (reminds me of a tower) near loggia. The loggia itself even – Connections: that is what Jim did. Also the beauty of the sky above. The trees – strength.

Aesthetically Displeasing

The utility covers – the area at the base of the library – the trash receptacles.

Participant 2

11.15.13 at 4:45 p.m.

Aesthetically Pleasing

Very bare – the trees are the most aesthetic part. The library is so looming that the lawn looks very normal/empty. I appreciate the winding walkways. The library is my favorite part; the lawn/grass/walkways is more of a compliment to the library rather than a space in itself.

Aesthetically Displeasing

Recycle bins, benches, ashtrays...not the objects themselves necessarily but placement and type. Water spigot right in the middle.

Participant 3

11.27.12 (unknown time)

Disclaimer: this participant took photographs on his own time. During a follow-up interview I took notes as he spoke of his experience during the photo session. The following are interview notes (fragmented phrases occur):

I photograph to learn. I think of engagement – photography asks me to stop and look. I photograph to educate myself. Focusing on the how the land looks. In these photographs, structuring is evident. The photograph of Eisenhower Hall shows the wear and tear of the land. The space is bordered. Definition of boundary and spatial definition. Evergreen tree acts as defining edge, creating defensible space. Similar feeling to a sense of privacy.

The relationship of Hale to the land feels primitive or western. Immense expanse of flatness is utilitarian. The building is out in the open – alienated.

Favors how vegetation breaks up the monotony of architecture of Eisenhower façade. The right angle of Hale to Coffman Commons is bothersome.

One experiences the landscape differently at different perspectives (depending on the point of view). This was referencing two photographs: one on the lawn looking south, the other in the loggia looking south.

Participant 4

11.27.13 at 10:30 a.m.

Aesthetically Pleasing

I wanted to show how close the buildings are to the sidewalks. It gives people a sense of grandeur as they walk around. The large old trees make the area feel classic. The sidewalk curves and [goes] up slightly as you walk through the trees.

Aesthetically Displeasing

The arc along Hale looks bland, nothing [is] there to blend grass and wall. Concrete slabs and hydrant in random grass area. I dislike the rocks around the sign it seems bland.

Participant 5

01.29.13 at 10:00 a.m.

Aesthetically Pleasing

I appreciate the wide open space of this site because it's very inviting. It's very circular and open and provides a lot of space to relax and enjoy campus. I always appreciate large trees with space to site under them. The lamp posts and clock give a lot of extra character.

Aesthetically Displeasing

There is so much more potential for a simple, yet beautiful landscape. I understand that it's winter, but even still, the space is not very manicured or "alive" in appearance. The lampposts are a nice addition of character, but could use some refurbishment and maybe plants around

the base. The water pump sticks out like a sore thumb and the large evergreen looks noticeably dead in appearance. Construction, though temporary, takes away from positive appearance.

Participant 6

01.29.13 at 2:35 p.m.

Aesthetically Pleasing

I really think that Hale Library is one of the prettiest buildings on campus. It looks very majestic and old fashioned, which I love. I also love trees in all seasons. Their strength and ability to endure all seasons and live long lives inspires me and I just love trees.

Aesthetically Displeasing

I took these photos because I found that there wasn't much color in the ones I took. Even though it was winter, I really like how certain things hold color through all seasons. Also, the empty lawn spaces are less visually appealing, especially with trenches going through them.

ArtStudio Photo Diagrams

Photo diagrams were created with the “ArtStudio” app on an iPad.

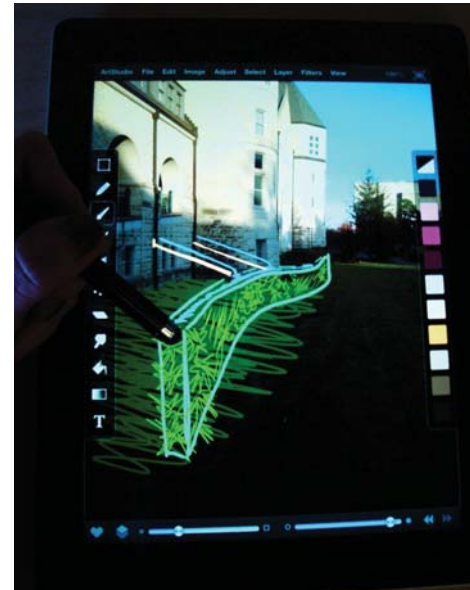
This application (app) simulates Adobe Photoshop and is available to Apple iPhone, iPod touch, and iPad. Some features of this app include:

