

MASTER PLAN :: HENDRICK ARNOLD NATURE PARK

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FINAL 8/9/2022



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INTRODUCTION

EXECUTIVE SUMMARY

The Master Plan described and illustrated within this document for the San Antonio River Authority creates a sustainable and lasting framework for the development and preservation of Hendrick Arnold Nature Park. The park is located Southwest of San Antonio along the Medina River and will be an addition to the existing chain of river-based nature parks. The master plan framework identifies opportunities to connect future generations of visitors to the rich environmental habitat, cultural importance, and natural history of site. The Hendrick Arnold Nature Park, measuring at 83 acres, will create a unique nature-based recreational opportunity to leave society behind and connect people, place, and nature.

The San Antonio River Authority realized the potential for planning and developing additional nature-based parks on the San Antonio River. The River Authority selected Terra Design Group to help evaluate the sites and determine the prospects for nature-based recreation and educational experience best suited for each site.

Site tours were conducted to help familiarize the design team with the site's issues, assets and liabilities. The site presented a set of conditions that would impact the potential individual design theme and uses for the park. During these meetings special attention was given to suitable access to the river by canoes and kayaks.

Initial meetings were conducted with River Authority leadership to outline planning process and project schedule. The design team proceeded with development of a park theme based on detailed site analysis, cultural and archaeological research, and engagement with community stakeholders. This approach provided a comprehensive understanding to develop the individual needs and vision for the park.

Analysis of existing and past conditions on the site allowed the design team to weigh the physical capacity for varied program uses, and also to consider the important cultural elements of the site and region that will be an integral part of the user experience.

The design team and client engaged with numerous stakeholders and stakeholder groups. The interaction with these stakeholders provided a clear vision of a passive nature-based experience. The park would celebrate the historical legacy of the site, include unique activities, and connect people to the natural systems within the park.

Ultimately, the visioning sessions illustrated the range of future uses, and the importance of creating universal access to accommodate a shared and inviting experience. A list of stakeholders that participated in these visioning sessions is reflected on the following page.

In concert with the visioning sessions, the design and leadership team also researched complimentary regional facilities to learn successes and challenges from other communities, and to further understand how the proposed park would complement the larger spectrum of regional resources.

With this research, analysis and programmatic foundation in place, the design team explored a series of options for the site and future building programs that were tested and discussed with the leadership team. Ultimately, the preferred option of creating multiple interwoven recreational activities immersed in a natural preserved setting. The intent of this master plan is to create a framework to guide a phased and sustainable implementation of this exciting vision.



PROJECT TEAM PARTICIPATION



CONTRIBUTING STAKEHOLDERS

- Bexar County Regional Parks Coordination Council
- Land Heritage Institute
- San Antonio Chamber of Commerce Eco-Tourism Committee
- Mission Adventure Tours
- Betty Bueché, Director of Bexar Heritage and Parks
- Bexar County Commissioner Rebeca Clay-Flores
- Bexar Audubon Society
- Ducks Unlimited
- Wild Turkey Federation
- Southside Independent School District
- Green Spaces Alliance of South Texas
- Private Gun Club
- South Texas Off Road Mountain-Bikers (STORM)
- City Public Service
- Keep San Antonio Beautiful
- City of San Antonio Economic Development Department

DESIGN TEAM

Team Leader

Terra Design Group

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Cory Silva, RPLS

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Laurie Hawkins
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MASTER PLANNING TEAM

LEADERSHIP TEAM

San Antonio River Authority

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Tommy Mitchell
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San Antonio River Foundation



INTRODUCTION

VISION AND GOALS

First and foremost, the Park should be a good neighbor to the community. Park planning and design should include preservation and enhancement of the edges of the park abutting adjacent property owners. The park trail would be designed to blend seamlessly with the community with consideration for local character, history, and needs. Design of the park will include state of the art accessibility, sustainability, features, and amenities that Includes art and highlights natural beauty.

The visioning process began with the project kick-off meeting and continued through the preparation of this master plan. The park will be an important resource that provides many recreation opportunities, protects the natural environment, and introduces park users to the rich cultural history of Hendrick Arnold Nature Park.

The general public, neighborhood residents, various stakeholders, and special interest groups were invited to participate in an open public process to ensure that pertinent planning issues were discovered.



PUBLIC PROCESS

- Interviews, phone calls, and email exchanges with defined stakeholder groups and special interest groups.
- The San Antonio River Authority's website provides the public an opportunity to view details about each master plan project and post any questions. Information can be viewed at the following link: <https://www.sariverauthority.org/be-river-proud/parks-trails/new-park-master-plans>
- A public open house was conducted to present alternative theme concepts for the park usage and allow the participants to select the preferred park features and project goals.
- Adjacent properties were researched and contacted to determine if future developments may conflict with proposed park uses.

GOALS

1. Provide sanctuary from the urban environment
2. Allow visitors immersion in the wonder of nature
3. Promote environmental stewardship through all programs and facilities
4. Develop nature-based concepts for standard park components such as playgrounds and picnic areas.
5. Improve safe ingress and egress from the Medina River
6. Develop multiple canoe and Kayak launch points along the river
7. Engage the local schools in the planning process
8. Provides pedestrian connections to schools if possible
9. Provide access to the park for multi modal transportation
10. Develop nature-based education opportunities for students and adults through facilities and interpretation
11. Tell the story of the property and the Texas hero it's named for
12. Develop a "kit of parts" for Hendrick Arnold Nature Park that would include durable materials, simple creative design, ease of construction, ease of maintenance and repair.
13. The "kit of parts" would maintain a commonality of character among all of the San Antonio River Authority's future Nature Parks
14. Include an overlook that allows viewing of the entire park



HISTORY

Hendrick Arnold, son of a white man, Daniel Arnold, and a black woman, Rachel, traveled from Mississippi to Texas in 1826 to the settlement of Stephen F. Austin colony along the Brazos River.

In 1835, Arnold settled in San Antonio, later joined Stephen F. Austin’s encampment at Salado Creek to serve as a guide, participated in the battle of Concepción, and was a guide on the siege of Bexar. Arnold continued to support the revolution and served in Smith’s spy company in the (concluding) Battle of San Jacinto. For his service, Arnold received a grant of 640 acres of land near Bandera. His brother, Holly, lived on the land while Hendrick lived by the Medina River to operate a gristmill near Mission San Juan.

Arnold was living near Castroville when he died during a cholera epidemic in 1849. His gravesite in the Medina Ranch Cemetery is often described as “on the banks of the Medina River”.

By 1915, the property was renamed W.T. Montgomery Ranch, Montgomery was a member of the Texas Hereford Association and served as president in 1928. Montgomery owned an outstanding herd that is well known as one of America’s pioneer Hereford ranches.

The land was later acquired by Joseph Straus in 1945, formally known as the Staus Medina Hereford Ranch. About 20 years ago the family retired ranch and sold property to Bexar Metropolitan Water (later taken over by San Antonio Water System).

In 2019, San Antonio Water System sold property to San Antonio River Authority. Currently the property is underway to becoming a nature park.



PARK LOCATION AND CONTEXT

TRANSFORMATION PATTERNS



The Hendrick Arnold Property has seen steady transformation of human and natural habitat over the recent decades. This elapsed aerial view illustrates the dynamic nature of the project site and the results of short duration, heavy rainfall up stream of the project site. These diagrams also emphasize the importance of the of the natural reforestation and riparian restoration processes taking place on the site since grazing ended on the site.

1995 - The property was divided into two distinct uses. The north half of the property abutting Fitzhugh Road included several residential tracts and outbuildings for the support of livestock. The southern half of the property was in natural forest and riparian vegetation.

2003 - The results of the floods of 2002 can be clearly seen in this image. Flood waters topped the banks of the Medina River channel and crossed the site in three locations flowing west to east. The flooding toppled many trees and deposited silt over an 18-acre tract.

2008 - Forest regrowth continues to develop throughout the entire property from the southern intersection of Wt. Montgomery and Fitzhugh Road south through the site. The 18-acre tract of silt is now densely covered with low growing riparian vegetation.

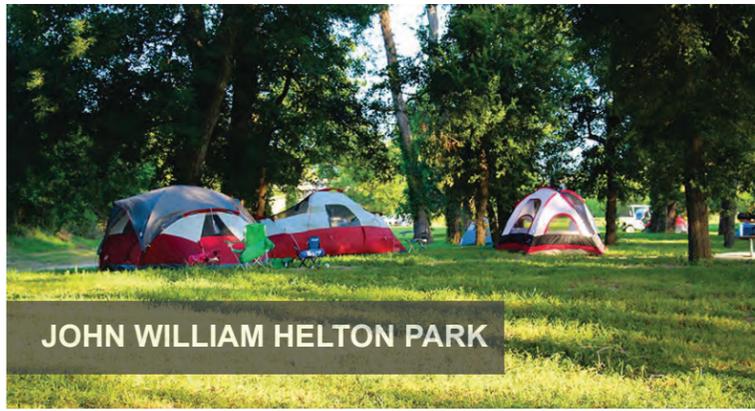
2013 - Forest regrowth continues throughout the property. Outbuildings from past agricultural uses fall into disrepair. Expanded cut banks on the south side of the property, north side of the river have increased the channel width to 168 feet.

2018 - In 2019, the San Antonio River Authority acquired property. Forest has now covered most of the property. The wooded areas have become interspersed with wetland areas. Residences along Fitzhugh Road are being demolished.

2020 - The property has now reverted to a near natural state with very little evidence of habitation or agricultural process.

