Cranbrook Japanese Garden Historic Landscape Study

January 2018

Cranbrook Center for Collections and Research
Cranbrook Educational Community
Bloomfield Hills, Michigan

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Cover: View north over Lily Pond. QEA, May, 2017.

Inside Cover: A view northeast over the Lily Pond from the Yokohama lantern, ca.1928. Cranbrook Archives.

The Cranbrook Center for Collections and Research gratefully acknowledges the following champions for their roles (in chronological order) in the most recent chapter of the 113-year history of Cranbrook's Japanese Garden and their substantial work that led to the completion of the Cranbrook Japanese Garden Historic Landscape Study:

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Gregory Wittkopp
Director
Cranbrook Center for Collections and Research

Acknowledgements

Introduction

The Cranbrook Japanese Garden Historic Landscape Study (HLS) addresses a serene space of beauty within the Cranbrook Educational Community campus. This celebrated component of the historic estate exudes a cultivated, organized, and yet naturalistic aesthetic which reflects its origin as the Booth family Rock Garden and later manifestation as a Japanese-style garden. The current garden comprises historic landscape features and recent interventions that correspond to the reinterpretation of Japanese character during distinct periods of development as well as to environmental changes.

Since its emergence at the east end of Kingswood Lake around 1915, the garden's character combined local and Asian themes and features ranging from vegetation and statuary to more intangible aspects like the sound of water playing along pathways. Cranbrook founders, George Gough Booth and Ellen "Nellie" Warren Scripps Booth, with George's father Henry Wood Booth and their family and staff, converted waterways associated with a former mill along the Quarton Branch of the Rouge River into a garden landscape arrayed around a central pond with connecting cascades. The garden was increasingly sculpted and planted into a Japanese-style garden through the 1920s. Modification of the landscape's character from construction of Kingswood School with the garden as backdrop, reduced maintenance after the deaths of the founders in the late 1940s, and periodic flooding positioned the Japanese Garden for a series of renovations beginning in the 1970s. Further transformation with the addition and removal of features created its current condition. Founded on the original structure and patterns of the early landscape, Cranbrook's Japanese Garden evokes an increasingly naturalistic character with degrees of managed succession and remnant features from phases of garden renewal in a Japanese style between the 1970s and 1990s.

The HLS serves as a research-based tool for use in the stewardship and future rehabilitation of the Japanese Garden. The Cranbrook Center for Collections and Research and the Center's Japanese Garden Advisory Group commissioned this investigation to document the association of existing landscape features within the Booth era of Cranbrook's history. The HLS also provides a synthesis of information related to water resources to aid long term planning of the garden area.

Study Area

For the sake of consistency, this report refers to the study area as the Japanese Garden throughout the document, except when specific terms used by contemporaries are cited in the chronology. While the garden is called by name, the HLS embraces the perspective of scholar Kendall Brown and approaches this unique cultural landscape as a North American garden in a Japanese style.[1] For the landscape between 1904 and 1914, the report discusses "the area of the future Japanese Garden" or the "Rock Garden," the original name used by the Booth family. Beginning in 1915, the study area is called the Japanese Garden by the Booth family. As the title of the present study attests, the name persists despite a switch to "Oriental Garden" in the decades following the Second World War.

[1] Kendall H. Brown, *Quiet Beauty: The Japanese Gardens of North America*, Rutland, VT: Tuttle Publishing, 2013, 11.

Because the Booths designated numerous features by name around the Japanese Garden, historic nomenclature is used throughout this report to reinforce connections across time associated with the garden.

The study area includes the 0.8-acre Japanese Garden and peripheral areas immediately adjacent to the garden (Figure 1.1). Research indicates that the boundary of the Japanese Garden corresponds to the immediate watershed of the Lily Pond. The Japanese Bridge and connecting path form the north boundary. The east boundary consists of the stone perimeter wall along Cranbrook Road. To the south, the boundary is created by the south side of the Willow Pool Walk on the ridge that divides the Lilly Pond from the Willow Pool (former Millrace). To the west, the Lakeside Walk along Kingswood Lake creates the western boundary of the Japanese Garden. This is the area demarcated as the Japanese Garden from the 1915 conversion of the Rock Garden through the garden design plans of the 1990s. It is interesting to note that abutting areas like the banks of Kingswood Lake and Willow Pool and zone around the Rainbow Fountain are rarely addressed in photographic or drawing references to the Japanese Garden. To varying degrees over time, adjacent areas have been treated to reflect the character of the garden such as using stones to line the banks of the Willow Pool and Lower Crane Brook north of the Japanese Bridge ca.1915.

Specific nomenclature is used to indicate historic features of the Japanese Garden and its context including the following names which are keyed to Figure 1.1 on the next page:

1. Lily Pond
2. Willow Pool (former Millrace)
3. Millrace
4. Kingswood Lake
5. Serpentine Brook
6. Lower Crane Brook
7. Sunny Brook
8. Stony Brook
9. Deep Pool
10. Lily Pond Cascade
11. Flowing Well Cascade
12. East Water Gate
13. North Water Gate
14. Duck Island
15. Round Island
16. Japanese Bridge
17. Corduroy Bridge
18. Willow Pool Walk
19. Lakeside Walk
20. Cherry Tree Walk
21. Old Garden Walk
22. Rainbow Fountain
23. Kingswood School
24. Cranbrook Road

Figure 1.1 Study Area of the Japanese Garden and surrounds. Numbers correspond to historical terminology for places and landscape features used in this HLS, as listed on the previous page. The diagram is an overlay of the 1914 appraisal map by Coats & Burchard Co. on a 2017 aerial photograph to facilitate the location of historic features. QEA.

Scope and Methodology

The scope of the HLS included archival research and compilation of a chronology for the Japanese Garden, documentation of the existing landscape, and identification of character-defining features remaining from the Booth era. Research focused on documenting the physical conditions of the garden during and since the Booth era. This information expanded the existing chronology, determined the historic extent of the garden, and informed the development of a historic period plan illustrating the zenith of Japanese Garden conditions during the Booth era ca. 1928.

The HLS follows federal guidance for the documentation of cultural or historic landscapes. Pertinent professional guidance includes *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* and *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*.[2] This HLS encompasses Part 1 of a cultural landscape report as outlined in federal guidance.[3] Part 1 focuses on the history, existing conditions, significance, and integrity of a landscape.[4] This format offers a logical order to the scope and organization of the HLS.

Archival research was conducted by the staff of the Cranbrook Center for Collections and Research and by authors of the HLS. This included an extensive search of repositories at the Cranbrook Libraries and Archives. Within these repositories, Architectural Records, Photograph Collections, and Vertical Files were of particular relevance to the Japanese Garden and surrounds. The records of the Cranbrook House and Gardens Auxiliary were also studied. Existing secondary sources concerning the development of Cranbrook and Japanese-style gardens in the US were consulted only as necessary to evaluate the age and historic integrity of the garden's landscape elements. Research to place the Japanese Garden into the historic context of Japanese-style gardens in the United States or to evaluate its historic significance was not included in this document's scope of work. Specific topics for which historic research has yielded no pertinent information to date include:

- Reference to the Japanese Garden in the Family Papers or Cranbrook Foundation Records.
- Relationship of Cranbrook architects or landscape architects to the Japanese Garden.
- Kingswood School drawings showing the landscape interface with the Japanese Garden.
- Photographs toward the Japanese Garden from Kingswood School or the garden terrace of the Cranbrook House.

Historical research helped to inform the documentation of the existing Japanese Garden. The project team investigated the existing cultural landscape of the garden with additional consideration of adjacent areas as they relate to the Japanese Garden, such as views to the nearby Rainbow Fountain and the impact of Kingswood Lake on water flowing through the garden. The field team assessed landscape characteristics including spatial organization, views, vegetation, circulation

[2] Charles A. Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, (Washington, DC: Department of the Interior, National Park Service, 1996); Page, Robert, Cathy A. Gilbert, Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*, (Washington, DC: National Park Service, 1998).
[3] Page, Gilbert, and Dolan, *A Guide to Cultural Landscape Reports*, p.12.
[4] Part 2 of a cultural landscape report considers appropriate preservation treatment alternatives and recommendations for the landscape. Part 3 of a cultural landscape is a continuing maintenance document that records the intent, approach, and details of implemented actions in a landscape.

features, small-scale elements, and water features. Aspects of the garden that create character such as responses to natural features and the qualities of light and sound are discussed within the landscape characteristics.

Study of existing vegetation focused on plant groupings as structural elements that contribute to the overall design composition. A topographical base map by Spaulding DeDecker aided this effort. Areas of massed plantings were demarcated. In addition, species of selected plants were documented including space-defining canopy trees over six inches in trunk diameter-at-breast-height (dbh), trees and shrubs functioning as focal points in the garden, and the general composition of wooded areas.

Field investigation and the research-based study of the Japanese Garden's history and present condition provided the data necessary to analyze the character and historic integrity of the site. This process enabled the identification of the character-defining features of the Japanese Garden remaining from the Booth era.

Significance and Integrity of the Japanese Garden

The Japanese Garden is located within the Cranbrook National Historic Landmark (NHL) District. However, neither the original NHL nomination nor the later update mentions the Japanese Garden, or indeed the landscapes of the Cranbrook campus. The period of significance for the updated NHL nomination is 1926 to "present." This nomination was written in 1989, so it is not clear if the period of significance ended in 1989, or was meant to extend to the future. This approach to a period of significance is not current standard practice for NHL nominations. The nomination appears to focus on the transformation of Cranbrook as representative of the Country Place era of US estate development into a multifunctional institution with special relevance to the collaboration of George Gough Booth and Eliel Saarinen between 1926 and 1943.

The Japanese Garden was documented in the 2005 Cultural Landscape Report for the Cranbrook Campus. This document did not establish a period of significance for the Cranbrook landscape, and did not specifically discuss the significance of the Japanese Garden. It noted the difficulty of establishing the garden's integrity due to its evolution over time, although it does cite the overall character of the garden "in the sense of being a serene and separate, if somewhat exotic, garden as planned and created by the Booth family."[5] The Japanese Garden aligns to the description of significance for the entire Cranbrook landscape provided in the Cranbrook Cultural Landscape Report: [6]

[5] Cranbrook Archives, Sasaki Associates, and the University of Michigan School of Natural Resources and Environment, *Cranbrook Cultural Landscape Report*, October 2005, 53.
[6] Ibid., 35.

> [O]ne of the most significant themes in the overall history of the development of the Cranbrook campus landscape has been the collaborative nature of each designer playing off of or building on the strength of previous ones. Furthermore, Cranbrook has long been known for its dedication to design and highly skilled craftsmanship. The landscape provides a complex layering of history—it is an evolving canvas guided by the thoughtful ideas of George Gough Booth and later Eliel Saarinen as they sought the input from the rich array of other designers, artists, and gardeners who worked to shape the Cranbrook campus.

A complete statement/evaluation of significance is not part of the scope of work of this document, and it would require further documentation of the garden's relationship to the historic significance of Cranbrook and its place within the larger historic context of Japanese-style gardens in the United States. However, the research completed for this document suggests that the Japanese Garden may be significant in several areas, including:

- Its creation by Cranbrook founders George Gough and Ellen Scripps Booth as they transformed a private estate into a multifaceted center for art, education, and research;
- As an important design element of the overall campus of Cranbrook, and its controlled connections to other designed elements such as Kingswood School and the nearby Rainbow Fountain; and
- As an early and important example of a Japanese-style garden in the United States.

Further research may reveal other potential areas of significance.

One topic of consideration related to the garden's significance is the period during which the Japanese Garden became complete under the direction of the Booths. While later periods of development are also important, the garden's significance begins with the intentional efforts of the Booths to create a specifically Japanese-style garden in the spring of 1915. By the late 1920s, the garden had acquired the full suite of features associated with Japanese-style gardens. The garden was completed and maintained intact through 1928. Ensuing changes sometimes reinforced the garden's historic character and sometimes interjected more loosely connected Asian features. The removal of vegetation, simplification of the shoreline and island features, and opening of views associated with the construction of Kingswood School (1931) altered the character of the early Japanese Garden. The flood of March 1961 modified waterways and triggered changes in vegetation which transitioned the garden toward a state of regenerative wildness. Subsequent efforts to reveal, refine, and cultivate a more Japanese character to the garden resulted in the accretion of vegetation and layers of Asian style elements added during campaigns in the 1970s, 1980s, and 1990s. Throughout this evolution, signature features of the early garden persisted including the general layout of paths, patterns of evergreen tree massing, ponds, visual and audible aspects of the cascades and dams, Japanese Bridge, and stone lantern. From its origin as a rock garden to its current form, the Japanese Garden was the product of many minds and hands. The Booths through their legacy as embodied by the Cranbrook Community continue to provide inspiration and guidance for this evolution.

An expanded evaluation of significance and additional historical study would shed light on the topic of significance for the Japanese Garden at Cranbrook. Consideration of the garden within the development of the Kingswood School grounds remains an area of potentially fruitful inquiry.

Evidence of purposeful design principles may account for the subsequent simplification of landscape character in the 1930s or indicate that it relates to other factors. Also, comparative research on other Japanese-style gardens in the US during the early 20th century would enrich the background to decision-making for the initial development of the Japanese Garden at Cranbrook.

A more definitive conclusion of this report is that the Japanese Garden retains integrity to its earliest design despite the modification of character from the addition and deterioration of features over time. The garden has been retained with modifications as the Cranbrook landscape evolved to the present. The garden's physical history reveals eras of simplification in the 1930s and addition through planned redesign between the 1970s and 1990s. See Chapter 3 for an analysis of integrity.

Introduction

This chapter draws on primary and secondary sources to document the physical history of the Japanese Garden over time. The history narrative is presented as a chronology illustrated with historic images and the ca. 1928 Period Plan (PP 1928). The plan indicates known physical characteristics and features associated with the culmination of the Japanese Garden as developed under the direction of George Gough and Ellen Scripps Booth. At that time, all significant features of the garden were in place under the influence of the founders' family prior to alterations associated with later periods. Locations and features of the landscape are discussed with historic terminology appropriate to Cranbrook as presented in Chapter 1.

Research focused on documenting the evolution of the Japanese Garden landscape using materials from the Cranbrook Archives of the Cranbrook Center for Collections and Research and from the files of Capital Projects. This chapter expands on a chronology of the garden prepared by the staff of the Cranbrook Archives.[1]

The extent and quality of historic documentation provided a wealth of previously unknown information about the historic landscape; however, photographic and written documentation of many landscape features, especially vegetation, is sparse for dates prior to the 1980s. Besides early aerial photographs, only a few photographs depict portions of the landscape between 1916 and 1928. Widespread changes during later decades diminish the ability to analyze many photographs for information related to the early garden. The HLS presents as much as is possible about the early garden landscape based on all available documentation.

Archival research indicates four major periods of garden development with additional subdivisions. These periods are defined by the accumulation of particular landscape features, relative uniformity of garden character during the period, and the caretaking regime. These interrelated factors lead to the following periods:

- 1904-1928 Booths' Japanese Garden
- 1929-1971 Japanese Garden at Kingswood School
- 1972-2011 Japanese Garden Renewal
- 2012-2018 Japanese Garden Preservation and Rejuvenation

Japanese Garden Chronology

1904-1928 Booths' Japanese Garden

George Gough and Ellen Scripps Booth founded Cranbrook in 1904 and embarked on an ambitious and evolving plan to transform the former farm into a country estate through the development of specific locations on the property including the Japanese Garden. From 1904 until 1914, the family created the Rock Garden and related waterways that would provide the landscape structure of the Japanese Garden going forward. In 1915, after seeing Japanese-style garden exhibits at World's Fairs,

[1] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.

the family transitioned the Rock Garden into a Japanese-style garden. The Booths added specific plants and other garden elements through 1928 when the character of the garden shifted as a response to the development of the Kingswood School grounds.

1904 George Gough Booth (1864-1949) and Ellen "Nellie" Warren Scripps Booth (1863-1948) purchase a property along the Quarton Branch of the Rouge River in Bloomfield Hills, Michigan. The Booths and their children, James Scripps Booth (1888-1954), Grace Ellen Booth (1890-1978), Warren Scripps Booth (1894-1987), Henry Scripps Booth (1897-1988), and Florence Louise Booth (1902-1983) spend summers in the existing Samuel Alexander Farmhouse near the Millrace through 1907. They develop the Cranbrook Estate including the Japanese Garden in the ensuing years.[2]

1905 A topographical map of the estate documents the topography, waterways, and significant trees near the Japanese Garden area (Figure 2.1). The future garden lies west of the Old Mill Pond that served the former industrial site known as Stiff's Flouring Mill prior to construction of Kingswood Lake. The Millrace begins at the western edge of a former mill pond (future Kingswood Lake). The former pond consists of a low broad expanse of land intersected by the primary meandering "brook" and several canals and embankments associated with a fish pond. Elm and oak trees grow along the Millrace and cedar and maple trees grow to the west.

The Booths frequent the area of the Japanese Garden during their summer stays. The Alexander homestead, later called the Cottage by the Booths, includes ornamental garden plantings with arcing paths and a bridge on the southwest side of the Millrace that connects to a path on the northeast side.[3] The paths, later referred to as the Old Garden Walk and Willow Pool Walk, are later incorporated into the Japanese Garden area and remain features of its southern edge.[4] In a clearing directly south of the path and near the Japanese Garden, the Booths hold Fourth of July picnics under a large oak.[5]

1905 H. J. Corfield, an English-born landscape architect and gardener, and the Vettraino family of Italian landscape craftsmen, begin to work with the Booths to develop the estate including the future Japanese Garden and other areas.[6] Corfield continues at least through 1915. The Vettraino family provides continuity of landscape tradition into the late 1950s. Michael Vettraino eventually becomes head gardener and superintendent of gardens and grounds until succeeded by his son Dominick.

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[2] Sasaki Associates, and the University of Michigan School of Natural Resources and Environment, *Cranbrook Cultural Landscape Report*, October 2005, p.85; George G. Booth, Cranbrook Map ("Erasures" Plan) ca. 1904-1928, AD.16.75, Collection of Cranbrook Archives.

[3] Ornamental beds and paths depicted on "Planting Plan for Cranbrook," ca 1907, H.J. Corfield, AD.04.58, Collection of Cranbrook Archives.

[4] Ornamental beds and paths are incorporated into estate designs on ca. 1906-1908, Cranbrook: Country Residence of George G. Booth, Cranbrook Archives. The "Old Garden Walk" noted on Coats & Burchard Co. Map of Cranbrook: Old Farm Group Home - Estate of George G. Booth, Dec. 15, 1914, AD.01.140. Collection of Cranbrook Archives.

[5] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.

[6] Diana Balmori. "Cranbrook: The Invisible Landscape," Journal of the Society of Architectural Historians, Vol. 53, No. 1 (Mar., 1994), p. 36.

1906-1907 Corfield and the Vettrainos dredge and join several streams and lowland areas west of the millpond and north of the Cranbrook House to create Glassenbury Lake (now Kingswood Lake). A reinforced concrete dam with two openings and a watergate is closed by George Gough Booth on March 23, 1907, to fill the lake and control its outflow to the Rouge River. This establishes the west boundary of the future Japanese Garden.[7]

An estate plan dated 1906-1908 shows the new water bodies and the retention of the walks and gardens associated with the Alexander homestead (Figure 2.2). The Japanese Garden area includes a constructed pond (future Lily Pond), other waterways, and bridge in the location of the Japanese Bridge.[8]

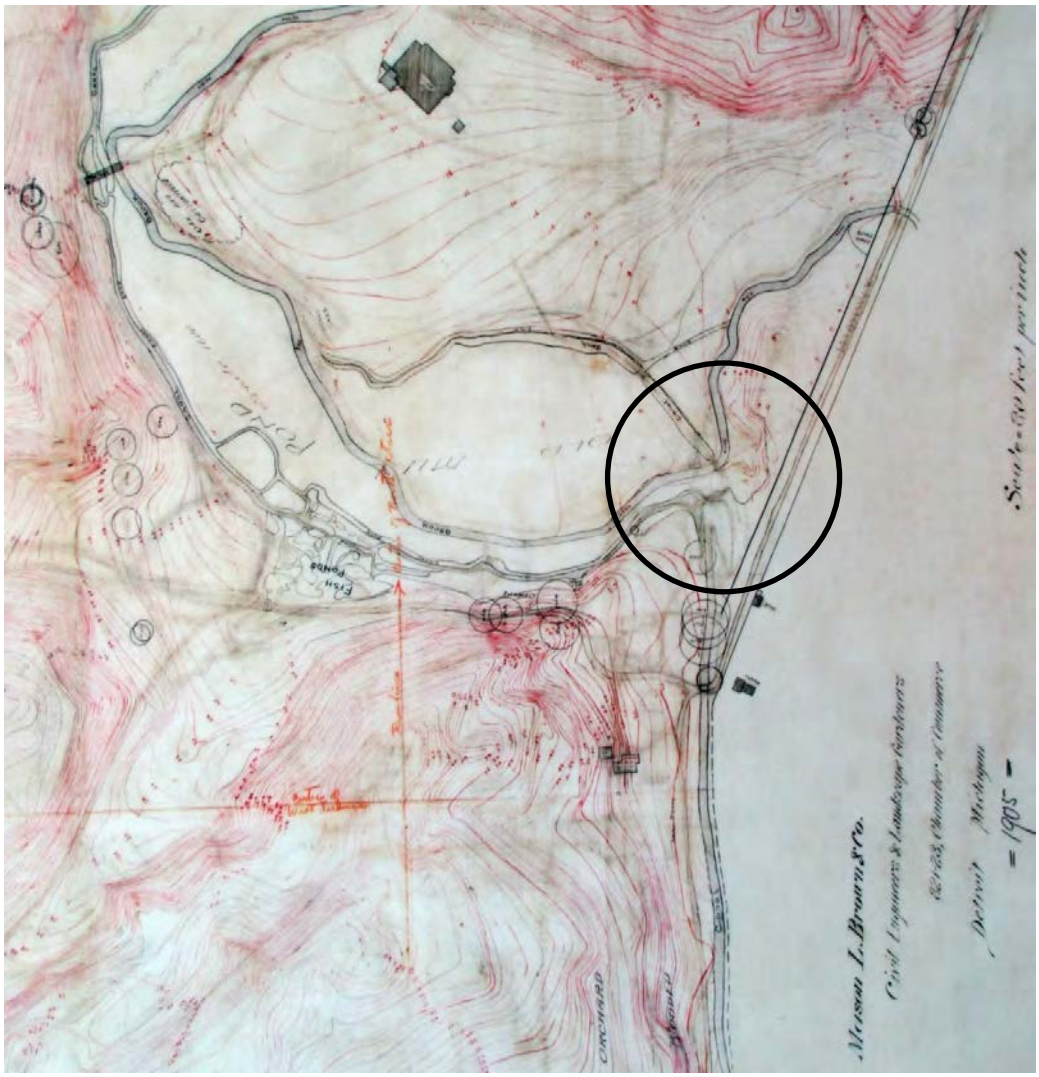

Figure 2.1 The Japanese Garden area indicated by a black circle on a topographical survey of the Cranbrook Estate, 1905, AD.02.23. Collection of Cranbrook Archives

[7] *Annals of Cranbrook*, 1907, Henry Wood Booth Papers (1985-05), 3:16, Collection of Cranbrook Archives.
[8] Ornamental beds and paths are incorporated into estate designs on Country Residence of George G. Booth, 1906-1908, AD.01.87, Collection of Cranbrook Archives. New dam noted on photograph of Kingswood Lake East Dam, ca 1906, JSB2.18.4, Collection of Cranbrook Archives.

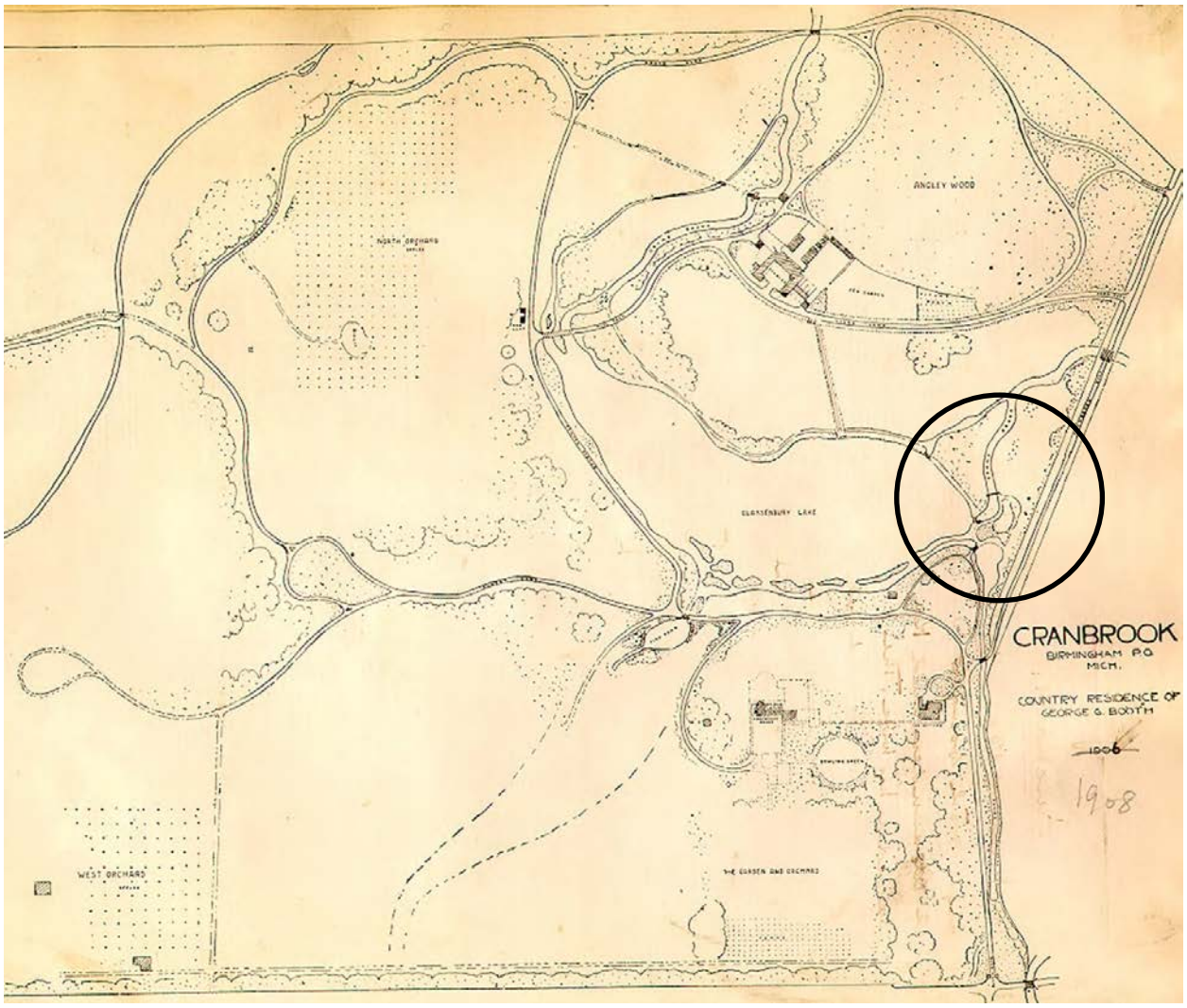

Figure 2.2 The Japanese Garden area indicated by a black circle on a map plan entitled "Country Residence of George G. Booth," 1906-1908, AD.01.87, Collection of Cranbrook Archives.

ca. 1909 A photograph shows curving paths in the Japanese Garden area that offer a view of the recently constructed Cranbrook House (Figure 2.3).[9] The shallow depth of a pond or stream and recently planted deciduous and evergreen trees planted in meadow areas are visible. The partially screened views to the southwest will be blocked by tree growth in the following years.

