



CACTUS AND SUCCULENT GARDEN



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WILBUR D. MAY ARBORETUM AND BOTANICAL GARDEN | SCHEMATIC DESIGN | MARCH 2021

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...education, research, conservation, and to demonstrate how introduced plant species and native plants grow in a high desert environment.



INTRODUCTION

The Wilbur D. May Arboretum and Botanical Garden has 13 acres developed, with 10 acres still to be completed. The design concept for a new Cactus and Succulent Garden is the first step toward implementing a series of new gardens to further grow the Arboretum and enhance its mission of education, research, conservation, and to demonstrate how introduced plant species and native plants grow in a high desert environment.

HISTORY OF THE WILBUR D. MAY ARBORETUM

With 23 acres of buildable land, the Wilbur D. May Arboretum and Botanical Garden was established in 1983. Located in the transitional zone between the Sierra Nevada Mountain range and the Great Basin Desert, the Arboretum is a unique showplace for plants and wildlife viewing. With an average elevation of 4,600', the Arboretum is located in the rain shadow of the Sierras and receives only 4 to 8 inches of precipitation each year, mostly in the form of snow. The Arboretum is home to over 4,600 native and non-native plant species and has earned Level II Arbnet accreditation.

The May Arboretum is part of the Wilbur D. May Center located within Rancho San Rafael Regional Park and owned by Washoe County. Wilbur D. May was a world explorer, artist, pilot, local rancher, and philanthropist. He settled in the area of South Reno known as South Meadows or Double Diamond Ranch and created a livestock brand using his initials, W and M, placing one letter above the other to form a double diamond shape. The Arboretum honors Wilbur May's passion for adventure and learning and uses his double diamond brand as the emblem for the Arboretum.



BIG IDEA

"Where the Sierra Nevada Meets the Great Basin..."

Over the past thirty years, 13 of the original 23 acres have been developed into gardens and groves enjoyed by more than 70,000 visitors annually. An implementation plan was developed by Washoe



THE WILBUR D. MAY ARBORETUM AND BOTANICAL GARDEN LOCATED WITHIN RANCHO SAN RAFAEL REGIONAL PARK IN RENO, NEVADA

County to creatively and innovatively develop the remaining 10 acres of land, including the creation of a Cactus and Succulent Garden. The goal for this 2.5-acre garden is to showcase the types of plants that are well-adapted to the harsh climate of Northern Nevada's short 120-day growing season. The plan includes creating a demonstration garden for low water usage with a focus on geography and plant biodiversity. The garden is designed to allow visitors to experience cactus and succulent flora not only native to Nevada, but also to the southwestern United States, Mexico, South America, and similar arid regions across the globe.

With today's climate change challenges coupled with limited water resources found in a desert region, this garden will create a desert wonderland for Northern Nevada neighbors and visitors alike. The vision is to make the Cactus and Succulent Garden the Arboretum's showcase garden. This premiere horticultural experience will also be the first step for the Arboretum to be sustainable by charging an admission fee. The funds will be used to assist with the maintenance of the garden and to contribute to the development of the implementation plan and developing the remaining acreage.

ILLUSTRATIVE SITE PLAN

Legend

1. Great Basin Collection and Overlook
2. Planted Stone Plinth
3. Succulents of the World Collection
4. Freestanding Boulders
5. Shade Pavilion
6. Reflecting Basin
7. Mojave and Sonoran Collection
8. Gathering Circle
9. Zuni Bowls for Water Collection
10. Chihuahuan Collection
11. South American Collection
12. Crevice Garden Stone Formation
13. Seat Ledge
14. Ticketing Kiosk
15. Entrance from Arboretum
16. ADA Ramps
17. Main Promenade And Access Road
18. Covered Patio with Restrooms
19. Office and Storage
20. Future Meadow Garden At Overlook