PARK LOCATION AND CONTEXT

PROJECT CONTEXT WITHIN THE REGION



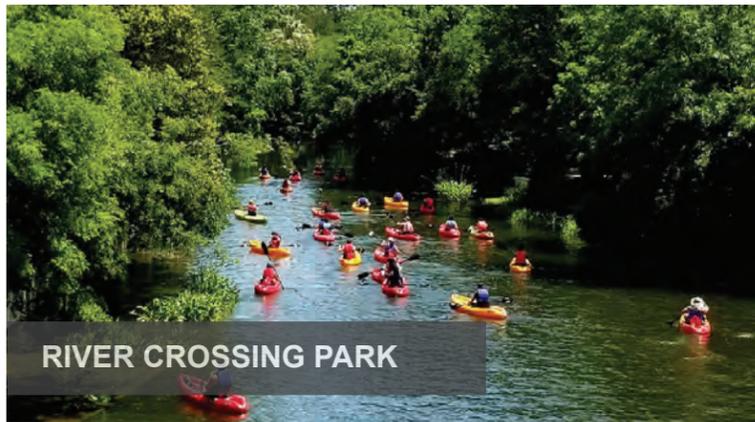
JOHN WILLIAM HELTON PARK



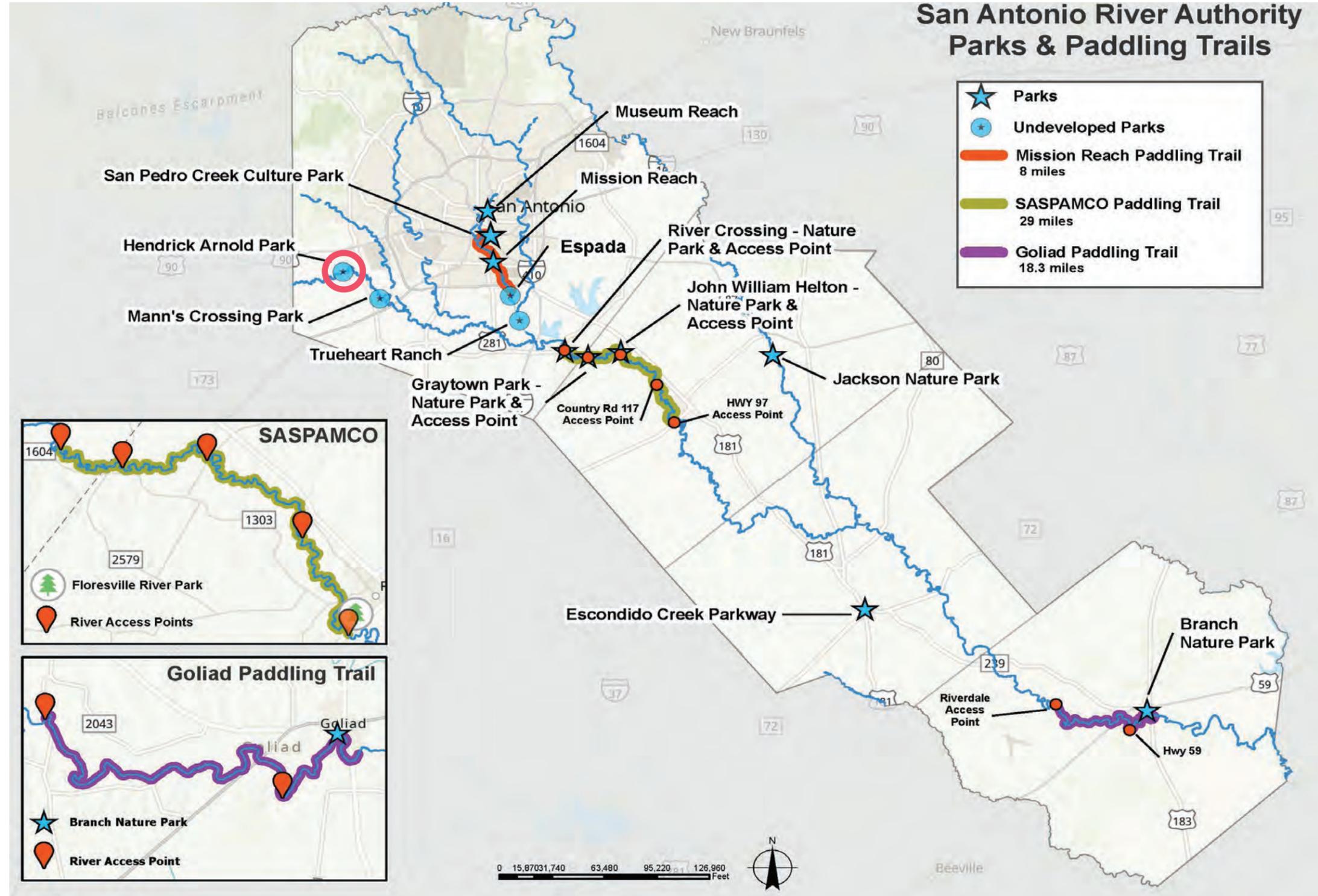
ESCONDIDO CREEK PARKWAY



GRAYTOWN PARK



RIVER CROSSING PARK



PARK LOCATION AND CONTEXT

EXISTING AND PROPOSED RIVER BASED NATURE PARKS



Hendrick Arnold Nature Park is one of ten river based parks along the Medina River. The park sites have been selected to provide a comfortable kayak or canoe day trip between each park. The parks have been planned to encourage multiple day family trips by including support facilities at each park such as campground restrooms, showers, and other amenities awaiting the river travelers at the end of the day.

Hendrick Arnold Nature Park will have full access to river, parking, and other support facilities. The park will become a key launch point for travelers on the Medina who wish to begin their journey outside of the urban environment.

The San Antonio River Authority has developed many nature parks south of San Antonio. These parks include:

- The 22-acre Graytown Park is located at 1239 County Road 125. This park includes natural areas, picnic grounds, restrooms, pavilion, river access, and a 18 hole disc golf course.
- The 98-acre John William Helton Park is located at 15662 FM 775 in Floresville, Texas. This park includes natural areas, pecan groves, trails, river access, picnic grounds, campgrounds, basketball court, pavilion playground, and sports area.
- The four-acre River Crossing Park is located at 6890 South Loop 1604 E. This park includes picnic ground, trails pavilion, restrooms, and river and padding trail access.
- The 20-acre Escondido Creek Parkway is located at 208 N. Sunset Strip, Kenedy, Texas. This park includes skate park, splash pad, pavilion, amphitheater, windmill, horn toad habitat, picnic grounds, amphitheater, trails, and restrooms.

The Hendrick Arnold Nature Park will connect via the Medina River and trails to Mann's Crossing Park. Additional master plans for Trueheart Ranch Park and Mann's Crossing Park are being developed concurrently with this master plan.

PLANNING PROCESS

The master planning team consisted of leading park, trail, and community planners, landscape architects, engineers, community engagement specialists and San Antonio River Authority staff. The study began with a site tour and workshop that included River Authority staff members from management, planning, and operations. These meetings provided critical information about the history, issues, and assets as well as river condition and accessibility of the park site to adjacent properties.

These processes allowed our team to identify site issues and assets, historic and archaeological significant features, vegetation patterns, wildlife habitat, site drainage and accessible corridors to the river channel. A series of visioning sessions was conducted with River Authority staff and numerous stakeholder groups to develop a list of potential park components which created the foundation for the park master plan alternative plans and final conceptual design.

The next phase of the planning process began with a series of collaborative workshops bringing key stakeholders together with the design team to identify the goals of this planning effort. Additional small group meetings and workshops were held with staff, property owners, community groups, concerned citizens, and community developers to discuss alternative park design concepts and confirm the features of the preferred master plan.



To help inform development of the final master plan, the leadership and design team engaged the public and key stakeholders through three strategies: visioning sessions, workshops, and public input meeting. The following summarizes these efforts, meeting dates and timeline.

VISIONING SESSIONS

These sessions were held to further assess data gathering and research to establish priorities and possible park features. Over the course of the project, on a bi-weekly basis, the master plan team met to identify possible ideas, conducted research, assess data, and developed potential park components. Sessions were comprised of members from leading park, trail, and community planners, landscape architects, engineers, community engagement specialists and San Antonio River Authority staff. These sessions informed key elements and final conceptual design.

STAKEHOLDER WORKSHOPS

The master plan team met with interested groups that are experts in community planning, park and trails, conservation, environmental, community and property owners, and other local public and private entities. Various groups were engaged to help identify goals, provide recommendations and alternative ideas, and further define the preferred master plan. A total of 17 groups were engaged. Based on stakeholder feedback, the team conducted a workshop to assess and address recommendations and concerns. Stakeholders were engaged during Summer 2021 through early 2022 and a workshop was held at River Authority offices on October 12, 2021.



CONCEPT DEVELOPMENT

STAKEHOLDER AND PUBLIC MEETINGS

PUBLIC INPUT

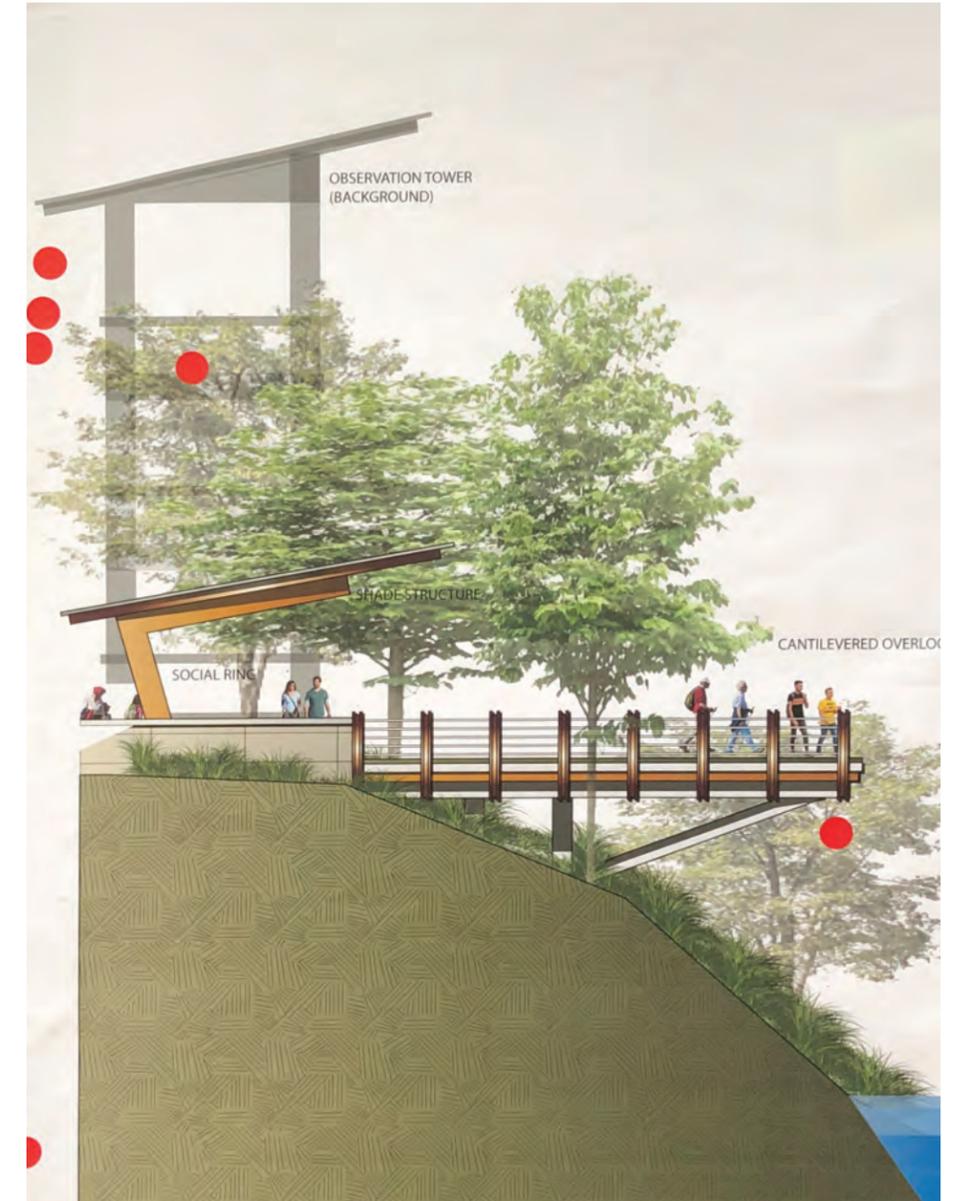
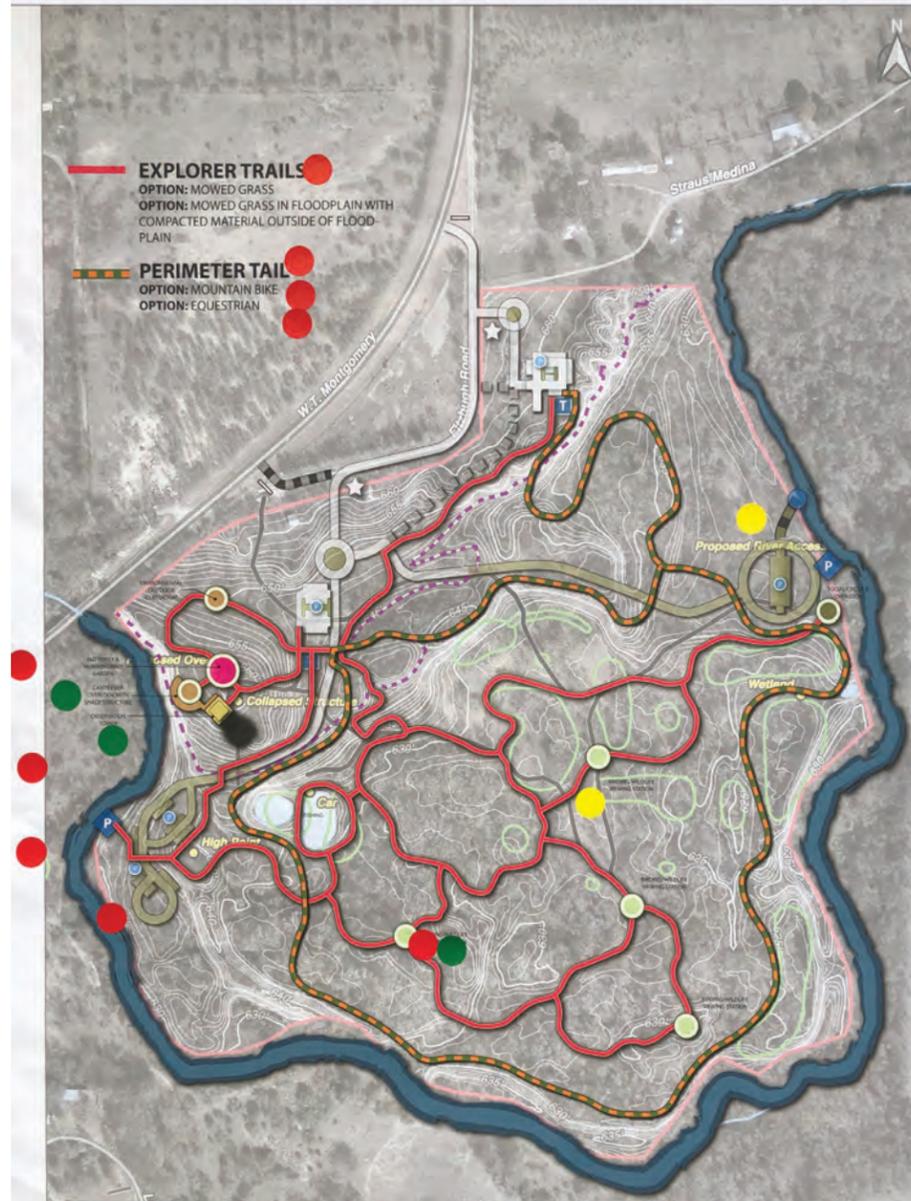
Leadership and the design team held a public input meeting at the St. Louis Braden Keller Community Center, Castroville, Texas at 5:30-7:30 on September 9, 2021. A total of 9 people attended and participated in the public input process. The meeting was scheduled in the evening at a community facility to encourage participation.