1910 The Flowing Well, also called the Flouring Well, is dug in the spring to provide water for the picnic site on the oak near the future Japanese Garden. In the summer, a fountain and circular basin are installed for the decorative use of the well water.[10] The fountain is the predecessor of the 1916 Rainbow Fountain.

[9] View to Cranbrook House, photograph (CEC3687). Circa 1909, Collection of Cranbrook Archives.
[10] *Annals of Cranbrook*, 1907, Henry Wood Booth Papers (1985-05), 3:16, Collection of Cranbrook Archives; George G. Booth, Cranbrook Map ("Erasures" Plan), AD.16.75, ca. 1904-1928, Collection of Cranbrook Archives.

Figure 2.3 View southwest showing a dry water body, paths, and recent plantings in the Japanese Garden area, ca. 1909.

ca. 1910 George Gough Booth begins to include photographs and drawings of Japanese bridges, low dams, and rocky pathways in his "Inspiration Book." These precedents influence the eventual design of the Japanese Garden.[11] The Japanese Bridge is built around this time between ca. 1908 and ca. 1913.

1910 Ossian Cole (O.C.) Simonds, an acclaimed prairie-style landscape gardener from Grand Rapids, Michigan, advises the Booths intermittently at Cranbrook through 1923. Documentation to date does not indicate his impact on the development of the Japanese Garden.[12]

[11] George Gough Booth "Inspiration Book," ca.1910-1920, George Gough Booth Papers (1981-05), Collection of Cranbrook Archives.

[12] Diana Balmori. "Cranbrook: The Invisible Landscape," Journal of the Society of Architectural Historians, Vol. 53, No. 1 (Mar., 1994), p. 38.

1912 The Booths begin to provide form and character to the future Japanese Garden area by placing stones and controlling the movement of water. With the assistance of the Vettraino family and a workhorse named Bebe, George Gough Booth's father Henry Wood Booth moves stones in the area they called the Rock Garden.[13] The use of large stones and evergreen plantings served as a precedent for future garden spaces at Cranbrook.

At this time, the connection between the water bodies is manipulated with the installation of two new, iron water gates at the east end of the lake and one at the south end of the Millrace.[14]

1913 A spillway and the Serpentine Brook [not extant] are dredged on the north side of the lake and four temporary wooden bridges are built over these new waterways.[15]

1913 October. Henry Wood Booth makes progress with what George Gough Booth calls "Grandfather's new Cascade and Rock Garden." The structure of the cascade is complete but requires piping (likely from the Flowing Well) before water can be turned on. Completion is anticipated in 1914.[16]

1914 Albert Charpaize, a French landscape gardener, oversees construction of five rustic wooden bridges: one across the entrance to the pond above the Millrace from the lake, two across Serpentine Brook, one across Sunny Brook [between Kingswood School and the lake], and one across Stony Brook [north of and parallel to Sunny Brook, not extant].[17] These bridges complement the Japanese Bridge which existed by this time (Figure 2.4). The construction of the Japanese Bridge prior to 1914 represents the first inclusion of a specifically Japanese influenced landscape feature prior to the Booth's observation of Japanese-themed exhibits during World's Fairs in 1915. A photograph from this time shows both types of bridges and indicates that scattered canopy trees provided partial shade to the otherwise open ground at the north edge of the Rock Garden. Paths twisted around the various stream channels and crossed onto shrub filled islands.

1914 Alexander L. Lamond begins his tenure as head gardener through 1933.[18] After emigrating from Scotland in 1902, his experiences at the estates of Tarrytown in Massachusetts and The Causeway in Washington, DC informed his work at Cranbrook.[19] With the Vettraino family, Lamond is involved in the development of the Japanese Garden area as well as the formal gardens around the Cranbrook House. Lamond also contributes to the construction of the Grotto Lakes and the associated rock-accented walking trails that have a precedent in the Rock Garden (Figure 2.5).

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[13] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline; additional notes from Leslie S. Edwards, "Oriental Garden: Timeline," revised May 2016, Cranbrook Archives.
[14] Site Plan [with survey notes in black and red ink] (AD.01.14). December 1911, Collection of Cranbrook Archives.
[15] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.
[16] Letters from GGB to HSB, 12 Oct. 1913; 26 Oct. 1913. Henry Scripps Booth and Carolyn Farr Booth Papers (1982-05), 1:4, Collection of Cranbrook Archives.
[17] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.
[18] Ibid.
[19] JMSnyers, "Alexander Lumsden & Margaret Borthwick Harkes Lamond," accessed 12/6/2017, https://www.ancestry.com/boards/thread.aspx?mv=flat&m=218&p=surnames.lamont.

Figure 2.4 Winter view of the rustic Sunny Brook Bridge looking southwest through scattered canopy trees toward the Japanese Bridge at the north side of the Rock Garden, ca.1915, CEC808, Collection of Cranbrook Archives.

Figure 2.5 Gardener Michael Vettraino at the Grotto Lakes showing stone details and evergreen plantings similar to those at the Japanese Garden, ca.1940, Dominick Vettraino Papers (1990-15), Collection of Cranbrook Archives.

1914 Spring. Approximately 15,000 small trees are planted throughout the estate, likely including the Japanese Garden area.[20] These trees would now be over 100 years old and may include the older deciduous and evergreen trees in the garden.

1914 December 18. An appraisal and map drawn by Coats & Burchard Co. of Chicago provides clarity on landscape character and fundamental layout and features of the Japanese Garden area (Figures 2.6).[21] Many of the inventoried features persist to the present. Flowing water and stones provide a distinctive quality to the garden. Place names are included on Figure 1.1 in Chapter 1 and

[20] Sasaki. CLR.

referenced on PP 1928. The main pond is identified as the Lily Pond and contains two islands in the same location as the existing islands: Duck Island in the center and Round Island to the south. To the south of the Lily Pond, the Willow Pool connects to the Lily Pond via a 6" vitrified crock pipe and the Lily Pond Cascade. The Lily Pond Cascade contains seven basins along a 44'-fieldstone and concrete race. To the northeast, piped water is conveyed into the Lily Pond from the fountain through the Flowing Well Cascade. This cascade also consists of seven basins along its 24' run. The Lily Pond, its islands, the south end of the Willow Pool, and the lakeshore are edged with fieldstone boulders.

Lake water flows to Lower Crane Brook through three points in the garden area: first, unobstructed into Willow Pool under the Corduroy Bridge; second, into the Lily Pond at a controlled level through the East Water Gate and out at the three-foot deep "Jap Bridge Dam" [sic]; and third, into Deep Pool of Stony Brook and Sunny Brook through the North Water Gate. The East Water Gate at the Lily Pond is a reinforced concrete structure with two 5'-6"x6' bolted oak lift gates, a concrete sidewalk, and pipe railings. A 13'-7" split fieldstone water race connects to Lily Pond. The North Water Gate at the Deep Pool is described as a reinforced concrete structure with sidewalk and a 4'x6' steel lift gate, designed by Caldwell Wilcox Co., Newberg, New York. The Lily Pond, Stony Brook, and Sunny Brook flow north into Lower Crane Brook which departs the property under Cranbrook Road.

Circulation patterns of the garden include named paths including the Lakeside Walk, and Willow Pool Walk between the two ponds. Primary walkways around the Lily Pond and along the lake are illustrated with fieldstone edges and steps. At the garden's periphery, Old Garden Walk between Willow Pool and the lake and Cherry Tree walk [not extant] along Lower Crane Brook north of the Lily Pond are depicted. The map shows numerous bridges which are also described in the appraisal book (Figure 2.7). The 6'-2"-wide Corduroy Bridge at the Willow Pool is made of four oak girders with fieldstone walls and cement coping. The Japanese Bridge at the north end of the Lily Pond is a 3'-4 ·"-wide arched cypress structure. The Stony Brook and Sunny Brook Bridges are described as 6'-5"-wide rustic bridges with plank decking and rustic railings.

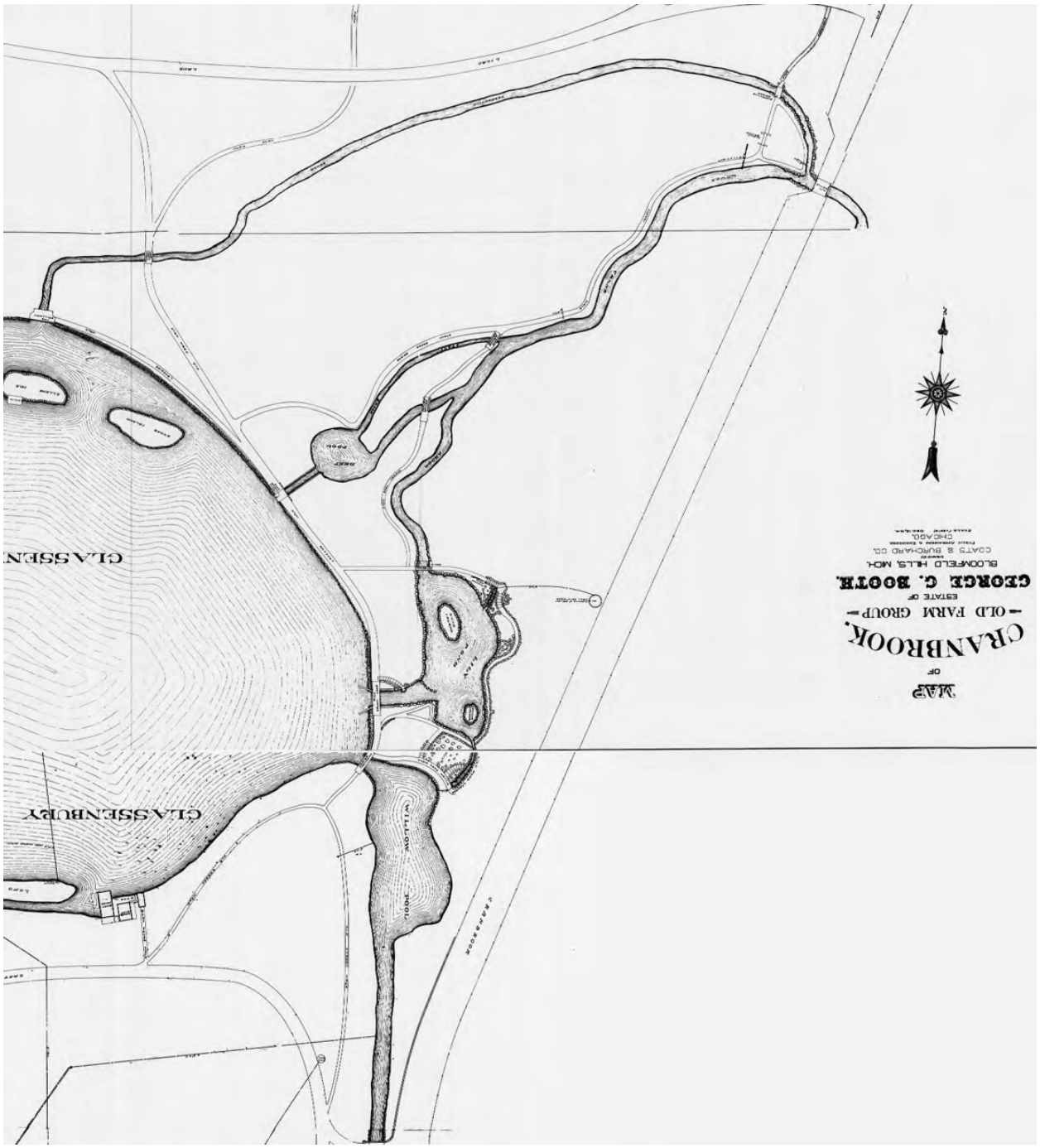
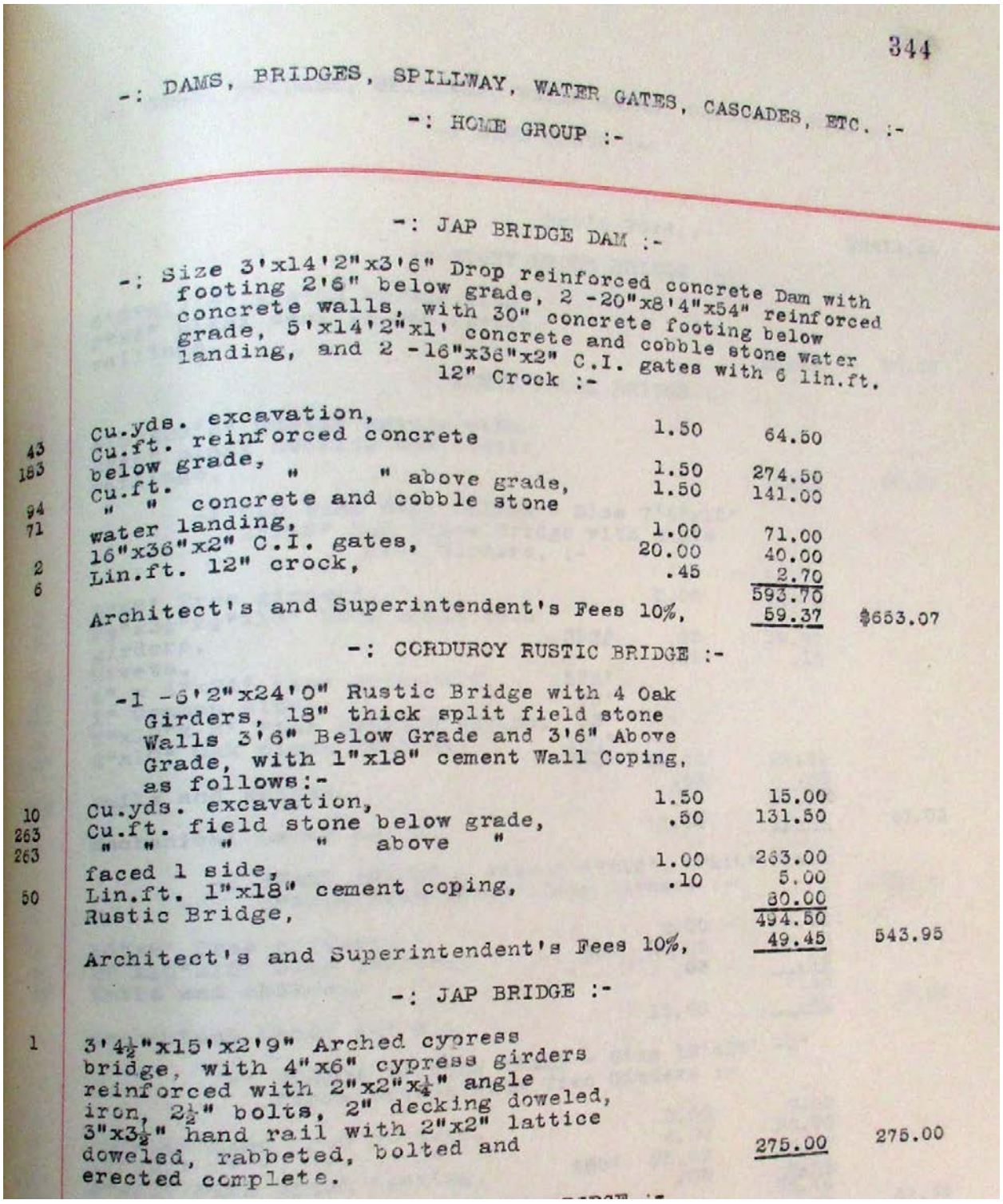


Figure 2.6 Features of the Japanese Garden appear on the 1914 appraisal map by Coats & Burchard Co. See Figure 1.1 in Chapter 1 and the 1928 Period Plan for the location of places and features referenced on this map. (The map is intentionally rotated to the north.)



344

-: DAMS, BRIDGES, SPILLWAY, WATER GATES, CASCADES, ETC. :-

-: HOME GROUP :-

-: JAP BRIDGE DAM :-

-: Size 3'x14'2"x3'6" Drop reinforced concrete Dam with footing 2'6" below grade, 2 -20"x8'4"x54" reinforced concrete walls, with 30" concrete footing below grade, 5'x14'2"x1' concrete and cobble stone water landing, and 2 -16"x36"x2" C.I. gates with 6 lin.ft. 12" Crock :-

43	Cu.yds. excavation,	1.50	64.50	
183	Cu.ft. reinforced concrete below grade,	1.50	274.50	
94	Cu.ft. " " above grade,	1.50	141.00	
71	" " concrete and cobble stone water landing,	1.00	71.00	
2	16"x36"x2" C.I. gates,	20.00	40.00	
6	Lin.ft. 12" crock,	.45	2.70	
			593.70	
	Architect's and Superintendent's Fees 10%,		59.37	$653.07

-: CORDUROY RUSTIC BRIDGE :-

-1 -6'2"x24'0" Rustic Bridge with 4 Oak Girders, 18" thick split field stone Walls 3'6" Below Grade and 3'6" Above Grade, with 1"x18" cement Wall Coping, as follows:-

10	Cu.yds. excavation,	1.50	15.00	
263	Cu.ft. field stone below grade,	.50	131.50	
263	" " " " above " faced 1 side,	1.00	263.00	
50	Lin.ft. 1"x18" cement coping,	.10	5.00	
	Rustic Bridge,		80.00	
			494.50	
	Architect's and Superintendent's Fees 10%,		49.45	543.95

-: JAP BRIDGE :-

1	3'4½"x15'x2'9" Arched cypress bridge, with 4"x6" cypress girders reinforced with 2"x2"x¼" angle iron, 2½" bolts, 2" decking doweled, 3"x3½" hand rail with 2"x2" lattice doweled, rabbeted, bolted and erected complete.	275.00	275.00

Figure 2.7 The 1914 Coats & Burchard Co. appraisal includes detailed information about landscape features such as the Japanese Bridge, George and Ellen Booth Financial Papers (1981-02), Box 11, Collection of Cranbrook Archives.

1915 March. George Gough Booth, Ellen Scripps Booth, and Henry Wood Booth travel to California and visit expositions at San Diego (Panama-California Exposition, open from January 1, 1915, to January 1, 1917) and San Francisco (Panama-Pacific International Exposition, open from February 20 to December 4, 1915).[22] The expositions include Japanese-style garden exhibits with numerous features that inspire the Booths to include them in their garden at Cranbrook. The Japan Pavilion at the Panama-California Exposition featured a variety of evergreens, Japanese maple, and a variety of stone lanterns near a pond.[23] A pedestal-style lantern, stone-edged paths, and an arched bridge at the Japanese Tea Garden of the Panama-Pacific International Exposition have some similarities to features in the later Japanese Garden at Cranbrook.[24]

1915 Spring. The Booths intentionally shift the character of the Rock Garden toward a Japanese style. In March, George Booth orders a set of three bronze storks from S. & G. Gump Company, an importer of fine art and artifacts based in San Francisco with offices in Paris, Berlin, Florence, Yokohama, and Canton (Guangzhou). This order from S. & G. Gump included other items for Cranbrook House, including a Blanc d'Ivorie vase by Tozan, an ivory ball, two oil paintings, and a complimentary rhinoceros horn cup. Receipts show he pays for the storks on May 14 and that they are in place by May 16.[25] That month, George Booth writes to Henry Scripps Booth, "We have our three bronze storks down in the rock garden and they give the place more of a Japanese look."[26] At this time, the name of the garden begins to shift. Henry Scripps Booth captions a photograph of the Japanese Bridge, "In the Rock Garden," in Volume 2 of his *Pleasures of Life* album and Henry Wood Booth refers to the "Japanese Garden" in his *Annals*.[27]

Photographs reveal the early character and development of the Japanese Garden (Figures 2.8 and 2.9). Small boulders line the Lily Pond and a few larger stones punctuate points of land that extend into the water. Nine trees, possibly ash (*Fraxinus* sp.), and meadow-like grasses on Duck Island, are protected from flowing water by a double row of larger stones along the shore. Two crane sculptures are located at the south end of the island. Pathways appear to be gravel in 1915. A this time, there is no path along the west side of the Lily Pond south of the Japanese Garden; instead, a wide, closely mown area separates the stone-lined pond from dense evergreen plantings on the embankment of the lake. A bench or table on a knoll at the top of the Lily Pond Cascade provides views south over the pond. This perspective reveals plants on the bank in the future location of the Yokohama lantern, the island with crane sculptures, the Japanese Bridge, and an open ground plane through the trunks of canopy trees in the distance. In contrast, views to the north across the pond are enclosed by horizontal layers of stones, groups of herbaceous plants, shrubs along an incline, and trees in the background.

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[22] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.
[23] "Panama-Pacific International Exposition San Francisco Japan Pavilion, 1915;" "Tea House and Japanese Tea Garden San Diego, est. 1914 c. 1915, postcard view." In Kevin Adkisson, Timeline: Cranbrook's Japanese Garden, January 19, 2017, Adapted for Quinn Evans, May 11, 2017.
[24] "Japanese Tea Garden San Francisco, est. 1893 California Midwinter International Exposition c. 1910, postcard view." In Kevin Adkisson, Timeline: Cranbrook's Japanese Garden, January 19, 2017, Adapted for Quinn Evans, May 11, 2017.
[25] S. & G. Gump Company Receipt of order, March 31, 1915.George G. Booth Papers (1981-05), 19:11, Collection of Cranbrook Archives.
[26] Correspondence from George G. Booth to Henry Scripps Booth, May 16, 1915. George G. Booth Papers (1981-05), 19:11, Collection of Cranbrook Archives.
[27] Henry Scripps Booth, *Pleasures of Life*, 1915-16, POL2.44.4; *Annals of Cranbrook*, 1907, Henry Wood Booth Papers (1985-05), 3:16, Collection of Cranbrook Archives.

Figure 2.8 View north across the Lily Pond toward a large boulder, crane sculptures near Duck Island, and the Japanese Bridge. The western bank of the pond is turf in 1915. E133, Collection of Cranbrook Archives.

Figure 2.9 View south from the Japanese Bridge shows a bench or table on a promontory above the future location of the Yokohama lantern in 1915.

1915 Dec. 2. George Gough Booth places an order for plants and a large, stone lantern with pedestal from "The Yokohama Nursery Co., Ltd. Importers and Exporters of Japanese Bulbs, Plants, and Seeds, Japanese Government Grounds, Panama-Pacific Exposition, San Francisco." Plants include one large wisteria (likely *Wisteria floribunda*, Japanese wisteria), one potted Taxus (likely *Taxus cuspidata*, Japanese yew), one Sciadopitys (*Sciadopitys verticillata*, Japanese umbrella-pine).[28]

1916 The Booths continue to develop the garden and surrounding areas. They install the Yokohama lantern in its current location at the south end of the Lily Pond. The potted wisteria was placed "on the little island [but it died] because it wasn't anybody's job to water it and the first winter ice broke the pot."[29]

Photographs taken around 1916 reveal the original character of the Japanese Garden. Henry Scripps Booth captions a photograph of his friend sitting on the unpainted Japanese Bridge, "Jean Steketee in the Japanese Garden, 1916" (Figure 2.10).[30] The photograph shows a hillside massing of upright shrubs suggestive of forsythia (*Forsythia* sp.) or red-osier dogwood (*Cornus sericea*) between the stone-lined stream and the Lakeside Walk. Evergreen trees are visible in the background on the slope adjacent to the deciduous shrub massing.

Figure 2.10 A photograph of the Japanese Garden bridge and dam with stone lined banks and deciduous trees and a shrub mass in the background, ca.1916.

[28] Yokahama Nursery Co., Ltd. receipt of order, Dec. 5, 1915.George G. Booth Papers (1981-05), 17:9, Collection of Cranbrook Archives.
[29] "Oriental Garden: From the writings of Henry Scripps Booth," Kingswood School History, Vertical Files, Collection of Cranbrook Archives.
[30] Henry Scripps Booth, *Pleasures of Life*, 1915-16, POL2.88.3.

By 1916, aquatic and terrestrial plantings gradually expand. These include cattails and water lilies in the Lily Pond and grasses and wildflowers along the narrow gravel paths that surround the pond (Figure 2.11). On the wide level bank of the northeast shore of the Lily Pond, a mown edge provides water access. Masses of shrubs provide a back edge to the level area near the bank. Canopy trees beyond this area fill the space between the Japanese Garden and Cranbrook Road to the east.

The Rainbow Fountain replaces the Flowing Well Fountain on the property line directly east of the Japanese Garden. Upon first use, the Booths name the fountain for the effect of the rays of the setting sun on the spray of the water which envelops the entire structure in a radiant rainbow. The European-inspired, Arts and Crafts style fountain was designed by George Gough Booth and Marcus Burrowes with the inclusion of Pewabic tiles designed on site by Mary Chase Perry Stratton.[31] From this time through the early 1960s, vegetation of the garden is maintained to reveal views of the fountain from the garden area, such as a narrow glimpse of the fountain from the bridge of the East Water Gate at the Lily Pond. The development of the European-style fountain and provision of visual relationship with the Japanese Garden highlight intentional contrasts between eastern and western elements within the garden.

The stone boundary wall along Cranbrook Road extends south from its terminus near the Willow Pool and replaces the fence identified on the 1914 appraisal map.[32] This may have occurred in conjunction with the fountain construction.

1917 January. The Booths identify the need to dredge the lake; however, the contracted company backs out. A related plan calls for the removal of silt to fill in the Serpentine Brook and spread over low areas on the north shore and the Island Dump [location of Kingswood School] between the brook and the Lower Crane Brook.[33]

By the summer, views are opened between the Japanese Bridge from the Lakeside Walk through the removal of shrubs and planting of grass (Figure 2.12). This increases views below the canopy of American elm (*Ulmus americana*) trees to the grassy field northeast of the garden area.

1918 Aerial photographs record the pathways, stone-lined banks, and landscape context of the Japanese Garden (Figures 2.13 and 2.14). Photographs reveal the absence of a protruding bank shown on the 1914 appraisal map. This suggests that the east side of the Lily Pond (near the lower east walk in the vicinity of Figure 2.11) had been modified prior to 1918. Patterns of vegetation including areas of massed evergreens are apparent in the winter views around the Flowing Well Cascade, between the pond and Cranbrook Road to the east, on both sides of the East Water Gate bridge, and both sides of the Corduroy Bridge at the Willow Pool.[34] The historic density of evergreen vegetation persists in these areas. Older evergreen trees that predate Cranbrook appear as larger, dark masses along the

[31] "Sculptures & Fountains Tour: Rainbow Fountain," Accessed Jan. 3, 2018: https://cranbrookhouseandgardens.oncell.com/en/sculptures-fountains-tour-rainbow-fountain-85883.html.
[32] Wall evident on 1918 aerial and oblique aerial photographs (Collection of Cranbrook Archives). Fence and 1905 wall recorded on Coats & Burchard Co. Map of Cranbrook: Old Farm Group Home - Estate of George G. Booth, Dec. 15, 1914, AD.01.140. Coats & Burchard Co. Appraisal, 1914-1918, George and Ellen Booth Financial Papers (1981-02), Box 11, p.344-349, Collection of Cranbrook Archives.
[33] Henry Scripps Booth and Carolyn Farr Booth Papers (1982-05), Writings, 1917, Collection of Cranbrook Archives; Hatch-Montague Co., Plan of Cranbrook Estate, Jan 1917.
[34] 1918 aerial photograph [fragment] and oblique aerial photograph, Collection of Cranbrook Archives.