- Import options for photos saved in Apple product’s photo gallery
- Standard tools offered in Photoshop
- Use of up to six layers with blending modes, transformation, and masks available
- Automatic save
- Exportable in .jpg; .png; or .pdf form

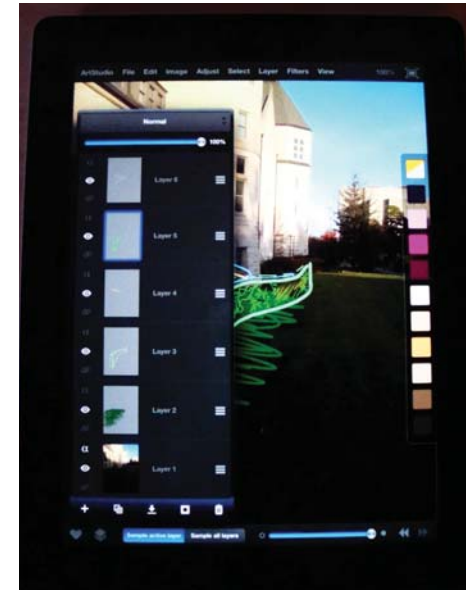
Navigation and drawing in this app is easiest and most accurate while using a stylus. Figure 09.20 displays various tools that ArtStudio offers.



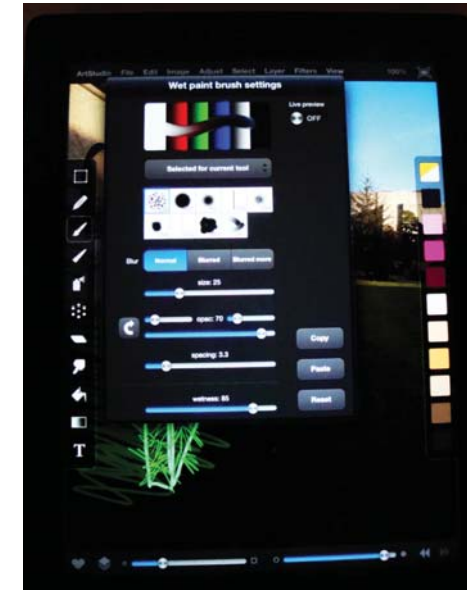
ArtStudio App



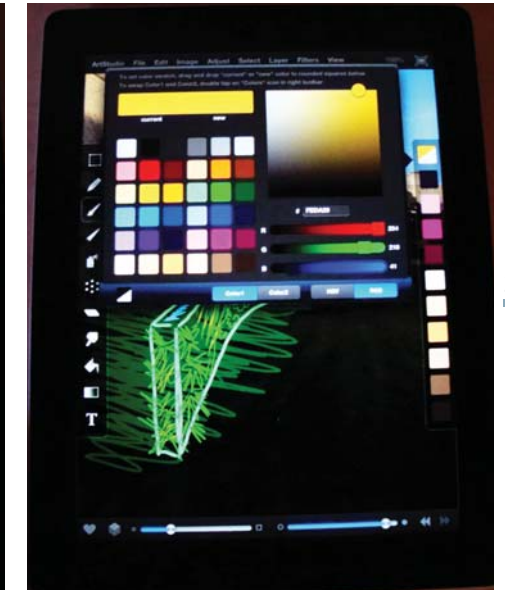
Stylus helps precision in drawing



Layers will export to Photoshop



Wet paint brush settings



Color selection window

Figure 09.19: Left

ArtStudio App icon (Lucky Clan, n.d.)

Figure 09.20: Right four images

ArtStudio app screen shots (by author)

Design Process

The design process consisted of site inventory and analysis, precedent studies, formation of design goals and objectives, and the master plan design. All of these components influenced the schematic and design development phases of this MP+R.

Schematic Design

Numerous iterations were explored as I tried to address all the established goals and objectives. Instead of starting in plan view, I began designing in perspective to start quickly start imagining what the space could be. Two were chosen to move forward (Figure 09.21). I presented these to my committee at my Mid-Critique. My committee members challenged me to push the design further. These two

schemes were limiting as they did not respond to the landscape's context or Hale's façade; they could have been placed in any landscape.

I then revisited Coffman Commons's current design geometry. I took cues from Hale's façade and the location of existing trees. Attention turned to creating exciting viewsheds from all angles in the Commons, rather than just focusing on the prominent view of Hale. The final concept emerged after this constructive feedback.