This meeting was facilitated in an open house format and was conducted informally, allowing attendees more time to study the proposed plans and illustrations and interact with the leadership and design team. Members of the leadership and design team were available throughout the meeting to answer questions and discuss aspects of the plan.

The public was asked to vote for specific activities and design themes to help establish priorities for development. They were also asked to complete a questionnaire provided by the design team, with a provision for additional written comments. These comments and the record of the public meeting can be found in the appendices.

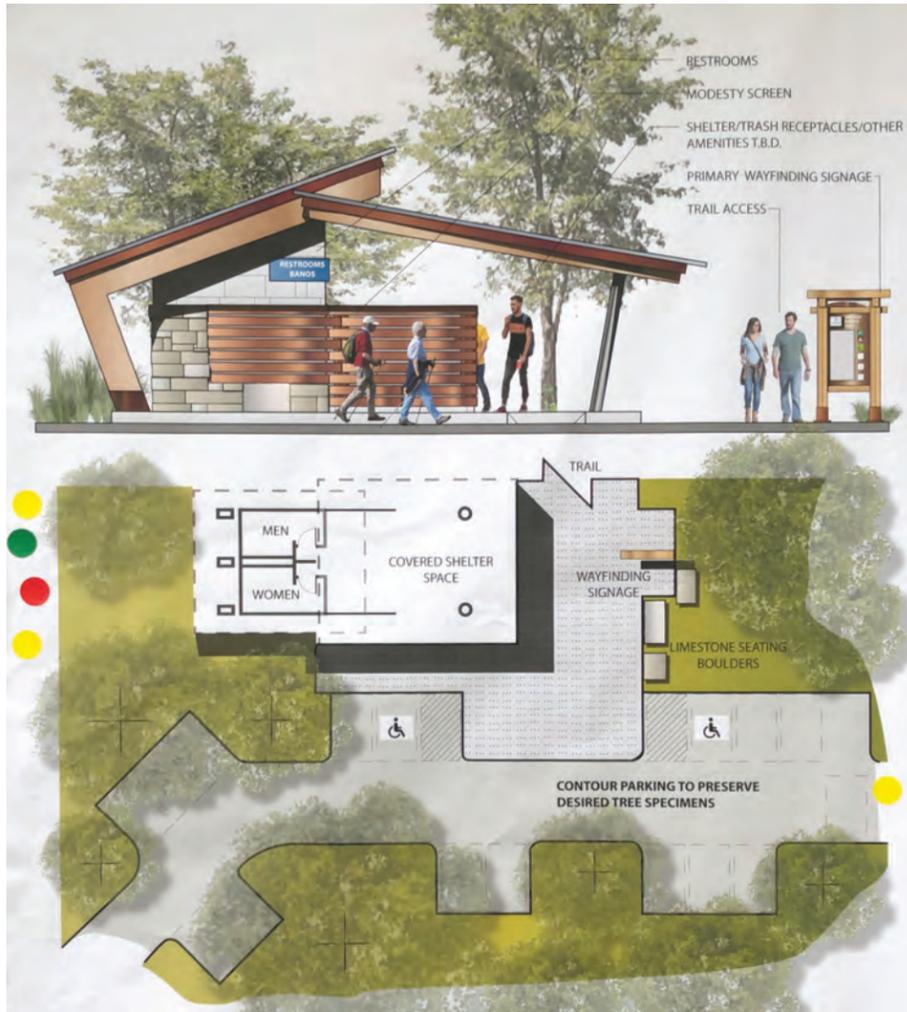
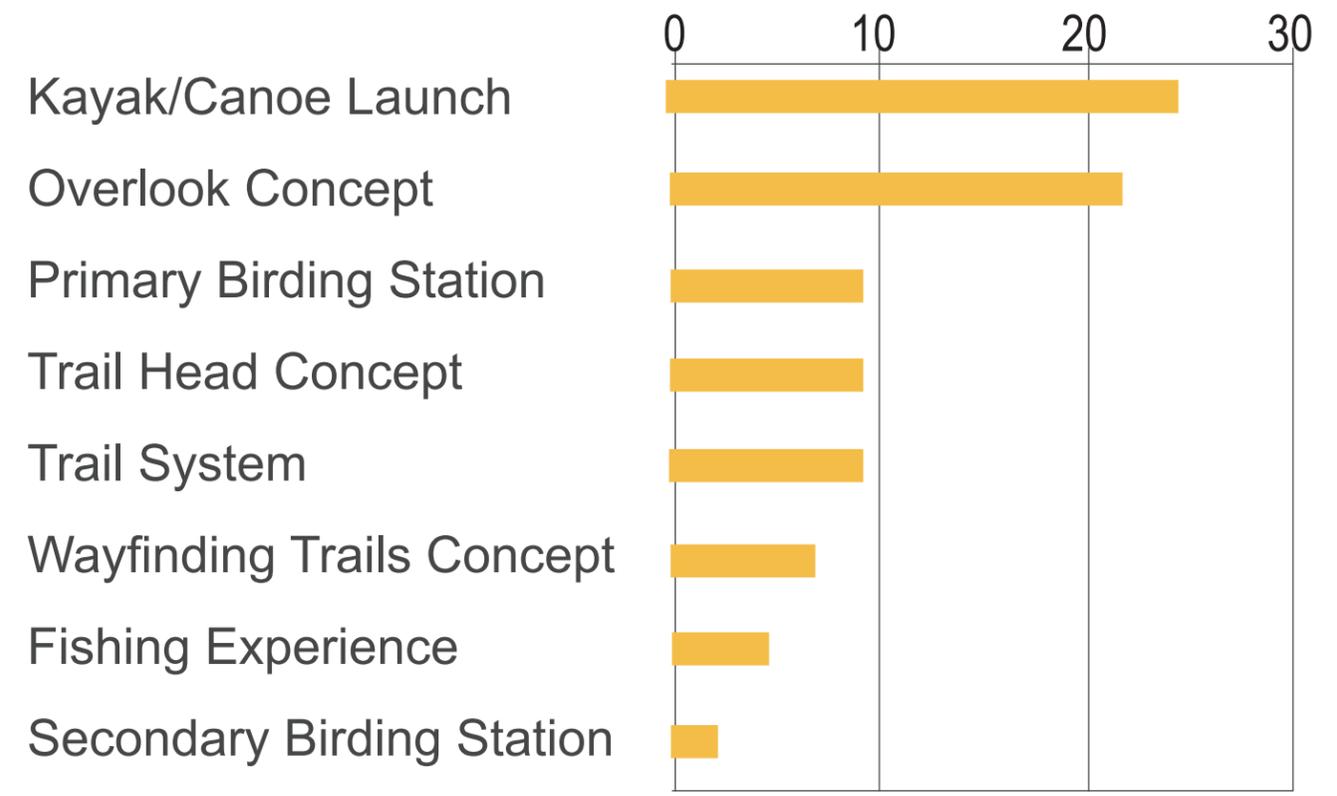
All participants were provided the opportunity to review and vote on their preferred park features. Each participant was provided with nine dot stickers of three different colors to be placed on the features considered as by priority. The dots had a point value: red 3 points, green 2 points, and yellow 1 point.

The recommendations from the community input process resulted with the kayak/canoe launch and overlook concept as the highest ranked park features. A detailed ranking of the proposed features is shown on the following page. Overall, the public meeting resulted in positive feedback with regard to the presentation, information about the park plans, and proposed park features.



CONCEPT DEVELOPMENT

PREFERRED CONCEPT ELEMENTS



CONCEPT DEVELOPMENT

FINAL MASTER PLAN

DESIGN ELEMENTS

Multi-Use, Nature, and Grass Trails (10' wide, approx. 7.5 miles)

Equestrian Trails (8' wide, approx. 1.5 miles)

Wilderness camping (13 acres)

Nature Themed Playground

Picnic and open play (6.8 acres)

Benches/seating

Bird Watching Station (11)

Cantilever Overlook

Butterfly Garden

Observation Tower

River Access (2 watercraft launch points)

Fishing Area (240 square feet)

Equestrian Center

Outdoor Classroom

Trailhead/Restrooms (3)