GARDEN VIGNETTES



NEVADA AND GREAT BASIN VIGNETTE

SUCCULENTS OF THE WORLD VIGNETTE

ZUNI BOWLS VIGNETTE

CHIHUAHUAN, SONORAN AND SOUTH AMERICAN VIGNETTE

SONORAN CREVICE GARDEN VIGNETTE



CHIHUAHUAN, SONORAN, AND SOUTH AMERICAN VIGNETTE



SONORAN CREVICE GARDEN VIGNETTE



SUCCULENTS OF THE WORLD VIGNETTE



ZUNI BOWLS FOR WATER COLLECTION VIGNETTE



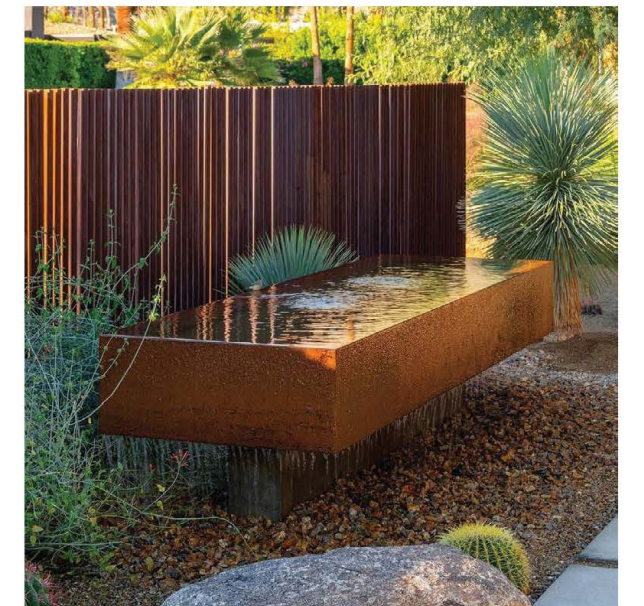
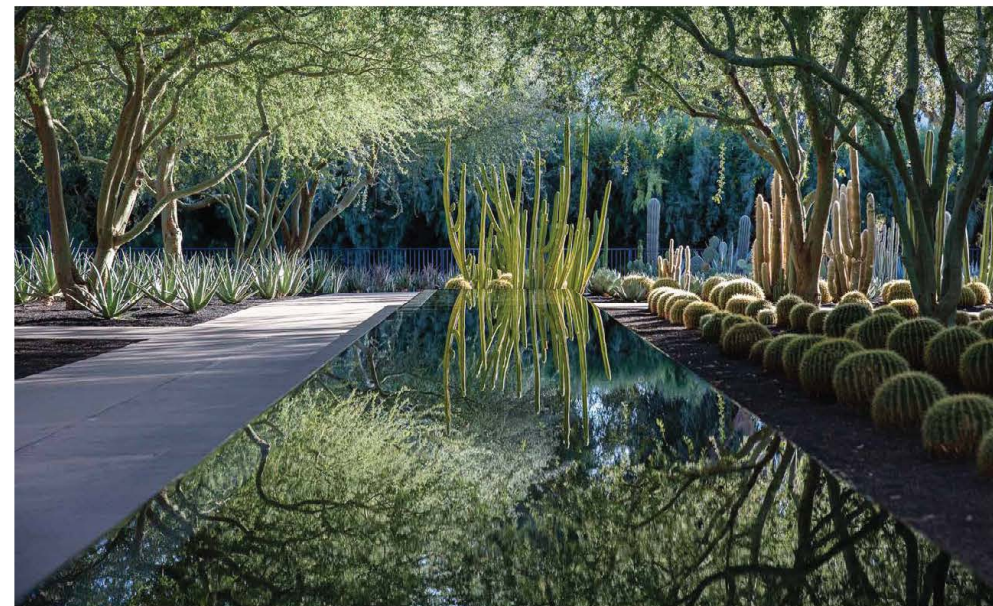
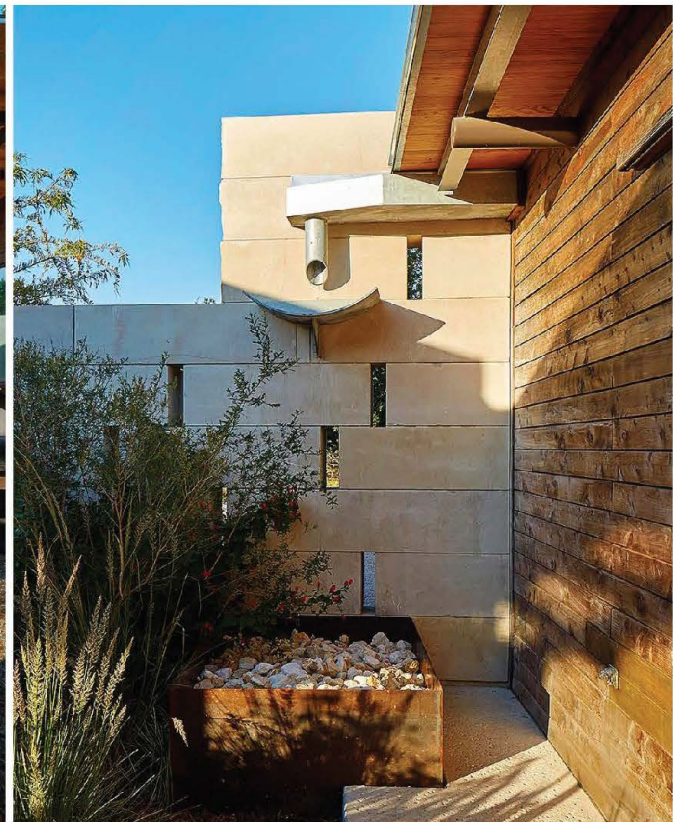




