The Design Process of a Residential Project

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The Design Process of a Residential Project

By
Christine Gale

A master’s project submitted to the Graduate Program of the Department of Landscape Architecture & Regional Planning at the University of Massachusetts, Amherst
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Introduction

This master’s project is a residential design project that focuses on the design process and the design of the residence itself. The residence that was used for this project was a thirty five acre site located in Rydal, Pennsylvania. The design process started with research that looked at the country place era and three case studies that were quintessential examples of axial residential designs from different eras. This research was meant to serve as inspiration for my design.

I had several reason for wanting to look at the country place era. First, the site for my design originated as a residential site during this time period. Secondly, this was an era that highlighted residential design. Finally, my own observation of residential design today notes several parallels between the country place era and what is going on in residential design today.

As my design developed conceptually it quickly became organized axially. According to the Oxford Dictionary, “axis” is defined as an imaginary line about which a regular figure is symmetrically arranged. This design concept led to three case studies that looked at the axis in residential design from three time periods. These case studies included Dumbarton Oaks, which was created during the country place era, Villa Lante, which was designed during the Italian Renaissance, and the Miller Garden from the Modernist American era. All three of these case studies were used as inspiration when it came to my own design.

The site analysis was also significant in my design process. The site analysis was used to help make logical design decisions that responded to the site. This site analysis looked at the history, topography, vegetation, views and climate conditions on the site. A new house is currently being built to replace a house that was recently torn down. The site analysis includes the important organization elements of the new architecture.

The design that I developed for this site consists of an axial and cross axial organization. The main axis developed into a series of rectilinear rooms that connected the landscape both physically and visually. The cross axis developed into a physical axis that connects three garden rooms with the main axis. Plans, sections and a model were used in exploring design options and final design decisions. The research on the country place era and the case studies provided inspiration for the details and themes that emerged in the design.
The Country Place Era

A. Introduction

This project starts out looking at the country place era through a summary of the research Robin Karson (2007) did in her book *A Genius For Place: American Landscapes of the Country Place Era*. My first reason for incorporating the country place era into this project is because my site for this project turned into a residential estate in 1903 during the time period the country place era. The country place era started in the late 1800’s and came to a close in the 1930’s when the great depression hit and finally came to a complete close with the start of World War II.

The second reason I chose to look at the country place era was because there was no other time in American history were the relationship between the landscape and garden design was celebrated as during the country place era. During this time large residences were being constructed outside of the major American cities with as much time, money and effort being put into the landscape as in the architectural structures being built on these sites. This period was highly influenced by European styles which included axial organization and the English romantic park landscapes. However, the landscape architects during this time did develop their own distinctly American style out of these influences. Extending interior architectural organization out into the landscape by creating garden rooms was a design characteristic which started during the country place era. The extension of the architecture out into the landscape helped to form the first America style of landscape architecture.

Finally, I believe there are many parallels between the country place era and contemporary residential design projects that have taken place between 2003 up until 2008. The economic conditions during both periods are similar in the sense that during both, businesses were expanding and the economy was growing rapidly.
B. Factors That Allowed For The Country Place Era

There are several factors that allowed for the country place era to arise in the late 1800’s. These included good economic conditions, the construction of new railroads and an influx of immigrants into American cities. This influx not only caused poor urban conditions but also caused the expansion of the cities which in turn created a nostalgia for a diminishing countryside. At the end of World War II when new property tax laws came into place, estates such as Dumbarton Oaks in Washington D.C., Winterthur in Winterthur, Delaware, and Naumkeag in Stockbridge, Massachusetts, ceased to exist in the private sector but instead became public properties or non-profit organizations open to the public.

The country place era started as the industrial revolution was coming to an end. Industries such as manufacturing, banking and the construction of the railroads generated large amounts of wealth. American business were finding new funding opportunities which included selling equity in the form of stocks and securities. This financing technique made large investments possible which in turn allowed American businesses to grow both vertically and horizontally.

Vertical business growth is accomplished through producing and transporting a company’s own product. An example of vertical growth during this time period would have been Henry Ford’s expansion of Ford Motor Companies when he was able to acquire mines, forest, South American rubber plantations, shipping lines, railroad lines and factories. These expansions allowed for the entire production process of Ford cars and trucks to be done by the same company. The other advantage of vertical growth for Henry Ford was that production time was cut considerably. Ford Motor Companies were able to manufacture a car from raw material in less than five days.

Horizontal business growth is accomplished when companies merge with other companies or when a company acquires another company. Mergers are when two companies in the same industry become one large company. Acquisitions are when a larger company buys out a smaller company that is in the same industry or sells similar products.

The new financing techniques along with good economic conditions and new business strategies allowed for an accumulation of wealth which in turn made the country place era. The economic conditions and business strategies are relevant to this project because the American economic conditions between 2003 and 2008 have allowed for large scale
residential projects to take place, one of them being this project.

The second factor that allowed for the country place era to take place was the expansion and conditions of the urban environment. America in the 1890’s was experiencing a large amount of immigration into the country. Factories and sweatshops were attracting many of these immigrants into the cities. This caused the cities to be over populated for the amount of jobs and housing that were available in cities during this time. Not only were cities overcrowded but they were dirty and giving rise to many health concerns.

Social issues provided motivation for the British and Dutch to move out of the cities because they feared a mixing of cultures with the German and Irish immigrants. The British and Dutch up until this time had dominated the American social order. Moving out into the countryside was a solution to stabilizing an exclusionary social network that had historically been in place.