Entry & roadway access

Parking and Parking with Rain Garden

Wetland Conservation

Blackland Prairie Restoration

Interpretive Signage

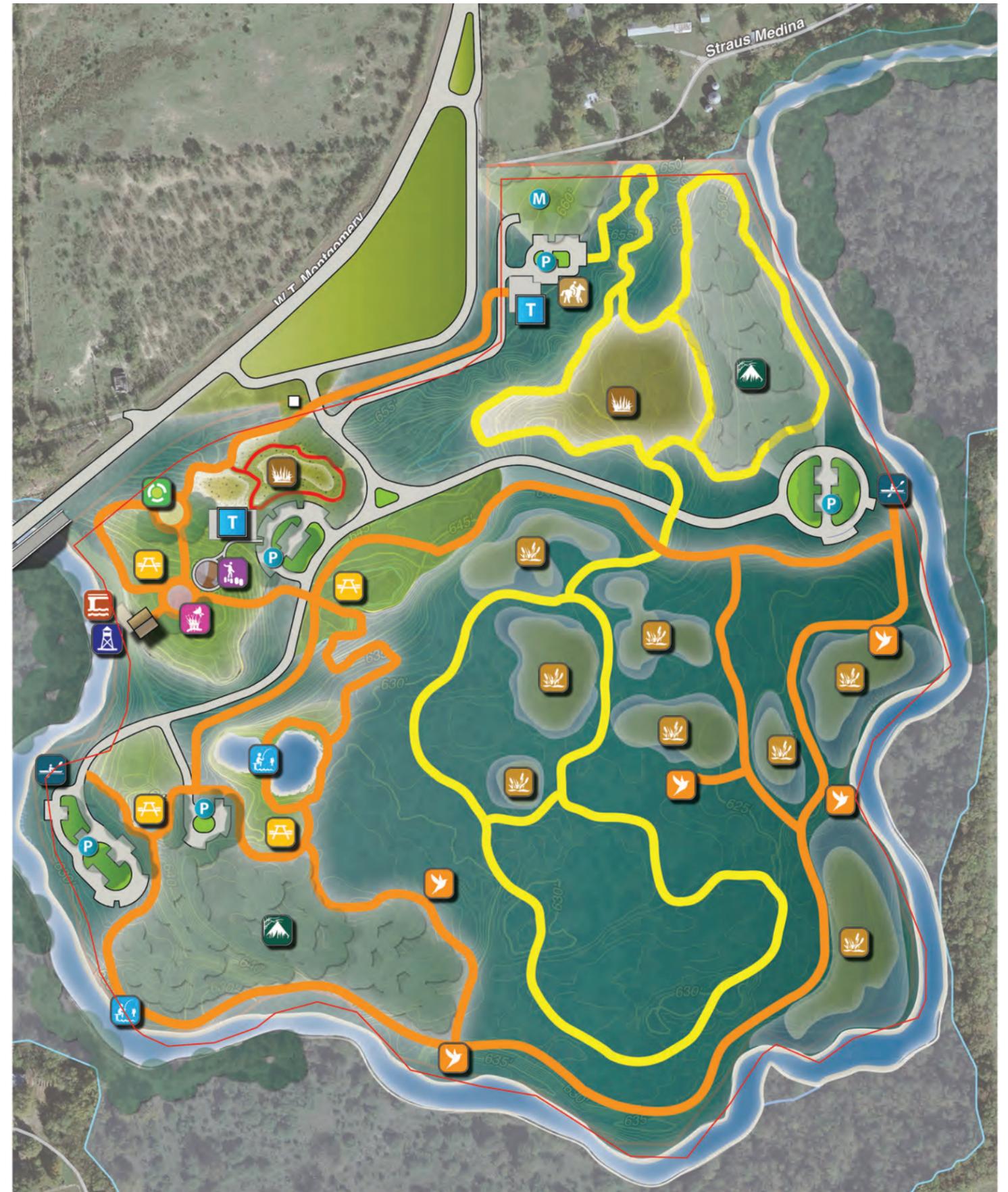
Wayfinding signage

Security Lighting

Facility Lighting

Maintenance Facility

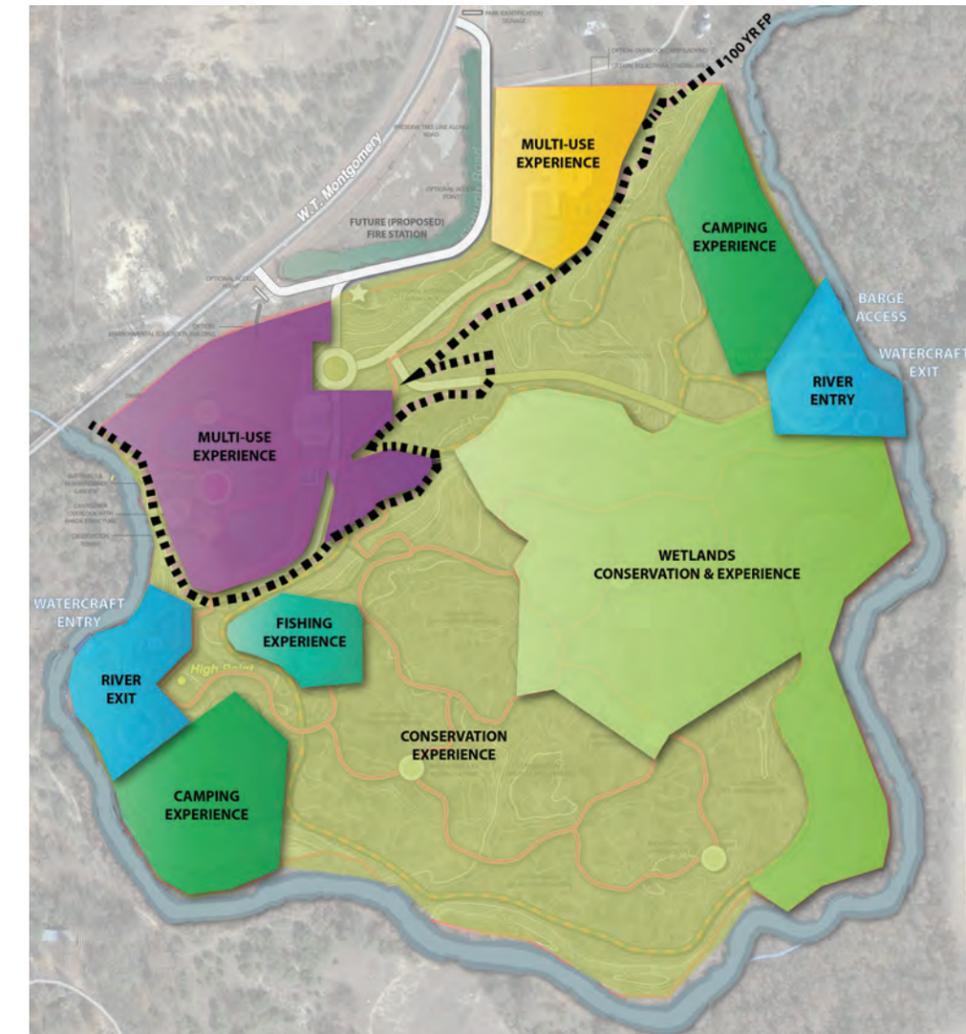
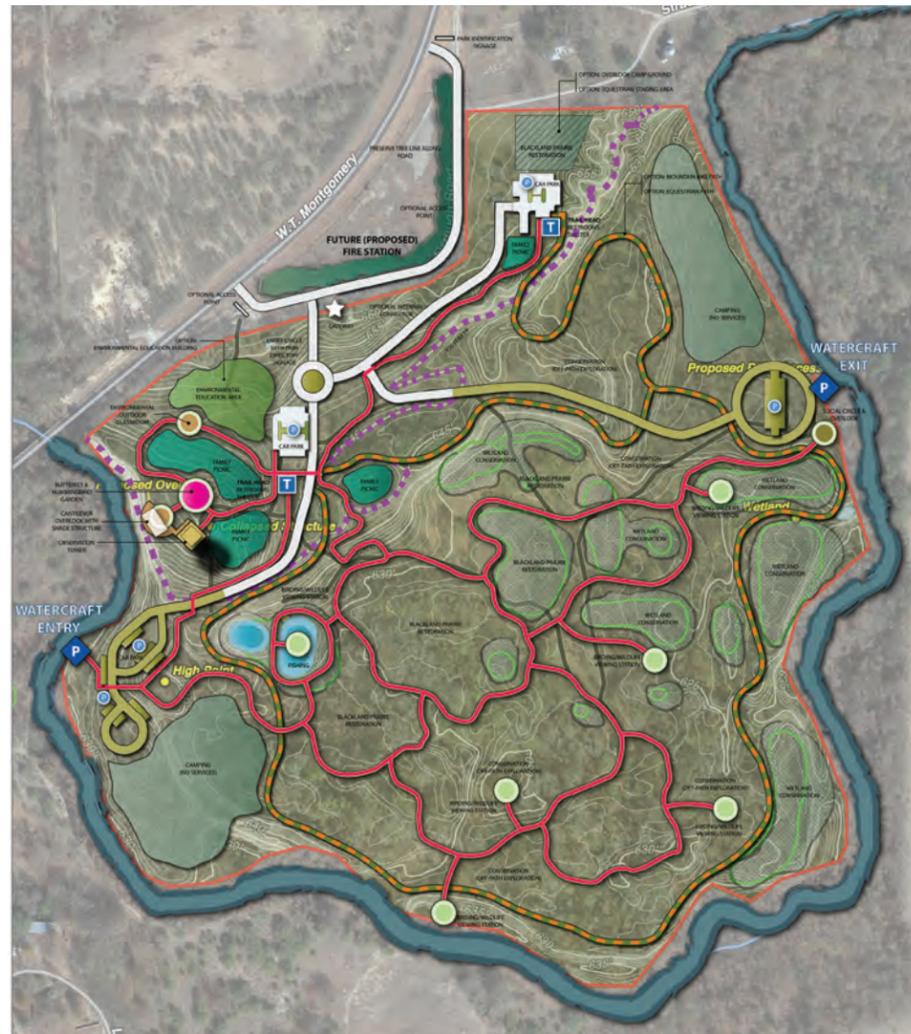
-  WILDERNESS CAMPGROUND
-  OUTDOOR CLASSROOM
-  PICNIC & OPEN PLAY
-  BIRD WATCHING STATION
-  RIVER ACCESS
-  FISHING AREA
-  CANTILEVER OVERLOOK & OBSERVATION TOWER
-  EQUESTRIAN AREA
-  WETLANDS CONSERVATION
-  PRAIRIE GRASS RESTORATION
-  NATURE THEMED PLAYGROUND
-  BUTTERFLY GARDEN
-  TRAIL HEAD & RESTROOMS
-  PARKING WITH RAINGARDEN
-  MAINTENANCE FACILITY
-  ROADWAY WITH ADJACENT RAINGARDEN
-  MULTI-PURPOSE TRAIL
-  EQUESTRIAN TRAIL
-  INTERPRETIVE TRAIL



ALTERNATIVE CONCEPTS

The design team and the San Antonio River Authority staff engaged numerous stakeholder groups through a series of visioning sessions. These were conducted to develop a list of potential park components that created the foundation for the individual park master plan conceptual design.

As a result, several alternative concepts were developed for Hendrick Arnold. These alternative concepts were presented and discussed in detail at public and stakeholder meetings to determine the desired components. The final master plan is based on the preferred park features and activities selected.



CONCEPT DEVELOPMENT

PHASING AND SCHEDULE

In considering phasing of park improvements for Hendrick Arnold Nature Park there are countless ways in which the proposed master plan could be implemented. The intent of this report is to give current and future decision makers adequate information about the “parts” of the master plan so that phasing individual projects can be determined and adjusted as time passes and conditions change. However, there is a logical structure in which phasing can be approached. Key issues include constructability, ecological function, funding realities, and priority.

Constructability: Typically park construction projects are phased to accommodate construction realities such as access, areas of disturbance and sequence of construction. Key phasing considerations is targeting work that can be constructed without disturbing areas designated for protection, and creation of phases that will not have to be “undone” in future construction projects. Hendrick Arnold Nature Park is an undeveloped park, and proposed improvements do not need adjustment to existing conditions.

Ecological Function: In considering possible park phasing, ecological function is key. As part of the design, ecologically sensitive areas (such as wetlands and steep slopes) largely remain unaltered and are therefore not a driver to the phasing of the project. The biggest ecological opportunity of the master plan is to restore native vegetation and plan with a low impact design philosophy, both reducing erosion and improving habitat.

Funding Realities: The greatest driver in determining phasing of a project is typically the availability of funding and what can be accomplished with secured funding. This master planning process must be proactive at defining potential projects and costs prior to the establishment of a budget. This master plan and accompanying report should provide the structure for current and future decision makers to determine what phases or projects might be pursued and when.

Consideration of all of the above points should allow a decision-making structure to guide phasing of the improvement to Hendrick Arnold Nature Park. A clear phasing priority plan that has emerged through the design and public involvement process should be considered as funds become available and the park begins to develop.



GATEWAYS, OVERLOOKS AND VIEWING TOWERS

GATEWAYS

The gateway to Hendrick Arnold Nature Park sets the tone for the entire park. The main entrance to the park establishes that this park is a destination with multiple recreational activities for people of all abilities.

The design and material choices are simple, durable, and welcoming to the park visitor. This often-overlooked component of any large park is the first impression park visitors have as they enter the park.

Materials would include local limestone, sealed Corten steel fittings and fixtures, and Ipe wood. This combination of materials was selected for their extreme durability, long life, and very low maintenance. These materials require no painting and age in a manner that increases their beauty every year. The master plan illustrates how these materials can be used for all structures within the nature park.

The facilities within the master plan illustrate a simple design theme for the San Antonio River Authority nature park system. The prime consideration for the materials selection and design is to create facilities that park operations have the skills, tools and knowledge to maintain.