LANDFORMS AND STONE FEATURES



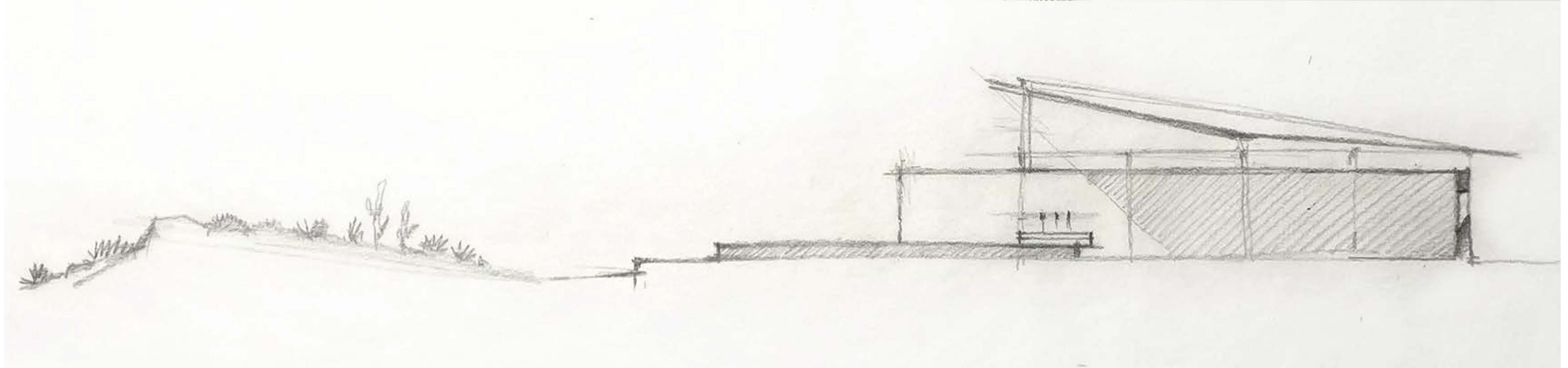
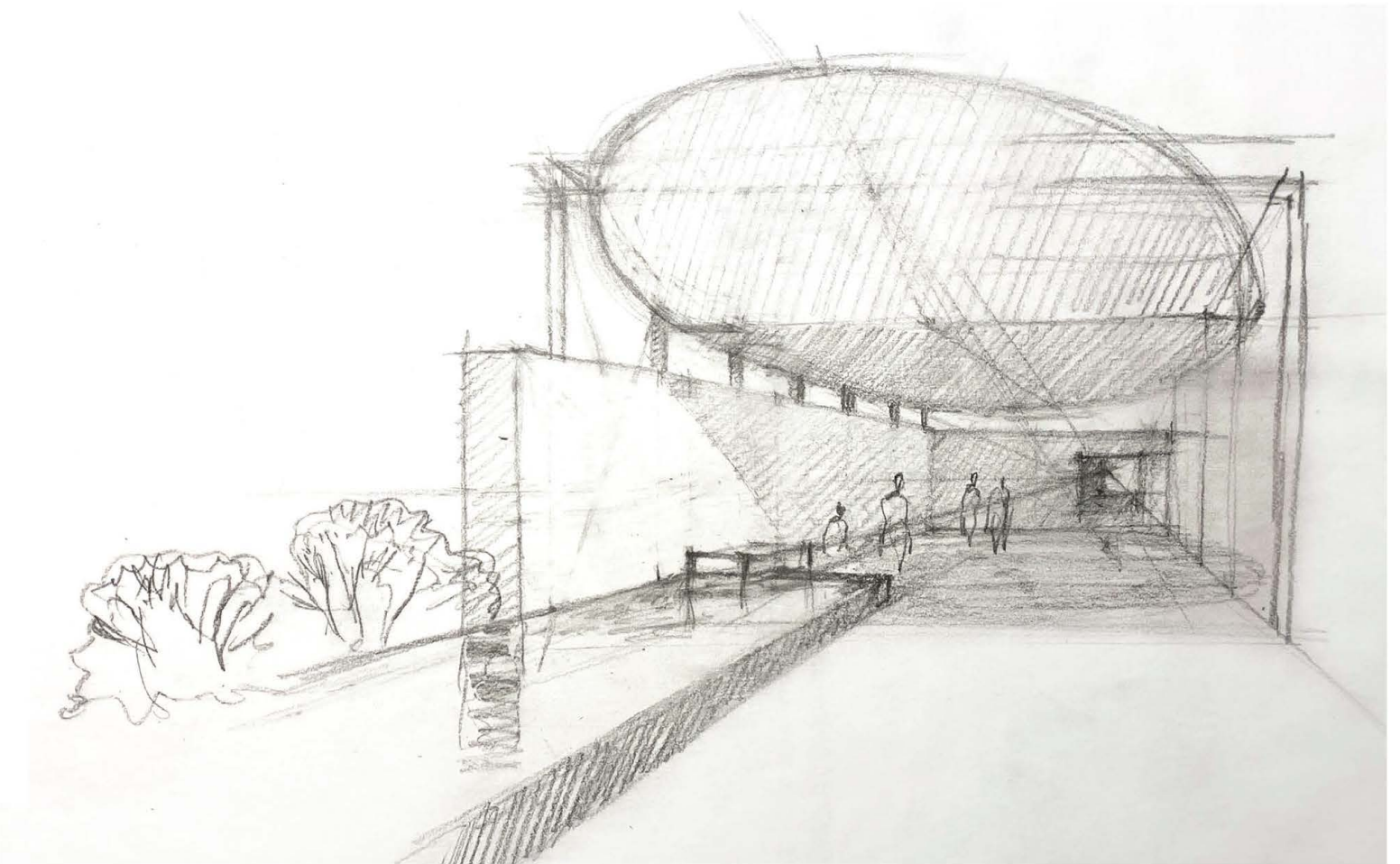
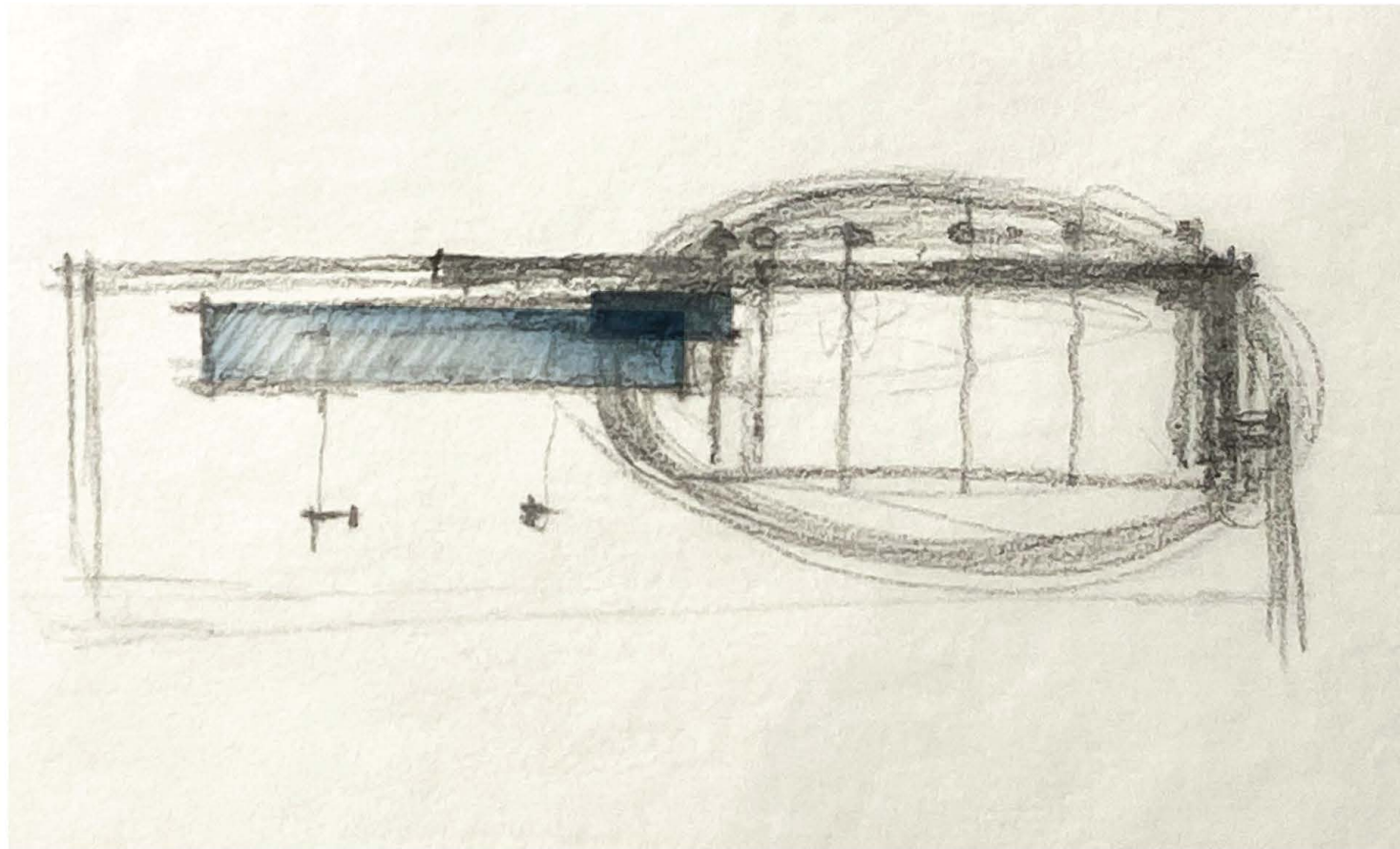
SHADE PAVILION WITH REFLECTING BASIN