Old Garden Walk south of the Japanese Garden. Nearby landscape features are visible such as the Rainbow Fountain, stone perimeter wall, and the Old Garden Walk with pre-Cranbrook evergreen trees west of the Willow Pool. A dominant path exists between a gate on Cranbrook Road east of the Willow Pool and the Lakeshore Walk. The photographs also provide evidence of how the visual relationship between the Cranbrook House and the Japanese Garden area is impeded due to vegetation and topography.

Figure 2.11 A narrow path along the eastern edge of the Lily Pond connects the southern end of the garden with the open shore near the Flowing Well Cascade, ca.1916. It is possible that a small bridge connected the lower east walk to the small island around this time. The stone-lined bank between the shoreline tree and the northeast landing in the distance may have been modified to expand the pond around this time.

Figure 2.12 The setting of the Japanese Bridge forms a threshold and offers views at the north side of the Japanese Garden, ca.1917. An open lawn is visible from the vantage of the Lakeside Walk.

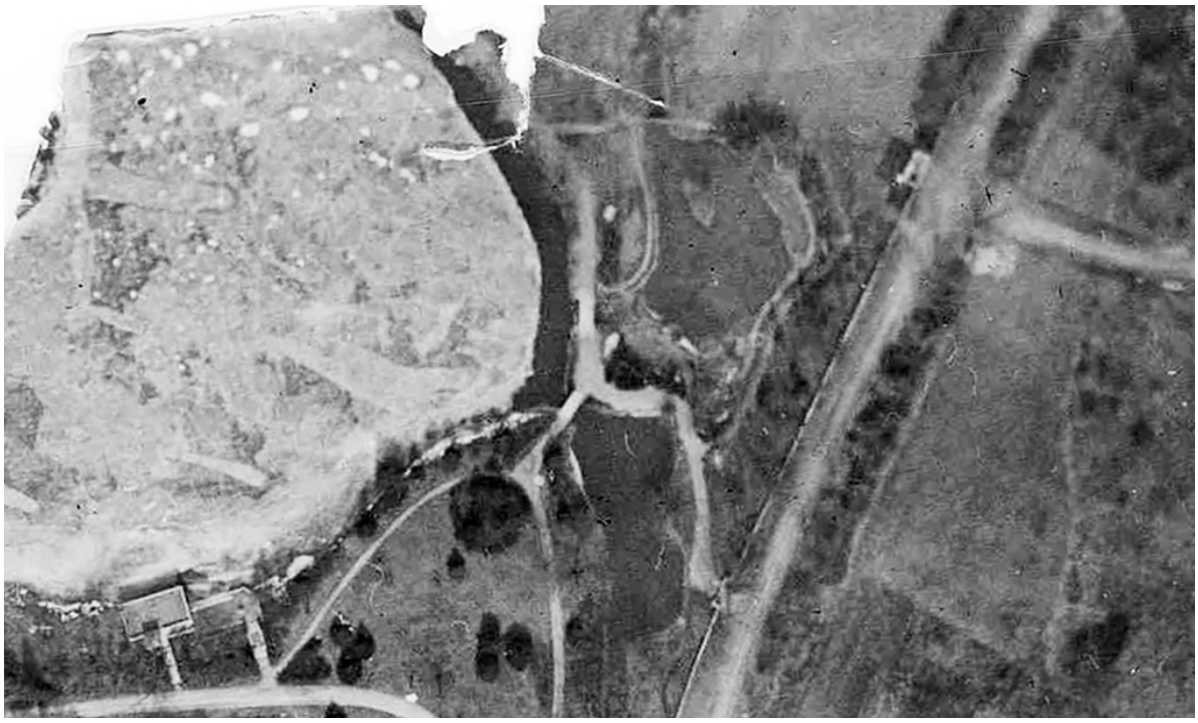

Figure 2.13 A winter aerial photograph from 1918 reveals patterns of circulation and evergreen vegetation.

Figure 2.14 An oblique aerial photograph shows the Yokohama lantern and rocky edges of the water bodies in the Japanese Garden in the context of the Cranbrook House, 1918.

1919 A winter photograph shows the placement of the lantern on an open promontory at the south end of the pond in 1919 (Figure 2.15). Two crane sculptures are also visible in the water near the lantern. The photograph reveals the structure of symmetry in the planting design for the East Water Gate at the Lily Pond. Paired vines drape from the walls containing the inlet from the lake. Above these, two American lindens (*Tilia americana*) project from the north and south ends of the concrete bridge. Stone steps descend from the Lakeside Walk on both sides of the bridge which indicates the placement of a new path along the west side of the Lily Pond. Selective removal of trees in the area retains a pair of large canopy trees, including one Siberian elm (*Ulmus pumila*), near the Lakeside Walk. Extending north and south along the upper bank are masses of evergreens, possibly Chinese juniper (*Juniperis chinensis*). Flooding in the spring of 1919 raises the lake level and undermines parts of the Millrace but the Japanese Garden is largely unaffected.[35] After this time, the stone shoreline of the pond and streams becomes seasonally less distinct and blended with encroaching vegetation.

1924 The Lakeside Walk between the Japanese Garden and the Serpentine Brook to the north is extended to the west and connected to the rest of the estate.[36]

1927 The Booths establish the Cranbrook Foundation to help sustain the educational and cultural development of Cranbrook. Guided by the Booths, the Foundation manages landscape decisions on the property. Cranbrook School opens.[37]

Figure 2.15 Winter view from Round Island west toward the Yokohama lantern and upright and crouching crane sculptures in the foreground and a symmetrical landscape design around the East Water Gate in the background, 1919.

[35] Henry Scripps Booth and Carolyn Farr Booth Papers (1982-05), Writings, 1919, Collection of Cranbrook Archives.
[36] CLR, p.85; George G. Booth, "Erasures" Plan ca. 1904-1928, AD.16.75. Collection of Cranbrook Archives.
[37] Mark Coir. "A Brief History of Cranbrook," 2005. Accessed Oct. 30, 2017: http://www.cranbrook.edu/sites/default/files/ftpimages/120/misc/misc_47669.pdf.

1920s The garden is characterized by an exuberance of mixed evergreen and deciduous plantings with selected areas of exposure to the open sky. Photographs demonstrate how garden maintenance permits the growth of vegetation to provide enclosure while allowing selected views between important garden elements including between the East Water Gate bridge and the Rainbow Fountain (Figure 2.16), between the top of the Flowing Well Cascade and the Yokohama lantern (Figure 2.17), and from the lantern to many points such as the Japanese Bridge (Figures 2.18 and 2.19). The lantern appears in most photographs of the garden during this era including one taken around 1920 with Henry Wood Booth standing beside beds of daylilies, irises, and other flowering plants (Figure 2.20). It is possible that bamboo is introduced around Lower Crane Brook just north of the Japanese Bridge during the 1920s (Figure 2.19). Also, lush herbaceous vegetation and the gradual decline of ash trees on Duck Island provide a picturesque appearance to this important visual space in the pond.

The character and features that define the Japanese Garden at the end of this period are presented on the ca. 1928 Period Plan (PP 1928) which is presented at the end of this chapter.

Figure 2.16 A view northeast through linden leaves from the East Water Gate bridge shows the two crane sculptures and provides a glimpse of the Rainbow Fountain, ca.1928.

Figure 2.17 A view southwest from the top of the Flowing Well Cascade focuses on the Yokohama lantern, ca.1928.

Figure 2.18 A view north from the Yokohama lantern shows visual connections to many points at the north side of the garden including the Japanese Bridge, Duck Island, and vegetation around the Flowing Well Cascade, ca.1928.

Figure 2.19 A view south from the Japanese Bridge provides a glimpse of the Yokohama lantern and other landscape features including daylilies, possibly bamboo, and a mown ground plane between the bridge and Duck Island, ca.1928.

Figure 2.20 A photograph of Henry Wood Booth in his 80s standing beside beds of daylilies, irises, and other flowering plants surrounding the Yokohama lantern, ca. 1920, E521.

1929-1971 Japanese Garden at Kingswood School

The Japanese Garden transformed into a unique, peripheral landscape related to the Kingswood School grounds beginning in 1929. During this time, the path system was modified and the buffer of encircling vegetation was altered to provide open views to Kingswood School. Turf replaced diverse ground plane vegetation throughout the garden. This simplified landscape was maintained through several flooding events which further changed the character of the area that became known as "Kingswood's Oriental Garden." Flood impacts and reduced maintenance resulted in a state of vegetative succession by the late 1960s.

1929-1931 Kingswood School is designed in the Prairie Style of architecture Finnish architect Eliel Saarinen (Figure 2.21).[38] By completion in 1931, the grounds of the large school complex are connected to the Japanese Garden with paths and a bridge as well as with views through the selective clearing of vegetation between.[39] In the 1920s, George Gough Booth's "1st Plan for 'Kingswood' as Day School Only" does not address the interface with the Japanese Garden but shows the building within a wooded setting directly on the lake.[40] This is significant because there does not appear to be a deliberate design for the changes documented within the Japanese Garden associated with the construction of the Kingswood School.

The refined and simplified landscape of the garden revealed clean rock lines around the water and exposed the stones forming the Lily Pond Cascade. While the brick and stone architecture of the Kingswood School resembled a cascade of geometric forms, there is little indication in the revised character of the Japanese Garden that the new scenery of Kingswood School was intended to be borrowed and incorporated into the landscape following principles of Japanese garden making. Instead, it is likely that the views to the school were selectively opened to reveal the architecture through the trees and direct attention outside of the garden. While the direct impact of Saarinen on the Japanese Garden is unknown, there is a clear visual connection and design interface because they adjoin one another. Additionally, later development of the school grounds may have a relationship with plantings in the Japanese Garden.

[38] The Detroit News, Kingswood School Aerial, 1931, CEC4420, Collection of Cranbrook Archives.
[39] Mark Coir. "A Brief History of Cranbrook," 2005. Accessed Oct. 30, 2017: http://www.cranbrook.edu/sites/default/files/ftpimages/120/misc/misc_47669.pdf.
[40] George G. Booth Papers (1981-01), Kingswood School 1st Plan, Sketchbook, Page 6, Collection of Cranbrook Archives.

Figure 2.21 The nearly completed Kingswood School complex occupies the northeast shore of Kingswood Lake directly north of the Japanese Garden in 1931. The construction of the school results in changes to the waterways, character of the shoreline, features of the islands, and types of vegetation in the garden.

1932 Photographers George W. Hance and J. W. Hughes capture the character of the Japanese Garden and its relationship with the Kingswood School after construction. A hand-tinted glass slide of a Hance photograph presents the first color image of the garden (Figure 2.22). Later the photograph was used as a postcard with the title, "One of the delightful walks on the campus. The Japanese Garden." [41] At this time, the character of the landscape was simplified to create open ground plane throughout most parts of the garden that do not contain tree masses. Stone work around the pond, Duck Island, and the Flower Well Cascade, appears to have been stripped of vegetation and re-laid. Vegetation is different, although the edge stones echo the character of the early Japanese Garden. Additionally, the path built along the west edge of the pond in 1916 was removed and replaced with grass.

Hughes photographs Kingswood School including connections to the Japanese Garden. During development of the school grounds, circulation changed between the garden and the realigned streams to the north. A small concrete bridge with elegant and simple iron railings is built over the

[41] George W. Hance, "The Japanese Garden," photograph on postcard, Collection of Cranbrook Archives.

channelized lake outlet between the North Water Gate and the Deep Pool (Figure 2.23).[42] By the Deep Pool, a path descends from the Lakeside Walk on new flagstone steps, crosses the bridge, and continues north to connect to sidewalks of Kingswood School. The precedent of cobblestone edging is borrowed from the Japanese Garden and applied to the margins of the path and Deep Pool. While a few trees are preserved in situ, the ground plane is planted to turf grass.

Figure 2.22 The landscape of the Japanese Garden is simplified after construction of Kingswood School in this 1932, hand-tinted glass slide of a George W. Hance photograph.

ca. 1935 Detroit landscape architect Edward Eichstaedt installs plantings for the Kingswood School including masses of redbud (*Cercis canadensis*), Japanese crabapple (*Malus floribunda*), and other flowering trees around the building and under canopy trees like oaks.[43] The presence of relatively older specimens of these species throughout the Japanese Garden in 2017 may relate to the extension of plantings in this area during the development of the school. A Siberian elm (*Ulmus pumila*) is planted

[42] It is possible that the arched concrete bridge with iron railings replaced the Corduroy Bridge between the Willow Pool and Kingswood Lake at this time.
[43] CLR p. 63

or seeded along the path between Willow Pool and Japanese Garden Pond.[44] Other trees may have been planted around this time. Combined with deliberate view corridors between the garden and school, these plantings would demonstrate the intent of the designers to make connections with between the character of the garden and that of the school grounds.

1938 July 11. John Buckberrough, a civil engineer with the Cranbrook Architectural Office, makes a detailed, dimensioned drawing of Japanese Bridge presumably for repairs (Figure 2.24).[45]

Figure 2.23 Edged with cobbles resembling the Japanese Garden aesthetic, new stone steps and a concrete bridge over Deep Pool connect the Lakeview Walk to other paths at Kingswood School in this 1932 photograph by J. W. Hughes.

[44] Quinn Evans Architects field investigation counts approximately 85 tree rings in the large stump of a Siberian elm (*Ulmus pumila*) in this location.

[45] Engineering Book, 1938, John H. Buckberrough Papers (1998-18), Box 1, Collection of Cranbrook Archives.

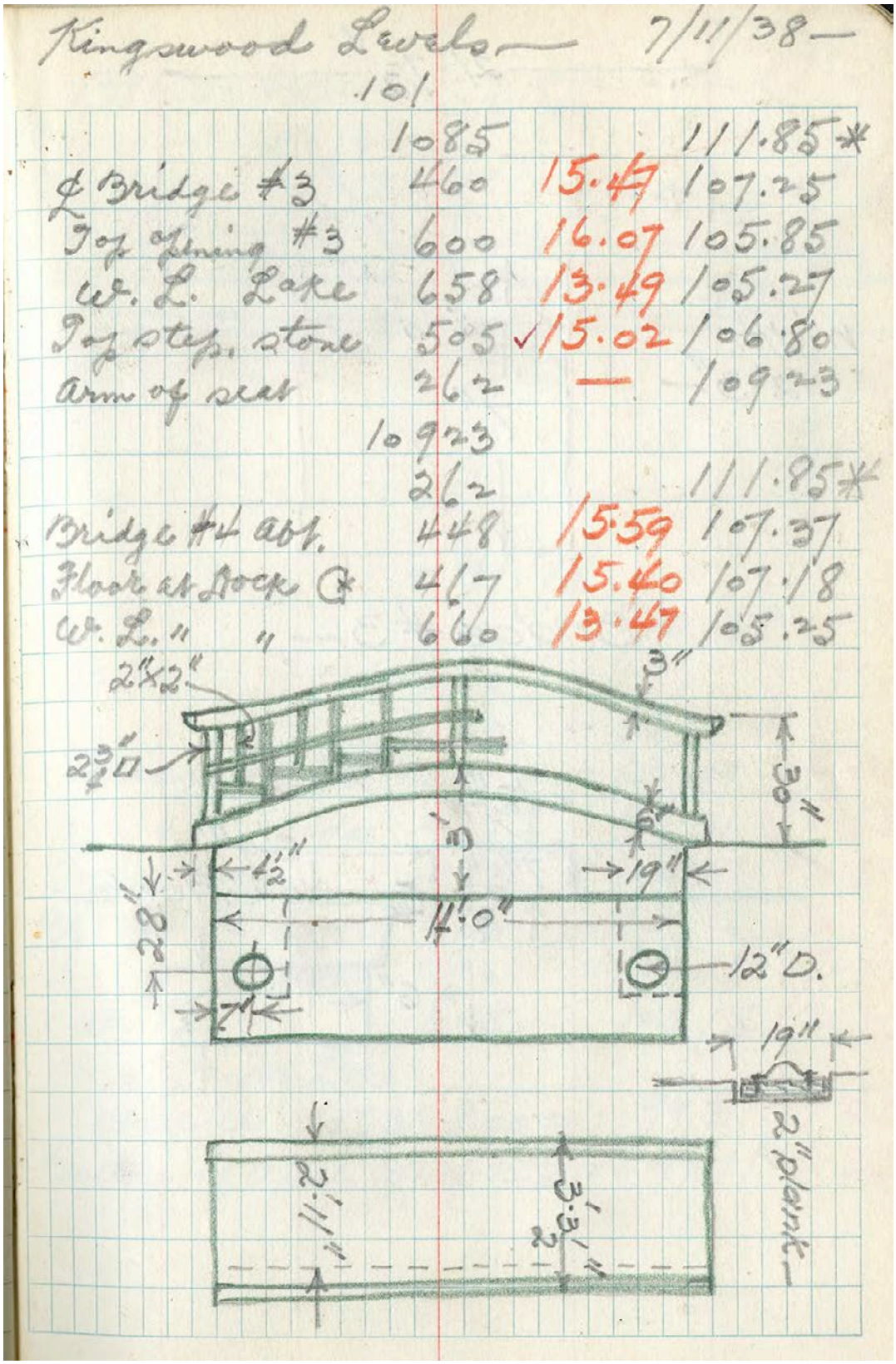

Figure 2.24 A dimensioned drawing of the Japanese Bridge by John Buckberrough shows dimensions of the structure in 1938.

ca. 1940 The Japanese Bridge is most likely painted red about 1940. Photographs in the Kingswood School yearbook *Woodwinds* show unpainted woodwork in the late 1930s but a 1946 photograph shows it as a uniform color.[46]

1945 Photographs show the gradual maturation of the garden plants with dense masses of mature evergreens and the presence of daylilies and other plants intermingled with boulders along the pond edge. The Rainbow Fountain continues to be visible in a slot view to the northeast through evergreens from the Yokohama lantern (Figure 2.25). Three crane sculptures remain at the north end of Round Island.

Figure 2.25 A view to the northeast from the vicinity of the Yokohama lantern shows crane sculptures and a maintained view through evergreen trees to the Rainbow Fountain and a large oak tree, ca. 1945.

[46] Oriental Bridge, photograph, 1946, Cranbrook Archives. *Woodwinds* (the yearbook for the Kingswood School for Girls), 1939-1955, Collection of Cranbrook Archives.

1948 January 24. Ellen Warren "Nellie" Scripps Booth dies.

1949 April 11. George Gough Booth dies, leaving the family legacy of stewarding Cranbrook to his children and long-term staff.

1950s The process of simplifying the landscape of the Japanese Garden continues into the 1950s. Most of the ground plane is now mown turf which minimizes the maintenance burden at a time of financial pressure on Cranbrook.[47] By this time, the garden is referred to as "Kingswood's Oriental Garden," nomenclature arising from a period of anti-Japanese sentiment resulting from the Second World War. The garden continues to be a popular location for photographs of Kingswood School students in the yearbook *Woodwinds*.

1957 Spring floods breach the dam from Kingswood Lake into the Japanese Garden, washing soil and rock through the area and eroding the islands (Figures 2.26 and 2.27).[48] Later that year, the washed-out bridge is repaired. A new deck strengthened the original design by adding angle bar and bolts at each of the railing's posts. Photographs in the *Woodwinds* yearbook after 1957 show how the railings are installed with the curved beam facing the interior of the bridge like a handrail rather than a decorative feature of its exterior.

Figure 2.26 A view of the Japanese Garden from the south after the 1957 flood shows inundated sculptures and grassy banks.

[47] Mark Coir. "A Brief History of Cranbrook," 2005. Accessed 10/30/2017: http://www.cranbrook.edu/sites/default/files/ftpimages/120/misc/misc_47669.pdf.
[48] Rudolph Fedus, [Garden Update], March 1976. Kingswood School History, Vertical Files, Cranbrook Archives.

Figure 2.27 A view south toward the Japanese Bridge from the flooded confluence of Sunny Brook and Lower Crane Brook shows a landscape characterized by turf, evergreen tree masses, and a scattering of large canopy trees in 1957.

1963 A new well is dug for the Rainbow Fountain which may have affected the level of flow to the Flowing Well Cascade in the Japanese Garden.[49]

1966 The north end of the garden remains open with sweeping views to Kingswood School in the vicinity of the Japanese Bridge. Large boulders are located on the north bank of the Lily Pond and to the east of the bridge abutment (Figure 2.28).[50]

Late 1960s A reduced maintenance regime permits the simplified garden to be overgrown with vegetation including "trees and brush and wild daylilies, grapevines, and thorny briars."[51] The daylilies are likely remnants of the original Japanese Garden plantings.

[49] "Oriental Garden," Area Gardens, Oriental Garden, Betty Trost Collection (2005-07), 2:21, Collection of Cranbrook Archives.
[50] Japanese Bridge, 1966, K2395, Collection of Cranbrook Archives.
[51] Rudolph Fedus, [Garden Update], March 1976. Kingswood School History, Vertical Files, Collection of Cranbrook Archives.

Figure 2.28 A photograph of the painted Japanese Bridge setting shows an open and park-like landscape between Kingswood School and the garden.

1972-2015 Japanese Garden Renewal

Extensive efforts to recover, redevelop, and maintain the Japanese Garden in various Asian styles began in 1972 and continued into the twenty-first century. The Cranbrook House and Gardens Auxiliary commissioned and coordinated renewal activities including comprehensive garden plans and designs for specific areas. Significant campaigns occurred in the early 1970s, late 1980s, and mid-1990s.

1972-1976 Auxiliary volunteer Dorothy Moroff and her dog "rediscover" the Japanese Garden in an overgrown state and propose renewal to the Auxiliary.[52] Head of Kingswood School, Wilfred Hemmer, gives Rudolph (Rudy) Fedus permission to lead a volunteer team including Moroff, Sally Riemenschneider, Jane Zich, and five others to reclaim the garden.[53]

Fedus draws on his experience as a former head gardener at a private estate in Southfield, Michigan, to rehabilitate the garden. He studied historic photographs prior to selectively clearing vegetation and revealing desirable perennial plants.[54] The team repairs the Japanese Bridge, reposition rocks that had been pushed or fell into the pond, rebuild the island, repair the water system for the Flowing Well Cascade, and rebuild the stone-lined Lily Pond Cascade. Fallen cedar trees are used for steps,

[52] Betty Trost Collection (2005-07), Collection of Cranbrook Archives.
[53] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.
[54] [Japanese Garden article], *The Detroiter*, July 1975. Kingswood School History, Vertical Files, Collection of Cranbrook Archives.

railings, and a bench. The team built stone steps leading down from "the upper part of the garden". Kingswood School provides financial support for new gravel paths.

Fedus, Sally Barnhart, and Barnhart's mother, Lee Armiger, donate trees, shrubs, and ground covers including corkscrew willows (*Salix matsudana* 'Tortuosa'), weeping crabapples (*Malus · scheideckeri* 'Red Jade'), a paper bark maple (*Acer griseum*), and rhododendron and azalea shrubs (*Rhododendron* spp.). Plantings continue in 1975 through the support of Mrs. George Trumbull.[55]

A garden description and a plan of the garden from January 1975 indicate the location of plantings and interventions such as a relatively straight alignment of the Lily Pond Cascade, stepping stones to the Duck Island, and numerous benches (Figure 2.29).[56] Fedus' description of the renewed garden in March 1976 indicates that the plan was largely executed:

> At the [north] entrance is a planting "1975" of azaleas and a hillside of perennial flowering plants. The other side along the creek contains a collection of choice hostas, dogwoods, holly and wildflowers. The [west] side is bordered by 56 varieties of dwarf evergreens and finished off with a variety of ground cover plants able to survive the extreme dryness. At the [south] end in full sun, is a garden of sedums in variety and the rising sun executed with Sempervivum (hen &) chicks. A small area adjoining is planted in prostrate evergreens. Across the bridge in the open area on the [east] side, already started, is a planting of ornamental flower trees. Under the Junipers is a collection of rhododendron, while the water's edge is bordered by some interesting specimen trees including Bald Cyprus, Red Jade crab, Hinoki chamaecyparis, Corylus Contorta, Camperdown Elm and Jap Cryptomeria.

By November 1976, a torii gate was also constructed at the south entrance to the Japanese Garden but a welcome sign was not yet installed on the gate.[57]

Commemorative plaques and markers begin appearing in the Japanese Garden landscape during the renewal. "Kingswood Class of 1975" installs a metal plaque on the side of a large flat stone currently at the south end of the pond. In 1976, a commemorative concrete marker is added on the ground near the Rainbow Fountain to commemorate the 200th anniversary of Elizabeth Kingswood and Thomas Booth's wedding. Small metal plaques that identify features such as "Sally's Ravine" may have been added around this time.

[55] Cranbrook House & Gardens Auxiliary. Board meeting minutes, February 3, 1975.
Cranbrook House & Gardens Auxiliary. Board meeting minutes, June 30, 1975.
Cranbrook House & Gardens Auxiliary. Board meeting minutes, April 16, 1975.
[56] Rudolph Fedus, [Garden Update], March 1976. Kingswood School History, Vertical Files, Cranbrook Archives.
Rudolph Fedus, Oriental Garden Plan, Jan. 1975, Kingswood School History, Vertical Files, Collection of Cranbrook Archives.
[57] "Notes on conversation with Rudy," November 1976. Cranbrook House and Gardens Auxiliary Records (1995-11).

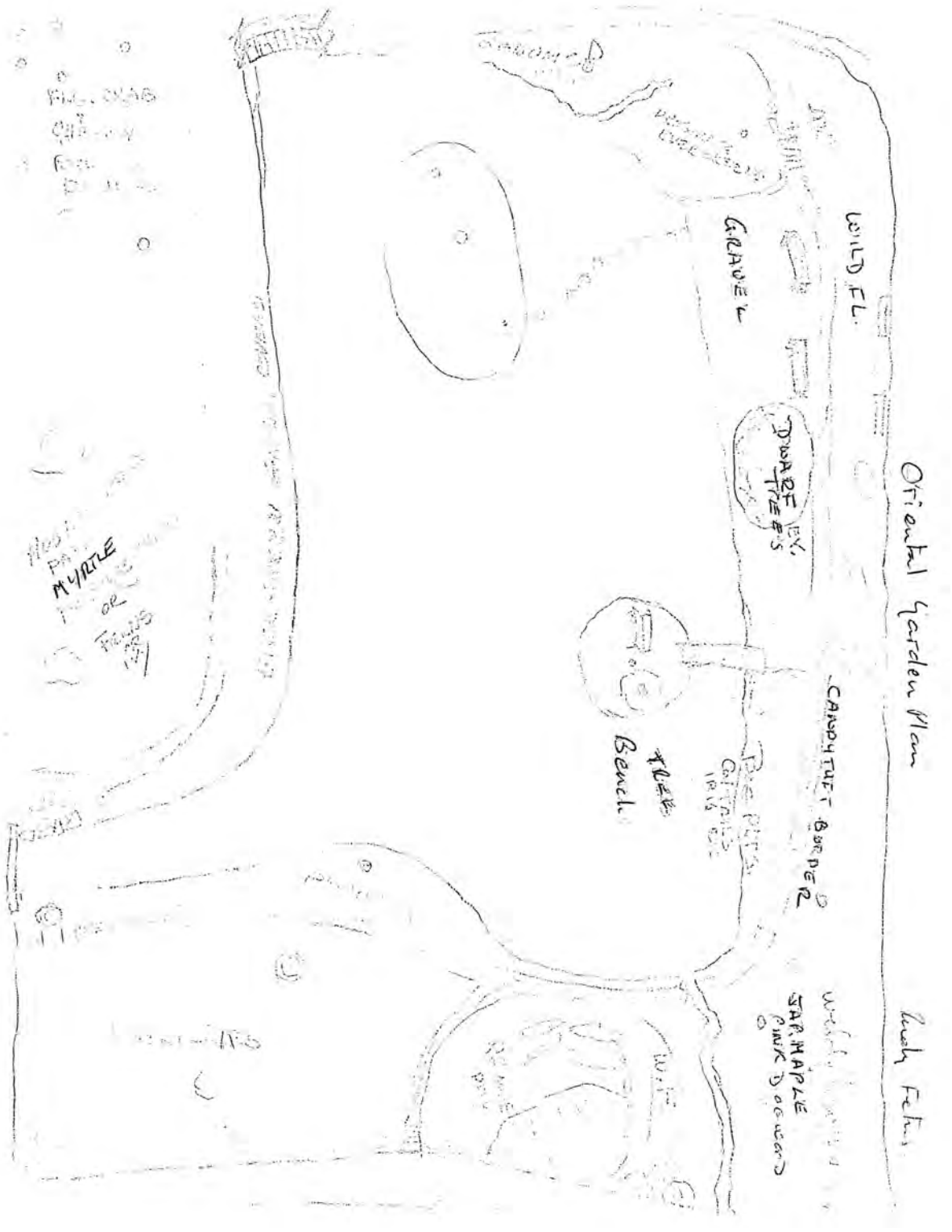

Figure 2.29 A hand drawn plan for renewal of the Japanese Garden by Rudy Fedus, 1975.