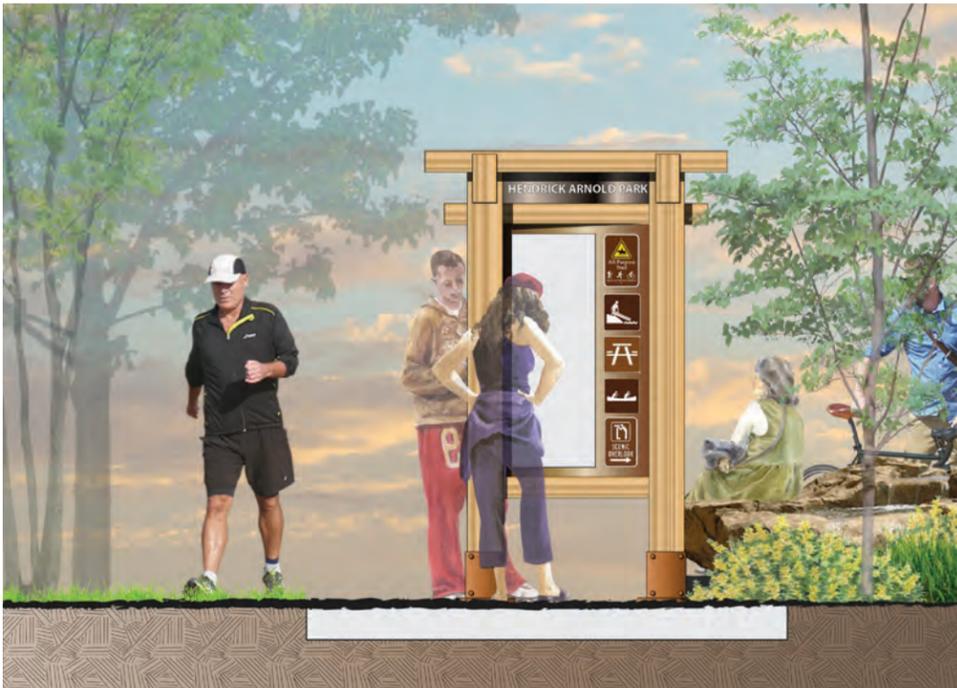
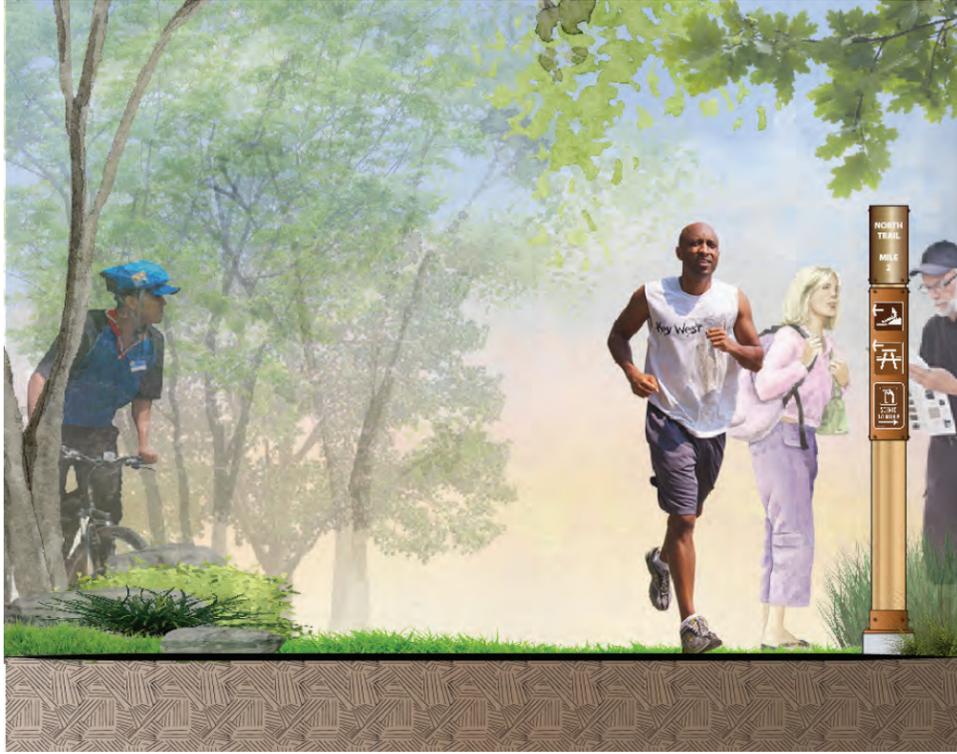
OVERLOOKS AND VIEWING TOWERS

It is human nature to enjoy the view of your surroundings from a higher point. Overlooks are a special kind of rest area tied to a unique natural feature that provides an exciting observation experience. This difficult to reach point of the proposed cantilevered overlook will reward visitor with a 360-degree view to the entire park adding greatly to the nature park experience while suspended over Medina River. With no visible means of support, the park visitor will be embraced by nature and feel they are floating over the river. The overlook will also include interpretive signage describing the area's flora and fauna that may be observed from that point.

Viewing towers allow visitors to view their surroundings and take in the beauty of the riparian corridor and river. The tower also adds an impressive landmark, unique to the park, creating a beacon to help guide visitors.

AMENITIES

TRAILS



TRAIL DESIGN STANDARDS

Trail design standards provide a surface and texture that supports use by walkers, joggers, bicyclists, and is fully ADA (Americans with Disabilities Act) compliant. All facilities should strive to support universal access and use by handicapped persons per ADA.

Concrete trails should be used in certain special locations where the trails are subject to flooding or have points of concentrated cross drainage. Concrete trails may also be preferred where it intersects with intensive pedestrian uses such as trail heads, nodes or exercise stations. Concrete trails and paving should be 5" thick, with a minimum compressive strength of 3,500 psi, and have a medium broom finish.

Trails should provide good surface drainage that will minimize puddles and washouts including 1% to 2% trail cross slopes or crowned trail surface and inlets and drainage swales where necessary to collect water and carry it away from the trail. Wherever possible, uniform sheet flow of run-off water across vegetated slopes should be promoted to minimize erosion problems.

All trails that are isolated or inaccessible from streets, must be designed to carry a 12,000 pound emergency vehicle. Lines of sight, grades and other design criteria must conform to engineering standards for bicycle speeds per American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (2012 edition or later). The installation of warning signs is necessary where standards absolutely cannot be met.

TRAIL WIDTH AND MATERIALS

The trail for Hendrick Arnold Nature Park should meet state-of-the-art design standards for multi-use trails with a maximum running slope of no greater than 5% slope and maximum cross slope no greater than 2%. Trail surfaces for Hendrick Arnold Nature Park will vary depending on the trail designation:

- Multi-Purpose Trail - Reinforced concrete min. 5" depth, 8'-0" to 10'-0" wide with five-foot-wide native grass shoulders each side.
- Interpretive Trail – Mowed Grass Trails, 8'-0" to 10'-0" wide.
- Equestrian Trail - Mowed Grass Trails, 8'-0" to 10'-0" wide.



NATURE TRAIL



EQUESTRIAN TRAILS



TRAIL NODE



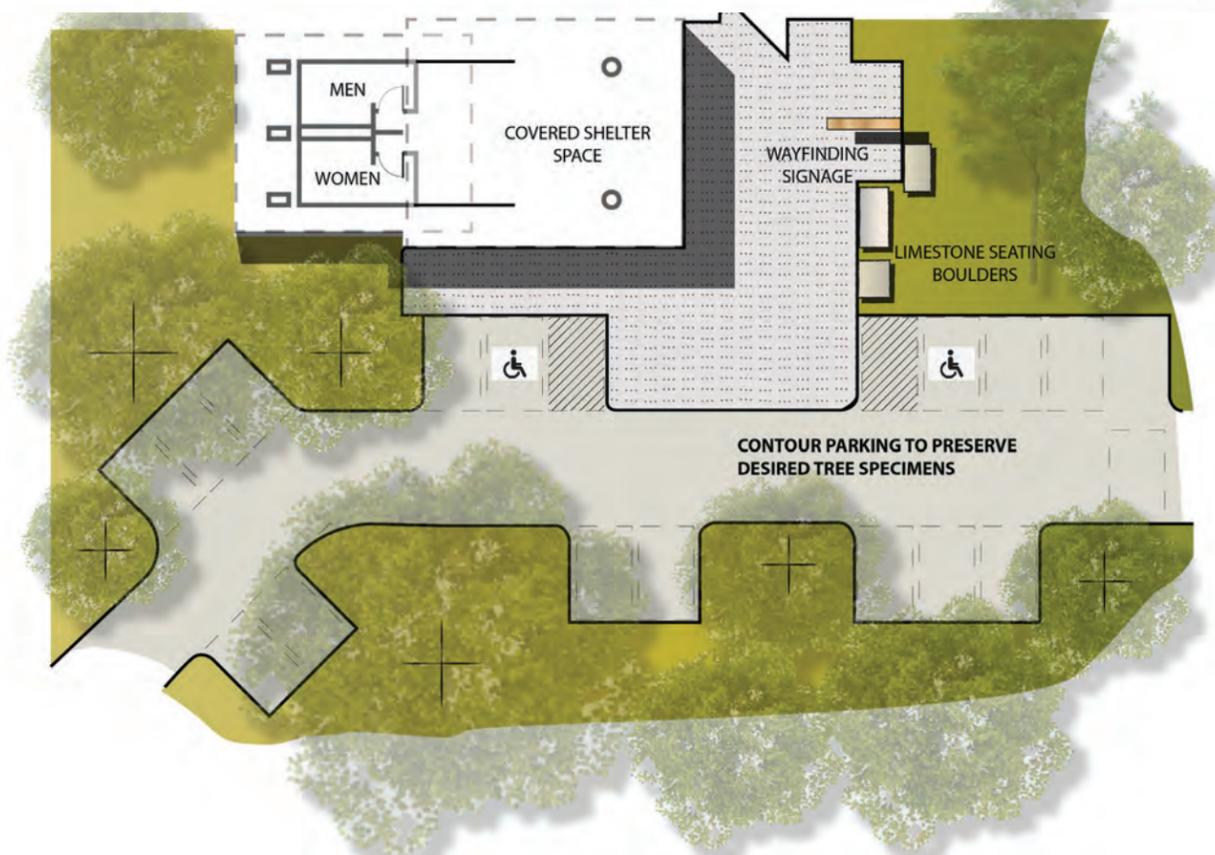
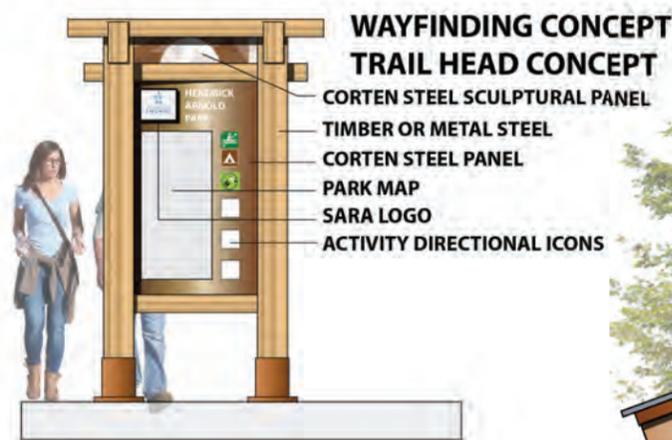
EDUCATION

Trailheads are a critical component in the success of a fully integrated and cohesive park trail system. Trailheads are the access points to and from Hendrick Arnold Nature Park. They are the point source where one transitions from being a vehicular passenger to a pedestrian. Access to the park will be fully compliant with the Americans with Disabilities Act (ADA).

The facility is designed to accommodate users arriving by auto as well as those who arrive on foot, bike, or other means. The intermodal access area offers adequate parking, restrooms, informational signage, and other amenities such as benches, bike racks, emergency phones, picnic tables, drinking fountains and trash receptacles.

Primary Trail Trailhead Characteristics:

- Located at existing park or public space
- Regional wayfinding for all connecting trails
- Dedicated parking
- Pavilion or shade structure
- Security lighting
- Restrooms
- Drinking fountain



AMENITIES

CAMPING, PICNICKING AND NATURAL PLAYGROUND



WILDERNESS CAMPING

WILDERNESS CAMPING

The most basic and popular type of camping is of course wilderness tent camping. Campsite layouts should fit the site, be located in a shaded area, and provide positive drainage away from each tent site. Facilities at each camp site should include litter/recycle containers, potable water, a concrete pad for vehicle parking and tent, fire ring, and picnic table. For every 15 camp sites a pavilion should be provided for group events and as an emergency refuge.