Design Development

To further explore design opportunities, I modeled the final concept in clay. The clay model helped me to understand the

existing topography and how to shape it. Working with cardboard sticks as trees, I improved my original placement of the proposed trees. The clay model can be seen in Figure 09.22. The grading plan for the final design concept can be seen in Figure 09.23.

Figure 09.21:
Schematic Design Drawings (by author)



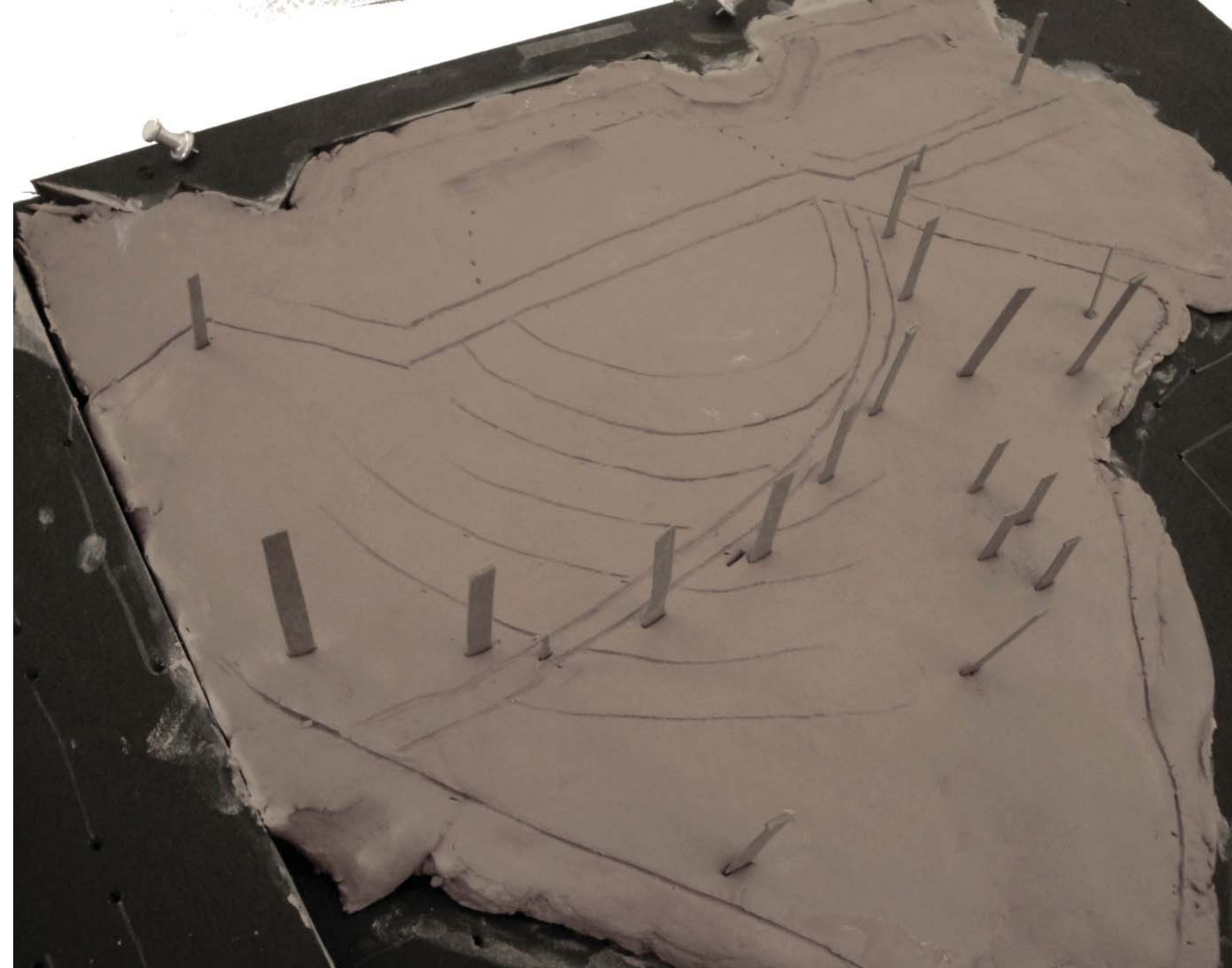
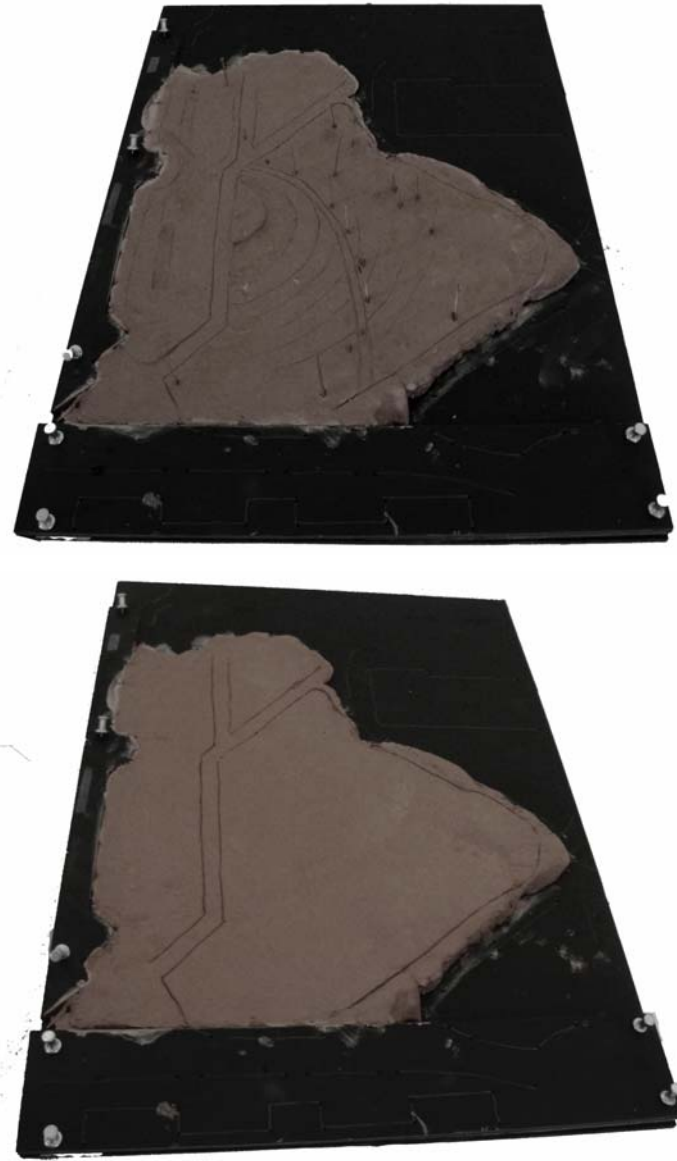
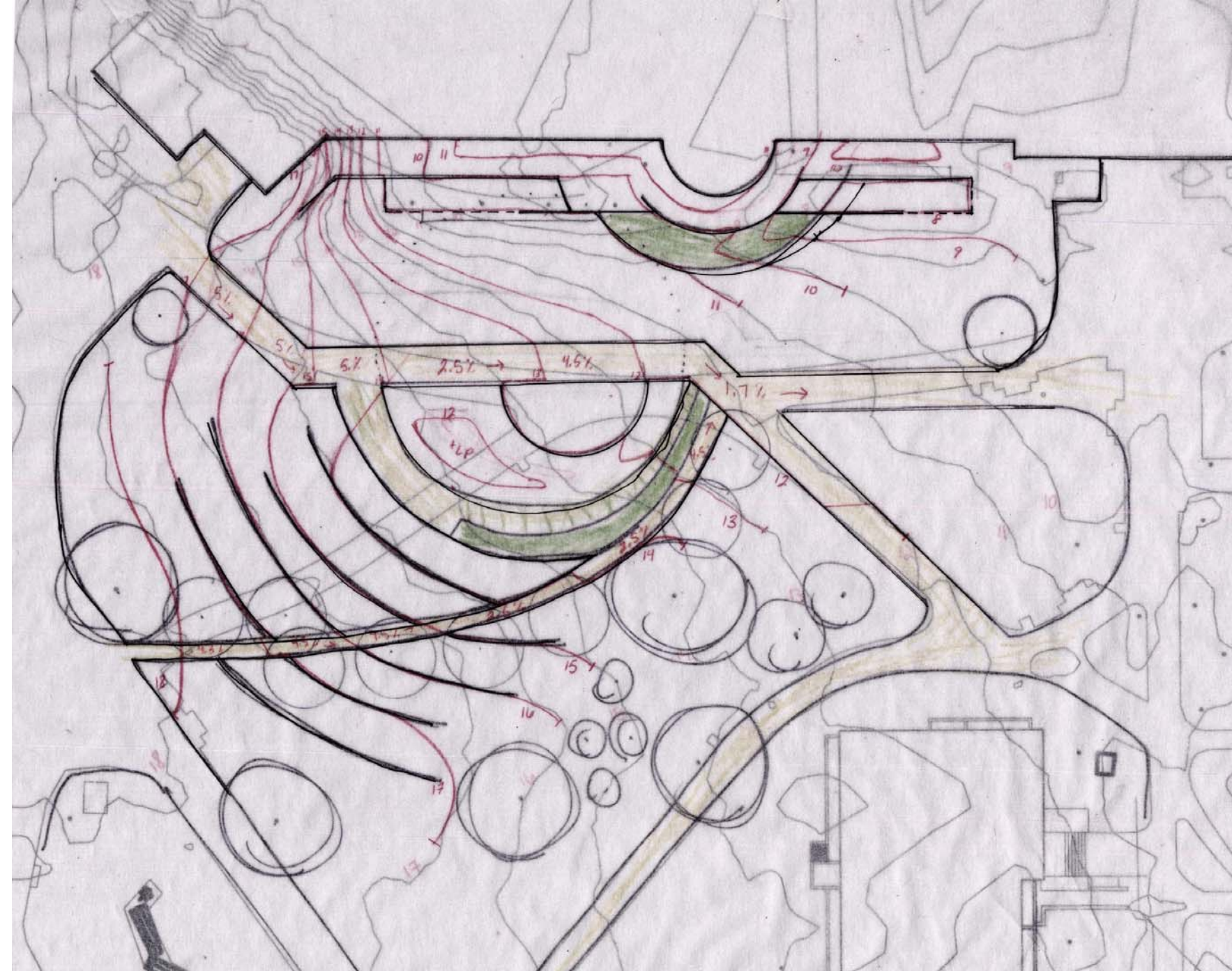