1973 The Cranbrook Educational Community replaces the Cranbrook Foundation and begins to coordinate and manage the campus and its institutions.[58] That year, Cranbrook is added to the National Register of Historic Places. [59]

1973 April 10. The Auxiliary raises $500 for planting a dogwood tree in the garden as a memorial to volunteer Adah Glenn. The tree is planted by August 1974.[60]

1975 The wedding of two Kingswood teachers occurs in the garden, a testament to its renewed beauty.[61] Later in the year, the garden was damaged "extensively" in a storm, according to Henry Booth.

1976 Rudy Fedus recommends painting the Japanese Bridge; however, the bridge is not painted until the 1980s.[62] This suggestion is echoed by the chair of the Auxiliary in 1978 writing that the "Oriental Garden bridge should be painted red, along with repainting planters and benches."[63]

1977 The Auxiliary continues to develop the Japanese Garden after impacts from weather, predation, and vandalism.[64] Shrubs die from extreme cold and trampling; rabbits destroy four tribute trees; the Japanese Bridge "disappears;" numerous stones have been pushed into the Lily Pond. The stolen bridge is planned to be rebuilt in the winter. Improvements include an irrigation system connected to the artesian water line and installation of a jet fountain is installed in the "middle" of the Lily Pond. Volunteers plant numerous areas and beds such as Kate's Fernery, Kathy's Cartwheel, and Letha's Mountain. Some of these plantings do not relate to the theme of a Japanese Garden. Removal of invasive plants including Asian bittersweet (*Celastrus orbiculatus*) and poison ivy (*Toxicodendron radicans*) occurs three times per year.

1979 The first proposal from the Auxiliary to change the name of the garden from "Kingswood's Oriental Garden" to "Kingswood's Japanese Garden" appears in the board meeting minutes.[65] The safety of visitors to the gardens (specifically on the bridge and at steps) is also repeatedly discussed at Auxiliary meetings.

1980 Photographs document the character of the Japanese Garden after renewal efforts of the 1970s. Weeping and dwarf forms of evergreen trees and shrubs appear in the landscape. Specimen trees like a Gingko (*Gingko biloba*), flowering ornamental trees, and numerous Japanese maple (*Acer*

[58] Mark Coir. "A Brief History of Cranbrook," 2005. Accessed Oct. 30, 2017: http://www.cranbrook.edu/sites/default/files/ftpimages/120/misc/misc_47669.pdf.
[59] National Park Service, Cranbrook, 73000954, National Register of Historic Places, 7 March 1973 (updated on 9 Feb. 1989 as NHL District).
[60] Cranbrook House & Gardens Auxiliary. Board meeting minutes, April 10, 1974.
Cranbrook House & Gardens Auxiliary. Board meeting minutes, August 5, 1973.
[61] Cranbrook House & Gardens Auxiliary. Board meeting minutes, February 3, 1975.
Cranbrook House & Gardens Auxiliary. Board meeting minutes, June 30, 1975.
Cranbrook House & Gardens Auxiliary. Board meeting minutes, April 16, 1975.
[62] "Notes on conversation with Rudy," November 1976. Cranbrook House and Gardens Auxiliary Records (1995-11), Collection of Cranbrook Archives.
[63] Cranbrook House & Gardens Auxiliary. Board meeting minutes, 1978, Collection of Cranbrook Archives.
[64] Rudolph Fedus, "Progress Report," November 1977. Cranbrook House and Gardens Auxiliary Records (1995-11), Collection of Cranbrook Archives.
[65] Cranbrook House & Gardens Auxiliary. Board meeting minutes, 1979 miscellaneous business.

palmatum) provide color throughout the garden (Figure 2.30). In addition to a wide variety of plants, refreshed garden features include gravel surfaces to paths, stone-lined banks, and a new small stone lantern on Duck Island. The base of the Yokohama lantern is absent of the stones that used to define its foundation by this time (Figure 2.31). A single jet fountain aerates the Lily Pond near the promontory of the lantern. The rebuilt Lily Pond Cascade flows from the Willow Pool near the base of a Siberian elm and contains young juniper, hosta, iris, mint, periwinkle, and other ground covers (Figure 2.32).

1981 Three bronze storks show evidence of earlier vandalism yet remain in the pond.[66] This instance may relate to the tradition of vandalism by graduating students which continues for decades and includes pushing large stones into the ponds and streams of the Japanese Garden.

Figure 2.30 Lush plantings from garden renewal provide seasonal color and display a wide variety of plant forms around 1980.

[66] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.

Figure 2.31 A view from the Yokohama lantern north toward Duck Island and the Japanese Bridge shows rich texture and an engaging setting created by varying forms of vegetation and hardscape features in 1980.

Figure 2.32 The rebuilt Lily Pond Cascade with hosta collection, ca. 1980, by Alan Lowry.

1982 Sept. 29. Prof. Milton Baron, FASLA, a specialist in Asian gardens from Michigan State University, assesses the Japanese Garden at the Auxiliary Oriental Tea and made several observations and recommendations that indicate the character of the garden at the time. Many of Baron's suggestions for changing garden features are enacted by the Auxiliary.[67]

[67] "Dr. Milton Baron's comments on Oriental Garden," Patty Shea to Patty Taylor, 5 Oct. 1982. Kingswood School History, Vertical Files, Collection of Cranbrook Archives.

Good points:

- Space, water and island arrangements
- Dwarf evergreen collection
- Naturalistic area with boulders, flowing water, and hostas (best and most authentic area) [Lily Pond Cascade?]
- Tiny leafed ground cover under the Japanese maple
- Design and scale of the Japanese Bridge
- Authentic *Shishi-odoshi* (bamboo and water percussive feature, also known as a "deer scare")

Suggestions:

- Plantings should be done in masses or groupings...
- Avoid "polka-dot" rows of different varieties (e.g. Armeger evergreens).
- Keep horizontal lineal flow of shapes. We have too many vertical "sticky-uppies".
- More variety in rock sizes are needed. Too many of the same "two-hand" size is monotonous.
- The rocky water's edge should be softened with ferns, mosses and overhanging ground covers.
- All European plant materials like Dutch Iris should be replaced with Japanese or oriental varieties.
- Reduce number of plantings and simplify design.
- The Island should remain remote and mysterious – you go to it with your eyes, NOT YOUR FEET. [Documentation does not verify the presence or absence of the stepping stones proposed in 1975]. Remove vertical common evergreens and meadow flowers and plant an exotic evergreen with horizontal line, add unusual rocks and create a simple composition.
- The existing bridge should be refined and painted a glossy bright lacquer-red finish (may need protective finish). The bridge is a stopping place, so views in each direction should be composed like a landscape painting.
- The cascade area should curve naturally not be a "sluice" with straight edges.
- Cacti, sedum and yucca are not appropriate plant material.
- Plant masses of moss under the Camperdown elm.
- Add Cornus Kousas in groups or clusters, also flowering cherries, ideal flowering crabs and flowering plums (not purple leaf). Red Maple for accent.

1984 Ralph Mize is hired to draw up plans for the Japanese Garden. Mize focuses on water issues of the site.[68]

1985 Bette Gay employs a coordinate system to survey the Japanese Garden. The survey points document the presence of numerous trees including a dawn redwood (*Metasequoia glyptostroboides*) and bald cypress (*Taxodium distichum*) on the west side of the Lily Pond.[69]

1987 A major flood breaches East Water Gate, causing damage to the Japanese Garden. The Japanese Bridge is reworked with removable boards below it to allow more water to pass through.[70] In what may have been an effort to restore it to its Booth-era appearance, the Japanese Bridge is stripped of its red paint by Jack Wells. Wells spends the summer removing the paint by hand. It is left as natural wood for at least a year (as captured in yearbook images and campus views by Balthazar

[68] Cranbrook House & Gardens Auxiliary. Board meeting minutes, March 4, 1986.
[69] Bette Gay, Survey Points, Nov.-Dec. 1985, AD.04.160, AD.04.161, AD.04.162, Collection of Cranbrook Archives.
[70] Ralph Mize, interview by Judy Lindstrom on Oriental Garden Water Control, November 16, 1993. Courtesy of Lindstrom family papers, Birmingham, Michigan.

Korab) until student and community complaints result in the repainting of the bridge red in the early 1990s.

1988 In an effort to improve water flow, the Lily Pond is dredged (Figure 2.33).[71]

Figure 2.33 Dredging the Lily Pond to improve drainage reveals stones around the banks, 1988.

1988-1989 Landscape architect Becca Palder and horticulturist Steve Polewski assess the Japanese Garden and develop several partially implemented plans to develop the garden as a single outdoor room. They refer to the subject as Oriental Garden in text and as Japanese Garden on plans.

Palder reports that "while the site itself was extremely beautiful and well situated, it lacked any clear concept of 'oriental garden.' What exists at present are plants/rocks/trees and a few oriental garden elements, all used as decoration."[72] She suggests that the garden requires greater horizontal structure and proposes edging around water sources and major pathways and the extensive planting of hardy shrubs to be trimmed as masses. The concept plan proposes the amendment or addition of numerous features and spaces found in Japanese-style gardens including an Artificial Hill Garden to the

[71] Cranbrook House & Gardens Auxiliary. Board meeting minutes, May 3, 1988.
[72] Cranbrook Oriental Garden," Becca Palder to Cranbrook House & Gardens Auxiliary, April 1989. Kingswood School History, Vertical Files, Collection of Cranbrook Archives.

northwest, Tea Structure associated with the Rainbow Fountain to the northeast, a Tea Garden to the southeast, and a Flat Garden to the southwest (Figure 2.34). [73]

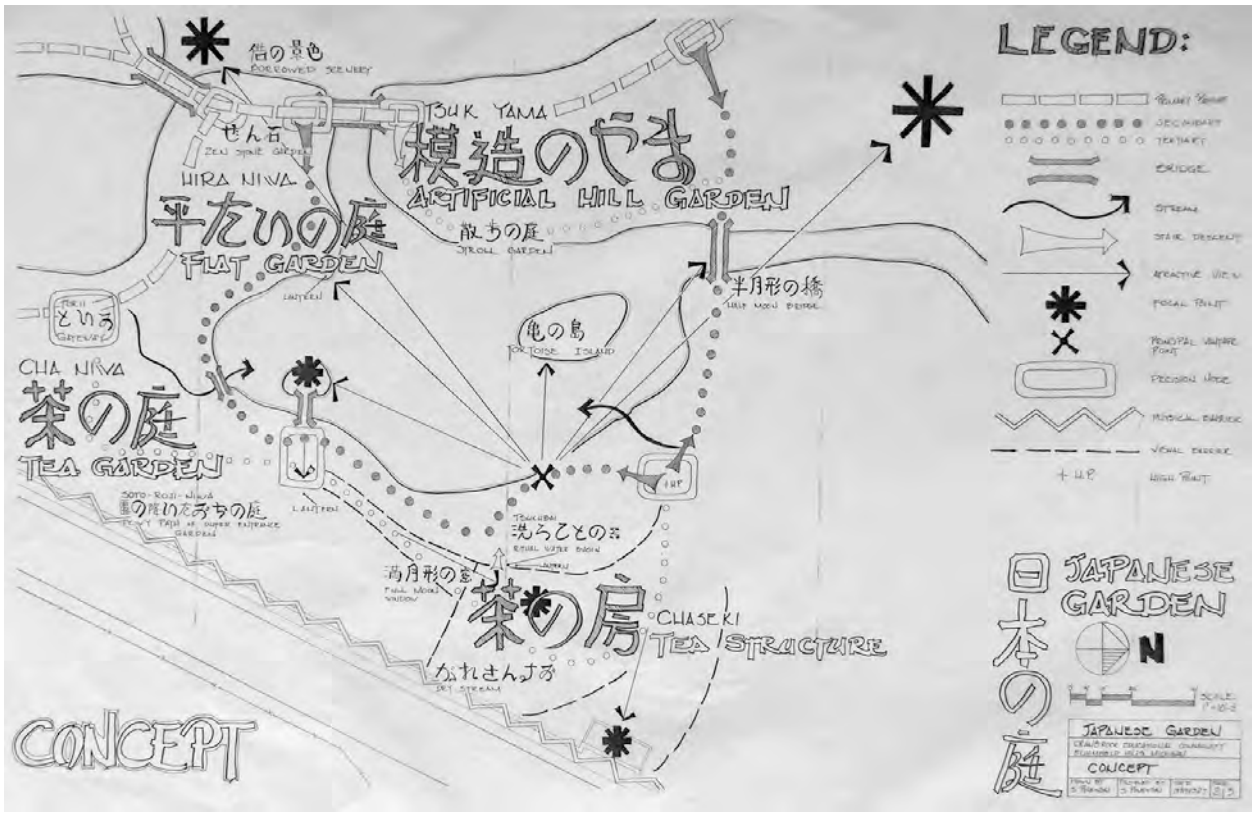

Figure 2.34 Japanese-style garden concepts for garden plans, 1989 (AD.04.165).

1989 June Due to the ongoing study of the Japanese Garden, the Auxiliary removes the garden from its tours until it can be properly maintained and replanted. Vi Reghanti donates a matching gift for more trees and shrubs for the garden.[74]

ca. 1990 Several design interventions proposed in the 1989 master plan are implemented (Figures 2.35 and 2.36):

1. Torii Gateway near the Lily Pond Cascade (not implemented in this location; added in different location during 1995 redesign)
2. Moon Window enclosure near the Rainbow Fountain (not implemented)
3. Dry Stream against the stone perimeter wall (not implemented)
4. Tsukubai, a washing basin at the back edge of the open landing on the northeast shore of the Lily Pond (partially implemented: a *Shishi-odoshi* already existed in the garden, possibly in this location, additional elements may have been added to this setting including a granite lantern)

[73] Becca Palder and Steve Polewski, Japanese Garden: Context, Inventory, Analysis, AD.04.164; Concept, AD.04.165; Master Plan, AD.04.165. March 27, 1989. Collection of Cranbrook Archives.
[74] Cranbrook House & Gardens Auxiliary. Board meeting minutes, June 6, 1989; Cranbrook House & Gardens Auxiliary. Board meeting minutes, October 3, 1989.

5. Horai-Jima single sculptural evergreen tree setting next to the existing lantern on Duck Island (partially implemented: evergreen tree setting added)
6. Gateway into Tea Space, a timber frame entry arch between Tsukubai and oak by Rainbow Fountain (not implemented)
7. Nobedan Bridge, existing pressed stone bridge in modified setting to reach Round Island (partially implemented: anchor stones added)
8. Kare Sansui, a Zen stone garden south of the Yokohama lantern (partially implemented: gravel area with around eight large stones and a bench is implemented)
9. Pathway Aiming Stake, a tree of sculptural form at the northern terminus of the path west of the Lily Pond (partially implemented: path terminus with bamboo hedge backdrop created as a setting of sculptures)

Other recommendations are also implemented including plantings to screen the Rainbow Fountain from the garden. Breaking with tradition since the construction of the fountain in 1917, Palder and Polewski note, "The fountain, although in keeping with the 'Cranbrook architecture,' was divergent enough from the site as to require its screening."[75] Also, a seasonal plant collection is proposed for in the Lily Pond Cascade (called "Sally's Ravine," possibly in reference to volunteers Sally Barnhart and Sally Riemenschneider).

Two features are added to the Japanese Garden around 1990 although they do not appear on the 1989 inventory or master plan. A 1992 garden inventory shows that a buttonhook pathway is built on the knoll at the south end of the Lily Pond effectively approximating an overlook that existed in the 1920s.[76] On the west side of the pond, north of the East Water Gate, the stones of a newly created dry streambed surrounded by hostas run from the retaining wall at the Lakeside Walk to the pond.

[75] "Cranbrook Oriental Garden," Becca Palder to Cranbrook House & Gardens Auxiliary, April 1989. Kingswood School History, Vertical Files, Collection of Cranbrook Archives.
[76] Alexander Nursery, Inc., Japanese Garden Restoration: Demolition Plan (AD.04.170); Inventory Plan (AD.04.168), 1992, Collection of Cranbrook Archives.

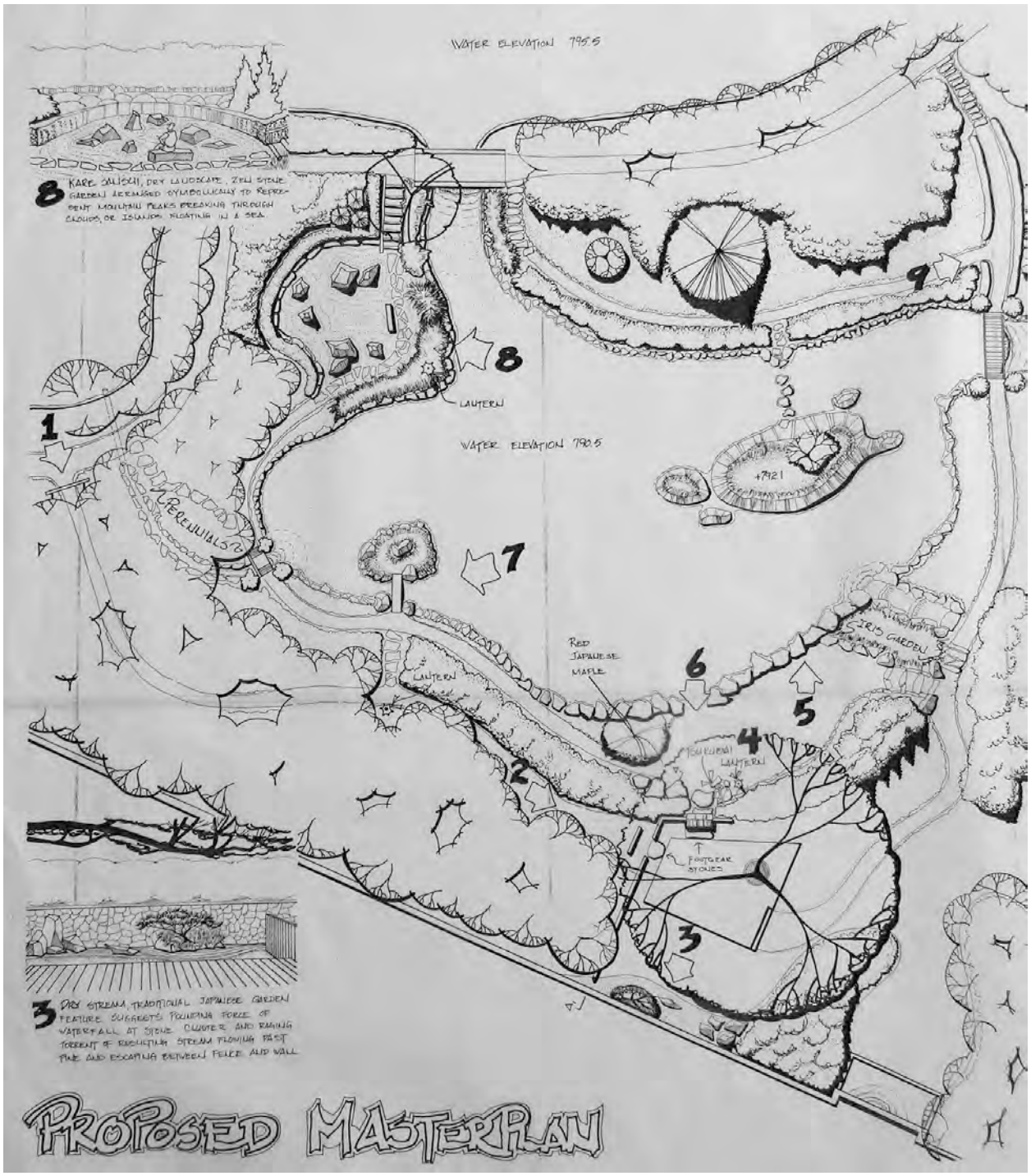

Figure 2.35 Partially implemented Japanese Garden: Proposed Master Plan by Becca Palder and Steve Polewski, 1989, AD.04.166.

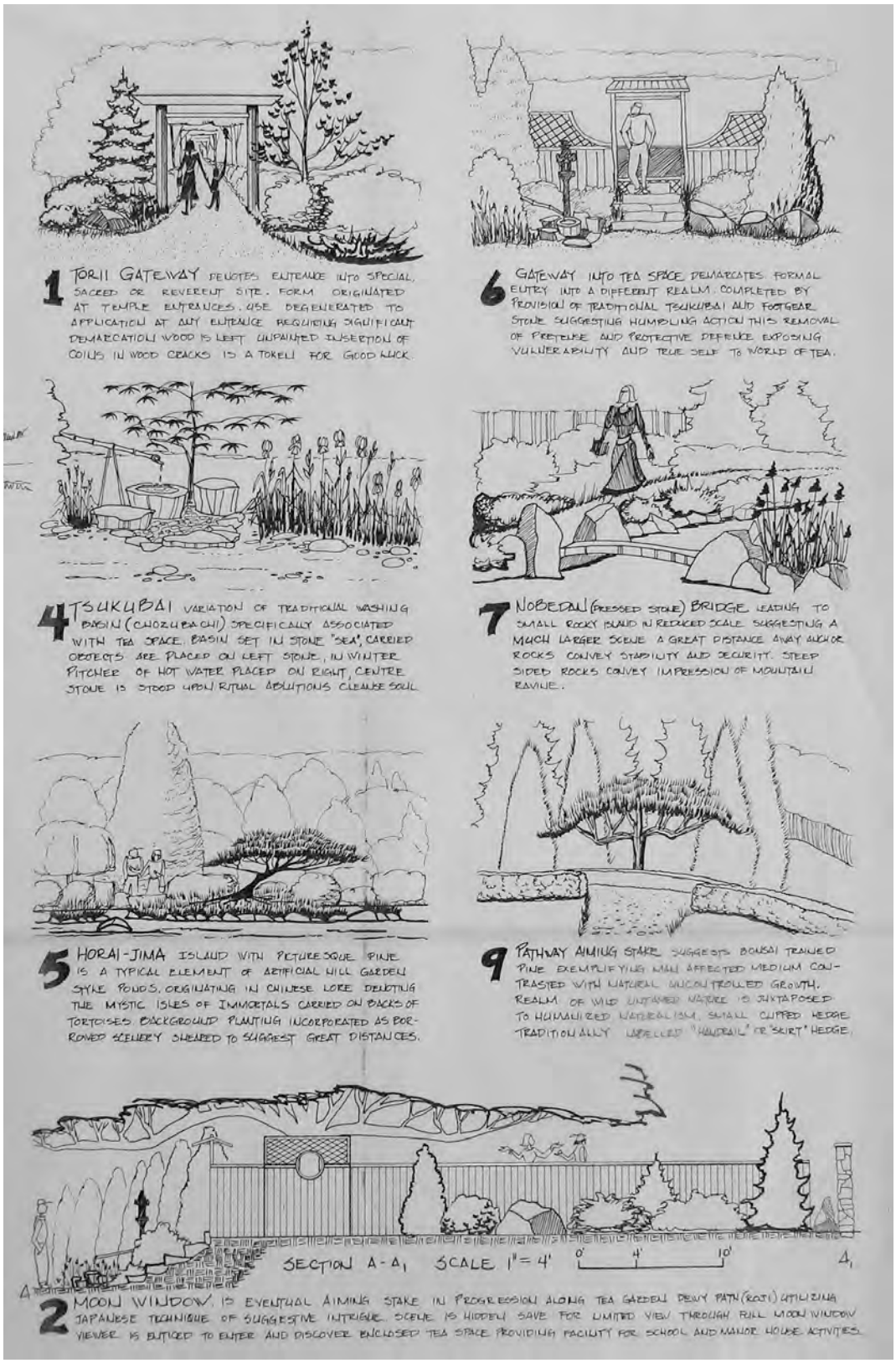

Figure 2.36 Vignettes of the partially implemented Japanese Garden: Proposed Master Plan by Becca Palder and Steve Polewski, 1989.

1989 The National Register of Historic Places nomination for Cranbrook is updated for listing as a National Historic Landmark District.[77]

1990 Lush vegetation around the Japanese Bridge continues to obscure views to Kingswood School outside of winter months. A photograph by Fred Olds shows that the bridge remains unpainted at least through 1990 (Figure 2.37).[78] Around this time approximately eight inches at the end of the bridge's railing are knocked off.[79]

Figure 2.37 Textural complexity of vegetation, water, and structure at the Japanese Bridge create an artistic composition for this photograph by Fred Olds, ca. 1990.

1990-2005 Several hydrological studies analyze the water resources and related structures at Cranbrook including Kingswood Lake and the Japanese Garden Pond.

1991 June. Flooding and washouts prompt the Auxiliary to assess the Japanese Garden finding numerous areas requiring repair such as all stone steps, stone edging around Duck Island and the

[77] Carolyn Pitts, Cranbrook, 73000954 (update to NHL District), National Register of Historic Places, 9 Feb. 1989.
[78] A photograph by Fred Olds shows a Cranbrook Kingswood Upper School dance student on the bridge. Cranbrook Kingswood Dance Photograph Collection (1996-14), Collection of Cranbrook Archives.
[79] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.

upper and lower paths. Water from the Willow Pool is seeping through the slope into the paths around the "rock garden" near the East Water Gate. The assessment also notes damage and the need to redesign the steps and area around the "Old Tori [sic] Gate" and to create a new entrance to the garden. The assessment ends by expressing the need for special consideration in funding maintenance of the garden.[80]

1992 Alexander Nursery, Inc., of Clinton Township, conducts the first full vegetation inventory of the Japanese Garden and prepares a set of drawings under the project title "Japanese Garden Restoration."[81] Although the nursery closed prior to implementation of the scheme, aspects of the master plan are later implemented including the transplanting of boxwood around Round Island. The design for the creation of a new entry with a Torii gate at the southwest corner near the Willow Pool is incorporated into a subsequent design with modifications.