Living in the urban environment was an unattractive option to people who could afford to move out. However, a nostalgia for the countryside developed as the cities expanded because the countryside was diminishing. American cities were quickly spreading out and growing which caused the wealthy to be concerned with the loss of the American countryside.

The wealthy during this time period became interested in nature. Bird books and gardening books were becoming wildly read. Gardening books focused on topics that debated the natural and the formal styles of landscape architecture. Two influential magazines called “House and Garden” and “Country Life in America” were becoming published that represented the demands for garden-related knowledge. “Country Life” becoming one of the most popular magazines in America highly influenced people’s landscape aesthetic taste.

Gertrude Jekyll published several highly influential books which included Color Schemes for the Flower Garden, Roses for English Wood and Garden and Notes and Thoughts, Practical and Critical, of a Working Amateur. Charles Platt published a book called Italian Gardens in 1894 which helped to make Italian formality popular. One of the most influential books during this time period was American Garden written by Guy Lowell. Guy Lowell’s book was based on the geometric traditions associated with the axis and cross axis. The design aesthetic that was advocated in this book included symmetrically arranged ornaments, clipped hedges and man made water features. Although Guy Lowell’s book was popular, Olmsted’s natural and organic style of design was also popular.
Without a booming economy, poor urban conditions and a strong interest in nature and the landscape the country place era would have never taken place. The same factors allow for large scale residential projects in 2008. Today projects are never as large as they were during the country place era, however, clients are still willing to invest as much money into the landscape as the architectural structures they build. My own observation is that the clients who pay for these gardens have a strong interest in nature and their garden with most of the larger projects located in suburbs outside of America’s major cities.

C. Significance

The country place era is significant because despite a strong European influence in the landscapes during this time new American ideas were also being integrated into landscape architecture. Many estates were influenced by French and Italian gardens because both the clients and the landscape architects were taking extensive tours of Europe during this time period. European cultural status that was associated with grand residences held a strong influence on landscape architecture. European formal design and the English landscape park helped to shape design aesthetics of the country place era. However, garden design of the country place era did not replicate European garden design. An example of an estate that was highly influenced by Italian villa design was Dumbarton Oaks, outside of Washington D.C. The influence of Italian villa design is represented through the axis and cross axial organization of Dumbarton Oaks. However, when designing Dumbarton Oaks, the landscape architect Beatrix Ferrand paid special attention to the expansion of the interior architecture out into the landscape.

Debates for or against the English landscape park and formal styles took place amongst landscape architects. These debates resulted in the combination of both the formal and English landscape park styles. An example of this combination would be Winterthur which is located in Winterthur, Delaware and designed by Marian Coffin. This property is organized around an axis and cross axes on the grounds that are closest to the house. As the landscape moves away from the house the circulation through the landscape takes on characteristics of a English landscape park design. However, the English landscape park was incorporated with formal characteristics which included formal over looks onto the landscape park. This integration of both styles was a characteristic that separated American design from European design.

Karson (2007), highlights three major influences that helped in creating a distinctly American style. These include Olmsted’s animated spirit
of place, the use of historic motifs, and the client’s personal needs. Landscape architects were incorporating client’s hobbies, travel memories and art collection into their design of the landscape. Native plant materials, defined constructed views and the spirit of place all were elements that became incorporated into the landscape. Designs were also constructed around concerns for the climate, topography and native scenery (Rogers, 2001).

The Columbia Exposition of 1893 in Chicago highlighted American design aesthetics. During this exposition David Hudson and Frederick Law Olmsted showcased bridges, fountains and crystal building which highlighted the Beaux Art movement. Olmsted’s design characteristics which were based on the English picturesque but also incorporated Beaux Art, the Arts and Crafts style and Asian concepts into design were also influential during the country place era. It has been my own observation that many residential projects taking place in 2008 are influenced by European design. Design today has also incorporated a concept that originated from the country place era which was the extension of the interior architecture out into the landscape. Axial and cross axial organizations that were used during the country place era are still around in residential design. The most significant change in these axes are that they have been simplified. Axes were used visually during the country place era. Today I think axes are used more to organize circulation, although, they can be used for visual effects as well in combination.

Planting design during the country place era was significantly different from European planting design. The overriding goals of planting design incorporated predicting shrub growth rates, tree growth rates and the multi-seasonal visual effects that different plant materials create. The integration of native and foreign plant material became popular after Olmsted’s office started to integrate the two. American wild gardens were incorporated into planting design because they accommodated a large amount of plant species which included both native and foreign selections.

The nursery industry was coming into existence during the country place era. This allowed access to a large selection of plant materials and garden ornaments (Rogers, 2001). Beatrix Farrand was a leader in experimentations with plant materials. She started her career as a landscape architect without any formal education, by experimenting with planting design at her family’s summer home in Bar Harbor, Maine. Farrand’s planting style incorporated perennials, harmonious colors and various bloom sequences and texture (Rogers, 2001). Gertrude Jekyll and William Robinson were also experimenting with these concepts.

The landscape architects contributions to planting design during the country place era are still incorporated into planting design taking place in 2008.
Growth rates, bloom sequence and multi-seasonal interest are incorporated in contemporary plantings. Native planting have become popular among landscape architecture, however foreign species are still used and many times are mixed together.

Sites for the estates of the country place era were determined by the existing landscape. Beautiful trees, good soils and long views that incorporated water or mountains were optimal. The estates were used differently amongst different owners. They either functioned as weekend getaways or permanent residences.