PICNICKING

Picnic tables in groups of 5 to 10 with potable water and restrooms within a 10 minute walking distance. Picnic tables would be located on a concrete pad with a barbecue grill and litter/recycle containers. Tables would be located in shaded areas and near parking. Groupings of picnic tables should be located under a pavilion to provide sun and rain protection and encourage rental opportunities.



PICNICKING

NATURAL PLAYGROUND

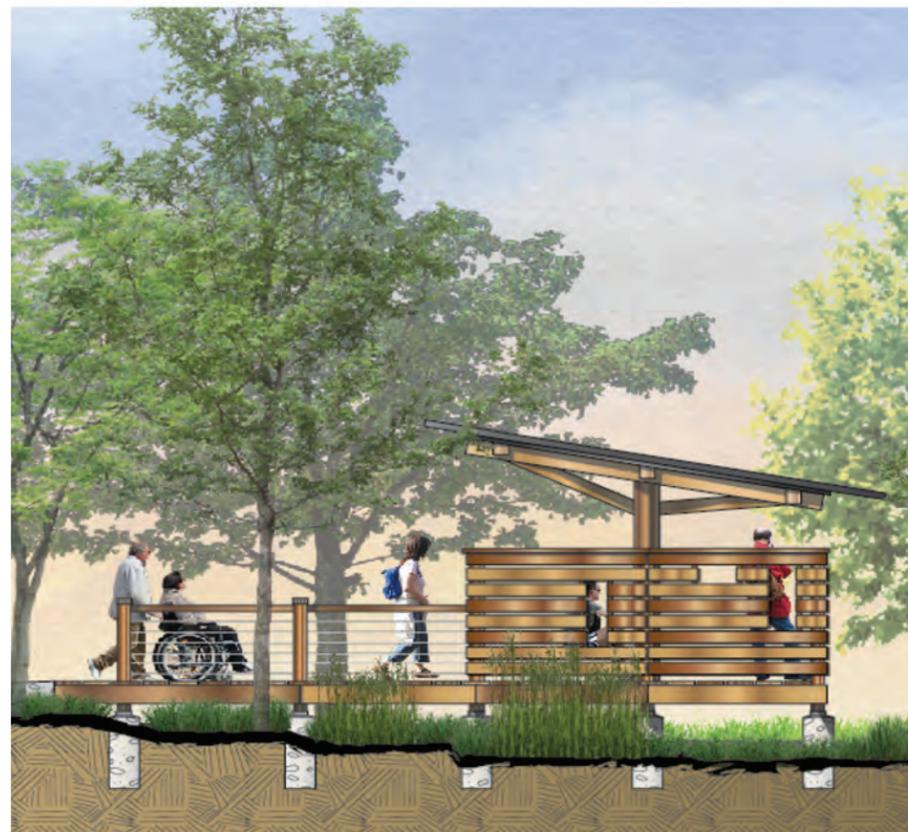
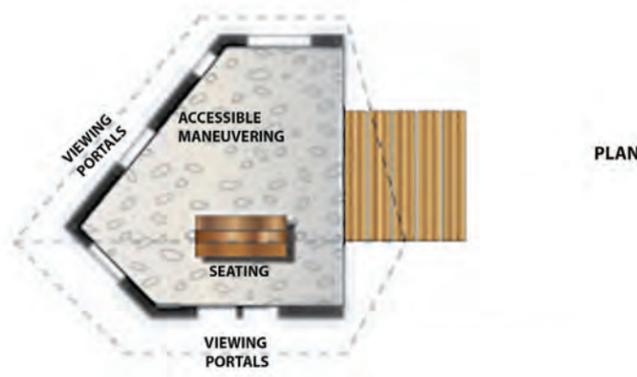
Natural playgrounds present more opportunities for exploration, discovery, learning, and play than traditional playgrounds. Natural playgrounds enable children to move freely and creatively around the environment allowing them to explore, run, jump, climb, crawl, touch, and smell while helping connect children with nature, develop gross motor function, fine motor skills, imagination, and social skills, all at the same time. Natural playgrounds are made of natural elements that can range from elements they find on the site such as trees, stumps, logs, boulders, sand, and other natural elements that can be found on the site.

Studies have indicated that kids find natural playgrounds to be a more enjoyable experience as it encourages greater physical active play and lead to extended playtime compared to traditional playgrounds. Traditional playgrounds don't provide a unique experience, making children grow bored easily by not challenging a child's creativity and imagination. Nature playground features natural elements, such as boulders, that can be used in different ways, trees to climb higher each time, and logs to balance, run over or use as seating. Nature playgrounds have also been proven to encourage children to consider their safety and be watchful of their play environment.



NATURAL PLAYGROUND

WILDLIFE VIEWING AND BUTTERFLY GARDEN



WILDLIFE VIEWING BLINDS

Numerous wildlife viewing blinds are located along the many trails within the park. Blinds bring birds and other wildlife up close that is accessible to all visitors, giving them an appreciation for the animals and their habitat. The blinds are carefully designed with natural materials to help blend into the site. Each blind includes shaded areas for standing and sitting while still being able to view the surrounding wildlife. The blinds will use solar power to operate rain catchment systems to fill watering stations automatically.

The goal of the San Antonio River Authority is to provide the public an opportunity to get out and experience nature. The wildlife blinds would allow visitors to do this even on inclement weather. All viewing stations will be compliant with Americans with Disabilities Act (ADA), allowing all visitors an opportunity to learn and enjoy the nearly 250 species of wildlife they may encounter.



BUTTERFLY GARDEN

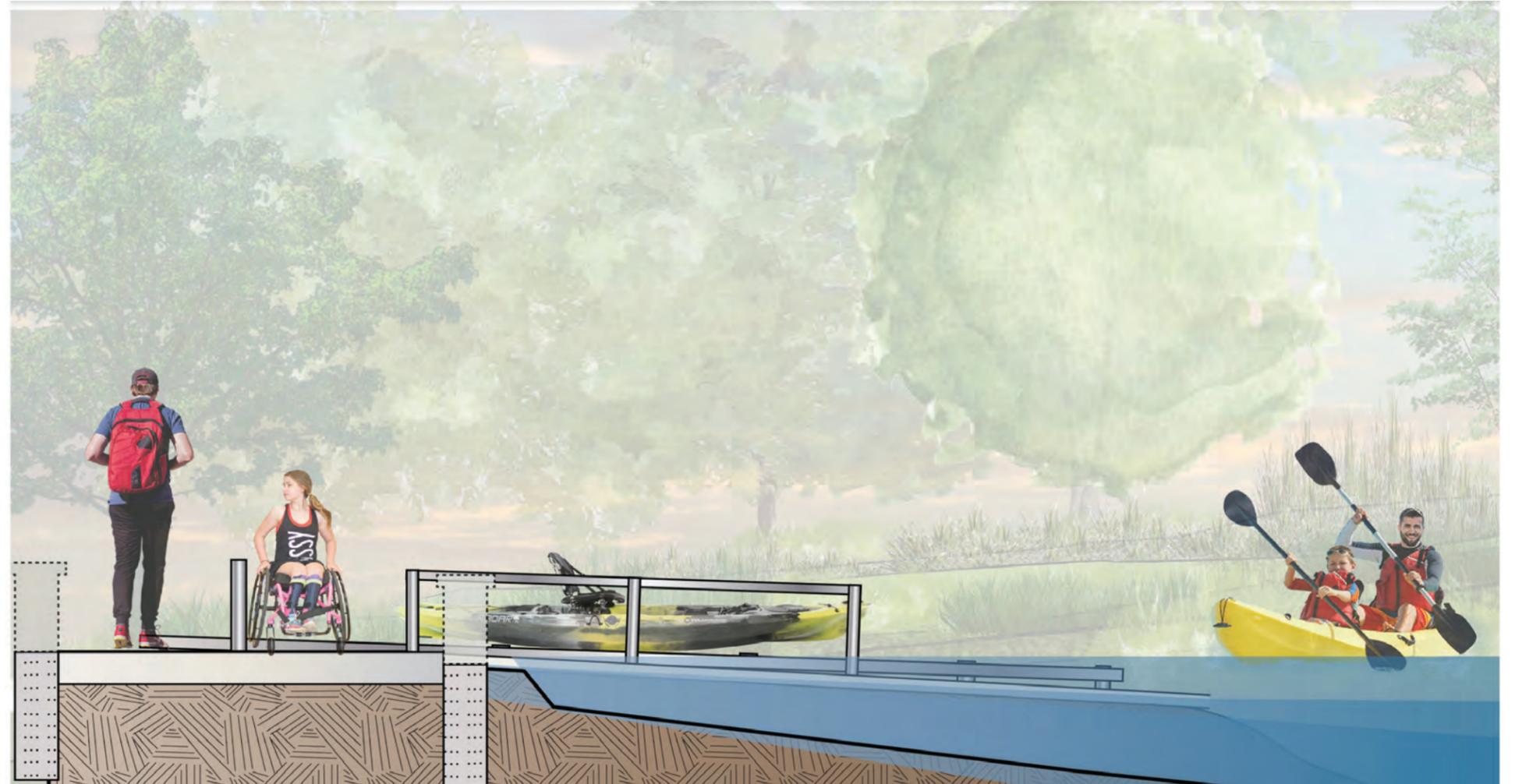
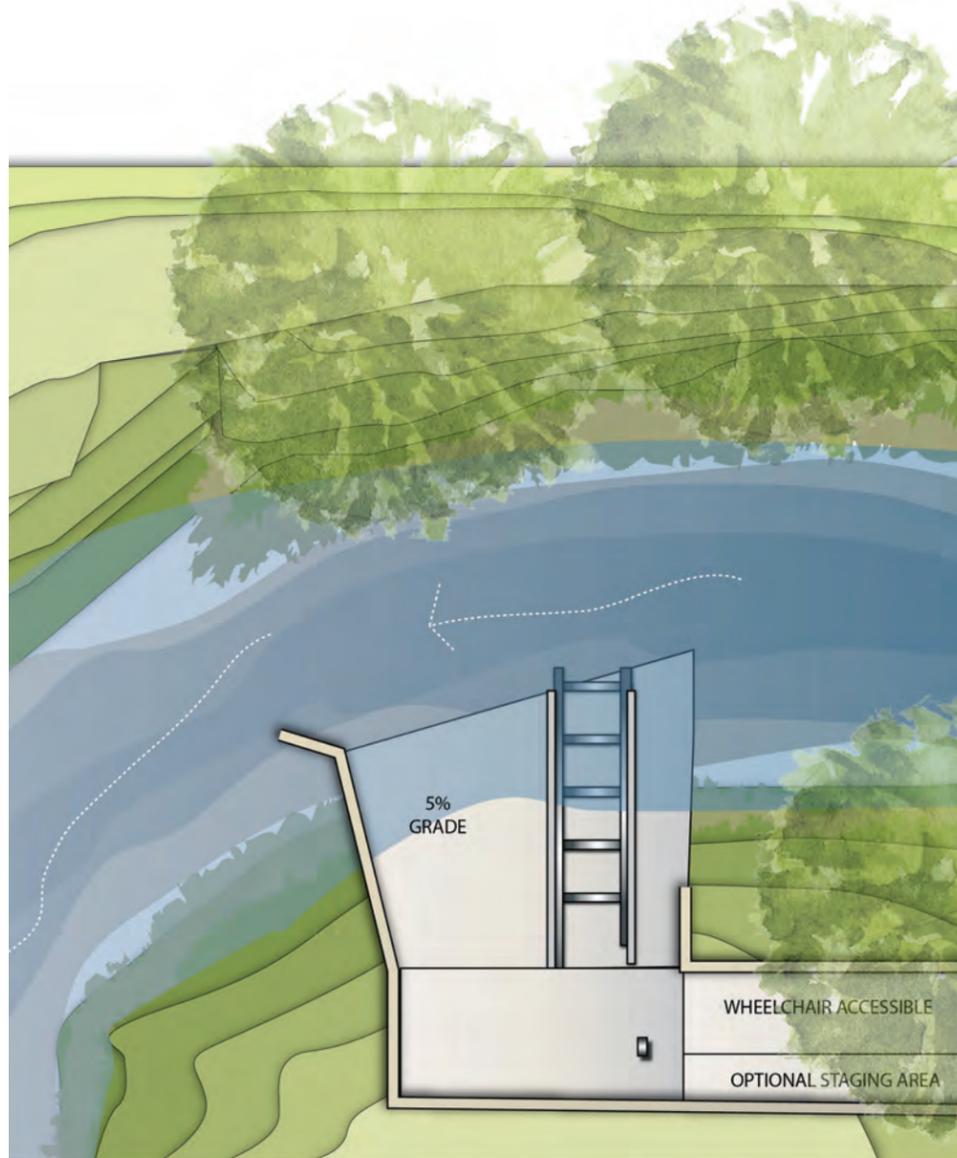
Designed with plants that attract butterflies and meet their needs, the garden includes host plants on which butterflies lay eggs and where their larvae, the caterpillars, feed. The plants nectar provide food for adult butterflies and further provide protection from wind, rain and predators.