1994-1995 The East Flood Gate, Japanese Bridge dam, and other water related structures are studied and repaired.[82]

1994 June. Jim Slezinski of Goldner Walsh Nursery, Inc., in Pontiac, prepares plans for the project "Cranbrook – Oriental Garden." [83] A bench was placed in accordance with the plan "Renovation of Eastern Shore" although the planting suggestions do not appear to have been implemented. The design for the "New South Entry and Gateway" proposes an entry and Torii gate in the southwest of the garden. Paired stone steps flank a Japanese maple (*Acer palmatum* 'Ever Red') and descend toward the Yokohama lantern.

1995 May 31. The plan is implemented and the "Official Opening of Phase I of Our Oriental Garden Renovation" occurs (Figures 2.38 and 2.39).[84]

1997 March. Goldner Walsh Nursery continues with landscape plans for the "Northwest Section" between the Lily Pond and Kingswood Lake and "Northeast Section" around the Flowing Well Cascade. These plans were not implemented, in part, because of a flood that occurs in the late 1990s.[85]

[80] "Assessment of Physical Deficiencies with Areas in Urgent Need of Attention," July 30, 1991. Cranbrook House and Gardens Auxiliary Records (1995-11), Collection of Cranbrook Archives.
[81] Alexander Nursery, Inc., Japanese Garden Restoration: Master Plan, 1992, AD.04.171; Inventory Plan, 1992, AD.04.16, Collection of Cranbrook Archives.
[82] "Iron Flood Gate," Rita-Ann Lindstrom to Randy Darnell, July 7, 1994. "Oriental Garden Dam Inspection," Justin Kazakeivicius to Rita-Ann Lindstrom, September 13, 1995.
[83] Goldner Walsh Nursery, Inc., Cranbrook-Oriental Garden, New South Entry and Gateway, Jun 1994, AD.04.172; Renovation of East Shore, Jun 1994, AD.04.173, Collection of Cranbrook Archives.
[84] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.
[85] Goldner Walsh Nursery, Renovation of E Shore, AD.04.175, Collection of Cranbrook Archives.

Figures 2.38 The Torii gate frames the new southwest entrance to the Japanese Garden in 1995.

Figures 2.39 Stone steps, boulders, and plantings create a new setting at the south side of the Lily Pond 1995.

1998 Ralph Graham, volunteer for the House & Gardens Auxiliary, begins a 13 year commitment to the Japanese Garden following his retirement from business. He asks for the Japanese Garden to be placed back under Cranbrook Educational Community jurisdiction, with the belief that it will be better maintained than if it remained under the Auxiliary. The Community maintained the garden for two years, after which Graham returned as its chief champion and patron until 2011.[86]

ca. 2000 Photographs document the tended character of the Japanese Garden following the execution of garden designs from the 1990s (Figure 2.40). Fresh gravel highlights several areas around the Lily Pond including on Round Island. Small bamboo rails keep visitors away from sensitive areas. On the walk west of the Lily Pond, a red-painted wooden walkway spans the dry streambed. Leaves and bark of prostrate and upright evergreen trees and shrubs and the new leaves of daylilies provide color in the early spring.

Figure 2.40 Panoramic photograph looking north across the Lily Pond shows a high degree of maintenance in the Japanese Garden around 2000.

2012-2018 Japanese Garden Preservation and Rejuvenation

The founding of the Center for Collections and Research instituted a change in the consideration of special landscapes of the Cranbrook campus such as the Japanese Garden beginning in 2012. Formation of the Center's Japanese Garden Advisory Group prompted further evaluation of the Japanese Garden from the perspective of contemporary preservation. The Japanese Garden has become understood as a living bridge that spans the founding of the estate with the future of the historic Cranbrook campus.

[86] Judy Lindstrom. Email message to Gregory Wittkopp, February 16, 2016.

2012 Founding of the Cranbrook Center for Collections and Research begins a process that applies a curatorial perspective to specific places within the Cranbrook campus.[87]

2012 June. Cranbrook Educational Community's Landscape Subcommittee considers a proposal to change the name of the garden from "Oriental Garden" to "Asian Garden" and decides to retain the name Oriental Garden.[88]

2015 The Cranbrook Center for Collections and Research creates a Japanese Garden Advisory Group consisting of six volunteer members.

2016 April 24. Dr. Kendall Brown of California State University, Long Beach, the foremost scholar and expert on North American Japanese gardens, delivers a lecture entitled: "Cranbrook's Japanese Garden in Context: Japanese-style Landscapes in America, Then and Now." Hosted by the Center for Collections and Research at the Cranbrook Institute of Science, 186 members of the Cranbrook community and the general public attend. Brown also leads a tour for Center staff and Japanese Garden Advisory Group members.[89]

2016 May 16. Following archival research into the Japanese Garden's naming history and, with approval of the Board of Trustees Properties Committee, the name of the garden officially returns to the "Japanese Garden" from the "Oriental Garden."[90]

2016 Dec. 10. Cranbrook Facilities craftsman Steve Trout reinstalls the Japanese Bridge after a three-month restoration process. The railings of the original 1914 bridge were stripped of paint, rotten wood was removed and replaced, and the structure stabilized, while the chords (or beams) and treads were replaced with laminated redwood and redwood planks. The bridge is painted a striking vermillion (Benjamin Moore "Vermillion" Color Preview Line #2002-10) prior to its reinstallation.[91]

2017 The Cranbrook Center for Collections and Research commissions Quinn Evans Architects to investigate the history, existing conditions, and integrity of the garden through the "Cranbrook Japanese Garden Historic Landscape Study." The Center requests the cessation of non-essential maintenance activities in the garden until research is completed.

[87] Kevin Adkisson. Cranbrook's Japanese Garden: Complete Timeline. Accessed 12/6/2017, https://center.cranbrook.edu/discover/places-cranbrook/japanese-garden/japanese-garden-timeline.
[88] Ibid.
[89] Ibid.
[90] Ibid.
[91] Ibid.

Cranbrook Japanese Garden Historic Landscape Study

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Landscape Architect:
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North Water Gate to Deep Pool
Lower Crane Brook
*Stone Steps
*Japanese Bridge/Dam
*Lakeside Walk
*Lower West Walk
*Duck Island
Crane Sculptures (3)
*Stone Steps
*Yokohama Lantern/Stone
*East Water Gate/Dam
*South Landing
*Willow Pool Walk
Corduroy Bridge/Dam
Kingswood Lake
*Lily Pond
Willow Pool
Rainbow Fountain
*Stone Steps
*Flowing Well Cascade
*Northeast Landing
*Stone Steps
*Upper East Walk
*Round Island
*Stone Steps
*Round Island Bridge Location
Bench or Table
*South Overlook
*Lily Pond Cascade
Cranbrook Road

N

0’ 15’ 30’ 60’

SOURCES

1914 Appraisal Map by Coats & Burchard Co., Cranbrook Archives; 1918 Aerial Photograph, Cranbrook Archives; 2017 Topographical Survey by Spalding DeDecker, SM17088TPG; 1904-2017 documents, plans, photographs, and aerial photographs from Cranbrook Archives; 2017 Quinn Evans Architects fieldwork and archival document research.

SYMBOL KEY

- Deciduous Tree
- Evergreen Tree
- Ornamental Tree
- Evergreen Tree Mass
- Woodland Edge
- Groundcover/Shrub
- Aquatic Plant
- Turf
- Mulch/Soil
- Water Feature
- Cascade
- Stone Steps
- Concrete
- Gravel
- Brick/Tile
- Stone Monolith
- Stone Wall/Edge
- Iron Rail
- Bridge
- Bench
- Sculpture/Lantern
- Japanese Garden Boundary
- * Japanese Garden Feature Extant 2018

Title:
1928 Period Plan

Date:
January 2018

Drawing Number:
PP 1928

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Introduction

This chapter addresses the current Japanese Garden focusing on its existing features in 2018 and an analysis of their integrity related to the historic significance of the garden. To express the character of the landscape in detail, text, figures, and plans present the character defining features of the garden. The documentation of the existing landscape incorporates information from field reconnaissance and inventory, base mapping from Spaulding DeDecker, recent aerial photographs, and contemporary photographs. Repeat photography, when photographs are taken from the same location as historic images, helped the team document continuity and change over time.

The existing landscape plan, 2018 Landscape Plan (LP 2018), includes the results of extensive field investigation during the summer and fall of 2017 when the project team documented all features of the Japanese Garden landscape. This plan presents the existing landscape features of the Japanese Garden as they have evolved since the origins of Cranbrook in 1904. *Appendices which support the narrative will be included in a subsequent draft*. These include:

- Appendix A: Cranbrook Japanese Garden Vegetation Inventory (with Species List and 2018 Vegetation Plan)
- Appendix B: Summary of Water Resource Studies for the Cranbrook Japanese Garden

The chapter documents the landscape of the Japanese Garden following federal guidance.[1] *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* and *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* refer to landscape characteristics to categorize the features that make up a landscape. Landscape characteristics are the tangible and intangible elements that individually and collectively give the landscape its historic character and aid in the understanding of its cultural importance.[2] The interrelated landscape characteristics that are relevant to the project area include spatial organization, views, vegetation, circulation patterns, small-scale features, and water features. Individual features are identified and described with a focus on those which contribute to the early manifestation of the Japanese Garden created by the Booths between 1915 and 1928. These are identified as "contributing features," while those added to the Japanese Garden after the end of the first era of garden development are considered non-contributing to that time period. Historically named features are capitalized throughout while new nomenclature is in lowercase, such as "Lakeside Walk" and "upper east walk".

Assessment of the Japanese Garden's integrity is based on features remaining from the historic period. Enumeration of contributing landscape features and an analysis of historic integrity follow the existing landscape discussion and conclude the HLS.

[1] Charles A. Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, (Washington, DC: Department of the Interior, National Park Service, 1996); Page, Robert, Cathy A. Gilbert, Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*, (Washington, DC: National Park Service, 1998).
[2] Page, Gilbert, and Dolan, *A Guide to Cultural Landscape Reports*, p. 139.

Japanese Garden Existing Landscape

Spatial Organization

Spatial organization implies the arrangement of elements that define and create space through the ground, vertical, and overhead planes, including other aspects of the landscape like topography, vegetation, and natural systems. The spatial organization of the Japanese Garden reflects patterns from the original structure of the garden as well as from renovations between the 1970s and 1990s. Due to the site's topography, the garden is a centrally focused space with edges that can be characterized in relation to major landscape features beyond the garden itself. Woods and lawn associated with the southern grounds of Kingswood School form the northern perimeter. The Rainbow Fountain and woods along the fieldstone perimeter wall create a distinct edge to the east. The southern part of the Japanese Garden relates to the compatible character of the Willow Pool. To the west, the open expanse of Kingswood Lake defines an abrupt physical edge with visual openness.

Topography and water features of the Japanese Garden are organizing elements that give structure to the spatial arrangements within the landscape. Though seemingly natural today, the setting of the Japanese Garden is a highly modified area nestled between an impoundment of the Old Mill Pond and associated channels which are now in the center of Kingswood Lake. The arrangement of paths and plantings respond to the alternating areas of level and sloped terrain along this altered stretch of the Rouge River. A topographic bowl holds the Lily Pond between the embankment on the west and Cranbrook Road and the boundary wall on the east (LP 2018). A ridge to the south dates to the nineteenth century and divides the Lily Pond and Mill Race from the Willow Pool. Two small islands, historically called Duck Island in the north and Round Island in the south, emerge from the pond in the center of the depression.

The relatively level pond edge contains landings to the northeast and to the south that function as gathering spaces (Figures 3.1 and 3.2). The south landing reflects alterations implemented in 1995 including changes to grading and circulation, and addition of a Japanese-style rock garden . The landings are connected by a lower path that circumnavigates the pond. The path and the landings connect perpendicular to the slope to an upper path loop that rings the crest of the topographic bowl. Masses of evergreens predominate on the slope between the upper and lower paths which create a heightened sense of enclosure.

Historically, the Japanese Garden was an inwardly focused garden space formed by topography, accentuated by vegetation massing, and centered on an open pond with two small islands. Despite some modification of terrain and vegetation, this condition persists to the present.

Contributing Features of Spatial Organization

- Topographic bowl, ca. 1906
- Northeast landing, ca. 1912
- South landing, ca. 1912
- Duck Island, ca. 1912
- Round Island, ca. 1912

Figure 3.1 View of northeast landing from south. QEA, August 2017.

Figure 3.2 View of the south landing from east with the northeast landing in the background. QEA, May 2017.

Views

Views and visual relationships include a range of natural or constructed views between different spaces within and outside of a landscape. Visual relationships within the Japanese Garden reflect principles of Japanese garden design including altered perspectives and asymmetry.[3] Since its origins as a rock garden with cascades and native plantings, the Japanese Garden has been formed as a deliberate interpretation and abstraction of the natural world. This condition has continued and intensified through its evolving forms of Japanese-style gardens since the 1970s.

The Japanese Garden presents altered perspectives through manipulating the perception of distance between the viewer and objects and vantages. In the first case, when an object in the foreground is larger than objects in the background, it creates an effect of increased distance. An example of this is the view near the large Yokohama lantern which reveals a smaller fountain and vegetation on Duck Island and the Japanese Bridge to the north (Figures 3.3, 3.4, 3.5, and 3.6). This view retains historic connections to features on the north side of the garden including the island and vegetation around the Flowing Well Cascade, although aspects of change are evident. Dense trees and shrubs along the west side of the Lily Pond obscure the stone shoreline and views to the Japanese Bridge today (Figures 3.3 and 3.4). The current condition is a marked contrast from the garden in earlier periods when views were more open during both the simplified landscape character of the 1930s and the more manipulated character of the 1980s (Figures 3.5 and 3.6).

Individual views within the Japanese Garden are orchestrated by the system of paths and bridges and shaped by vegetation and topography. Some of these paths exemplify a technique to alter perspective known as *miegakure*, or hide-and-reveal, where long views are blocked by trees or other features along a path. Due to the twisting path network and abundance of vegetation, this technique is used throughout the Japanese Garden (Figure 3.7).

Panoramic views over the open Lily Pond are available at points along the lower garden paths where surrounding vegetation is not enclosing (Figure 3.8). Popular historic and contemporary vistas are also available from the East Water Gate (Figure 3.9). The once open view across the Lily Pond from the Japanese Bridge is now modified by overhanging and shoreline vegetation (Figures 3.10 and 3.11). In 2018, as in 1915, the vicinity of the Japanese Bridge is a popular location for photographs due to the aesthetic appeal of the setting.

The principle of asymmetry is common in the Japanese Garden today but not pervasive. Naturalistic forms of the pond, islands, and historic pathways are highly varied. Views west toward the East Water Gate across the Lily Pond exemplify a transformation of symmetry over time (Figures 3.12 and 3.13). Loss and growth of vegetation alters the clearly manipulated, historic symmetry of canopy trees, vines, and flanking evergreen trees of the early garden. Bridges and water gates are symmetrical although views toward them have increasingly accentuated visual irregularity due to vegetation. The Japanese-style timber gate, or torii gate, and mirrored stone steps at the south end of the pond create a symmetrical composition cupping a single tree (Figure 3.14). The paired steps are the only symmetrical use of stone in the garden.

[3] Derived from numerous references including David and Michiko Young, *The Art of the Japanese Garden*, North Clarendon, VT: Tuttle Publishing, 2005, 20.

Views to adjacent areas are also significant. Borrowing scenery to expand the perception of the garden's size once was more prevalent but the growth and density of vegetation has affected this aspect of the garden and increased its inward focus. Borrowed views across the lake from the Lakeside Walk and across the Willow Pool from the south side of the garden remain from the early formation of the landscape (Figures 3.9 and 3.15). The persistence of these views contrasts with views to Kingswood School and the lawn to its south which have changed over time. The visual relationship between the Japanese Garden and Kingswood School began after the latter's design and construction starting in 1929. These intentional but seasonally variable views are not extant but characterized the garden between the 1930s and 1980s.

Missing historic views include a view over the Lily Pond from the south overlook and a view between the East Water Gate to the Rainbow Fountain. Dense evergreen vegetation now blocks views out from the former overlook. Similarly, growth of evergreen trees on the slope west of the fountain screens views between the garden and this feature.

Contributing Views

- View from the south landing to the north, ca. 1912
- View from the Japanese Bridge to the south, ca. 1913
- Views around the Japanese Bridge, ca. 1913
- View from the Lakeside Walk across Kingswood Lake, ca. 1906
- View from the Willow Pool Walk across the Willow Pool, ca. 1912

Figure 3.3 View north toward the Japanese Bridge, ca. 1928.

Figure 3.4 A view north from the Yokohama lantern retains connections to features on the north side of the garden including Duck Island and vegetation around the Flowing Well Cascade. Dense trees and shrubs along the west side of the Lily Pond obscure the stone shoreline and views to the Japanese Bridge. QEA, November 2017.

Figure 3.5 View north toward the Japanese Bridge in a hand-tinted glass slide of a George W. Hance photograph, 1932.

Figure 3.6 View north toward the Japanese Bridge, ca. 1980.

Figure 3.7 View south along the winding lower west walk. QEA, May 2017.

Figure 3.8 Panoramic view north over the Lily Pond from Round Island. QEA, May 2017.

Figure 3.9 Panoramic vista over Kingswood Lake from the Lakeside Walk at the East Water Gate. QEA, May 2017.

Figure 3.10 View south from the Japanese Bridge, 1915.

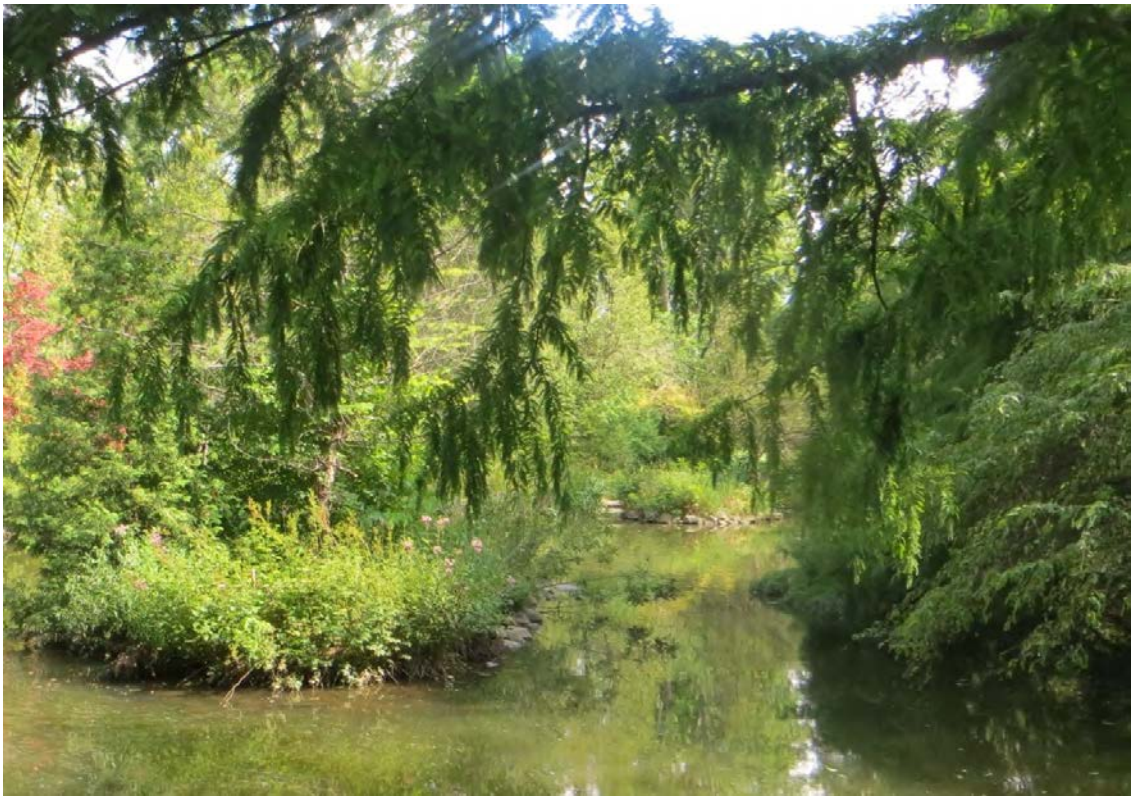

Figure 3.11 View south from the Japanese Bridge reveals the reduction of the viewshed due to overhanging and dense edge vegetation. Stone edging conveys historic character on Duck Island and along the south shoreline. QEA, August 2017.

Figure 3.12 View west toward the East Water Gate, ca. 1916.

Figure 3.13 The view west from Round Island shows historical features such as the Yokohama Lantern, remaining historic trees, and stone steps south of the East Water Gate. A glimpse of the waterfall is present but the ordered and symmetrical composition of this part of the garden is not evident today. Red arrows indicate the remaining American linden in each view. QEA, November 2017.

Figure 3.14 View southwest toward the torii gate QEA, August 2017.

Figure 3.15 Borrowed view over the Willow Pool from the blocked inlet location for the Lily Pond Cascade on the south side of the garden. QEA, August 2017.

Vegetation

Vegetation consists of the indigenous or introduced trees, shrubs, vines, ground covers, herbaceous plants, and lawn areas within a landscape. The textures and colors of trees, shrubs, flowers, and grasses of the Japanese Garden create an ever changing landscape and draw visitors to this unique place in the Cranbrook campus. Vegetation of the garden reflects numerous planting campaigns since the Booths established the first Japanese Garden between 1915 and 1928. As a whole, these plants reveal the garden as art by framing or obscuring views, reflecting color, moderating light and shadow, adding textural interest, providing form, accentuating movement, and affecting olfactory and auditory senses.

A high level of diversity characterizes the vegetation of the Japanese Garden from the ground plane plantings to the tree canopy. Plant species identified during the field investigation in 2017 are listed in Appendix A: Cranbrook Japanese Garden Vegetation Inventory with 2018 Vegetation Plan. Field investigation for the HLS identified trees and shrubs within the boundary of the Japanese Garden with a diameter-at-breast-height (dbh) larger than six inches, smaller individual trees and shrubs that define space in the garden, and mature shrubs. Species compositions were recorded for areas in woodland cover and for ground plane plantings.

Predominant ground covers include a variety of cool weather grasses, myrtle (*Vinca minor*), and pachysandra (*Pachysandra terminalis*) with other contiguous areas of hosta (*Hosta* spp.), butterbur (*Petasites japonicas*), liriope (*Liriope muscari*), and fountain grass (*Pennisetum* sp.). A bamboo (Bambusa sp). west of the Japanese Bridge creates the effect of a screening wall and a backdrop for a remnant art installation (Figure 3.16). Numerous herbaceous plants add color throughout the garden including swaths of daylily (*Hemerocallis* sp.), black-eyed Susan (*Rudbeckia hirta*), and Japanese anemone (*Anemone hupehensis*) (Figure 3.17). Groupings of iris (*Iris* sp.) add color along the pond edge in absence of flowering aquatic plants that were in the Lily Pond (Figures 3.18 and 3.19). Water lilies are abundant in the adjacent Willow Pool (Figure 3.15). Most of these plants are naturalized and are prone to spreading into suitable habitats. Of these plants, beds of daylily appear most often in early photographs of the first Japanese Garden, tending to be near the water's edge in such places as by the Yokohama lantern and near the Japanese Bridge (Figures 3.20 and 3.21). In addition to the aforementioned ground covers and herbaceous plants, numerous native and non-native plants have become established by seed from surrounding areas. Historically, plants within the basin of the Lily Pond experienced periodic flooding which likely resulted in the replanting of cultivated species and plant establishment from feral sources.

In addition to the ground covers identified above, common invasive species include Asian bittersweet (*Celastrus orbiculatus*), buckthorn (*Rhamnis cathartica*), honeysuckle (*Lonicera tartarica*), and poison ivy (*Toxicodendron radicans*). These undesirable plants grow along the edges of the ponds and Kingswood Lake and in the wooded edges of the Japanese Garden.

Trees and shrubs in the Japanese Garden include a wide variety of native and non-native species. Most plants considered to be original to the garden are native species. Older massed plantings and larger trees include northern white cedar (*Thuja occidentalis*), eastern redcedar (*Juniperus virginiana*), and Chinese juniper (*Juniperus chinensis*). Approximately 27 other evergreen tree and shrub species grow within the garden. Older deciduous trees include sycamore (*Platanus occidentalis*), white oak

(*Quercus alba*), and an American linden (*Tilia americana*) that was historically one of a pair flanking the East Water Gate (Figures 3.12, 3.13 and 3.22).

Dating of existing trees in the absence of additional documentation is difficult given the variability of growing conditions within the garden. Most historic photographs of the Japanese Garden prior to 1929 do not clearly reveal species level information; nevertheless, the degree of documented change suggests that the majority of evergreen plantings postdate 1972 and relate to subsequent garden renewal efforts. There are numerous large and charismatic trees in the garden that have grown rapidly since the 1980s including a 26" dbh fern-leaved beech (*Fagus sylvatica* 'Asplenifolia'), a 27" dbh dawn redwood (*Metasequoia glyptostroboides*), and a 22" dbh bald-cypress (Taxodium distichum) (Figures 3.23 and 3.24). Stumps also indicate the presence of large, fast growing trees at the garden edges. A tree ring assessment on the massive stump of a Siberian elm (*Ulmus pumila*) near the Lily Pond Cascade indicates that it was planted or seeded into the location in the mid-1930s (Figure 3.25). Numerous specimen plantings abound including a female ginkgo (*Ginkgo biloba*) on the east bank of the Lily Pond and a dwarf Japanese maple (*Acer palmatum* 'Ever Red') near the south landing (Figure 3.2).

Relatively large understory trees and shrubs such as flowering dogwood (*Cornus florida*), redbud (*Cercis canadensis*), and hawthorn (*Crataegus* sp.) may date to early manifestations of the garden. Records indicate that these trees and others like Japanese crabapple (*Malus floribunda*) were included on plans by Edward Eichstaedt for the Kingswood School grounds in the 1930s. It is also known that the Cranbrook House and Gardens Auxiliary planted Japanese maple (*Acer palmatum*) seedlings throughout the garden during the 1970s and 1980s. Historically, a large shrub massing similar to forsythia (*Forsythia* sp.) or redosier dogwood (*Cornus sericea*) occupied the Kingswood Lake embankment west of the Japanese Bridge as documented in 1915; however, it is possible that the plants were removed during transformation of the Rock Garden into the Japanese Garden (Figure 2.10 in Chapter 2).

The physical health of vegetation within the Japanese Garden is generally robust. The lack of irrigation and the practice of restrained maintenance ensure that plants suited to the climate, soils, and light persist while other plants do not. Most evergreen and deciduous, space-defining canopy trees have withstood numerous severe weather events and remain in good condition. There are instances of mature evergreen trees in dense plantings that reflect congested conditions in relation to their size. The stand of northern white cedar along the upper path parallel to Cranbrook Road exemplifies this. Trees and shrubs used as focal points throughout the garden, including Japanese maple, ginkgo, and dwarf evergreens, have acclimatized over time to their setting and remain in generally good condition. The presence of a small number of individual plants pertaining to known cohesive plantings, such as the 1976 dwarf conifer collection on the east side of the Lily Pond, indicates the effect of local conditions and maintenance on the garden. Wooded areas on the periphery of the Japanese Garden are in variable health due to the presence of invasive vegetation.