D. Summary

After World War II the country place era did not continue. There was a shift in taste and lifestyle. The ability of the wealthy to create large estates was made difficult with the implementation of property taxes. New concepts in landscape architecture emerged with a new generation of landscape architects. Garrett Eckbo, Dan Kiley and James Rose emerged with a new style, Modernism. Modernism rejected the elaborateness and scales used earlier in residential design.

The country place era has not been overly studied. Karson (2007), gives two reasons for this. First, the landscape created in this era were only available to the very wealthy. Secondly, many of the landscape architects who worked during the country place era were women. Women’s contributions to the field of landscape architecture have been overlooked and marginalized. However, I felt this era was important to look out for this project because of the parallels it has with residential design projects that are taking place in 2008. Also, many of the landscape architects working during this era made significant contributions to the field that still influence residential design today. Finally, this era is relevant to look at for this project because it was the era when my site became a residence.

The next chapter starts out with a case study that examines the axial organization of Dumbarton Oaks. Two other case studies were chosen, one from the Renaissance Italy and from Modernist America in order to compare how axial organizations have been used in these three different time periods.
Case Studies

A. Introduction

Estates that originated in the country place era such as Gwinn, Dumbarton Oaks, Winterthur and Naumkeag were organized axially. My design for this project was organized axial from the conceptual phases of the project. Logically, it made sense for me to look closely at one of these estates as a case study because of my initial research on the country place era. The axis became the focal point of all three case studies because they were meant to be used as inspiration in my own axial design.

B. Dumbarton Oaks

Dumbarton Oaks is located in Georgetown, which is located outside of Washington D.C. (Calkins, 1969). The property was bought by Mildred and Robert Bliss in 1920 during the country place era. In 1921 Beatrix Farrand started working with the Bliss’ on a design that today is an iconic design of the country place era (Rogers, 2001). Dumbarton Oaks is organized around three major axes. The main axis acts as a visual axis while the other two axes are physical axes that organized circulation through the site. All three axes are highlighted in Figure 2.1. The use of both the visual axis and the physical axis was common in many of the country place era estates including the Faulkner Farm designed by Charles Platt and many of works by Ellen Shipman including Rynwood and Penwood (Calkins, 1969).

The main axis, called the north vista, runs north to south along the site. This axis is highlighted in blue in Figure 2.2. According to Karson (2007), this axis is considered the main axis because of its scale. The north vista consists of five terraces that move down the sloping terrain of the site. These terraces create a massive axis both vertically and horizontally, creating a great feeling of expanse to the landscape. However, this axis is different from the axes that will be discussed next because
the lines of the axis were laid out using the architectural lines of the house. The extension of the architecture out into the landscape was a defining characteristic of the country place era. Also, the house acts as the terminus to this axis which separated this axis from axes in different eras. The north vista terminating at the house can be seen in Figure 2.3.

Summarizing Karson’s (2007) work, this visual axis was defined by retaining walls and large masses of vegetation. The plantings defining this axis were primarily green and were not meant to have much color in order to form a juxtaposition to the other colorful axes on the property.

The terrace closes to the house was meant to be used for entertaining purposes and was designed to be a semi-public space. This terrace was the only hardscape terrace that was part of this axis. The southern terraces are turf and function to create a visual expanse into the landscape.

The cross axes on this site function differently from the main axis. These axes are both physical axes that are used to connect the house with a variety of garden rooms throughout the site. The first cross axis is highlighted in Figure 2.4. This axis works to connect the house with the western sections of the site. Starting at the western end of the house this axis connects the house with the orangery, the urn garden, rose garden and termi-
mates with the fountain terrace.

This axis is defined by pedestrian walkways and by a series of steps. A descending flight of steps connects the orangery and the rose garden. A double flight of steps connects the rose garden with the fountain terrace. Along these walks and stair cases materials transition creating a progression as this axis moves down the hill side. Brick was used in both structures and walkways towards the top of this axis. As the axis moves down to the rose garden, which can been seen in Figure 2.6, flagstone is the primary construction material. Finally, at the bottom of the axis lawn defines the walks throughout the fountain terrace, which can be seen in Figure 2.7.
The second cross axis runs north to south along the site and is highlighted in Figure 2.8. This axis begins at the urn terrace and connects it with the elliptical garden. Similarly, to the first cross axis this cross axis also moves down heavily sloping terrain. Instead of a progression of materials along this axis there is a progression in the scale of the plant materials. Brick is used as the paving material along the entire length of this axis. Small boxwood were used at the top of the axis to define the pathway. Towards the bottom of the axis larger boxwoods were planted (McGuire, 1989). This progression terminates with the elliptical garden, which can be seen in Figure 2.9. Originally the entire space was defined by twenty foot tall boxwood, although, the boxwood no longer define the space today. Ferrand realized that the larger boxwood might die and she created a plan to replace the boxwood with
clipped hornbeam which she believed would create a hire level of definition to the space.

The axial and cross axial organization of this site was highly influence by Italian villa design. However, Ferrand managed to differentiate herself with the manipulation of the cross axes from Italian villa design because of how the site is revealed when moving along the axes. From the top of the site many of the spaces along the axis are hidden (Tamulevich, 2001). The garden spaces reveal themselves from strategic locations along the axial circulation.

Dumbarton Oaks is an important example of residential design during the country place era for three significant reasons. First, it is organized using both visual and physical axes. Secondly, the main axis extends the architecture out into the landscape. Finally, European garden design influenced but did not define the design of Dumbarton Oaks.