The goal of the garden is to showcase plants and educate visitors, local gardeners and enthusiasts about plants that can be found and grown in their gardens to attract local butterflies. Interpretive signage will include a field guide for butterfly identification as a resource to help the public identify eggs, caterpillar stages, chrysalis, and adult butterflies, as well as their host and nectar plants. The garden will serve as an interactive, educational exhibit for young and old alike. The facility will partner with local school districts, community service groups, and garden clubs to encourage use of the garden and the park.

AMENITIES

PORTAGE AND BOAT LAUNCH

Launch and retrieval points are located along the Medina River at the east and west end of the park. These features follow a design developed during stakeholder meetings with kayak and canoe user groups. The preferred location for the launch points is at a left hand bend in the river going with the river flow. This configuration also makes launch and retrieval much easier and accessible. The launch and retrieval points will be compliant with Americans with Disabilities Act (ADA), ensuring all visitors can utilize these facilities without assistance.



LOW IMPACT DEVELOPMENT



BIO-SWALES

Bio-swales are vegetated or grassed linear depressions that retain and filter the first flush of runoff from impervious surfaces. A continuous bio-swale system is planned along all park roads and parking areas. After the soil-plant mixture below the channel becomes saturated, the bio-swale acts as a conveyance structure to a wetland or infiltration area. Routine maintenance is required of a dense, healthy vegetated cover; periodic mowing; weed control; reseeding of bare areas; and clearing of debris and accumulated sediment.



PERMEABLE SURFACES

Replacing impervious surfaces with permeable surfaces is a fundamental component of the Low Impact Development (LID) approach. Roofs, sidewalks, and paved surfaces are disconnected from each other to allow for more uniform distribution of runoff into permeable areas. Conveying runoff into vegetated areas keeps the water from directly entering the storm drain network, reduces runoff volume, and promotes distributed infiltration.

Since paved surfaces make up a large portion of the park landscape, the use of permeable pavement will be very effective at stabilizing the hydrological condition of a site. Permeable surfaces can be used in conjunction with storage systems for reuse of the runoff water bio-swales or conveyance to a wetland or infiltration area. Types of permeable pavement include permeable grid block pavers, plastic grids, vegetated grids, turf block, gravel, cobbles, brick, natural stone, etc.



IMPLEMENTATION

COST ESTIMATES

Phase 1

PHASE 1 MOBILIZATION, INSURANCE AND BONDS \$487,245.60

1	Mobilization and OH&P (11%)	1 L.S.	\$261,385.08	\$261,385.08
2	Insurance and Bonds (3%)	1 L.S.	\$71,286.84	\$71,286.84
3	Preparation of Right-Of-Way (4%)	1 L.S.	\$95,049.12	\$95,049.12
4	Erosion Control And SWPPP (2%)	1 L.S.	\$47,524.56	\$47,524.56
5	Barricades, Signs, and Traffic Handling	1 L.S.	\$12,000.00	\$12,000.00

PHASE 1 QUANTITIES \$2,376,228.00

6	Multi-Purpose Trail 10'-0" Wide, Cement Stabilized Base	10,142 L.F.	\$30.00	\$304,260.00
7	Interpretive Trails - 8'-0" Wide - Cement Stabilized Base	750 L.F.	\$24.00	\$18,000.00
8	Concrete Walks and Plazas	8,930 S.F.	\$6.00	\$53,580.00
9	Upper Roadway - 24' wide - Base - No Curb	1,750 S.Y.	\$55.00	\$96,250.00
10	Parking - Asphalt - No Curb	2,071 S.Y.	\$55.00	\$113,905.00
11	Rain Gardens	2,715 S.F.	\$20.00	\$54,300.00
12	Birding/Wildlife Viewing Station	6 EA.	\$54,000.00	\$324,000.00
13	Outdoor Classroom	1 EA.	\$142,168.00	\$142,168.00
14	Butterfly/Humming Bird Garden	1 EA.	\$24,000.00	\$24,000.00
15	Electrical Service and Security Lighting	1 L.S.	\$74,000.00	\$74,000.00
16	Entry Signage	1 EA.	\$28,465.00	\$28,465.00
17	Wayfinding and Interior Signage	6 EA.	\$550.00	\$3,300.00
18	Picnic Areas	0.8 Acre	\$38,000.00	\$30,400.00
19	Nature Play and Education Area	0.8 Acre	\$230,000.00	\$184,000.00
20	Riparian Preservation	2.3 Acre	\$12,000.00	\$27,600.00
21	Trailheads and Restrooms	1 EA.	\$248,000.00	\$248,000.00
22	Park Maintenance Shop	1 LS	\$650,000.00	\$650,000.00

Contingency 5% \$118,811.40
Construction Budget **\$2,982,285.00**

23 Engineering, Design, and Contract Administration **\$328,051.35**

Phase 2

PHASE 2 MOBILIZATION, INSURANCE AND BONDS \$568,010.80

1	Mobilization and OH&P (11%)	1 L.S.	\$305,805.94	\$305,805.94
2	Insurance and Bonds (3%)	1 L.S.	\$83,401.62	\$83,401.62
3	Preparation of Right-Of-Way (4%)	1 L.S.	\$111,202.16	\$111,202.16
4	Erosion Control And SWPPP (2%)	1 L.S.	\$55,601.08	\$55,601.08
5	Barricades, Signs, and Traffic Handling	1 L.S.	\$12,000.00	\$12,000.00

PHASE 2 QUANTITIES \$2,780,054.00

6	Perimeter Trail 10'-0" Wide Stabilized Surface	7,685 L.F.	\$30.00	\$230,550.00
7	Equestrian Trails - 8'-0" Wide - Graded, Grass Cover	3,957 L.F.	\$9.00	\$35,613.00
8	Explorer Trails - 8'-0" Wide - Graded, Grass Cover	3,627 L.F.	\$8.00	\$29,016.00
9	Upper Roadway - 24' wide - Base - No Curb	12,587 S.Y.	\$55.00	\$692,285.00
10	Lower Roadway - 24' wide - Asphalt - No Curb	9,690 S.Y.	\$55.00	\$532,950.00
11	Parking - Asphalt - No Curb	7,468 S.Y.	\$55.00	\$410,740.00
12	Rain Gardens	8,900 S.F.	\$20.00	\$178,000.00
13	Birding/Wildlife Viewing Station	5 EA.	\$54,000.00	\$270,000.00
14	Wetlands Preservation	6.4 Acre	\$12,000.00	\$76,800.00
15	Watercraft Launch	2 EA.	\$38,000.00	\$76,000.00
16	Electrical Service and Security Lighting	1 L.S.	\$74,000.00	\$74,000.00
17	Wayfinding and Interior Signage	22 EA.	\$550.00	\$12,100.00
18	Wilderness Camping Areas	3 Acre	\$4,000.00	\$12,000.00
19	Picnic Areas	3 Acre	\$30,000.00	\$90,000.00
20	Fishing Pier	240 SF	\$250.00	\$60,000.00

Contingency 5% \$139,002.70
Construction Budget **\$3,487,067.50**

21 Engineering, Design, and Contract Administration **\$383,577.43**

HENDRICK ARNOLD PARK

Opinion of Probable Cost 8.9.22

Phase 3

PHASE 3 MOBILIZATION, INSURANCE AND BONDS \$146,106.00

1	Mobilization and OH&P (11%)	1 L.S.	\$73,758.30	\$73,758.30
2	Insurance and Bonds (3%)	1 L.S.	\$20,115.90	\$20,115.90
3	Preparation of Right-Of-Way (4%)	1 L.S.	\$26,821.20	\$26,821.20
4	Erosion Control And SWPPP (2%)	1 L.S.	\$13,410.60	\$13,410.60
5	Barricades, Signs, and Traffic Handling	1 L.S.	\$12,000.00	\$12,000.00

PHASE 3 QUANTITIES \$670,530.00

6	Overlook Structure	1 EA.	\$221,130.00	\$221,130.00
7	Observation Tower	1 EA.	\$375,400.00	\$375,400.00
8	Electrical Service and Security Lighting	1 L.S.	\$74,000.00	\$74,000.00

Total \$816,636.00
 Contingency 5% \$33,526.50
Construction Budget **\$850,162.50**

9 Engineering, Design, and Contract Administration **\$93,517.88**

Phase 4

PHASE 4 MOBILIZATION, INSURANCE AND BONDS \$402,507.40

1	Mobilization and OH&P (11%)	1 L.S.	\$214,779.07	\$214,779.07
2	Insurance and Bonds (3%)	1 L.S.	\$58,576.11	\$58,576.11
3	Preparation of Right-Of-Way (4%)	1 L.S.	\$78,101.48	\$78,101.48
4	Erosion Control And SWPPP (2%)	1 L.S.	\$39,050.74	\$39,050.74
5	Barricades, Signs, and Traffic Handling	1 L.S.	\$12,000.00	\$12,000.00

PHASE 4 QUANTITIES \$1,952,537.00

6	Explorer Trails - 8'-0" Wide - Graded, Grass Cover	17,542 L.F.	\$8.00	\$140,336.00
7	Equestrian Trails - 8'-0" Wide - Graded, Grass Cover	3,957 L.F.	\$8.00	\$31,656.00
8	Upper Roadway - 24' wide - Base - No Curb	2,054 S.Y.	\$55.00	\$112,970.00
9	Parking - Asphalt - No Curb	1,595 S.Y.	\$55.00	\$87,725.00
10	Equestrian Shade, Staging and Parking	1 EA.	\$128,000.00	\$128,000.00
11	Electrical Service and Security Lighting	1 L.S.	\$74,000.00	\$74,000.00
12	Wayfinding and Interior Signage	7 EA.	\$550.00	\$3,850.00
13	Rain Gardens	3,400 S.F.	\$20.00	\$68,000.00
14	Wilderness Camping Areas	10 Acre	\$4,000.00	\$40,000.00
15	Picnic Areas	3 Acre	\$30,000.00	\$90,000.00
16	Riparian Restoration	2.5 Acre	\$12,000.00	\$30,000.00
17	Trailheads and Restrooms	2 EA.	\$248,000.00	\$496,000.00
18	Park Maintenance Shop	1 LS	\$650,000.00	\$650,000.00

Total \$2,355,044.40
 Contingency 5% \$97,626.85
Construction Budget **\$2,452,671.25**

19 Engineering, Design, and Contract Administration **\$269,793.84**

Total Construction Cost All Phases **\$9,772,186.25**

NATIONAL

Texas Parks & Wildlife – Grant programs available include Boating Access Grants, Clean Vessel Act (CVA) Grants, Community Outdoor Outreach Program (CO-OP), Local Parks Grants, and Recreational Trails Grants.

<https://tpwd.texas.gov/business/grants/recreation-grants>

National Park Service

- Land & Water Conservation Fund (LWCF) provides matching funds for State & Local Assistance Program to state, local and Tribal governments seeking funding to create and expand parks, develop recreation facilities, and further local recreation plans.