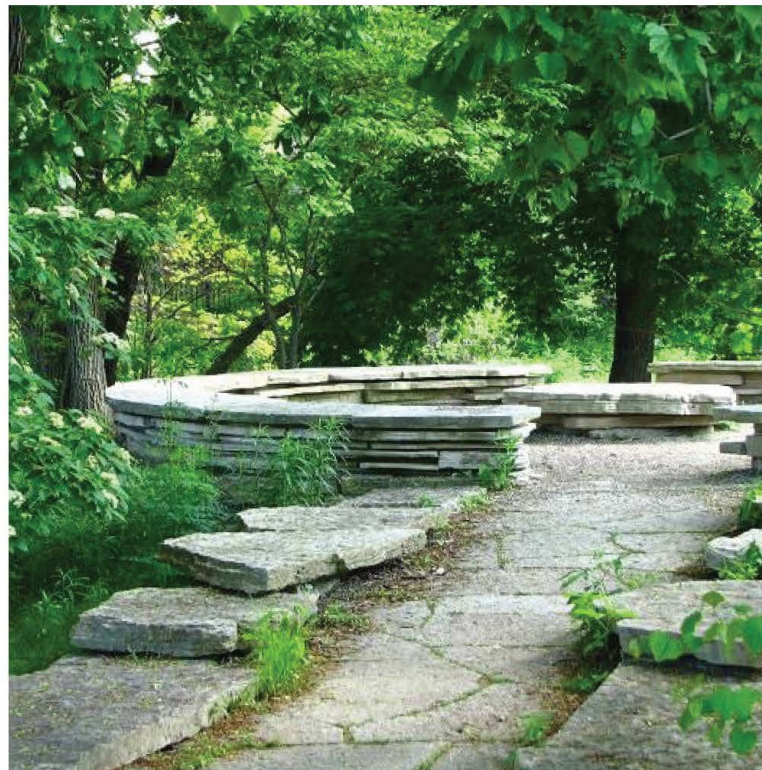
SHADE PAVILION WITH REFLECTING BASIN



SHADE PAVILION WITH REFLECTING BASIN



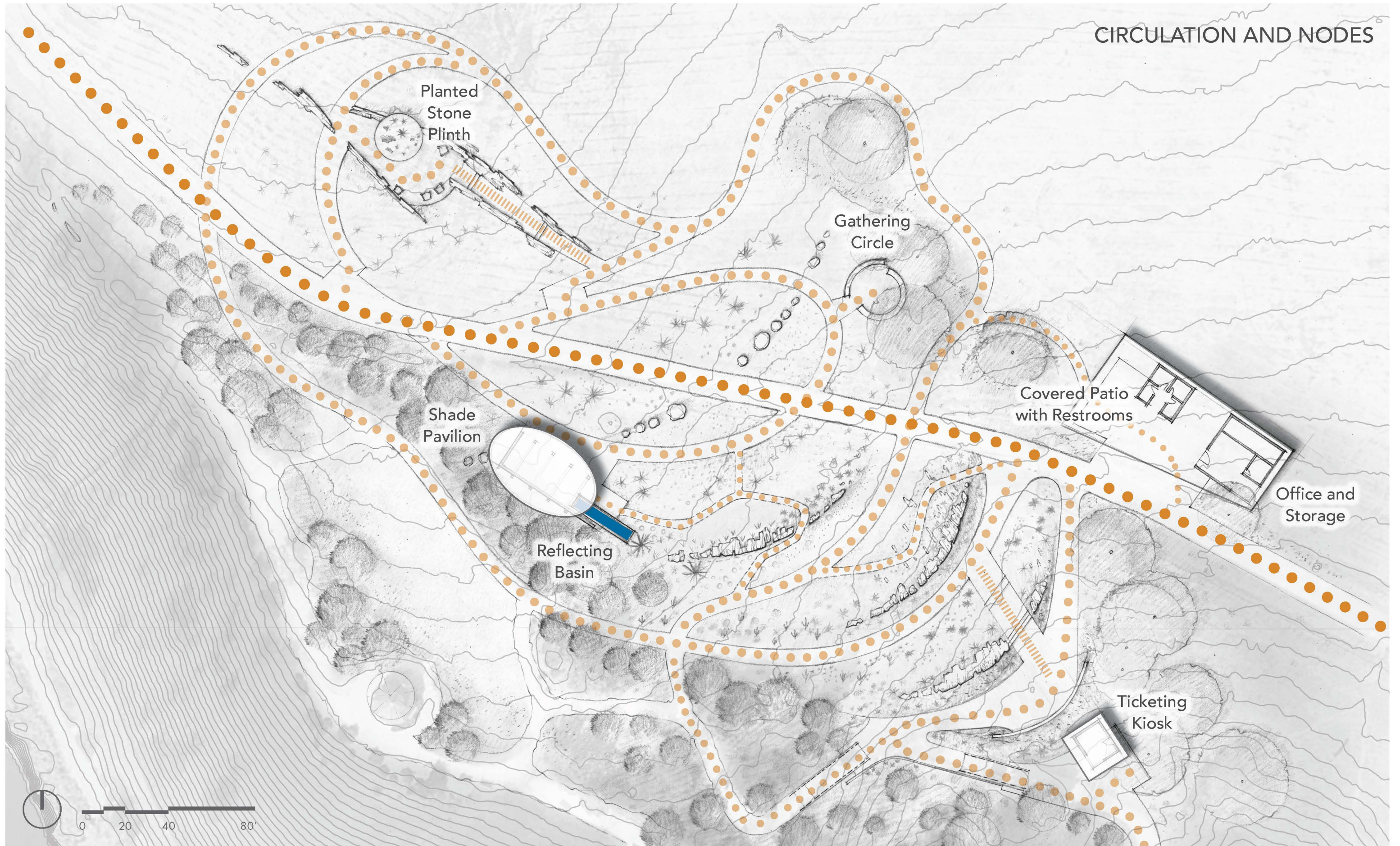
GATHERING CIRCLE



COVERED PATIO WITH RESTROOMS, OFFICE, STORAGE



CIRCULATION AND NODES



GARDEN REGIONS

Native Nevada /
Great Basin

Zuni Bowls

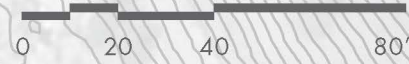
Succulents of
the World

Sonoran /
Mojave

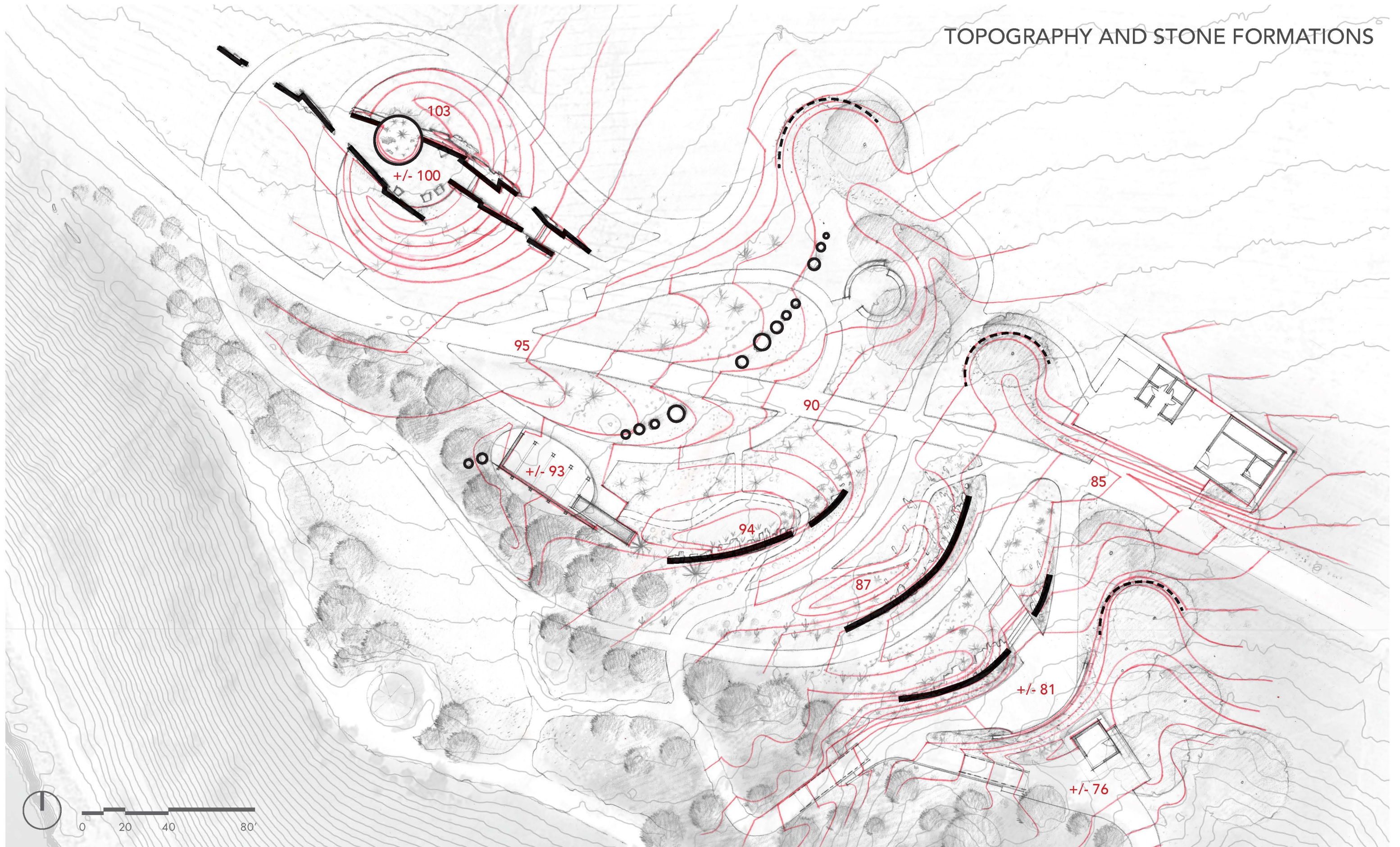
Future
Meadow
Garden

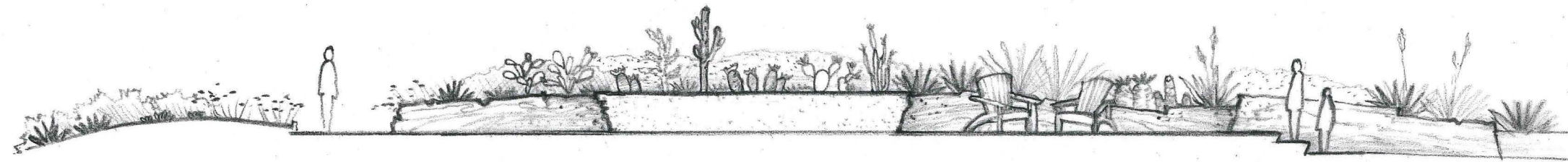
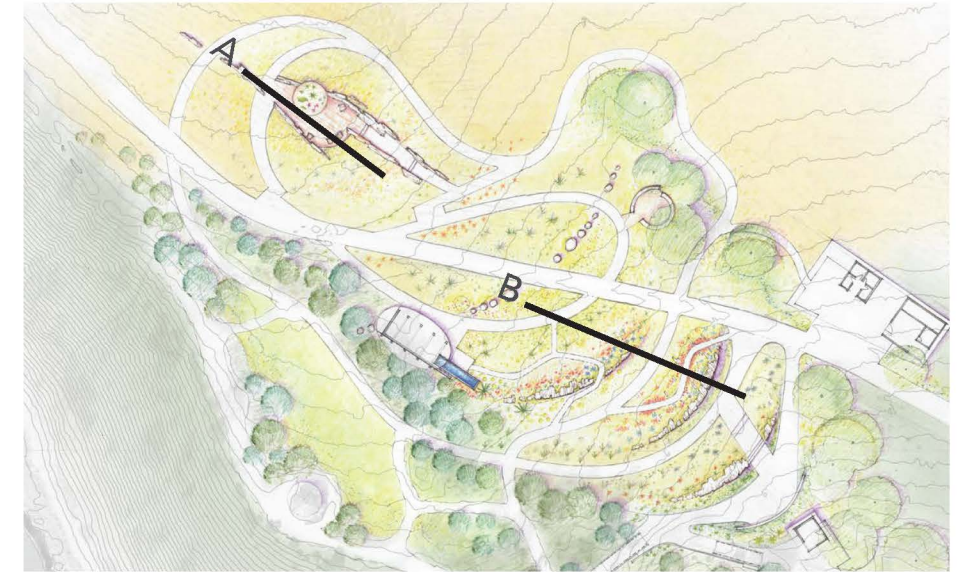
Chihuahuan

South
American

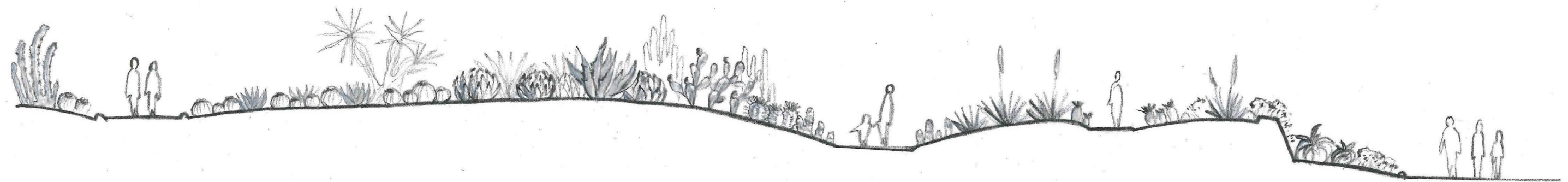


TOPOGRAPHY AND STONE FORMATIONS





A



B

YOUR SUPPORT

Living in the driest state in the nation where droughts are common, this garden will demonstrate an alternative to traditional landscaping by introducing low water use plants and desert landscaping. It will show homeowners how to create a beautiful landscape using flowering cactus and succulents that require very little water. After reviewing each of the illustrations, we hope you are as excited as we are, and that you agree - this garden will uniquely represent diverse geographic regions of the world while offering educational areas with learning opportunities for children and adults alike. As the garden grows, it will support research initiatives and the ability to propagate rare, threatened, vulnerable and endangered species, share plants with other botanical gardens, and build relationships within the educational community.