The character of vegetation in the Japanese Garden reflects both continuity and change from that of the first garden. An aerial photograph from 1918 indicates that the historic pattern of evergreen and deciduous tree plantings remain in the same locations on the east, west, and south slopes of the garden (Figure 2.13 in Chapter 2, PP 1928 and LP 2018). Differences include the expansion of evergreen and deciduous tree plantings around the banks of the Lily Pond and evergreen tree plantings on the north side of the Lily Pond to the south. Ornamental deciduous trees continue to be interspersed

under the canopy of deciduous trees and among massed evergreen trees on slopes. Despite these similarities, the historic style of planting reflects several aspects that are not expressed in the contemporary garden including:

- Vertically layered plantings of native trees and shrubs at slope edges with greater openness around the Lily Pond, ca. 1920;
- A mixture of individual clumps and bands of colorful herbaceous plants along the pond edge;
- Dispersed groups of aquatic plants near the pond edge; and,
- Preference of massed plantings (herbaceous or woody) over individual accent specimens.

In general, divergence from the historic character of vegetation results from the widespread simplification of the garden beginning in the 1930s and comprehensive efforts to re-establish the garden in various Japanese-influenced styles between 1972 and the present.

Contributing Vegetation

- Pattern of massed evergreen tree plantings on the east, west, and south slopes (approximately 40 original trees remain in 2018), ca. 1918
- Presence of large deciduous canopy trees at the periphery of the garden (approximately 3 original trees remain in 2018), ca.1912
- Dispersed ornamental deciduous trees near massed evergreen plantings on slopes (a small number of original trees remain in 2018), ca. 1920s

Figure 3.16 Groundcovers including butterbur, black-eyed Susan, and Japanese anemone on the lower west walk. QEA, August 2017.

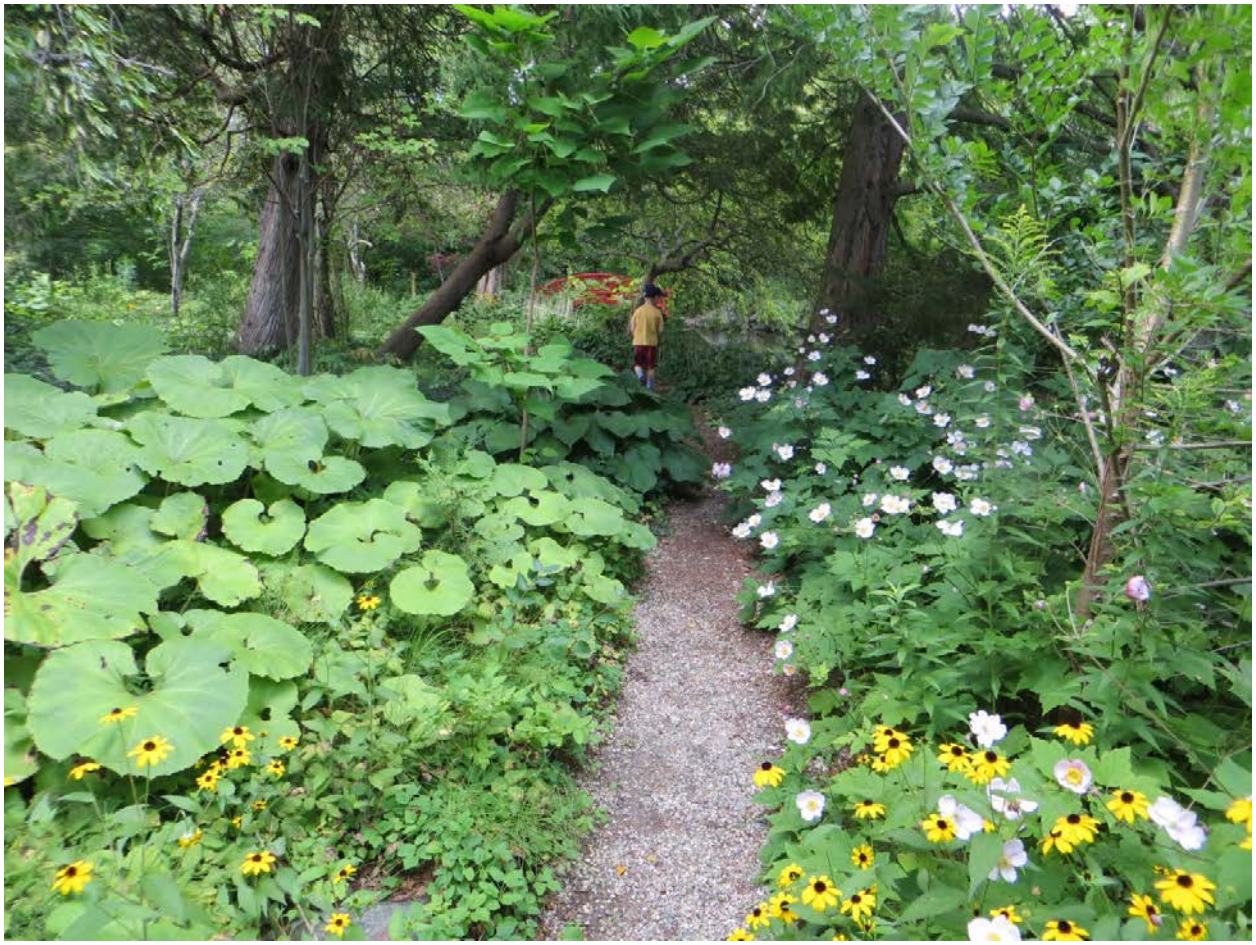

Figure 3.17 Groundcovers including butterbur, black-eyed Susan, and Japanese anemone on the lower west walk. QEA, August 2017.

Figure 3.18 View northeast toward the Flowing Well Cascade, ca.1916.

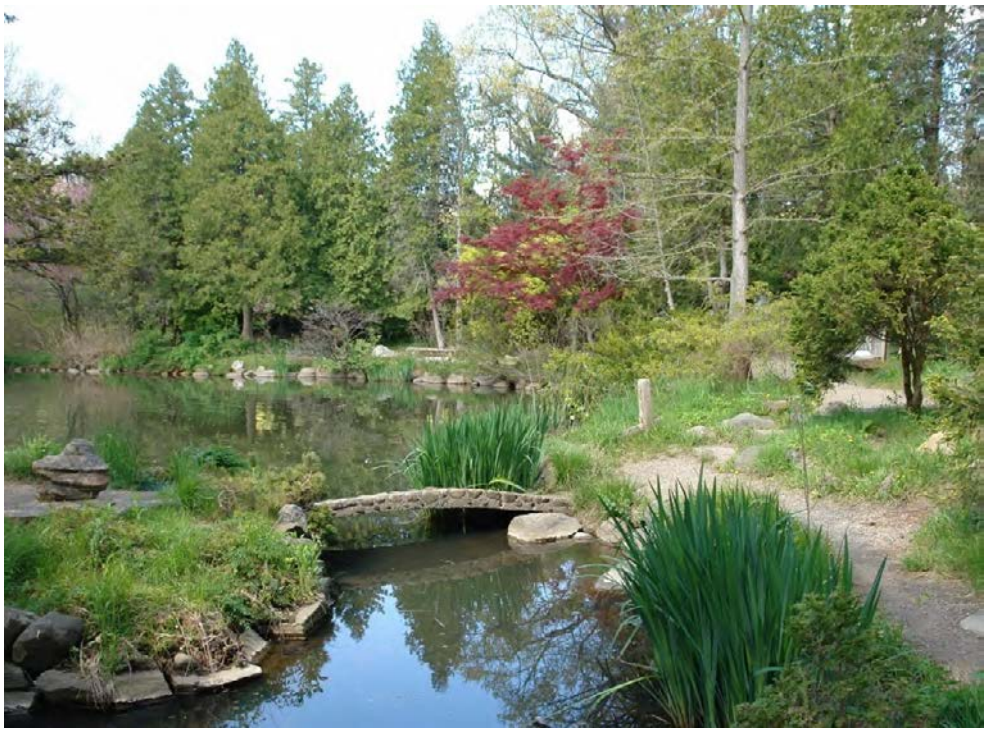

Figure 3.19 Boulders define the edge of the pond today; however, changes in aquatic vegetation in the Lily Pond and around the cascade alter historic landscape character. A fragmented section of what was formerly the lower east walk terminates at Round Island rather than extending to the Flowing Well Cascade. The cobblestone and concrete bridge may lie on the footings of an older bridge possibly visible in the ca. 1916 photograph. QEA, May 2017.

Figure 3.20 A view south from Lower Crane Brook toward the Japanese Bridge, ca.1928.

Figure 3.21 A view south from Lower Crane Brook toward the Japanese Garden shows abundant daylily beds and small trees near the Japanese Bridge instead of the mixed streamside sedges and grasses today. The visibility of the Yokohama Lantern and the banks of the Lily Pond, evident ca.1928, are largely obscured today. QEA, May 2017.

Figure 3.22 A large white oak defines the space between the Japanese Garden and the Rainbow Fountain. QEA, August 2017.

Figure 3.23 A fern-leafed beech provides shade near the stone steps between the Lakeside Walk and the Japanese Bridge. QEA, August 2017.

Figure 3.24 Fall foliage of two deciduous conifers planted in the 1980s, a bald-cypress in the foreground and a dawn redwood near the Japanese Bridge, contrast with the evergreens on the east side of the garden. QEA, November 2017.

Figure 3.25 Tree rings on the stump of a Siberian elm at the Lily Pond Cascade indicate that it was planted or seeded into the location in the mid-1930s. QEA, May 2017.

Circulation Features

Features and materials that constitute systems of pedestrian and vehicular movement are aspects of circulation in the landscape. The immersive experience offered by the Japanese Garden is influenced by the system of paths that direct movement through the landscape. The circulation system shapes visitor experience in dynamic ways. There is no planned sequence to the pathways of the Japanese Garden; rather, the layout enables wanderings within the relatively small space. This organization and the technique of *miegakure* accentuate the perceived size of the garden through alternating views and patterns of visual depth. Path organization also varies the degree of overhead exposure and enclosure related to levels of light and openness under tree canopy.

Circulation features include historic and non-historic walks and bridges. Two primary and three secondary entrances provide access to the Japanese Garden. From these points of entry, additional steps and paths lead to different parts of the garden. The main points of entry are located along the Lakeside Walk, to the south at the bridge by the Willow Pool and to the north at the path to the Japanese Bridge (Figures 3.26 and 3.27). These persist from the first garden. The three secondary entries include a woodland trail from the 1932 concrete bridge by Deep Pool to the northwest, the open lawn between the Flowing Well Cascade and the Rainbow Fountain to the northeast, and a woodland trail along the east side of the Willow Pool between the Lily Pond Cascade and a gate in the perimeter wall to the south. Aerial photographs show that the entrance and path by the Willow Pool was once wider and more heavily used (Figures 2.13 and 2.14).

A traditional Japanese-style gate, or *torii*, stands a few feet east of the primary south entry near the intersection of the Willow Pool Walk and the Lakeside Walk. A torii typically forms an entryway to a Shinto shrine; however, the current gate creates a threshold to the south landing and Yokohama lantern (Figures 3.14 and 3.26). The torii gate is composed of rustic cedar poles and dates to the reconfiguration of the southern entrance to the garden in 1995 when twin stone paths were constructed to descend to a former stone garden area on the south landing. The torii gate replaced another torii built in the 1970s near a non-extant path by the Lily Pond Cascade.

The circulation system includes upper and lower path circuits through the garden. The upper circuit roughly outlines the watershed of the Lily Pond and consists of gravel paths up to six feet in width. The lower circuit includes narrower, meandering paths of gravel, earth, and turf that ring the pond margin. About seven walkways transition the grade between the two-tiered circulation system.

Path edging varies between sections without edging, steel bands, flat stones, and cobblestones. The edge treatments occur for various, discontinuous lengths and exhibit highly variable conditions. The current use of edging to define pathways generally differs from the historic condition which emphasized boulder and cobble edges indicated in photographs and on the 1914 appraisal map (Figure 2.6 in Chapter 2). Regardless of edging, several gravel surfaces of paths and the northeast landing show some incursion of grasses and other ground cover plants (Figure 3.1). This condition seasonally creates the effect of dampening the sound and feeling of freshly laid or regularly tended aggregate surfaces. The renovation work done from the 1970s to the 1990s likely added a textural crunch of gravel to the experiential qualities of the garden. It is not known if the early Japanese Garden deliberately utilized gravel surfaces to affect feeling and sound.

Extant historic paths include those that are in the approximate location and with the same materials as the historic feature. Five paths and five transitional stone stairs remain from the 1920s (LP 2018). The Lakeside Walk, upper east walk, and Willow Pool Walk pertain to the upper circuit (Figures 3.26, 3.28 and 3.29). In addition, the south overlook is a small loop off the Willow Pool Walk that appears to be in the location of a path on the 1914 appraisal although it once continued to the south landing below (Figure 3.30). Of the lower circuit, only the lower west walk follows the historic pattern (Figures 3.3 and 3.7). Following removal in the 1930s, this path mimics the original route after reestablishment in the 1970s. This contrasts with the condition of the east side, where a segment of the historic lower path circuit was abandoned in recent years (Figures 3.18 and 3.19). Removal of the 60-foot segment between the Round Island bridge and the northeast landing may relate to issues with stability of the pond edge.

Several stone stairways and sloped paths transition the grades between upper and lower circuits. Of the connections, five sets of stone steps remain in roughly the same location with stone materials. These include the paired stone steps at the Flowing Well Cascade, two flights of steps between upper east walk and lower east walk at northeast landing and at Round Island, and two flights of steps between the Lakeside Walk and the lower west walk near the East Water Gate and near the Japanese Bridge (Figures 3.31, 3.32, 3.33, 3.34, 3.35, 3.23, and 3.36).

The south side of the Japanese Garden exhibits the highest degree of change for circulation since 1928. The south landing has been regraded for the new torii gate entrance and steps. The 1914 appraisal map indicates that one path descended to the south landing via stone steps at the south overlook on the Willow Pool Walk. A second path descended from the Lakeside Walk to the south landing. Stone steps also descended along the west side of the Lily Pond Cascade rather than along the east side. It is possible that stone elements of this earlier circulation system remain as archeological features on the south slope of the Japanese Garden.

The Japanese Garden contains five bridges of various styles and vintages. Historic bridges include the Japanese Bridge, East Water Gate, and possibly a small bridge to Round Island from the east bank of the Lily Pond. The arched, wooden Japanese Bridge is associated with a dam that predates the establishment of the Japanese Garden. The current bridge was restored and reconstructed, as necessary, in 2016. Originally built in 1906, the East Water Gate is a concrete bridge with concrete walls and iron rails. The dam and sluiceway below the bridge determines the amount of inflow from Kingswood Lake (Figure 3.9 and 3.37). The narrow, arched cobblestone and concrete bridge to Round Island may exist in the location of an earlier bridge put in place with the formation of the island, although the current structure first appears in photographs around 1945 (Figure 3.19). A small wooden bridge spans the Lily Pond Cascade. Just beyond the garden, a curved concrete bridge and dam connects the Lakeside Walk west of the Willow Pool. This structure likely replaced the Corduroy Bridge in the 1930s.

Contributing Circulation Features

- Lakeside Walk, ca. 1912
- Upper east walk, ca. 1912
- Willow Pool Walk, pre-1904
- South overlook, ca. 1916
- Lower west walk, ca. 1912

- Paired stone steps at the Flowing Well Cascade, ca. 1912
- Stone steps between upper east walk and the northeast landing, ca. 1912
- Stone steps between upper east walk and lower east walk at Round Island, ca. 1912
- Stone steps between Lakeside Walk and the lower west walk near the East Water Gate, ca. 1912
- Stone steps between Lakeside Walk and the lower west walk near the Japanese Bridge, ca. 1916
- Japanese Bridge, ca. 1912
- East Water Gate, 1906
- Round Island bridge (location, not material), ca. 1912

Figure 3.26 South entry to the Japanese Garden from the Lakeside Walk at the intersection of the Willow Pool Walk and the 1995 torii gate. QEA, May 2017.

Figure 3.27 North entry to the Japanese Garden from the Lakeside Walk near stone steps leading to the Japanese Bridge. QEA, August 2017.

Figure 3.28 View north from the south end of the upper east walk showing evergreen trees and open character. QEA, August 2017.

Figure 3.29 View west along the Lilly Pond Walk toward a large rock and trees that mark the entrance to the south overlook. QEA, May 2017.

Figure 3.30 View northwest from the secluded south overlook over the south landing. QEA, May 2017.

Figure 3.31 View north to the south set of stone steps and cedar rail by the Flowing Well Cascade. QEA, August 2017.

Figure 3.32 View north from the top of stone steps by the Flowing Well Cascade. QEA, August 2017.

Figure 3.33 View east toward the stone steps between the upper west trail and the northeast landing. A stone water basin and plaque on a tree trunk appear in the foreground. The fieldstone perimeter wall appears in the background. QEA, October 2017.

Figure 3.34 View north on the upper east walk at the stone steps to the northeast landing. A large white oak, the Rainbow Fountain, and the perimeter appear to the east at the terminus of the path. QEA, August 2017.

Figure 3.35 Stone steps from the upper east walk align with the bridge to Round Island. A remnant fence post and a wood bench appear along the edge of the pathways. QEA, May 2017.

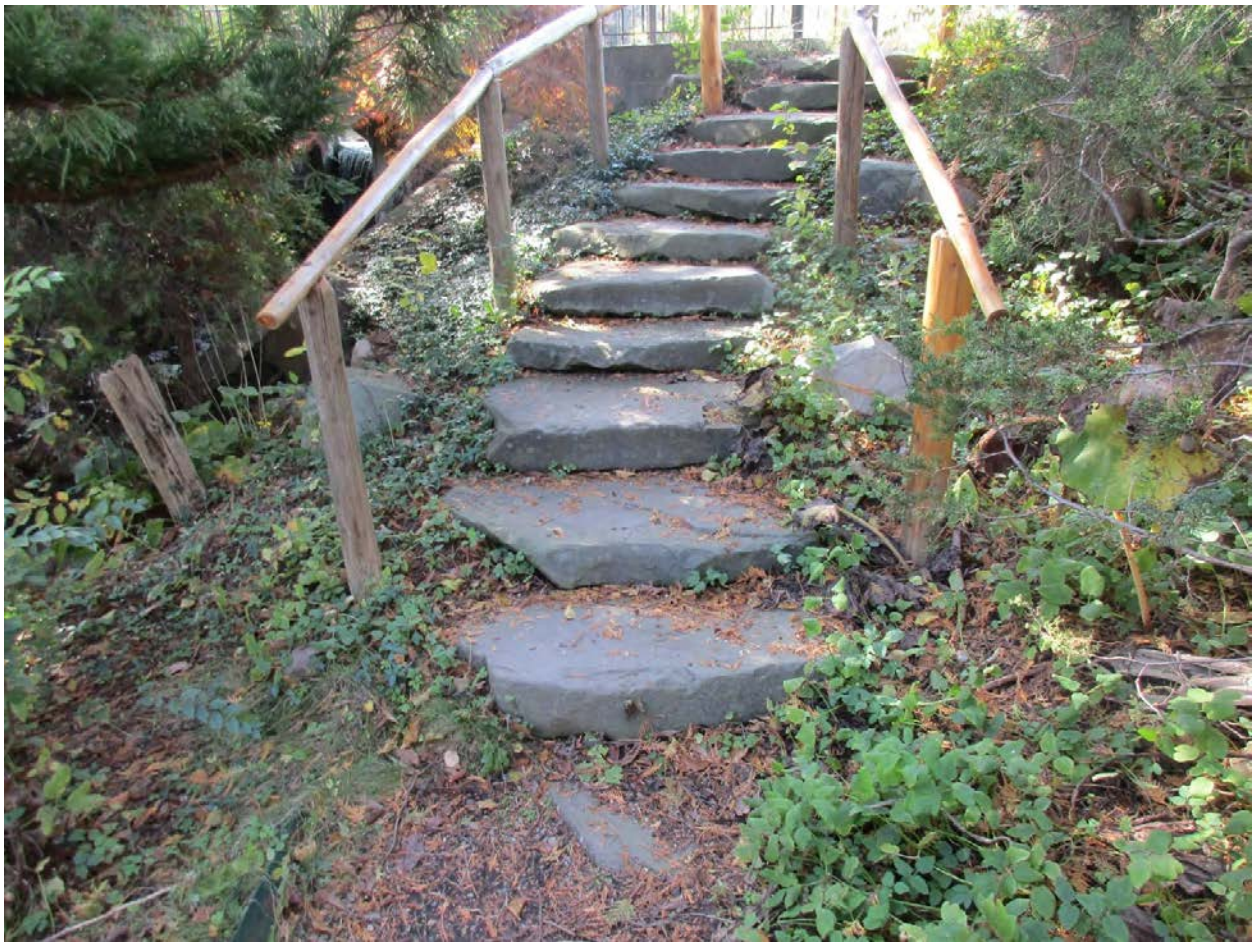

Figure 3.36 Stone steps between the Lakeside Walk and the lower west walk. An older fence post projects from the slope to the side of the new railings. QEA, October 2017.

Figure 3.37 The bridge at the East Water Gate on the Lakeside Walk spans the inlet for the Lily Pond. QEA, May 2017.

Small-scale Elements

Small-scale features include the objects and furnishings that provide specific functions in a landscape. The Japanese Garden contains numerous small-scale features such as lanterns, single stones, commemorative markers, sculptures, signs, railings, and walls. Most of these features have been placed in the landscape since 1972 to enhance a Japanese-style aesthetic or to facilitate visitor access and use. Only three features persist from the first Japanese Garden: the fieldstone perimeter wall that was extended near the garden around 1916; the Yokohama Lantern, installed in 1916; and, a large stone at the pond edge near the lantern. The fieldstone perimeter wall, built during realignment of Cranbrook Road around 1916, marks the east boundary of the Japanese Garden (Figure 3.33). The Rainbow Fountain, also built in 1916, is integrated into the wall (Figure 3.38).

Three Japanese-style lanterns exist in the garden. A large, pedestal-style stone lantern, purchased by the Booths from the Yokohama Company in 1916, stands in its historic location near a large boulder at the south edge of the Lily Pond (Figure 3.4). Like the Japanese Bridge, it remains as a signature feature of Cranbrook's Japanese Garden. Its setting and appearance of its base and pedestal have evolved with the landscape of the south landing but it remains in place. Two other Japanese-style lanterns exist in the garden. In contrast to the cut stone of the Yokohama lantern, a rustic and roughly carved stone lantern stands alone to mark the south end of Duck Island (Figures 3.6 and 3.39). The mushroom-like shaft of the lantern sinks into the ground plane of the island. This lantern remains in the same location since installation in the 1970s. A more formal, pedestal-style lantern made of cut stone sits on a concrete foundation on the slope by the northeast landing (Figure 3.40). It serves as a focal point within the Lily Pond basin. The lantern possibly was moved in the 1990s from a position off the upper east walk directly in line with the bridge to Round Island (Figure 2.35 in Chapter 2).

The monolith near the base of the Yokohama lantern is a vestige of the original Rock Garden and appears in early photographs of the garden (Figure 3.4 and 3.39). It is possible that the garden contains other stones with individually distinguishable characteristics that date to the historic period. Many stones around the edge of the Lily Pond have fallen in or been moved by flooding or vandalism since the 1920s. A number of uniquely formed, shaped, or colored stones are placed in specific locations; however, none appear in the pre-1972 photographs studied and likely originate in later garden renewal campaigns. Round Island contains a sculpturesque stone set on a pedestal with a concrete and cobblestone base (Figures 3.41). The stone first appears on drawings in the 1980s and aligns directly with the Yokohama lantern (Figure 2.35 in Chapter 2). Other unique monoliths function as focal points and are located on the northeast and south landings (Figures 3.1 and 3.14). The large, flat stone in the south landing bears a plaque reading, "Kingswood Class of 1975." Due to the high level of change in this area, the stone may have been moved to its current location from elsewhere. Additional investigation on the provenance of individual stones should be undertaken for the Japanese Garden.

Commemorative features, like the 1975 plaque, and art installations are recent additions but may be important to the history of Cranbrook. By the Rainbow Fountain, a granite paver near three metal and wood benches is engraved with the following text, "Elizabeth Kingswood/The schools forenomer, was married to Thomas Booth in Saint Dunstan's Church Cranbrook, Kent, England/Two hundred years ago today/ July 9, 1976." Three benches with ornate metal legs are located around the stone facing the Rainbow Fountain. The benches are part of Cranbrook's annual "President's Award for

Excellence." South of the fountain, a wood and metal sculpture stands within a wooded setting between the perimeter wall and the upper east walk (Figure 3.42). A remnant sculpture also lies against a bamboo screen on the north side of the path between the Japanese Bridge and the Lakeside Walk (Figure 3.16).

Signs and plaques in the garden include location identifiers, instructional signs, and poetry. Near the Lily Pond Cascade, a three-inch metal plaque on a cedar post identifies "Sally's Ravine." Another small metal plaque is nailed to a cedar tree by the stone lantern the south end of the northeast landing. The plaque reads, "Block end with palm/drink from trough/artesian well water." The plaque is located near a stone with a carved depression that functioned as a washbasin or *tsukubai*, although the spring no longer runs in this location. The *tsukubai* is likely associated with the *shishi-odoshi* or "deer scare" present before 1982. These signs date to the 1970s or 1980s. A newer sign near the Japanese Bridge warns visitors that decking on the bridge may be slippery.

The Japanese Garden contains wooden benches and railings for visitor safety and comfort. Since the 1970s, benches have been made of cedar trees from the site. An example of this practice is a split log bench on the northeast landing. A wood bench made with sawn lumber is located along the upper east walk and contains a small plaque with the poem, "The moving finger writes; and, having writ, moves on: nor all your piety nor wit shal [sic] lure it back to cancel half a line, nor all your tears wash out a word of it. DO GOOD" (Figure 3.35). Historically a bench or table was located at the south overlook though the precise location is no longer evident. Since the 1970s, cedar logs have been used in the garden as hand rails. Replaced in 2016 and 2017, the existing rails are treated with a glossy, clear finish. A small number of weathered cedar posts and rails remain in the garden from earlier renovation efforts (Figure 3.35). One post with wire fragments stands adjacent to the stone steps between the East Water Gate and the Lily Pond (Figure 3.36). The steps are in the historic location; however, the provenance of the post is uncertain and likely dates to the 1970s. A retaining wall composed of concrete slabs is located north of the East Water Gate and supports the Lakeside Walk (Figure 3.43). It is associated with a non-extant, dry streambed installed in the 1990s.