The country place era was highly influenced by European design. Therefore, it seemed logical to go back and look at a classical European garden for this project. My next case study looks at Villa Lante which is organized around a slightly different type of axis.
C. Villa Lante

Villa Lante originated during the mannerist phase of the Italian renaissance. The construction of Villa Lante started in 1566 by Cardinal Giacomo da Vignola, bishop of Viterbo (Newton, 1976). The mannerist phase can best be described as a time when architecture and gardens were being built to include surprises, novelties, theatrical effects and illusions (Turner, 2005). Villa Lante is located in Bagnaia, about fifty miles outside of Rome. This case study primarily summarized Newton’s (1976) research on Villa Lante.

Villa Lante is organized around a single undisturbed visual axis which is used to connect four terrace. A diagram of the axis can be seen in Figure 2.10. This undisturbed axis is made possible because the architecture consists of two twin casinos which are located in plan on Figure 2.11 and can be seen in Figure 2.12. These twin casinos not only do not interfere with the center line of the axis, they frame and visually create the axis. The twin casinos create the axis which allows for the landscape to take on a more important role over the architecture.

The other significant feature of Villa Lante is that pedestrian circulation never moves on the axis but instead moves around the center line of the axis. Instead, water is placed directly on the axis. The water is meant to represent man’s power over nature because, the water features in this garden, are being controlled and manipulated by man. The water features are meant to show a progression on this theme. The bottom terrace, highlighted in plan in Figure 2.13 and shown in Figure 2.14, is the most formal terrace. As the axis moves up the hillside the water features and the planting design becomes less formalized and more organic.

The lower terrace is the most elaborate and defined. Four large square pools called the water parterre dominate this terrace. In the center of the four squares, which are located directly on
Figure 2.11 Plan highlighting the twin casinos
Source: Elizabeth Barlow Rogers

Figure 2.12 The twin casinos
Source: Robert Livesey

Figure 2.13 Plan highlighting the lower terrace
Source: Elizabeth Barlow Rogers

Figure 2.14 The water parterre on the lower terrace
Source: Enrico Sapignoli
the center line of the axis, is the sculpture of the Moors. Four men holding the Montalto beehives and star provide the center piece of this fountain. Water pours out of the star and down into the center of the four men. This terrace represents man’s dominate control over nature.

The circulation moving up to the second terrace is controlled by a ramp that switches back and forth between the sides of the axis. This ramp is highlighted in plan on Figure 2.15 and shown in Figure 2.16. This ramp highlights the avoidance of pedestrian circulation along the axis. The second terrace contains the fountain of lights. Again, this water feature is located directly on the center point of the axis. The fountain is built on five concentric terraced circles that are indented into a retaining wall which can be seen in plan view in Figure 2.17 and shown in Figure 2.18. Located around the five terraces of the fountain are seventy small candle like jets that spray up out of the fountain. Pedestrian circulation up to the third terrace moves to either side of the fountain of lights where there are two stair cases built into the retaining wall.

The third terrace is called the banquet terrace because of a long stone dinning table that runs the length of the terrace which can be seen in plan on Figure 2.19 or shown in Figure 2.20. The center of the dinning table is filled with still water and is located directly on the center line of the axis.
Figure 2.17 Plan highlighting the Fountain of Lights  
Source: Elizabeth Barlow Rogers

Figure 2.18 The Fountain of Lights  
Source: Robert Livesey

Figure 2.19 Plan highlighting dinning table  
Source: Elizabeth Barlow Rogers

Figure 2.20 Water table with the fountain of the giants in the background  
Source: Robert Livesey
The water in the table functioned as a Lazy Suzanne. Behind the table is a fountain that depicts two giants that are meant to represent the Tiber and Arno Rivers.

Pedestrian circulation once again moves around this fountain to either side until it hits a long stair case up to the last terrace which can be seen in plan on Figure 2.21 and shown in Figure 2.22. This stair case has what is called a water chain running down the center of it and again is placed directly on the center of the axis.

The fountain of the dolphins and the fountain of the deluge are located on the fourth and final terrace. The fountain of the dolphins is located in the center of this terrace and consists of sixteen dolphins that are spouting water out of their mouth. Behind the fountain of the dolphins is the fountain of the deluge which can be seen in plan on Figure 2.23 and shown in Figure 2.24. The fountain of the deluge is a grotto that slowly drips water out of six openings and is meant to imitate a natural water fall (Rogers, 2001). This is the least formal water feature at Villa Lante and acts as the terminus of the axis.

The axis at Villa Late is significant because it is an undisturbed axis which allows the landscape to takes precedence over the architecture. This differs greatly from other axes such as Dumbarton Oaks were the house acts as the terminus.
to the main axis creating a focal point out of the house. Secondly, Villa Lante differs from Dumbarton Oaks in that the axis forms the backbone of Villa Lante as a strictly visual element. It is physically impossible to walk on the centerline of the axis because of the water feature. This differs from the main axis at Dumbarton Oaks because although the axis is visual, it is possible to walk down the center of it.

European design and classical European design, such as Villa Lante, not only inspired what took place in the country place, it inspired what took place in American residential design after the country place era with the rise of modernism. Many modernist designers such as Dan Kiley, Garrett Eckbo and James Rose rejected the ornamentation and elaborateness that took place in the country place era estates. However, the modernist designers did use the axis as a way to organize their designs. Therefore, it seems logical to look at a case study that is an example of moderism design. The next case study I looked at was the Miller Garden.
D. The Miller Garden

The Miller Garden is located in Columbus Indiana and was designed by Dan Kiley in 1955. This residence was important because it was Dan Kiley’s first modern design. Kiley (1999) talks about his design objective being to take classical design elements and translate them into a modern design language that supported the needs of American families. Kiley accomplished this by expanding the rectilinear form of the interior architecture out into the landscape. Three axes, which can be seen in Figure 2.25, were used to connect several of these spaces.