Figure 09.22:
Design Development
Clay Modeling (by author)

Figure 09.23:
Conceptual Grading Plan (by author)



Stormwater Calculations

What are Manhattan's rain intensities?

Manhattan receives approximately 35 inches of rain per year (Weatherbase 2013). The amount of rainfall that accumulates over a period of time is known as rainfall intensity. Rainfall intensity is measured in recurrence intervals and probabilities of occurrences (USGS 2013). Common recurrence intervals are one-, two-, five-, ten-, and hundred-year storm events. Each storm event statistically defines the percentage chance of occurring in any given year. For example, a two-year storm event has a 50 percent chance of occurring in any given year. Table 09.01 lists these occurrences. For each storm event, an amount of time is associated with it. The measurement is of how many inches of precipitation fall within a number of hours. For instance a two-year storm event can be measured in one, three, six, twelve, or twenty-four hour increments.

This MP+R used averaged rainfall intensities from the following storm events: one-year, 24 hour; two-year, 24

hour; and five-year, 24 hour. Table 09.02 gives these intensities (Hershfield 1961).

How much stormwater is redirected from Hale's roof to the dry swales?

The volume of water that falls on Hale Library's roof during a rain event is calculated by multiplying the rainfall intensity depth by the roof square footage. Please note that runoff retention on the roof was addressed. A runoff coefficient of 0.95 was used as the pitch of the roof is so steep (EMS-I 2013). Table 09.03 shows the volume calculations. Hale's roof square footage is separated into two parts: roof west of Hale's tower and roof east of Hale's tower. Three downspouts serve the west side; one downspout serves the east side. The total volume of water redirected to the dry swales is 659 cubic feet.

How much stormwater runoff from Coffman Commons's lawn flows into the rain garden?

The same equation is used to calculate the volume of water flowing off the lawn. However, turf has a much smaller runoff

coefficient than a roof at 0.15 (2013). The volume of runoff from the lawn is 617 cubic feet. Also reference Table 09.03 for the volume calculations.

How much standing water is in the rain garden and dry swale after a storm event?

During a storm event water pools in the rain garden and dry swales. The depth of water to be infiltrated is calculated by the volume of water divided by the square footage of the rain garden or dry swale. Table 09.04 shows the depth of infiltration.

How long does it take for water to infiltrate?