We hope you enjoyed reviewing this booklet and learning more about the future Cactus and Succulent Garden. Whether you are an individual, family, small business, or corporation, Washoe County neighbor or visitor, we welcome your support as our partner - sharing our vision for a premier cactus and succulent garden exhibit. Single gifts of at least \$1000.00 will be recognized in a visual display located within the garden.

Donations should be made payable to "May Arboretum," and earmarked as "Restricted to support the cactus and succulent garden exhibit at the Arboretum."

ACKNOWLEDGMENTS

The planning and design for this garden were made possible by Cactus and Succulent Garden Design Committee participants, which included key Washoe County personnel, members of the May Arboretum Society, stakeholders, and the design team. Thank you to all who contributed their time, expertise, and enthusiasm to this project.

WASHOE COUNTY PARTICIPANTS:

Bill Carlos - Washoe County Horticulturist/May Arboretum Manager
Phil Brazier - May Arboretum Asst. Horticulturist, Certified Arborist
Bradon Franklin - May Arboretum Maintenance Worker II, Certified Arborist
Joanne Lowden - Washoe County Community Services Department Planning & Development
Colleen Wallace-Barnum - Parks Operation Superintendent, Washoe County

MAY ARBORETUM SOCIETY PARTICIPANTS:

Rod Dimmitt - Member
Frances Munoz - Member
Victoria Nilson - Member

PARTICIPANTS AT LARGE:

Joe Clements - Retired Cactus Garden Curator at the Huntington Garden, CSSA member
Sophia Heston - State of Nevada Fish and Wildlife Biologist
Kathi Linehan - University of Nevada, Reno - Cooperative Extension
Liz Morrow - University of Nevada, Reno, Co-operative Extension
Tiffany Pereira - Desert Research Institute, Las Vegas, NV
John Weiser - Native Nevada Plant Society
Quinn Young - Bureau of Land Management - Botanist

DIDIER DESIGN STUDIO:

Emmanuel Didier - Principal
Kate Davenport - Designer, Project Manager



THE CACTUS AND SUCCULENT GARDEN DESIGN COMMITTEE GATHERS FOR A SOCIALLY-DISTANCED SITE VISIT

The background is a detailed architectural site plan rendered in a light green color. The plan shows a complex layout of buildings, courtyards, and landscaped areas. On the left side, there are dense contour lines representing a hillside. The central and right portions of the plan feature several large, irregularly shaped courtyards and building footprints. Some buildings have internal room divisions. There are also numerous small, circular and rectangular shapes scattered throughout, likely representing trees, planters, or other landscape features. The overall style is that of a technical drawing or a conceptual site plan.

APPENDICES



SITE VISIT WITH THE CACTUS AND SUCCULENT GARDEN DESIGN COMMITTEE

PROCESS AND STAKEHOLDER ENGAGEMENT

The schematic design for the Cactus and Succulent Garden was funded by the May Arboretum Society and developed as a collaborative process with the Cactus and Succulent Garden Design Committee and Didier Design Studio, over a 5-month period (August 2020 through January 2021). During a vision workshop in October 2020 at the Wilbur D. May Arboretum and Botanical Garden, the group was able to convene on-site and in-person to share research, ideas, design studies, and together create a consolidated vision for the future garden - a signature botanical expanse to further strengthen the institution's mission

The following pages document the process leading to the finished schematic design including:

- **Site visits** to verify existing conditions, identify site opportunities and constraints, and confirm the exact location and extents for the new garden.
- **Vision exercise** to clarify some of the key goals and priorities for the new garden.
- **Research precedents** to identify, compare and learn from similar projects to inform the future Cactus and Succulent Garden.
- **Visual preference study and discussion** to invite stakeholders to "vote" on examples of preferred features and elements, and to discuss why these elements are appropriate and relevant to the project.
- **Recap of "what we heard"** to consolidate a shared vision and a clear direction for the new garden.



RED DOT / GREEN DOT EXERCISE AS A VISUAL PREFERENCE STUDY

SUMMARY OF "WHAT WE HEARD"

GOALS AND PRIORITIES

- **Support the mission of the Wilbur D. May Arboretum and Botanical Garden:** Further advance education, research, and conservation with a strong focus on desert environments.
- **Enhance a sense of place:** Become a signature destination within the Arboretum with a strong sense of place and identity.
- **Represent diverse regions and collections:** Curate as

a sequence of garden rooms that are organized by geographical region, "Take a walk through geography".

- **Create an iconic, memorable experience for visitors:** Sculpt a unique terrain, which takes advantage of borrowed scenery, views, and vistas.
- **Focus on plants:** Elevate plants as the centerpiece and focal point, highlighting plant selections with special regional relevance.
- **Connect to future gardens:** Create strong connections

with future gardens identified in the implementation plan such as the adjacent Native Nevada/Great Basin Garden and the Children's Garden.

- **Build relationships** with other institutions by collecting rare and endangered species to re-introduce into the landscapes. Propagate rare, threatened, vulnerable and endangered species, share plants with other botanical gardens, build relationships within the educational community, and achieve higher accreditation with Arbnet.