In the master planning process of the Miller Garden, Kiley (1999), talked about a main axis that would run east to west in order to connect three distinctly different sections of the site. These sections included the most eastern section of the site where the house and landscape rooms were situated. The second section of the site was a large lawn area that took up the central area of the site. The third section was the most western section of the site which was designed into a landscape park. Unfortunately, this axis was never built, however, I felt it was important to look at because it highlights the modernist think-
ing on how the axis could be used to connect different spaces.

The second axis that was used to help organize the Miller Garden runs north to south and is located just west of the house. This can be seen highlighted in plan in Figure 2.27 and seen in Figure 2.28. Like the first axis, the second axis is used to connect two spaces which consist of two landscape spaces that showcase a Henry Moore sculpture and a Lipschitz bas-relief. Functionally, this axis served a second purpose which was to screen the western section of the house from the sun. The functionality of this axis is the first feature that distinguished it from the other axes I have looked at. The second feature is that the axis is physically perforated. Circulation is able moves in and out of the allee of honey-locusts that were used to define this axis. In fact, this axis invited pedestrian to move on and off of it through the uses of benches that were placed just off of the axis.

The third axis serves as the entry driveway and is highlighted in plan on Figure 2.29 and can be seen in Figure 2.30. This axis like the first two serves a specific function. Clipped horse chestnuts were used as canopy, while low clipped yews provided an under story along the entry drive. The horse chestnuts and the yews in combination served to create a tight, dark green tunnel that terminated with an open parking court. This axis is distinctly different from the other axes that I looked at in this
project because this axis is visually perforated. Space was left open in between the horse chestnuts and the yews which provides framed views into the surrounding landscape.

The major difference between the axes in the Miller Garden and those of Dumbarton Oaks and Villa Lante is that the axes in the Miller Garden were simplified and they served a clear function. All three axes in the Miller Garden were designed to be physical axes that provided connections between spaces in order to link the spaces together. The visually and physically perforated axes also added a new spin or twist on how axes can be defined.

E. Summary

All three case studies give examples of different types of axes which represent three quintessential eras in residential design. Villa Lante from renaissance Italy, showcased the impact of a visual axis and in this example the axis is also used to highlight a progression of a theme moving from the formal to the informal along the axis. Dumbarton Oaks from the country place era, was heavily influenced by classical Italian villa design, however, the use of the axis manifests itself distinctly differently. The lines of the house are used and extended into the landscape in order to form the visual axis which slopes down the topography. The cross axes serve as physi-
cal axes that reveal and move pedestrian circulation through the landscape to different landscape rooms. The Miller Garden used a simplified version of the axis that served to functionally connect various landscape spaces.

All three case studies showcase axes that have distinctly different attributes. However, in all three case studies the axis is a means of logically organizing each site. Visually or physically, the axis dictates the human experience in these designs. All of the axes examined control not only where and how visitors move through the space but what draws their attention and at what they end up looking. For this reason they are very similar.

The three case studies helped to guide and inspire my design for this project. However, equally important to my design was my understanding of the site. The next chapter consists of a brief history of the site, the topography, vegetation, climate and the architecture of the new house that is currently being built.
The Site

A. Introduction

The site I worked on for this project is a property located in Rydal, Pennsylvania which is about seven miles north of center city Philadelphia. The entire site encompasses thirty six acres which was parceled down in the early 1900’s from a large farm. In the 1800’s all of the land surrounding my site was farmland. However, today the area has become highly developed with high density residential housing and large commercial districts surrounding the site.

A crucial part of any design process involves a detailed understanding of the topographical and climatic conditions of the site. Understanding the history of a site can be helpful in that it may explain existing conditions and sometimes can be inspirational in later design decisions. The first part of this chapter will talk about the history of the site and then will move into a site analysis which explains the topography, vegetation and the climate that exists on the site.

B. History

The history of my site is important because it has helped me to understand the condition that the site is in today. When I first arrived on the site there were many interesting landscape features that had not been well maintained. The site has gone through a couple of transitions which have left lasting impacts to the landscape.

Derek Fell (1994), wrote about the history of the site in his book entitled Deerfield. The information I am provided for this project is a summary of his work. The first records of the site indicated that it was used as farm land in the 1800’s. This is significant because it was during this time when a small stream that runs through the site was damned and a pond was created. This pond still exist today. This is a feature that heavily inspired and shaped my design.

Later in the site’s history it was bought by Mr. and Mrs. Kerknes in 1903 when it was turned into an estate during the country place era. The property acquired the name “Deerfield” because of the quantity of deer that were sometimes spotted on the site. They owned the property up until 1946 when Thomas Hallowell Jr. and Dorothy Hallowell bought the property. During this time the Kernes’ house was torn down. An old farm house dating back to 1804 was renovated and added onto in order to act as the main residence which can be seen in Figure 3.1

Thomas Hallowell was exceptionally interested in landscape design and horticulture. The first landscape change that Thomas made to the site
were horticulturally related. He ordered hundreds of azaleas which were available from a catalog and later planted throughout the site. Later, Thomas bought over seven hundred boxwood from a local nursery that were planted in order to form vistas that looked across the site and would frame views of specimen trees he later acquired. Some of these specimen trees included maples, hawthorn, beech, spruce and hemlock.

Dorothy and Thomas Hallowell traveled through Europe extensively. There they toured many of the great European gardens including Hampton Court. Thomas felt especially inspired by the maze at Hampton Court and when he arrived home in 1951 he built the maze at half size which can be seen in Figure 3.2. One thousand and six hundred new boxwood were used in the construction of the maze which sat about two hundred feet in front of the house.