Coffman Commons's soil type is Smolan silt loam (USDA 2013). Figure 09.24 visualizes the soil's curve of infiltration rates. Less saturated soil has a higher infiltration rate as water can move through the cracks and air pockets quickly. Already saturated soil must wait for gravity to pull the water through the soil – slowing the infiltration process. Eventually the infiltration rate levels off and is known as

the constant or steady state infiltration. The water calculations are based on this constant infiltration rate which is 0.15 inches per hour for smolan silt loam (XP Solutions 2011) – see Table 09.04. Using this infiltration rate gives the worst case scenario. That is, the calculations show how long it would take the water to infiltrate if the soil was already saturated.

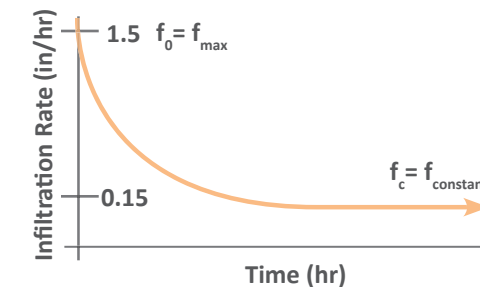


Figure 09.24: Above
Manhattan Rainfall Intensities (by author)
Table 09.01: Top Right
Occurrences + Probabilities (USGS 2013)
Table 09.02: Bottom Right
Manhattan Rainfall Intensities (by author)

Storm Event Occurrences + Probabilities

Recurrence interval in years	Probability of occurrence in any given year	Percent chance of occurrence in any given year
100-yr	1 in 100	1%
50-yr	1 in 50	2%
25-yr	1 in 25	4%
10-yr	1 in 10	10%
5-yr	1 in 5	20%
2-yr	1 in 2	50%

Manhattan Rainfall Intensities

Storm Event*	Precipitation in 24 hours
1-yr	2.6 in
2-yr	3.3 in
5-yr	4.2 in

*(Hershfield 1961)

Rainfall Volumes in 1-yr/24 hour Storm Event

		Hale Library's Roof		Coffman Commons's Lawn
		West of Tower	East of Tower	
Rainfall intensity*	0.22 ft			
Square footage (Ft ²)		2,982.0	220.0	19,000.0
Volume of Water (Ft ³)		613.8	45.3	617.5

Rainfall Volumes in 2-yr/24 hour Storm Event

		Hale Library's Roof		Coffman Commons's Lawn
		West of Tower	East of Tower	
Rainfall intensity*	0.28 ft			
Square footage (Ft ²)		2,982.0	220.0	19,000.0
Volume of Water (Ft ³)		793.2	58.5	957.6

Rainfall Volumes in 5-yr/24 hour Storm Event

		Hale Library's Roof		Coffman Commons's Lawn
		West of Tower	East of Tower	
Rainfall intensity*	0.35 ft			
Volume of Water (Ft ³)		991.5	73.2	1,197.0
Roof runoff coefficient**	0.99			
Turf runoff coefficient**	0.18			

Table 09.03:
Rainfall Volumes (by author)

* (Hershfield 1961) ** (EMS-I 2013)

Stormwater Infiltration for 1-yr/24 hour Storm Event

	Rain Garden	Dry Swale 1	Dry Swale 2	Dry Swale 3
Volume of Water (Ft ³)	617.5	204.6	204.6	45.28
Square footage (Ft ²)	1,676.0	828.0	685.0	397.0
Depth of Infiltration (in)	4.4	5.9	3.6	1.4
Infiltration constant (in/hr)*	0.15	0.15	0.15	0.15
Infiltration Time (hr)	29.5	39.5	23.9	9.1

Stormwater Infiltration for 2-yr/24 hour Storm Event

	Rain Garden	Dry Swale 1	Dry Swale 2	Dry Swale 3
Volume of Water (Ft ³)	957.6	264.4	264.4	58.5
Square footage (Ft ²)	1,676.0	828.0	685.0	397.0
Depth of Infiltration (in)	6.9	7.7	4.6	1.8
Infiltration constant (in/hr)*	0.15	0.15	0.15	0.15
Infiltration Time (hr)	45.7	51.1	30.9	11.8

Stormwater Infiltration for 5-yr/24 hour Storm Event

	Rain Garden	Dry Swale 1	Dry Swale 2	Dry Swale 3
Volume of Water (Ft ³)	1,197.0	330.5	330.5	73.2
Square footage (Ft ²)	1,676.0	828.0	685.0	397.0
Depth of Infiltration (in)	8.6	9.6	5.8	2.2
Infiltration constant (in/hr)*	0.15	0.15	0.15	0.15
Infiltration Time (hr)	57.1	63.9	38.6	14.7

Table 09.04:
Stormwater Infiltration (by author)

* (XP Solutions 2011)