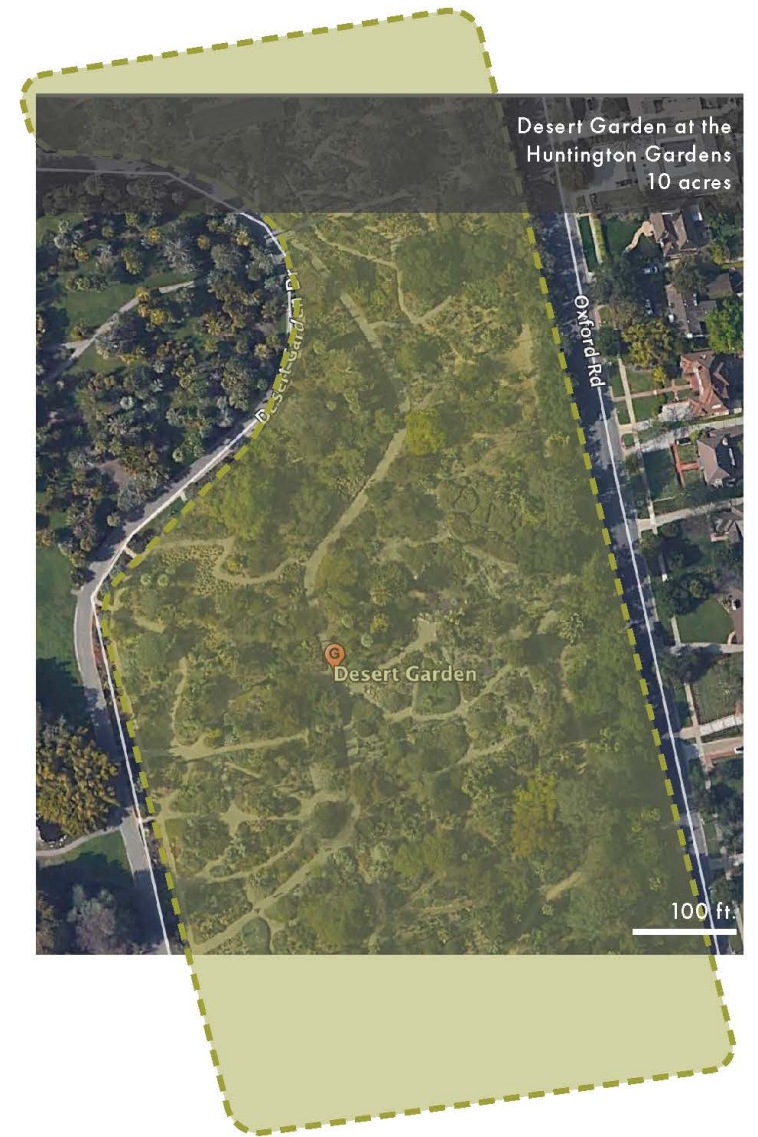
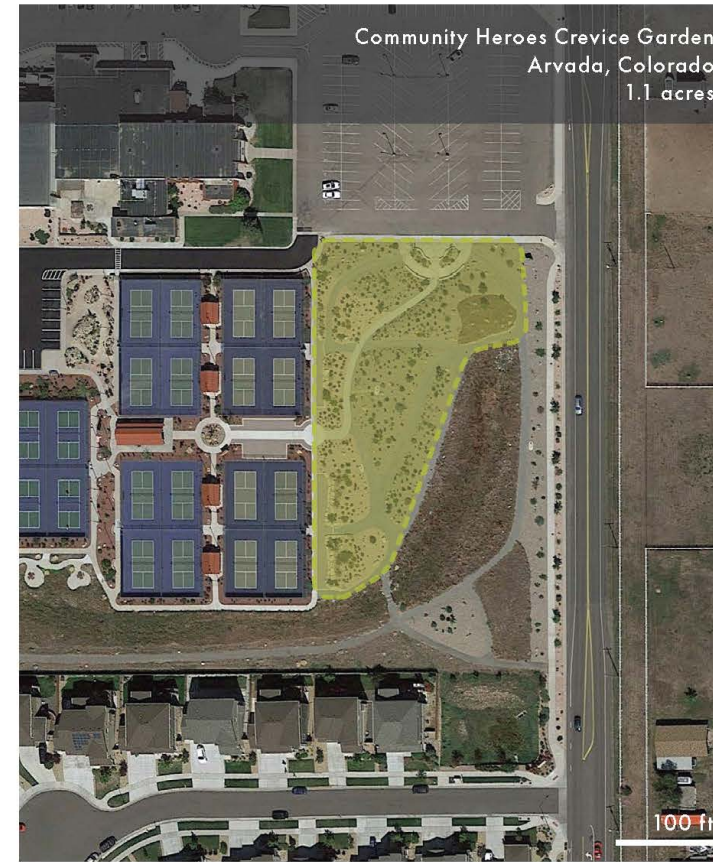
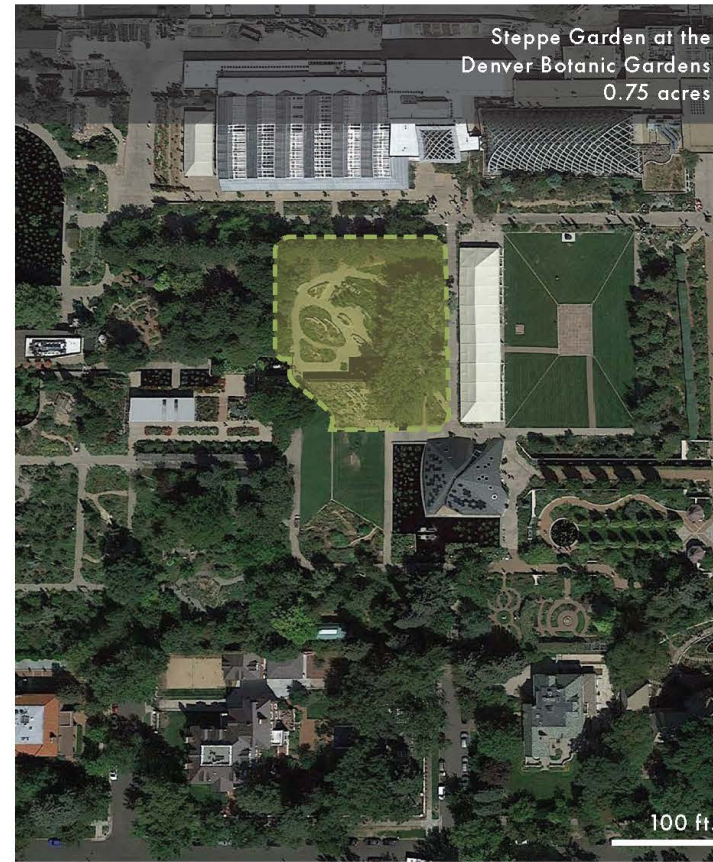
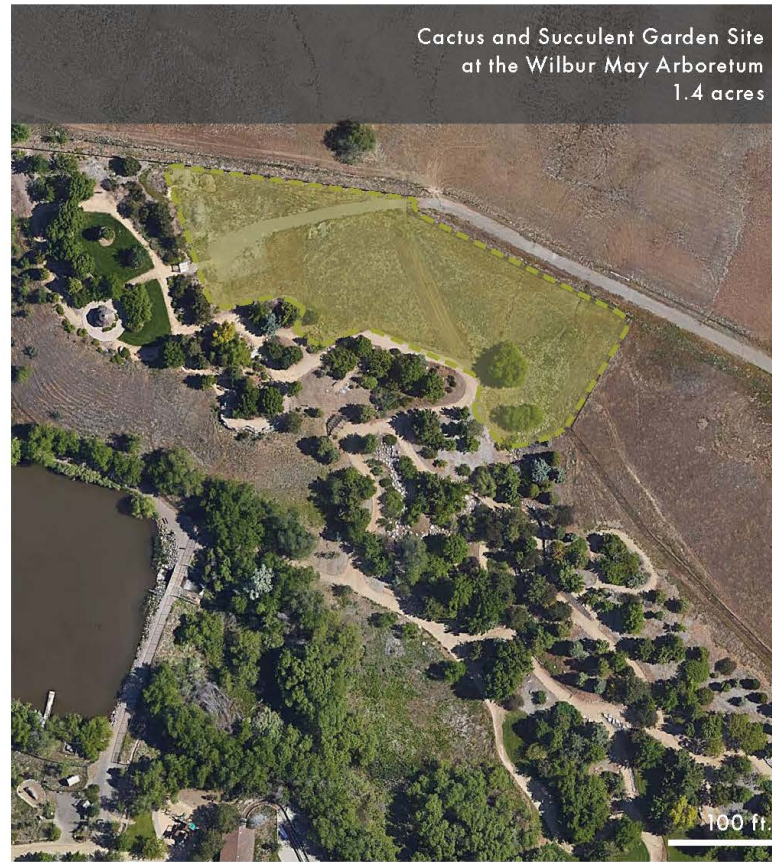