Thomas died in the late 1980’s, however, by the time of his death the site consisted of twenty two acres of lawn, seven thousand azaleas, one hundred different species of trees, sixteen linear feet of paved roads, two thousand and eighty three feet of stone wall and three hundred and forty eight steps.
Dorothy Hallowell passed away several years after Thomas in 1996. At this time the site was given to Pennsylvania State University to be used as an arboretum. Unfortunately, Thomas and Dorothy’s son developed a mental illness and the family thought it would be best to buy the property back so that he could live there. In 2005, when the son passed away, the site was sold to the current clients. The current clients were so unhappy with the conditions of the old farm house that they made the decision to tear the house down and start over with new architecture. Currently, a new house is being built. More detail will be discussed about that in the site analysis.

B. Topography

The first section of my site analysis looked at the topographic conditions on my site. Figure 3.3 highlights in yellow, slopes that are under five percent with slopes over five percent highlighted in orange.

A large section of the site consists of low sloping topography towards the southwest section of the site. This section of the site is highlighted yellow in Figure 3.3. Towards the eastern section of the site the topography becomes steeper as it forms a sharp ravine. A stream flows into the ravine from the north and in to the center of the ravine where a pond still exists dating back to when the property was being used as farmland. There are also steep inclines at the northern most section of the site which are highlighted orange in Figure 3.3.

The high point on the site is located just west of where the new house has been sited. Figure 3.4 shows where the highpoint is in plan view and Figure 3.5 is a picture of the highpoint. The low point in located at the northern section of the pond at the bottom of the ravine. This is shown in plan view in Figure 3.6 and a picture of the low point is shown in Figure 3.7.
C. Vegetation

There is a wide variety of vegetation that exists on the site. Figure 3.8 shows the large massing of vegetation. The exterior of the site consists of an evergreen forest consisting primarily of pine and spruce. This evergreen forest is significant because it acts as a barrier to all exterior views, that consist of heavily traveled roads and high density housing. A deciduous tree forest exists towards the interior of the site that is made up of maple, oak and hemlock.

Unfortunately, the site was not well maintained when the Hallowell’s son lived there, however,
Figure 3.11 Location of blue spruces

Figure 3.12 Blue spruces

Figure 3.13 Location of split leaf japanese maples

Figure 3.14 Split leaf japanese maple
several of the specimen trees Thomas Hallowell planted still exist on the site today. There are two split leaf japanese maples, a copper beech, a weeping hemlock and two blue spruce that have survived and are still in good condition. They are shown in plan view and in pictures in Figures 3.11-3.16.

D. Climate

The sun and wind are the two climatic factors that effect my site the most. The summer and winter sun effect the site differently because the sun is in different sections of the sky during different seasons. The summer sun moves across the site considerably higher than in the winter. It is important to locate parts of the site that are sun traps in the winter and are cooler in the summer. Figure 3.16 highlights the location behind the house because this area acts as a winter sun pocket. Not only will the sun be strong here in the winter this location is protected from winter winds that come out of the northwest. Figure 3.17 highlights two areas. The yellow highlighted area shows where the sun is going to be the strongest during summer which includes the entire western section of the site. However, the areas highlighted in blue in summer provides projection from the sun because of the vegetation acts as a shield.
E. Views

The area that surrounds my site is dense residential development. Heavily traveled roads surround my site to the north, south and east. For this reason there are no exterior views. However, the site does have some interesting interior views. The pond is the most exciting feature on the site. Views looking down into the pond and across the pond should be incorporated into my design. The experience of moving down into the ravine and uncovering the pond is definitely the most exciting part of the site. These views are shown in Figures 3.21 and 3.22. However, there are several views across the fields that are interesting as well. The view in Figure 3.20 is looking across the field to a structure that is currently being used as a shed.
F. Structures

The house which is currently being built will be the most dominant structure on the site. The only other structure that exists on the site is an old house that is being used as a maintenance shed. This house can be seen in Figure 3.20. Future plans for this house include significant renovations to include the construction of an indoor pool.
E. Architecture

When the current clients made the decision to buy the property they were uninterested in keeping the old farm house that functioned as the residence to the property. As a result the house was torn down and a new house was designed. As of the spring of 2008 construction has begun and is scheduled for completion in the spring of 2009. The movement of rooms in the new architecture is organized radially around the gallery that is located in the center of the house. There are three significant characteristics about the architecture that influenced my design decisions. These characteristics include three second story balconies, the amount of doors leading the exterior and an axis that is formed between the front door and the backdoor.

The most significant characteristic about the architecture that influenced my design is the axis running from the front door through the front hall, continuing through the gallery, into the loggia and out one of the many back doors. This axis is diagramed in Figure 3.21.

The amount of doors included in this architecture that lead to the exterior also needed to be taken into consideration when designing. There are twenty one doors total on either side of the house that lead to the outside. The stars shown on Figure 3.22 highlight each door.
Finally, there are three second story balconies. A balcony that is located off of the master suites sitting area looks out to the west. The second balcony is located off of a playroom and this balcony faces east. Finally, there is a balcony at the top of the staircase that faces north. These balconies can be seen highlighted in Figure 3.33.

All three of these characteristics had to be taken into account when designing. The interior axis is important because it is expanded out into the landscape. The doors influenced my design decisions because I had to provide spaces for people to exit. Finally, the balconies are significant because of the potential views they offer.