Contributing Small-Scale Features

- Yokohama lantern, 1916
- Stone at pond edge near the Yokohama lantern, ca. 1912
- Perimeter wall, ca. 1916

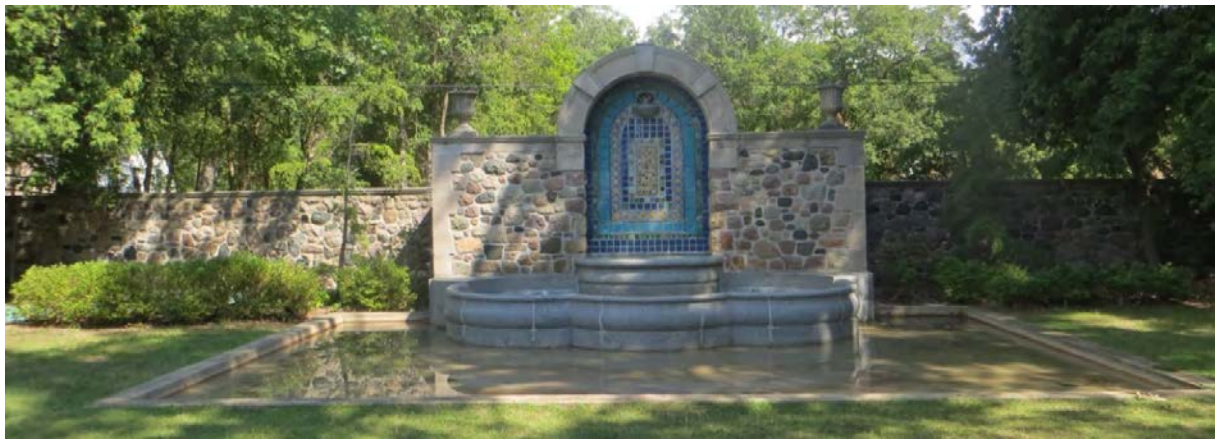

Figure 3.38 Integrated with the fieldstone perimeter wall, the Rainbow Fountain is visible northwest of the Japanese Garden. The source of water for the Flowing Well Cascade historically fed the fountain. QEA, August 2017.

Figure 3.39 The Yokohama lantern remains in its 1916 position and now overlooks a rustic stone lantern on Duck Island in the distance. QEA, May 2017.

Figure 3.40 A pedestal-style lantern, similar in style but smaller than the Yokohama lantern, is located near a stone wash basin and instructional plaque on a tree at the northeast landing. QEA, August 2017.

Figure 3.41 A sculpturesque stone is mounted to a concrete and cobblestone pedestal on Round Island. QEA, November 2017.

Figure 3.42 A sculpture incorporating a metal disc within a tree trunk is installed between the perimeter wall and the upper east walk. QEA, May 2017.

Figure 3.42 Stacked concrete blocks form a retaining wall below the Lakeside Walk north of the East Water Gate. QEA, August 2017.

Water Features

Constructed features that utilize water for aesthetic or utilitarian functions are called water features. The Lily Pond and its connections to the flow of water function as the epicenter and foundation of the Japanese Garden at Cranbrook. The immediate watershed of the pond defines the approximate boundary of the garden. Other designed water features of the garden include three points of inflow and one point of outflow. The play of water within the garden engages all senses by reflecting the sky and surroundings, modifying temperatures, projecting the sound of falling water, and enabling the voices of wildlife.

Developed east of the impoundment for Kingswood Lake between 1907 and 1912, the shape of the pond and its location indicate the highly modified course of the Quarton Branch of the Rouge River on the Cranbrook campus. On campus, water flows from west to east as part of the Rouge River system; however, the locations of the inlet in the south and the outlet in the north determine the direction of flow in the pond. The Lily Pond lies between Kingswood Lake and the Lower Crane Brook beyond the Japanese Bridge (LP 2018). The elevation of the pond is determined by inflow at the East Water Gate dam and outflow at the Japanese Bridge dam such that the lake (794.1 feet-above-sea-level [fsl]) is five feet above the surface of the pond (789 fsl) which is three feet above the surface of Lower Crane Brook (786 fsl) (Figures 3.37 and 3.43). Additional information on water resources is provided in Appendix B: Summary of Water Resource Studies for the Cranbrook Japanese Garden.

Two additional points of inflow feed the Lilly Pond: the Flowing Well Cascade and the Lily Pond Cascade. Named on the Cranbrook appraisal in 1914, these constructed channels are lined with stone boulders and include several ledges to produce the sound of tricking water. The current cascades have been rebuilt and adjusted several times since their incorporation into the Rock Garden around 1912. The Flowing Well Cascade, named for the predecessor of the Rainbow Fountain, directs water approximately 25 feet from a natural spring near the fountain to the northeast corner of the pond (Figures 3.44 and 3.45). High iron content in the water accounts for the reddish particulates deposited on the stones of the cascade channel. Overhanging tree branches and a variety of herbaceous plants conceal the water feature from other locations in the garden. The Lily Pond Cascade persists as a historic water feature but no longer provides a steady stream of water to the pond (Figure 3.25 and 3.46). The source of its former flow is a blocked 8" concrete pipe at the north end of the Willow Pool. The approximately 45-foot long channel now directs surface rainwater runoff to the southeast corner of the Lily Pond. A small wooden bridge spans the occasionally wet trough.

Important water features lie outside of the Japanese Garden. Another penetration of the lake embankment delivers water from Kingswood Lake to the Willow Pool south of the Lily Pond. This water flows south under an arched concrete bridge and through the Millrace, a historic section of the channelized river that once powered the Flouring Mill. The 793.9 fsl elevation of the Willow Pool is approximately the same level of the lake. North of the Japanese Garden, another dam takes lake water through a stone-lined channel into Deep Pool. This stream flows northeast through a remaining section of Sunny Brook before meeting the confluence with the Lower Crane Brook about 125 feet north of the Japanese Bridge.

The water features of the Japanese Garden create the ephemeral aspect of sound in the landscape. Sound travels in direct lines like sight; however, the visual impediment of vegetation affects the perception of sound rather than its actual volume. Topography impedes the sound of falling water

along the path until a curving path offers a direct trajectory for the sound waves. The primary source of sound in the garden is the waterfall created by the East Water Gate dam. Sound from this waterfall can be heard near the East Water Gate, on the south landing, and directly west of the pond along the upper east walk. Reduced sound from the East Water Gate occurs along the south pond edge. The delicate trickle of the Flowing Well Cascade can be heard from the stone steps on the path in the immediate vicinity but not elsewhere. Sounds from the Japanese Bridge dam are constricted to the pathway leading to the bridge because water in the stream falls to the north taking with it the cascading sound. Sounds from both the Japanese Bridge dam and the northern dam near Deep Pool can be heard from the Lakeside Walk south of the Japanese Garden.

Contributing Water Features

- Lily Pond, ca. 1912
- Flowing Well Cascade, ca. 1912
- Lily Pond Cascade, ca. 1912
- East Water Gate dam, 1906
- Japanese Bridge dam, ca.1912

Figure 3.43 The Japanese Bridge dam controls the water level of the Lily Pond. This view toward the southwest indicates how sound from the waterfall would project to the north. This photograph shows the dam during reconstruction of the Japanese Bridge. QEA, November 2016.

Figure 3.44 High iron content from the natural spring stains the channel of the Flowing Well Cascade. QEA, August 2017.

Figure 3.45 Vegetation covers the stones that define the Flowing Well Cascade. QEA, August 2017.

Figure 3.45 The large-leafed butterbur, a small wooden bridge cover the dry bed of the Lily Pond Cascade at its gravel delta. QEA, August 2017.

Japanese Garden Contributing Features

Contributing features determined in this HLS are the individual elements and aspects that remain from the first Japanese Garden developed by the Booths between 1915 to 1928. These 34 features imbue the garden with historic character and contribute its integrity.

Spatial Organization

- Topographic bowl, ca. 1906
- Northeast landing, ca. 1912
- South landing, ca. 1912
- Duck Island, ca. 1912
- Round Island, ca. 1912

Views

- View from the south landing to the north, ca. 1912
- View from the Japanese Bridge to the south, ca. 1913
- Views around the Japanese Bridge, ca. 1913
- View from the Lakeside Walk across Kingswood Lake, ca. 1906
- View from the Willow Pool Walk across the Willow Pool, ca. 1912

Vegetation

- Pattern of massed evergreen tree plantings on the east, west, and south slopes (approximately 40 original trees remain in 2018), ca. 1918
- Presence of large deciduous canopy trees at the periphery of the garden (approximately 3 original trees remain in 2018), ca.1912
- Dispersal of ornamental deciduous trees near massed evergreen plantings on slopes (a small number of original trees remain in 2018), ca. 1920s

Circulation Features

- Lakeside Walk, ca. 1912
- Upper east walk, ca. 1912
- Willow Pool Walk, pre-1904
- South overlook, ca. 1916
- Lower west walk, ca. 1912
- Paired stone steps at the Flowing Well Cascade, ca. 1912
- Stone steps between upper east walk and the northeast landing, ca. 1912
- Stone steps between upper east walk and lower east walk at Round Island, ca. 1912
- Stone steps between Lakeside Walk and the lower west walk near the East Water Gate, ca. 1912
- Stone steps between Lakeside Walk and the lower west walk near the Japanese Bridge, ca. 1916
- Japanese Bridge, ca. 1912
- East Water Gate, 1906
- Round Island bridge (location, not material), ca. 1912

Small-Scale Elements

- Yokohama Lantern, 1916
- Stone at Pond Edge near the Yokohama Lantern, ca. 1912
- Perimeter Wall, ca. 1916

Water Features

- Lily Pond, ca. 1912
- Flowing Well Cascade, ca. 1912
- Lily Pond Cascade, ca. 1912
- East Water Gate Dam, 1906
- Japanese Bridge Dam, ca.1912

Analysis of Historic Integrity

Documentation and analysis of existing landscape features within a historical framework provides a basis for a discussion of historic integrity of the Japanese Garden at Cranbrook. Integrity is the ability of a property to convey its historical significance. To have integrity, the landscape must retain the tangible and intangible aspects that make up the identity for which it is important. Integrity is categorized by the National Register of Historic Places into seven aspects or qualities: location, design, setting, materials, workmanship, feeling and association.[4]

The Cranbrook Japanese Garden retains aspects of its historic fabric and character providing a sense of connection to the Japanese Garden developed by the Booths through 1928. Since that time, numerous changes have resulted in the removal and accumulation of landscape features. The Japanese Garden possesses historic integrity. Although alterations, including the addition of non-historic features, have occurred, retention of significant contributing features and the pervasiveness of the historic framework of the landscape result in strong representation of the qualities of the historic Japanese Garden.

Location

Location is the place where the landscape was constructed or where an historic event occurred. The position of the garden and its landscape features generally remain in their historic locations, thus the Japanese Garden exhibits integrity of location.

Design

Design is the combination of elements that create the form, plan, space, structure and style of the landscape. The Japanese Garden is a designed landscape with signature characteristics that have been intentionally modified over time. Landscape character has been affected by the removal of features in the 1930s and campaigns to reestablish the garden in various Japanese-influenced styles during the 1970s, 1980s, and 1990s. The addition of new plantings and small-scale elements detracts from the integrity of the overall design; however, retention of original spatial organization, some patterns of vegetation, the circulation system, small scale elements, and water features, demonstrates overall integrity of design.

Setting

Setting is the physical environment of the landscape. The setting of the Japanese Garden throughout the period of significance was an intimate area enclosed by vegetation. This changed when the Kingswood School was built and the garden was opened to views of the school. Maturation and addition of vegetation in the 1990s has re-established a sense of enclosure and the garden setting today reflects its historic character.

Materials

Materials are the physical elements combined or deposited during the particular period of time and in a particular pattern or configuration to form the landscape. With the exception of vegetation, the features of the garden landscape demonstrate material integrity. The overall vegetative structure of evergreen and deciduous plantings remains from the historic period; however, dramatic changes have

[4] National Register of Historic Places, National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (Washington, DC: Department of the Interior, 1990 [1997 ed.]), 44-45.

occurred through ornamental plantings according to new design principles since the 1920s. The Japanese Garden exhibits integrity of materials with the partial exception of vegetation.

Workmanship
Workmanship includes the physical evidence of the crafts of a particular culture or people during any given period. On one hand, evidence of deliberate garden shaping, including the organization and quality of construction of circulation and water features, pervades the existing landscape. On the other hand, the character of some historic features such as stone lined waterways and walks are diminished. Also, different vintages of Japanese-style elements add a cacophonous quality to the landscape. The overall quality of existing garden features continues to reflect integrity of workmanship in spite of more recent changes.

Feeling
Feeling is the landscape's expression of the aesthetic or historic character of a particular period of time. The enclosure and seclusion of the existing Japanese Garden evokes its historic character. Rather than a reflection of the early twentieth-century qualities, the dominant feeling of the garden is a sense of timelessness. That dimension of the garden was cultivated during its creation and remains in the contemporary landscape. The Japanese Garden retains integrity of feeling.

Association
Association is the direct link between an important historic event or person and the landscape. The strong association of the Booth Family with extant features such as the shape of the waterbodies and the layout of pathways results in retention of integrity of association. Many components of the Japanese Garden originate in the design of the Rock Garden started by Henry Booth and staff in 1912.

This HLS reaches the conclusion that the Japanese Garden exhibits overall integrity although the character of the landscape has changed in terms of vegetation and small-scale elements. Overall landscape patterns, organization, some patterns of vegetation, circulation features, and water features remain and could provide a foundation for revitalization of the garden.

The physical history, existing conditions, and analysis of integrity presented in this HLS for the Japanese Garden provide baseline information for future decision-making. The Cranbrook Center for Collection and Research may engage a process to identify and evaluate the values of the Japanese Garden as they relate to the institution and the campus landscape. As a starting point, this HLS finds that the Cranbrook Japanese Garden possesses these values and likely others:

- Scenic/aesthetic value
- Physical and emotional renewal/health value
- Ecological value
- Intercultural/artistic value
- Historic value related to the Booth family
- Historic value related to development of the campus including management/maintenance/traditions/volunteer efforts
- Historic value related to Kingswood School grounds

Considerations for decision-making regarding the garden stem from an awareness of the multiple values reflected in the garden. Recognition of complementary yet diverse values and their importance

requires discussion and judgment. Combined with an understanding of the garden's integrity, a discussion of values may be a point of departure for finding resolution on the maintenance of character or other potential actions concerning the garden.

Cranbrook Japanese Garden Historic Landscape Study

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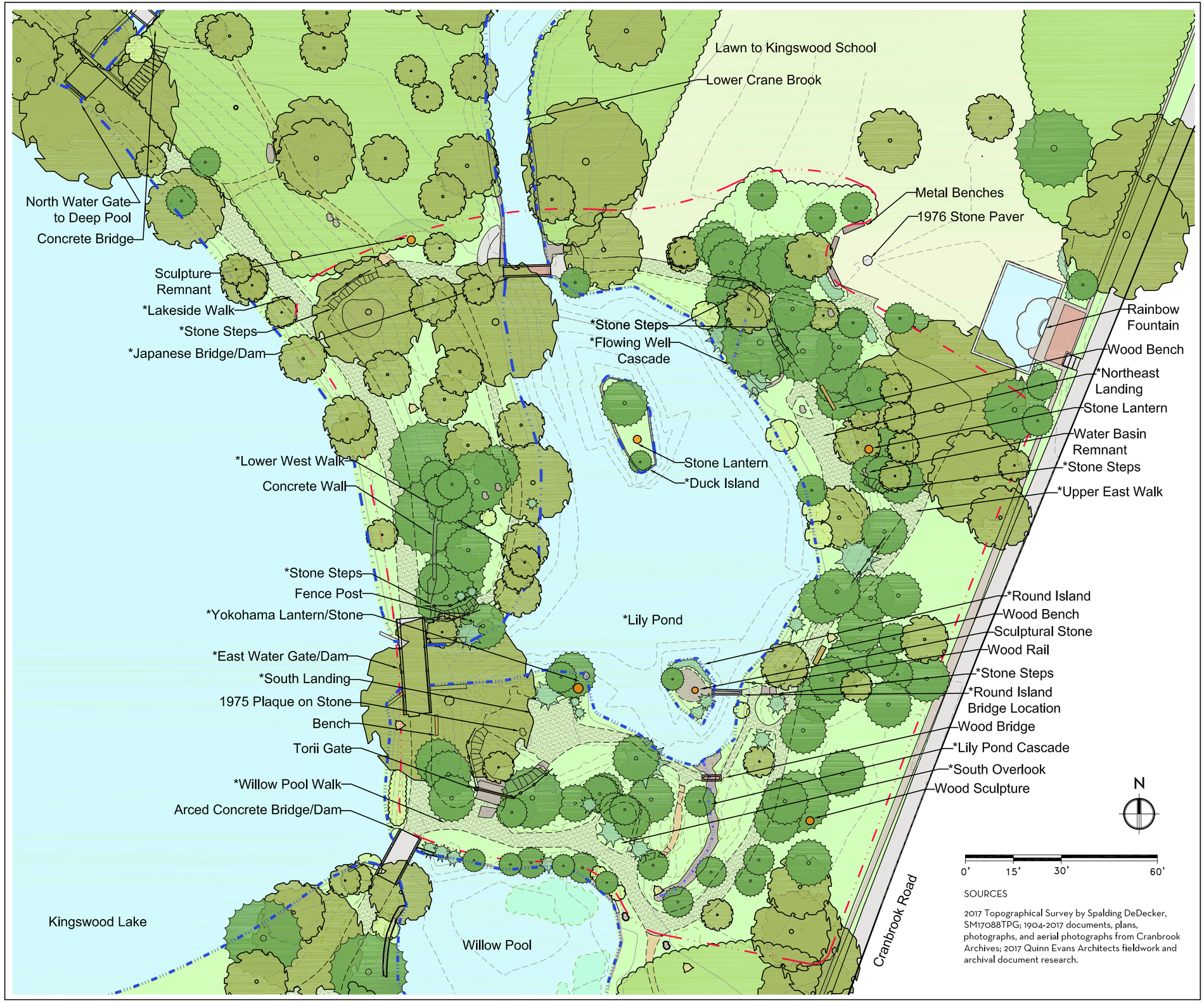

SOURCES

2017 Topographical Survey by Spalding DeDecker, SM17088TPG; 1904-2017 documents, plans, photographs, and aerial photographs from Cranbrook Archives; 2017 Quinn Evans Architects fieldwork and archival document research.

SYMBOL KEY

- Deciduous Tree
- Evergreen Tree
- Ornamental Tree
- Evergreen Shrub
- Deciduous Shrub
- Stump
- Woodland Edge
- Groundcover
- Aquatic Plant
- Turf
- Mulch/Soil
- Water Feature
- Cascade
- Stone Steps
- Concrete
- Gravel
- Brick/Tile
- Stone Monolith
- Stone Wall/Edge
- Iron Rail
- Bridge
- Bench
- Sculpture/Lantern
- 169 1 Foot Contour
- Japanese Garden Boundary
- * Circa 1928 Japan Garden Feature

Title:
2018 Landscape Plan

Date:
January 2018

Drawing Number:
LP 2018

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Species List

This vegetation inventory lists the plants surveyed in the Cranbrook Japanese Garden. Information is presented by species code, scientific name (genus and species), and common name for the trees, shrubs, vines, and herbaceous plants identified. Species codes are acronyms that are keyed to the 2018 Vegetation Plan (VP 2018). The plan identifies trees and large single-stemmed shrubs by species code (in uppercase) and trunk diameter-at-breast-height (dbh), other shrubs by species code (in uppercase), the predominant composition of woodland areas by species code (in uppercase), and ground cover plants and vines by species code (in italicized lowercase).

The list includes 75 different species of trees and shrubs and 25 different species of herbaceous ground cover plants and vines identified from the 342 individually inventoried plants and planting areas within the Japanese Garden. Quinn Evans Architects staff conducted fieldwork during the summer and fall of 2017, thus spring ephemeral or dominant plants may be less well represented than those present in the summer and fall. To the degree possible, species and ornamental cultivar and variety information was corroborated by 1992 inventory.[1] Chapter 3: Japanese Garden Existing Condition and Landscape Analysis presents additional information on vegetation.

Trees and Shrubs

Key	Botanical Name	Common Name
AB	*Abies balsamea*	balsam fir
AN	*Acer negundo*	boxelder
AP	*Acer palmatum*	Japanese maple
APB	*Acer palmatum* var. *atropurpureum* 'Bloodgood'	bloodgood Japanese maple
APD	*Acer palmatum* var. *dissectum*	laceleaf Japanese maple type
APE	*Acer palmatum* var. *dissectum* 'Everred'	Everred' laceleaf Japanese maple
AS	*Acer saccharinum*	silver maple
BM	*Buxus microphylla* var. *japonica*	Japanese boxwood
BS	*Bambusa* sp.	Bamboo
BT	*Berberis thunbergii*	Japanese barberry
CC	*Cercis canadensis*	redbud
CE	*Cephalanthus occidentalis*	buttonbush
CF	*Cornus florida*	flowering dogwood
CG	*Crataegus sp.*	hawthorn species
CK	*Cornus* sp.	dogwood species
CN	*Chamaecyparis nootkatensis* 'Pendula'	weeping Alaskan cedar
CO	*Chamaecyparis obtusa*	Hinoki cypress
COG	*Chamaecyparis obtusa* 'Nana Gracilis'	dwarf Hinoki cypress 'Nana Gracilis'
CP	*Chamaecyparis pisifera* 'Filifera Aurea'	Sawara cypress
CR	*Cornus sericea*	red osier dogwood

[1] Alexander Nursery, Inc., Japanese Garden Restoration: Inventory Plan (AD.04.168), 1992, Cranbrook Archives.

Key	Botanical Name	Common Name
CS	*Cryptomeria japonica*	Japanese cedar
CT	*Catalpa speciosa*	northern catalpa
EA	*Euonymus alatus*	winged euonymus
FA	*Fraxinus americana*	American ash
FSL	*Fagus silvatica* 'Laciniata'	cutleaf European beach
GB	*Ginkgo biloba*	ginkgo
JC	*Juniperus chinensis*	Chinese juniper
JH	*Juniperus horizontalis* 'Blue Rug'	blue rug juniper
JP	*Juniperus procumbens* 'Nana'	dwaft Japanese garden juniper
JV	*Juniperis virginiana*	eastern redcedar
LS	*Liquidambar styraciflua*	American sweetgum
LT	*Lonicera tartarica*	Tartarian honeysuckle
MG	*Metasequoia glyptostroboides*	dawn redwood
ML	*Malus* 'Liset'	Liset' crabapple
MO	*Morus alba*	mulberry
MR	*Malus* 'Red Jade'	Red Jade' Crabupple
MS	*Malus* sp.	crabapple
PA	*Picea abies*	Norway spruce
PAM	*Picea abies* 'Mucronata'	dwarf Norway spruce
PC	*Prunus* sp.	cherry species
PI	*Picea* sp.	spruce species
PK	*Prunus serrulata* 'Kwanzan'	Kwanzan flowering cherry
PMU	*Pinus mugo*	mugo pine
PMU	*Pseudotsuga menziesii*	Douglas-fir
PN	*Pinus nigra*	Austrian Pirie
PO	*Platanus occidentalis*	American sycamore
PP	*Picea pungens* var.	Colorado spruce variety
PPG	*Picea pungens* 'Globosa'	Globosa' blue spruce
PR	*Prunus serotina*	black cherry
PS	*Pinus strobus*	white pine
PSP	*Pinus strobus* 'Pendula'	weeping white pine
PT	*Pinus thunbergii*	Japanese black pine
PU	*Paeonia suffruticosa*	tree peony
PW	*Prunus subhirtella* 'Pendula'	weeping Higan cherry
QA	*Quercus alba*	white oak
QB	*Quercus bicolor*	swamp white oak
QR	*Quercus rubra*	red oak
RC	*Rhamnus cathartica*	common buckthorn
RS	*Rosa* sp.	rose species
SA	*Sambucus* sp.	Elderberry species
SM	*Salix matsudana* 'Torulosa'	corkscrew willow

Key	Botanical Name	Common Name
SN	*Salix nigra*	black willow
SS	*Salix* sp.	willow species
TA	*Taxus* sp.	taxus species
TB	*Taxus baccata*	English Yew
TC	*Tilia americana*	American linden
TD	*Taxodium distichum*	bald cypress
TO	*Thuja occidentalis*	northern white-cedar
TOR	*Thuja occidentalis* 'Rheingold'	Rheingold arborvitae
TS	*Tsuga sieboldii*	southern Japanese hemlock
UA	*Ulmus americana*	American elm
UG	*Ulmus glabra* 'Camperdownii'	Camperdown elm (or from rootstock)
UP	*Ulmus pumila*	Siberian elm
US	*Ulmus* sp.	elm species
ZS	*Zelkova serrata*	Japanese zelkova

Vines and Ground Covers

Key	Botanical Name	Common Name
Ae	*Aegopodium podagraria*	goutweed
Ah	*Anemone hupehensis*	Japanese anemone
Ch	*Cassia hebecarpa*	wild senna
Cl	*Celastrus orbiculatus*	Asian bittersweet
Cm	*Convallaria majalis*	lily of the valley
Cx	*Carix* sp.	Sedge sp.
Em	*Eutrochium maculatum*	spotted joe-pyeweed
He	*Hemerocallis* sp.	daylily
Hh	*Hedera helix*	English ivy
Hm	*Hakonechloa macra*	Japanese forest grass
Hs	*Hosta* sp.	hosta
Is	*Iris* sp.	Iris
Lm	*Liriope muscari*	liriope
Mc	*Myosotis scorpioides*	forget-me-not
No	*Nymphaea odorata*	American white waterlily
Pb	*Polygonatum biflorum*	Solomon's Seal
Pe	*Pennisetum* sp.	fountain grass
Pj	*Petasites japonicus*	giant butterbur
Pq	*Parthenocissus quinquefolia*	Virginia creeper
Pt	*Pachysandra terminalis*	Japanese pachysandra
Rh	*Rudbeckia hirta*	blackeyed Susan
Tr	*Toxicodendron radicans*	poison ivy

Key	Botanical Name	Common Name
Vm	*Vinca minor*	myrtle
Vr	*Vitis riparia*	riverbank grape
Ys	*Yucca* sp.	yucca species

Cranbrook Japanese Garden Historic Landscape Study

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SYMBOL KEY

- Deciduous Tree
- Evergreen Tree
- Ornamental Tree
- Evergreen Shrub
- Deciduous Shrub
- Stump
- Woodland Edge
- Groundcover
- Aquatic Plant
- Water or Non-Vegetated Area
- Japanese Garden Boundary

AB12 — Tree Species Code / Trunk Diameter (inches)
BM — Shrub or Woodland Species Code
Ae — Herbaceous Species Code

Note: Inventoried plants are referenced by species code in the Species List of Appendix A: Japanese Garden Vegetation Inventory.

N

0' 15' 30' 60'

SOURCES

2017 Topographical Survey by Spalding DeDecker, SM17088TPG; 2017 Quinn Evans Architects fieldwork.

Title:
2018 Vegetation Plan

Date:
January 2018

Drawing Number:
VP 2018

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Introduction

This appendix summarizes relevant information extracted from water resource studies at Cranbrook that pertains to the Cranbrook Japanese Garden. This information is provided as a supplement to the analysis of water features in the garden presented in Chapter 3: Japanese Garden Existing Condition and Landscape Analysis.

The immediate watershed of the Lily Pond defines the approximate boundary of the garden (Figure B.1). The Lily Pond lies directly east of Kingswood Lake. Both form part of a highly modified section of the Quarton Branch of the Rouge River (Figure B.2). The 10-acre lake was created in 1906 when the Booths reshaped the margin and rebuilt the western embankment of the Old Mill Pond, originally formed in 1828. The Lily Pond was created between 1907 and 1912 and served as the primary organizing landscape element for the Rock Garden, the predecessor of the Japanese Garden at Cranbrook. Since the early twentieth century, increased flow surges related to storm events have resulted from an increase in impervious surfaces upstream. Hydrologic changes at Cranbrook have paralleled the general degradation of the Rouge River ecosystem.[1]

On campus, water flows from west to east as part of the Rouge River system; however, the locations of the inlet in the south and the outlet in the north determine the direction of flow in the pond. A diagram of water flow demonstrates the complexity of the course of this section of the Rouge River (Figure B.3). The Lily Pond lies between Kingswood Lake and the Lower Crane Brook beyond the Japanese Bridge. The elevation of the pond is determined by inflow at the East Water Gate dam and outflow at the Japanese Bridge dam such that the water level of the lake is five feet above the surface of the pond which is three feet above the surface of Lower Crane Brook.