THE DESERT BOTANICAL GARDEN IN PHOENIX, ARIZONA WAS IDENTIFIED AS A KEY PRECEDENT FOR GARDEN CHARACTER

GARDEN CHARACTER AND ELEMENTS

- **Sense of natural expression:** Natural, but enhanced, crafted and unique. Not too formal, "Nature doesn't do soldiers."
- **Diverse plant palette:** High diversity planting with lots of different microclimates, contrasting colors, shapes, and textures.
- **Local stone and natural materials:** Use stone and weathered steel as well as natural and local materials. Stone should be authentic to local geology and geomorphology. Materials for paths, seating and site elements can be distinct from the rest of the Arboretum.
- **Water feature:** Water elements should be included in the garden, yet with intentionality and restraint. Emphasize sound, touch, and reflectivity. Consider maintenance.
- **Water collection:** Use topography, swales, and Zuni bowls to direct water, creating specific microclimates to place a focus on water as a precious resource within desert environments.
- **Art:** Incorporate art; not necessarily as a permanent piece, but designate a space for rotating exhibits.
- **Shade:** Incorporate shade and seating in multiple ways throughout the garden.
- **Restrooms:** Consider placing in close proximity to the future children's garden.

PRECEDENT STUDIES



REPRESENTATIVE PLANTS BY REGION

The following plants are listed by region to identify some of the key genera and species to be incorporated into the planting design:

NATIVE NEVADA / GREAT BASIN

Agave utahensis eborospina
 Cyllindropuntia acanthocarpa
 Cyllindropuntia echinocarpa
 Cyllindropuntia bigrlovii
 Cyllindropuntia ramosissima
 Echinocereus engelmannii
 Echinocereus triglochidiatus
 Micropuntia pulchella
 Opuntia phaeacantha
 Opuntia chloratica
 Opuntia basilaria
 Opuntia polyacantha
 Pediocactus simpsonii
 Pediocactus sp.
 Sclerocactus
 Sclerocactus sileri
 Yucca brevifolia jaegeriana
 Yucca elata
 Yucca harrimaniae

SUCCULENTS OF THE WORLD

Alionopsis sp. (South Africa)
 Anacampseros rufescens (South Africa)
 Angelina sp.
 Crassula sarcocaulis (South Africa)
 Crassula corallina (South Africa)
 Delosperma cooperi (South Africa)
 Delosperma 'Fire Spinner' (South Africa)
 Euphorbia rigida (Europe/Asia)
 Lewisia cotyledonis (California/NW US)
 Nananthus broomii (South Africa)
 Nananthus transvaalensis (South Africa)
 Orostachys sp. (Asia)
 Prepodesma orpenii (South Africa)
 Sedum dasyphyllum (Corsican)
 Sedum seiboldii (China)
 Sedum rupestre (Europe)
 Sempervivium (Europe/Asia)
 Titanopsis calcareum (South Africa)
 Yucca gloriosa (U.S.)

SONORAN / MOJAVE

Agave utahensis
 Agave parryi
 Agave toumeyana bella
 Cyllindropuntia ramosissima
 Cyllindropuntia acanthocarpa
 Cyllindropuntia echinocarpa
 Cyllindropuntia mojavensis
 Cyllindropuntia bigelovii
 Dasyliron wheeleri
 Echinocactus polycephalus
 Echinocereus mojavensis
 Echinocereus engelmannii
 Echinomastus johnsonii
 Escobaria desertii
 Ferocactus acanthodes
 Fouquieria splendens
 Mammillaria tetrancistra
 Nolina parryi wolfii
 Yucca brevifolia jaegeriana
 Yucca baccata
 Yucca schidigera

CHIHUAHUAN

Agave ovatifolia "Frosty Blue"
 Agave palmeri
 Echinocactus horzonthalonius
 Echinocactus texensis
 Echinocereus viridiflorus
 Echinocereus reichenbachii
 Echinocereus dasyacanthus
 Echinocereus davisii
 Echinocereus baileyi
 Echinocereus triglochidiatus
 Escobaria missouriensis
 Escobaria sneedii
 Escobaria leei
 Hesperaloe parviflora
 Nolina texana
 Nolina microcantha
 Opuntia engelmannii
 Opuntia violacea santa-rita
 Yucca rigida
 Yucca rostrata
 Yucca thompsoniana
 Yucca faxoniana

SOUTH AMERICAN

Austrocactus patagonicus (Argentina/Chile)
 Azorella compacta (Chile)
 Cumulopunta sp. (Chile)
 Eriosyce curvispina (Chile)
 Eriosyce aurata (Chile)
 Gymnocalycium bruchii (Argentina)
 Gymnocalycium andreae (Argentina)
 Gymnocalycium calochlorum (Argentina)
 Gymnocalycium gibbosum (Argentina)
 Lobivia thionantha (Argentina)
 Lobivia leucocantha
 Maihuenia poeppigii (Argentina/Chile)
 Maihueniopsis darwinii (Patagonia)
 Maihueniopsis platyacanthus
 Orocereus sp. (Argentina)
 Rebutia pygmaea
 Tephrocactus sp.
 Trichocereus atacamensis (Chile)



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