**F. Summary**

The site analysis was extremely influential in my design decisions. The interior views on the site were very influential and inspirational in my design. The views of the pond and the views down into the pond played significant roles in my conceptual and final design. The topography then came into play because the major design challenge in this project was finding a way to connect the pond with the house which involved moving down into the ravine. Climate was taken into consideration as well when the outdoor rooms were sited. Existing vegetation helped to establish a theme that will be discussed in the next chapter. Finally, the architecture played a role in my organization because I wanted to link the interior with the landscape.
Figure 3.25 Front elevation

Figure 3.26 Back elevation
Figure 3.27 Southern side elevation

Figure 3.28 Northern side elevation
Design

A. Introduction

My design was heavily influenced by two key inspirations. First, my site analysis heavily influenced my conceptual thinking. Secondly, the three case studies of Dumbarton Oaks, Villa Lante and the Miller garden influenced my design development as I incorporated features of all three case studies into my design.

Figure 4.1 Plan
B. Concept

The feature of the site that interested me the most was the pond. It seemed clear that from the beginning that I needed to make a connection between the house and the pond. The house, which was sited before I started working on the project, was just west of the pond. Therefore, I simply extended the axis that had already existed in the architecture out into the landscape and down to the pond. A diagram can be seen of this in Figure 4.2. From the beginning I realized that I wanted this axis to have both visual and physical qualities because I not only want to create a circulation system down to the pond, I wanted the experience of discovering the pond to be a highly visual experience. Finally, I extended the axis in the opposite direction, to the west, in order to incorporate an entry sequence into the axis. Concepts were explored in plan and cross section.

The experience of moving along this axis incorporated three different experiences. First, the entry courtyard functioned significantly different from the rest of the axis because vehicular traffic was incorporated into this section. Also, compared to the section of the axis on the eastern side, the western section was enclosed with high plant materials that were used to help define the rooms that lead up to the house. This can be seen in plan, section and in a model in Figures 4.5-4.8.
Figure 4.4 Cross section cut from the western boundary of the site to the eastern boundary of the site

Figure 4.5 Plan highlighting entry courtyard

Figure 4.6 Cross section of the entry courtyard
Figure 4.8 Drop off area incorporated into entry sequence
The vehicular circulation that was incorporated into this axis concluded in front of the house. At this point I wrapped a stone terrace around the house, which can be seen in Figure 4.8 so that all the doors exiting from the house lead to a space.

I then experimented with how the western section of this axis was going to terminate. I experimented with the idea of using a specimen tree in order to act as a focal point which would relate to the other specimen trees that already existed on the site. However, I ended up creating a space that was completely defined by plant material that acted as the terminus to the western section of the axis. This can be seen in Figure 4.9.

The second experience that I incorporated into this axis is the experience of moving through the interior of the house. Although, I did not have any control over the design of this space I did decide to incorporate it into my axis.

The final experience that is incorporated into the axis was the eastern section that was located off the back of the house. This section developed into a series of terraces that moved down the topography to the pond. Figures 4.10-4.11 show this section of the axis in cross section and in a picture of my model.

The experience of moving along this part of the axis is an exploratory experience because the pond slowly reveals itself and the axis moves down the topography. The first experience of the pond starts at the bottom of the second terrace where spouting water can be seen from a fountain in the pond. The back of the pond comes into view at the top of the third terrace. This location is highlighted in Figure 4.12. The entire pond is completely revealed at the bottom of the fourth terrace which looks down into the pond. In the conceptual design a set of steps that moved up the other side of the ravine were meant to act as the terminus. This can be seen in Figures 4.13-4.14.

A second cross axis was then added to my conceptual design as a physical axis in order to link three garden rooms to the main axis. This axis can be seen in plan in Figure 4.15 and in cross section in Figure 4.16. This axis is significantly different from the main axis in that the garden spaces off of this cross axis were completely enclosed by a tall eleven foot wall. Furthermore, the cross axis terminates on both ends with gateways through the wall. The two axes are meant to contradict each other in the sense that the main axis reveals and creates an experience of moving through the landscape, while the cross axis is completely contained and does not have an exploratory experience associated with it.

After these conceptual ideas were explored in both plan and section they were put into a model.
Figure 4.9 Most western section of the main axis terminus
Figure 4.10 Cross section of main axis starting at the house and ending at the eastern side of the revine

Figure 4.11 Picture of the terraces designed into the eastern section of the main axis
Figure 4.12 Plan highlighting where the pond becomes visible.

Figure 4.13 Plan highlighting the staircase that originally was meant to terminate the eastern section of the main axis.

Figure 4.14 Picture of staircase highlighted in figure 4.13.
Figure 4.15 Plan highlighting cross section

Figure 4.16 Cross section cut north to south
which helped in the developing the eastern section of the main axis. During this phase of development my case studies heavily influenced many of the design decisions.

C. Development

The details of my design were worked on in a model. All three case studies inspired many of my decisions. However, Villa Lante was probably the most inspirational of all three. Villa Lante inspired how I worked out the pedestrian circulation in the eastern section of the main axis. The circulation moves on the axis through the house. However, outside of the house it moves around the center-line of the axis. This can be seen in Figure 4.19. By doing this, the axis takes on visual qualities because the pedestrian experience focused on the center line of the axis.

Villa Lante also inspired me to create a progression with my use of plant material along the eastern section of the axis. Similar to Villa Lante, the plantings along my axis starts out with very formal plantings that are arranged on a grid. However, as the axis moves down the topography the canopy of the existing deciduous tree forest begins to encroach and help define the terraces. At the end of the axis, where the ravine starts to get steep and moves down into the pond, the deciduous forest turns into a complete forest with a full under story.