Important water features lie outside of the Japanese Garden. To the south, another penetration of the lake embankment delivers water from Kingswood Lake to the Willow Pool. This water flows south under an arched concrete bridge and through the Millrace, a historic section of the channelized river that once powered the Flouring Mill. The elevation of the Willow Pool is equivalent to the level of the lake. North of the Japanese Garden, another dam takes lake water through a stone-lined channel into Deep Pool. This stream flows northeast through a remaining section of Sunny Brook before meeting the confluence with the Lower Crane Brook about 125 feet north of the Japanese Bridge.

[1] NTH Consultants, Ltd., Sustainable Water Resources at Cranbrook: Part I: Environmental Characterization Report (Project No. 13-010257-IC), January, 2002, pp.1,2,6.

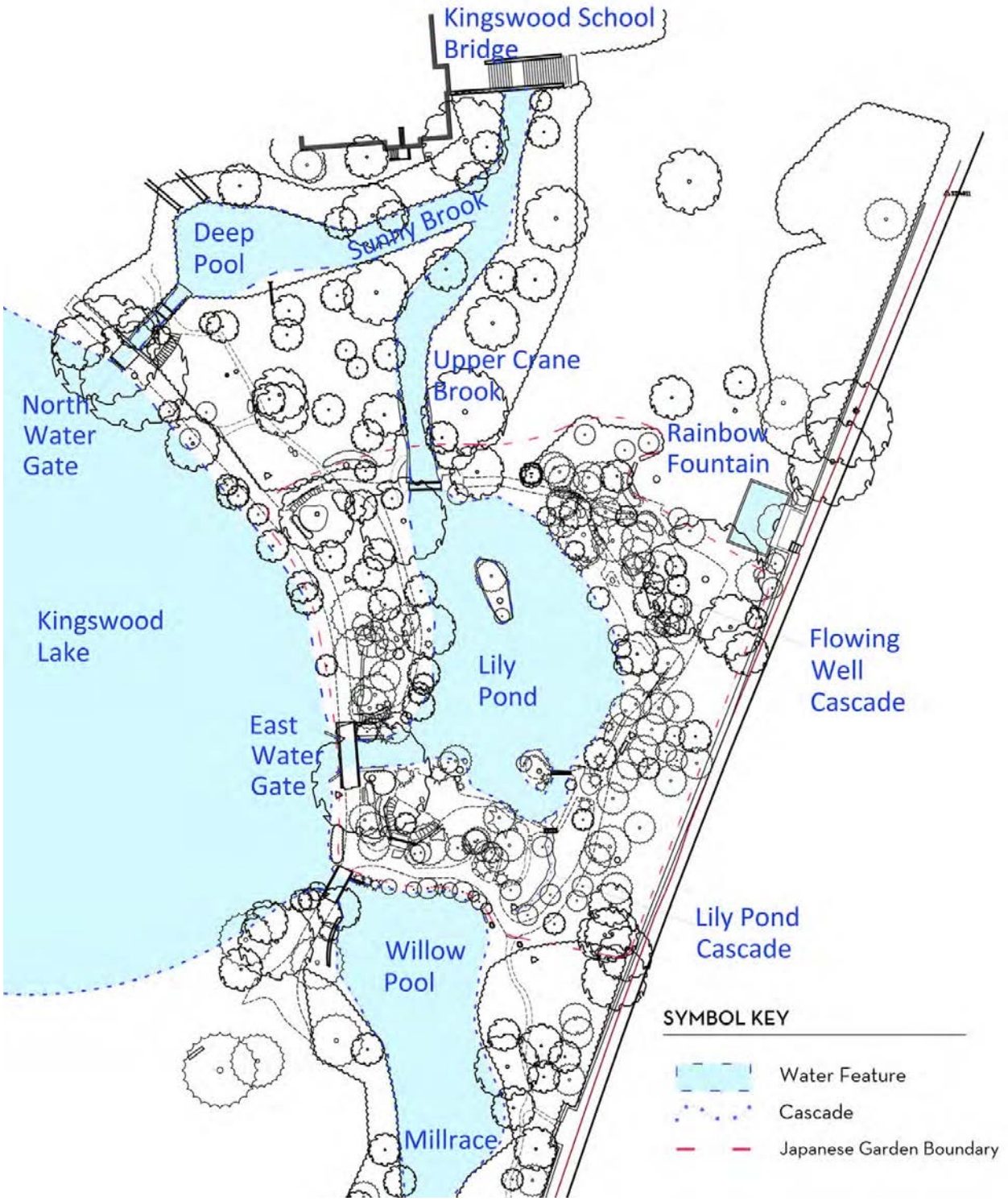

Figure B.1 Water related features in the vicinity of the Japanese Garden. QEA, 2018.

Figure B.2 Rouge River watershed map with Cranbrook circled in red. Friends of the Rouge River, 2017.

Water Resource Studies

Documents reviewed include Cranbrook reports, survey data, and numerous online resources from FEMA, the State of Michigan, Oakland County, the City of Bloomfield Hills, Bloomfield Township, and Friends of the Rouge. The 12 recent, water-related reports in the files of Cranbrook Capital Projects range in date from 1999 to 2005. Earlier historical studies addressing water resources are noted in Chapter 2: Japanese Garden History. An additional collection in the Cranbrook Archives may contain older information on topics related to historic water resources at Cranbrook but were not reviewed.[2]

A small number of the Capitol Project files reviewed contain information relevant to the Japanese Garden. Most reports focus on Kingswood Lake and only address the Japanese Garden area with reference to the points of water outfall through the lake impoundment, also known as Kingswood Dam that forms the western edge of the garden. The points of outfall include the spillways or dams between Kingswood Lake and the Lily Pond (East Water Gate or double spillway) and sluiceway of Deep Pool (North Water Gate or single spillway), and the connection between the lake and the Willow Pool that connects to the Millrace.

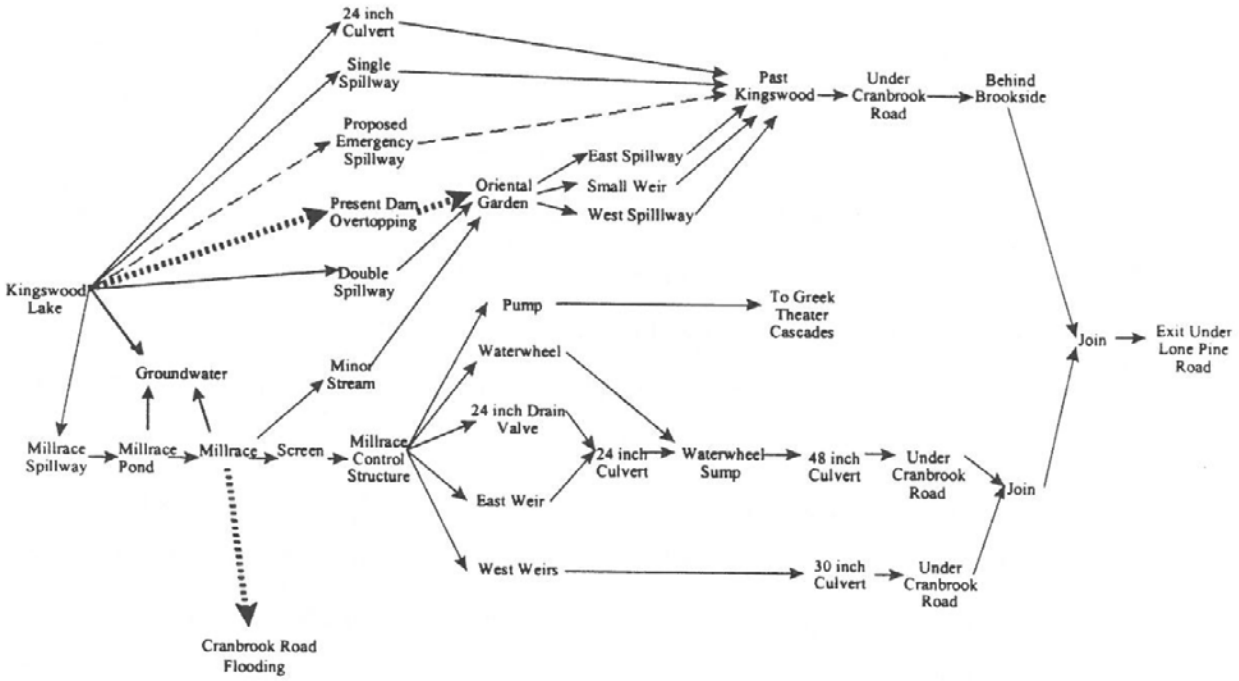

Figure B.3 Water flow diagram for the Kingswood Lake section of the Quarton Branch of the Rouge River. NTH Consultants (adapted from Roger Gay, 1999), 2000.

[2] Cranbrook Institute of Science Director's Papers, 1920s-1990s, 36 linear ft. Acquisition Number: 1990-31. Cranbrook Archives. Summary: Research conducted by CIS directors, staff members, and visiting scholars is documented in the Research series. The material is primarily in the format of compiled data and subsequent reports. Involvement in inland lakes and Great Lakes research is documented, as is the research holdings in the CIS Library. Drainage and vegetation studies of Kingswood Lake (called Cranbrook Lake during some studies) are in this series, as are manuscripts and published works of directors and staff members. A large section of algae drawings by Stanley Cain can be found. These pencil drawings were intended for publication, and are a good example of how scientific research from that era was conducted.

Water Level Information

The water levels of the lake, ponds, and streams associated with the Japanese Garden are important to understanding water flow and issues like flooding. Water level means the elevation of the water surface relative to a specified datum. A topographical survey created for the Cranbrook Japanese Garden by Spaulding DeDecker (October 13, 2017) provides recent water levels that were measured on September 26, October 2, and October 5, 2017. The datum for establishing vertical information on the survey is the International Great Lakes Datum 1985 (Dynamic height). The unit of measurement is feet-above-sea-level (fsl), using the conventional term. Water levels of water features associated with the Japanese Garden are listed below:

- Kingswood Lake west of East Water Gate 794.1 fsl
- Lily Pond 789.0 fsl
- Lower Crane Brook at Japanese Bridge 786.0 fsl
- Willow Pool 793.9 fsl
- Deep Pool sluiceway, east end 787.5 fsl
- Deep Pool, west end 786.6 fsl
- Sunny Brook/Deep Pool and Lower Crane Brook Confluence 785.2 fsl
- Lower Crane Brook at Kingswood East Bridge 784.9 fsl

Floodplain Information

The State of Michigan, Oakland County, and Bloomfield Township draw on Federal Emergency Management Agency (FEMA) to provide water resources and floodplains information. FEMA floodplain data show that the Japanese Garden lies within the Floodway (FEMA Floodplain) for the Rouge River and the 100-year floodplain (Figure A.4).[3] The connection between Kingswood Lake and the Lily Pond (East Water Gate) and the zone north encompassing the North Water Gate, Deep Pool, and the Lower Crane Brook fall within the Floodway Zone AE. This area along the main course of the Rouge River is considered to be at high risk of flooding under the National Flood Insurance Program and must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the water surface elevation more than a designated height (typically one foot). Development is regulated in regulatory floodways to ensure that there are no increases in upstream flood elevations. The passage between Kingswood Lake and the Willow Pool lies within the 100-year floodplain. This area has a one-percent chance of being flooded in a given year. This area includes the west side of the Willow Pool and extends across the Lily Pond to the Rainbow Fountain.

All Cranbrook properties, including the Lily Pond and Kingswood Lake, are also under the local jurisdiction of City of Bloomfield Hills, MI. There currently are no local wetland ordinances or zoning ordinances, specifying any minimum setback from the lake or wetland boundaries.[4]

[3] This data is tied to parcel identification. The Japanese Garden and zone to the north is located within the City of Bloomfield Hills PIN: 19-23-101-002. The Willow Pool and zone to the south is located within PIN: 19-23-101-003. *FEMA Floodplain Data*, Oakland County One Stop Shop, 2100 Pontiac Lake Road Bldg. 41 West Waterford, MI 48328, www.advantageoakland.com, August 3, 2017.
[4] ECT, Kingswood Lake Restoration Pilot Study and Shoreline Restoration Project, Volume 1 of 2: Pilot Study Summary, February 2005, p.20.

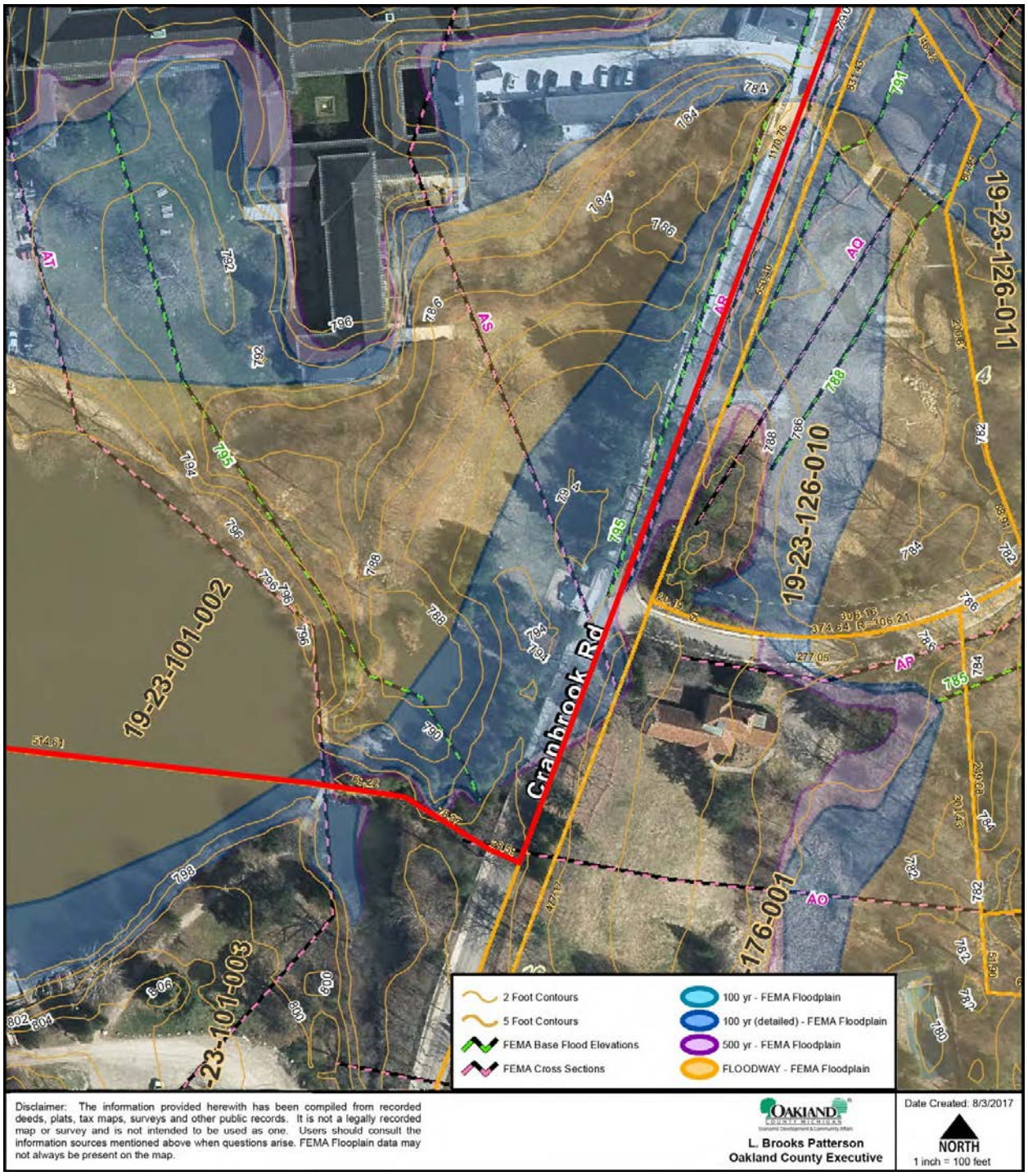

Figure B.4 FEMA floodplain data for the Japanese Garden area. City of Bloomfield Hills, 2017.

Kingswood Lake and the Japanese Garden

Issues of flooding and water quality in the Japanese Garden relate to Kingswood Lake. The average depth of Kingswood Lake is less than 2.9 feet.[5] Unconsolidated sediment in the lake had accumulated to an average thickness of 2.4 feet around 2004. While most of the lake bottom material is a black fine-grained muck with traces of sand, the northeast shoreline near the Japanese Garden contains greater amounts of sand.

Vegetation on the lakeshore is noted in most studies. One issue related to flooding is that the entire lake perimeter has some form of constructed edge and there is no transitional zone of wetland vegetation between the water's edge and uplands. In 2005, studies found no presence of rare or endangered plant species or unique wetland ecosystem types around the Kingswood Lake shoreline.[6] It is probable that these results can be extrapolated to the Japanese Garden. Invasive species are noted for the Japanese Garden and Willow Pool/Millrace area with special reference to unchecked oriental bittersweet (*Celastrus orbiculata*).

An assessment of fish communities in Kingswood Lake in 2001 indicates that communities in impoundments likely including the Lily Pond are in fair to poor condition.[7] A total of nine species were collected and consisted primarily of bluegill and white sucker. Aquatic habitat is poor due to shallowness and lack of woody debris that would support a diverse community of aquatic organisms. In terms of water quality, surface water chemistry parameters for Kingswood Lake passed state and/or federal standards in 2001.[8] Findings on water quality for Kingswood Lake likely apply to the Lily Pond.

Kingswood Dam Rehabilitation

The need for examination, design and repair of the dam structures including those associated with the Japanese Garden is identified in Hydrologic System Conditions and Priorities, a report prepared in 2000 by NTH Consultants Ltd. (Discussion in Section 3.2.1 in "– Cranbrook Educational Community").[9] The study notes several issues including North Water Gate (or single spillway) deterioration, inoperative single spillway gate, outlet culvert flow restriction and screen, lakeshore erosion, existing lake sediments, future sediment accumulation, East Water Gate (or double spillway) deterioration, inoperable low level outlet through dam, trees on dam, erosion of upstream dam slope, and lake liner. Issues of the Willow Pool and Millrace include spillway deterioration, pond liner and banks deterioration, Millrace leakage and liner failure, and Cranbrook Road flooding. Of the issues identified, removal of the trees on the dam along the Lakeside Walk is noted as a standard practice; however, it

[5] ECT, Kingswood Lake Restoration Pilot Study and Shoreline Restoration Project, Volume 1 of 2: Pilot Study Summary, February 2005, p.10-12.
[6] Ibid., p.21.
[7] Ibid., p.28.
[8] NTH Consultants, Ltd., Sustainable Water Resources at Cranbrook: Part I: Environmental Characterization Report (Project No. 13-010257-IC), January, 2002, pp.21.
[9] NTH Consultants, Ltd., Hydrologic System: Conditions and Priorities (Project No. 13-990178-01), January 11, 2000.

recognizes that "there will be some visual impact caused by tree removal from the dam at this aesthetic and historically significant lake."[10]

The study proposes the creation of an emergency spillway across the Kingswood Dam and Lakeside Walk between the North Water Gate and the path to the Japanese Bridge. The proposed action would require lowering a section of the Lakeside Walk so that overflow would discharge across the woodland north of the Japanese Garden and into Lower Crane Brook. The additional spillway is recommended because inspection in 1998 determined that the spillway capacity of Kingswood Lake is inadequate to carry the design flood as defined by the State of Michigan regulations. Not only does periodic, uncontrolled overtopping cause erosion and damage to the Japanese Garden, it could "result in accelerated erosion during an extended storm, potentially breaching of the dam and the loss of Kingswood Lake."[11] The study notes that depressing and armoring a section of the dam crest would provide a measure of safety and avoid great impact on the Japanese Garden. General improvements to the existing spillways would reduce the size of the recommended emergency spillway.

Sustainable Water Resources

Cranbrook investigated sustainable water resource management through the Rouge River National Wet Weather Demonstration Project in 2001 and 2002. NTH Consultants authored an Environmental Characterization and Design Concepts Report as part of this project.[12] The study addresses natural features, land use, areas of concern, master concepts for on-site stormwater management, and sustainable guidelines and best management practices.

Findings indicate that the lack of low flow outlets from Kingswood Lake has trapped sediments in its basin and deprived the downstream sections of the system of a sediment load.[13] This can contribute to bank and streambed erosion in the area of the Japanese Garden and beyond. Repair of the East Water Gate would improve water quality and reduce some of these impacts. The effect of a repaired spillway on flooding would be minimal. Provision of an auxiliary overflow would likely accommodate the 100-year storm flow.[14]

[10] NTH Consultants, Ltd., Hydrologic System: Conditions and Priorities (Project No. 13-990178-01), January 11, 2000, p.9.
[11] Ibid., p.6.
[12] NTH Consultants, Ltd., Sustainable Water Resources at Cranbrook: Part I: Environmental Characterization Report (Project No. 13-010257-IC), January, 2002; NTH Consultants, Ltd., Sustainable Water Resources at Cranbrook: Part III: Design Concepts Report (Project No. 13-010257-IIIA), October, 2002.
[13] NTH Consultants, Ltd., Sustainable Water Resources at Cranbrook: Part III: Design Concepts Report (Project No. 13-010257-IIIA), October, 2002, pp.10-11.
[14] Ibid., pp.27-28.

Kingswood Lake Restoration Pilot Study

Cranbrook participated in the Kingswood Lake Restoration Pilot Study and Shoreline Restoration Project, an EPA initiative to improve stormwater management of the Rouge River between 2004 and 2005.[15] The report was also summarized in the 2005 Cultural Landscape Report.[16] A pilot study by Environmental Consulting & Technology, Inc., completed in 2004, verified the feasibility of dredging Kingswood Lake for greater storage potential and improved habitat creation. In addition to dredging, shoreline and dam rehabilitation were identified in 2005 as key components of addressing the lake.[17]

Kingswood Lake Shoreline Rehabilitation

In 2005, a schematic-level plan for rehabilitation of the lake edge was completed by Sasaki Associates, Inc. and Nuturing Restorations, Inc. The lake shoreline was divided into seven landscape zones for proposed improvement scenarios (Figure B.5). Zone 4 lies adjacent to the Japanese Garden and includes the dams between Kingswood Lake and the Lily Pond, Deep Pool, and the Willow Pool. Brief statements on current use, historic design intent, and existing conditions highlight invasive species and partial dam settlement.[18] Recommendations include erosion control measures, removal of invasive plants and rehabilitation of the Lakeside Walk with new masonry edges and approved vegetation on the side slopes.[19]

[15] ECT, Kingswood Lake Restoration Pilot Study and Shoreline Restoration Project, Volume 1 of 2: Pilot Study Summary, February 2005; Sasaki, Kingswood Lake Restoration Pilot Study and Shoreline Restoration Project, Volume 2 of 2: Proposed Shoreline, January 2005.
[16] Cranbrook Archives, Sasaki Associates, and the University of Michigan School of Natural Resources and Environment, *Cranbrook Cultural Landscape Report*, October 2005, p.10.
[17] ECT, Kingswood Lake Restoration Pilot Study and Shoreline Restoration Project, Volume 1 of 2: Pilot Study Summary, February 2005, p.36.
[18] Sasaki, Kingswood Lake Restoration Pilot Study and Shoreline Restoration Project, Volume 2 of 2: Proposed Shoreline, January 2005, p.9.
[19] Ibid., p.12.

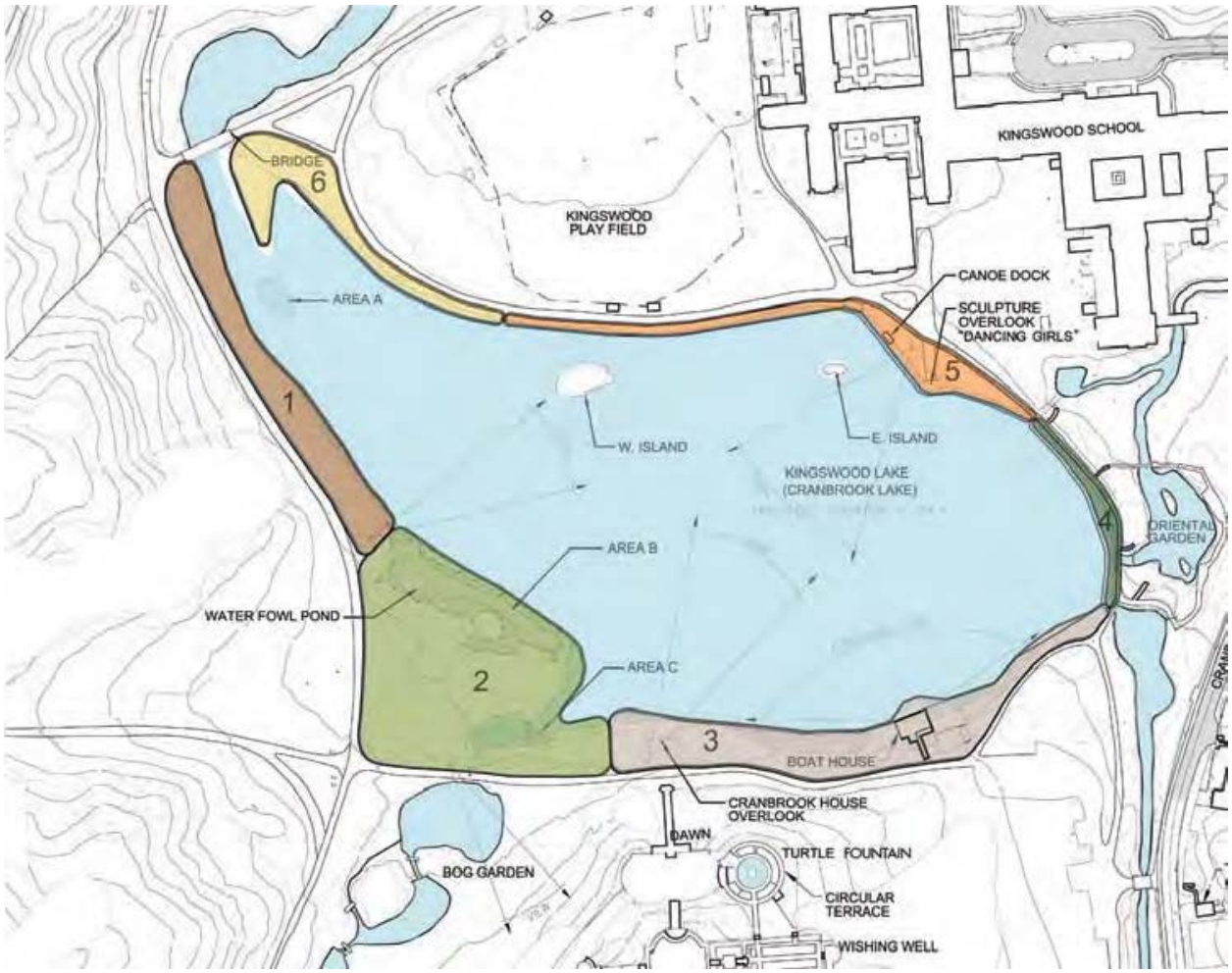

Figure B.5 Kingswood Lake Edge Study Landscape Zones. Sasaki Associates, Inc. 2005.