Finally, Villa Lante inspired me to incorporate water features into two of my terraces. The first water feature is built into the retaining wall separating the first and second terrace. This is a water fountain which is suppose to make some noise to grab the attention of people moving down to the pond that might not other wise look back up the hill. This is meant to work into the progression I started with my planting design, in that, the first water feature is the most formal of the three water features incorporated into the axis. The second water feature is located on the fourth terrace and is not indented into the retaining wall. This water feature is a small rectilinear pool of water which can be used as a koi pond. The water features located on the second and fourth terraces can be seen in Figure 4.19. The final water feature is the pond which takes on an organic natural shape at the bottom of the ravine. This is the most informal water feature and also acts as the terminus of this progression.

Dumbarton Oaks was used as inspiration when I was thinking about how to reveal the site and in particular the pond. I made the decision to put a fountain in the pond so that it hinted to the top two terraces that there was a water body at the bottom.
Figure 4.18 Magnified view of the main axis and cross axis
Figure 4.19 Pedestrian circulation moving around the center line of the axis
Figure 4.20 Formal plantings on the top terraces
Figure 4.21 View across forest and the canopy of the deciduous tree forest helping to define the terraces.
Figure 4.22 Understory growing into the pond area
of the ravine. This fountain can be seen in Figure 4.23. The two water features can also be seen as a precursor to the final experience of the pond.

Finally, the Miller Garden inspired me to keep the cross axis visually perforated. The planting design along the entire cross axis allows visibility in and out of other spaces. This type of planting design fits in with what I was trying to accomplish with the formal planting design of the upper terraces and can be seen in Figure 4.24 and Figure 4.25.

The final aspect of the design, that I reworked, was the eastern terminus of the main axis. It was thought in my final critique that the terminus should be a space instead of a circulation mechanism. Therefore, I added a small intimate terrace at the top of the ravine, to act as a final terminus to this long axis. This small terrace is similar to the proportions of the terrace that terminated the western section of the axis, therefore bringing this axis full circle.

D. Summary

Conceptually my design consists of an axis and a cross axis. The main axis was inspired by the pond and the architecture of the house. Connecting the two seemed to form a natural axis.

In the development phase of this design the three case studies that I looked at helped to inspire my design details. Out of all three case studies Villa Lante influenced me the most. However, Villa Lante was an inspiration to both Dumbarton Oaks and the Miller Garden. In both cases, classical European design influenced the organization and the axial layout that they both possess. So too in this design the axial organization has been key.
Figure 4.23  Looking down into pond with water fountain
Figure 4.24  Perforated and formal plantings
Figure 4.25 Perforated plantings along cross axis
Figure 4.26 Space that terminates eastern section of axis
Conclusion

The design process that took place during this project consisted of three different phases: the research phase, the site analysis phase and the design phase. First, background research was done on the country place era in order to give some understanding of the time period when the site for this project transitioned from a farm to a residential estate. Secondly, the country place era has influenced and inspired residential design in this era.

Three case studies were looked at, starting with Dumbarton Oaks which was designed during the country place era. It serves as quintessential example of residential design during this time. During the country place era the architecture and the landscape took equal importance which is something that Dumbarton Oaks epitomizes.

Because Dumbarton Oaks was so heavily influenced by classical European garden design, it led me to look at Villa Lante which is also a quintessential example of residential design from its time, the Italian Renaissance. During the Italian renaissance the landscape took a more important role over the architecture. Villa Lante is probably the best example because the two twin casinos help to frame the landscape and support the central axis which visually highlights the landscape.

Like the country place era, modernism was also inspired by classical European design. The Miller Garden is an example of modernism that highlights the connection between classical European design and modernism. This is because the axial organization of classical European design was used, however, it was simplified. Modernist gardens were highly functional spaces for people to use and come to rest in. The Miller Garden is organized around three highly functional axes.

All three case studies helped in inspiring my design which was, like my case studies, organized axially. The main axis of my design runs east to west and has three distinctly different sections which include the entry driveway to the west, the interior of the house and the terraces moving down to the pond in the east. Villa Lante was highly influential in many of my design decisions. The progression of moving from a formal style to more natural style with both vegetation and water features was inspired by Villa Lante.

Also, the movement of pedestrian circulation around the eastern section of the axis was inspired by Villa Lante. Dumbarton Oaks inspired how I used the axis to slowly reveal the site and the pond. The pond can not be seen when standing on the first terrace. Although, as the terraces move down the slope, the fountain in the pond comes into view which is meant to hint that a pond does exist. However, the pond does not come into full view until one is standing at the bottom of the fourth terrace.
Finally, the cross axis which I incorporated in the design in order to connect the garden spaces with the main axis, like the axes used in modernist designs is a functional axis. Like the Miller Garden the vegetation is visually perforated.

The site analysis influenced my design decisions significantly because the topography, climate, vegetation and architecture all created opportunities and restrictions. My design moves down the topography and for this an understanding of the topography was crucial. The existing vegetation was incorporated into my design and the deciduous tree forest was inspirational in creating the progression that I did in the planting design. The architecture helped to set up the central axis that runs through my site. If the architecture had been different or sited differently, my design would have been significantly different.

The design itself was done in two phases. First, conceptual designs were created. This was done through plan and sections. This phase was when the overall organization of the design was established. The site analysis was the main source of inspiration for this part of the project. The second phase was the development phase and this was explored in a tenth scale model. It was during this phase that the case studies significantly inspired my design. All three phases of this project were crucial in arriving at a final design.
References

Text References


Illustration References