<https://www.nps.gov/subjects/lwcf/stateside.htm>

<https://lwcfcoalition.org/state-and-local-assistance>

- Rivers, Trails, and Conservation Assistance program (NPS-RTCA) assists with developing or restoring parks, conservation areas, rivers, and wildlife habitats, as well as creating outdoor recreation opportunities and programs that engages future generations in the outdoors.

Applications due March 1st of every year

<https://www.nps.gov/orgs/rtca/apply.htm>

- Outdoor Recreation Legacy Partnership (ORLP) Program funded through the LWCF State and Local Assistance Program. A nationally competitive grant program that delivers funding to urban areas with priority given to projects located in economically disadvantaged areas and lacking in outdoor recreation opportunities.

<https://lwcfcoalition.org/orlp>

U.S. Department of Transportation: Federal Highway Administration

- Federal Land Access Program (FLAP) is in support of improving transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Access Program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.

Call for projects is open, deadline: May 2022

Final application deadline: August 1, 2022

<https://highways.dot.gov/federal-lands/programs-access>

- Recreational Trails Program (RTP) provides funds to the States to develop and maintain recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses.

https://www.fhwa.dot.gov/environment/recreational_trails/

- Transportation Alternatives (TA) provides funding for a variety of generally smaller-scale transportation projects such as pedestrian and bicycle facilities; construction of turnouts, overlooks, and viewing areas; community improvements such as historic preservation and vegetation management; environmental mitigation related to stormwater and habitat connectivity; recreational trails; safe routes to school projects; and vulnerable road user safety assessments.

https://www.fhwa.dot.gov/environment/transportation_alternatives/

- Federal Transit Administration (FTA) require that at least 1 percent of transit expenditures for urbanized areas go to projects that improve access to transit service – e.g., cycling and walking.

RECOMMENDED FUNDING STRATEGIES

U.S. Economic Development Administration – Travel, Tourism, & Outdoor Recreation program focuses on accelerating the recover of communities that rely on the travel, tourism and outdoor recreation sectors investing in infrastructure, workforce or other projects to support industry and economic resilience of the community in the future.

<https://eda.gov/arpa/travel-tourism/>

- Economic Development Administration (EDA) of the U.S. Department of Commerce is the Public Works program provides funding with the goal of empowering “distressed communities to revitalize, expand and upgrade their physical infrastructure.” Among other uses, EDA Public Works funds can help redevelop brownfield sites and increase eco-industrial development. The EDA also offers limited local technical assistance to distressed areas in times of need.

U.S. Bureau of Reclamation – WaterSMART grants supports states, tribes, and local entities as they plan for and implement actions to increase water supply through investments to modernize existing infrastructure and avoid potential water conflicts.

<https://www.usbr.gov/watersmart/index.html>

IMPLEMENTATION

FUNDING RESOURCES LISTED BY RAILS TO TRAILS CONSERVANCY

<https://www.railstotrails.org/build-trails/trail-building-toolbox/funding/acquisition-funding/>

Community Development Block Grant Program (CDBG) – funds are intended for activities that benefit low- and moderate-income persons, prevent or eliminate slums or blights, and address urgent community development needs. In the past, CDBG have been used for trail construction.

Urban and Community Forestry (UCF) - A program of the U.S. Forest Service, Urban and Community Forestry (UCF) “provides technical, financial, research and educational services to local government, nonprofit organizations, community groups, educational institutions and tribal governments.” Trails and greenways are a key part of the program, which is administered by forestry agencies in each state.

Historic Preservation Funding Sources – (administered by the National Park Service) awards matching grants to state and tribal historic preservation offices for the restoration of properties that are on the National Register of Historic Places.

Environmental Protection Agency (EPA) – provides funding and financing for brownfields, which are former industrial sites where contaminants or pollutants may be present. Many trails have taken advantage of brownfield funding, including Rhode Island’s Woonasquatucket River Greenway Project, the Elkins Railyard redevelopment in West Virginia and the Assabet River Rail Trail in Massachusetts.

PRIVATE FOUNDATION/ORGANIZATIONS

Dopplet Family Trail Development Fund – Rails-to-Trails Conservancy (RTC) supports organizations and local governments that are implementing projects to build and improve multi-use trails.

<https://www.railstotrails.org/our-work/grants/doppelt/>

National Forest Foundation – Matching Awards Program (MAP) provides funding for result-oriented on-the-ground projects that enhance forest health and outdoor experiences on National Forests and Grasslands.

<https://www.nationalforests.org/grant-programs/map>

City Parks Alliance: Equitable Park Funding Hub – access to funding sources and strategies relevant for parks and recreation in low-income communities and communities of color, and highlights partnerships required for successful funding. Funding areas include Brownfields, Climate Resilience, Community Development, Conservation Funding, Local Funding, and Stormwater Management.

<https://cityparksalliance.org/funding-hub/>

PUBLIC MEETING INFORMATION

**HENDRICK ARNOLD PARK MASTER PLAN
SEPTEMBER 9, 2021
COMMENT CARD**

Thank you for coming this evening and we appreciate your interest and participation.

The meeting will be conducted in an Open House format allowing attendees more time to study the plans and illustrations. We will have staff, identified by name tag, available to answer questions as you review the plans. The plans that are displayed for your review and comments were prepared through a master planning process that included design consultants, San Antonio River Authority staff, key stakeholders, and potential groups.

After review of the plans and illustrations please place the red, green, or yellow dots we have provided to help determine which park feature you consider the highest priority. The dots have a point value as indicated below

-  Red dot = 3 points each
-  Green dot = 2 points each
-  Yellow dot = 1 points each

Please indicate below your opinion about the meeting and its objectives by reading the statement and placing a check mark where it best reflects your opinion.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. The objectives of the meeting were clear to me.				
2. I was able to get my questions answered.				
3. This meeting helped me to understand better the potential/concept for the park.				
4. I am interested in attending other meetings for the development of Hendrick Arnold Park.				
5. I am satisfied with the park features and activities illustrated tonight.				

Hendrick Arnold Park Public Meeting 1 Sign-In Sheet

- | | | |
|---------------------|--------------|--|
| 1. Lou Griffin | 830-965-2582 | lougriffinoneill@gmail.com |
| 2. Scot Dixon | 817-320-1712 | scott.dixon@constrovilletx.gov |
| 3. Patrick Conner | 361-815-7889 | patrickconner01@gmail.com |
| 4. Jerry G Gonzales | 210-325-9350 | |
| 5. Steve Shauer | 210-302-3644 | sshauer@sariverauthority.com |
| 6. Brad Kerley | 210-480-1062 | bradford.kerley@gmail.com |
| 7. Jonathan Kerley | 210-863-6721 | jkerleyaz@gmail.com |
| 8. Peggy Schriener | 210-854-8517 | pschriner1949@gmail.com |
| 9. Meg Conner | | megconner01@gmail.com |

Hendrick Arnold Park Public Meeting 1 Comment Cards

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. The objectives of the meeting were clear to me.	6	1	1	
2. I was able to get my questions answered.	6	2		
3. This meeting helped me to understand better the potential/concept for the park.	6	2		
4. I am interested in attending other meetings for the development of Hendrick Arnold Park.	6	2		
5. I am satisfied with the park features and activities illustrated tonight.	5	2		
Totals:	29	9	1	

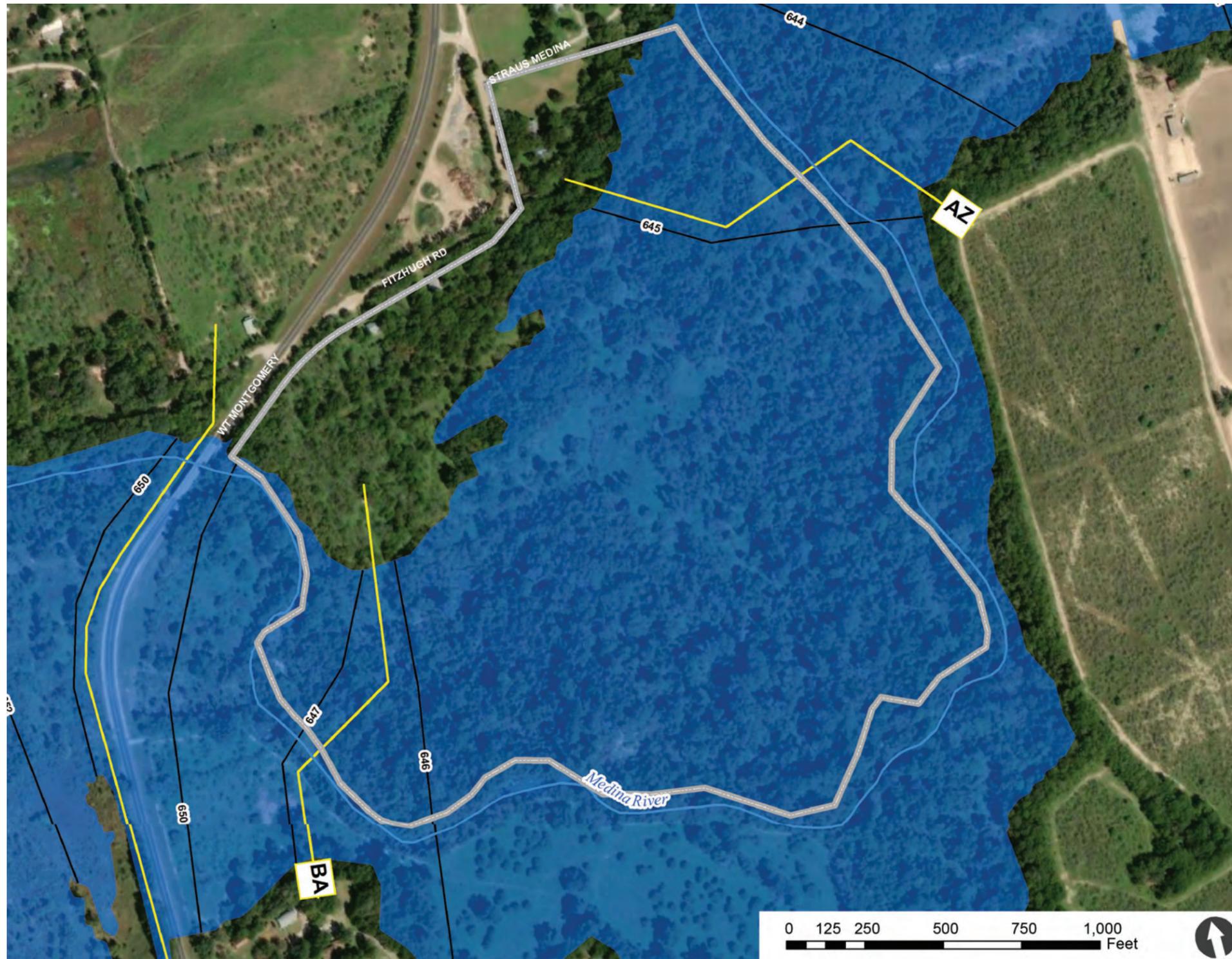
Additional Comments

1. Only change labeling of restrooms, suggest no gender assigned restrooms and changing stations on both.
2. I would start with day visit improvements and gradually move into the other items; restrooms, lookout points, ect.

HYDROLOGY

The founding stewards of the Hendrick Arnold Property realized that hydrology plays an important role shaping the site and how forest and habitat is created. These stewards made only the slightest adjustments to the site topography; most are not visible to the human eye. These adjustments provided for the capture of natural rainfall on the site in large shallow pools allowing runoff to percolate deep into the soil. These features helped ensure a plentiful supply of water for the crops and cattle was produced on the ranch.

75% of the site is located within the 100 year flood plain. Locations for buildings and structures need to carefully consider the seasonal storm events and avoid sensitive habitat areas that are aligned with hydrologic patterns on the site.



Contour Map

- 5' Contours
- 1' Contours

Floodplain Map

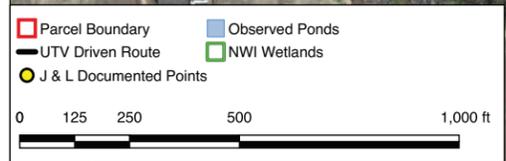
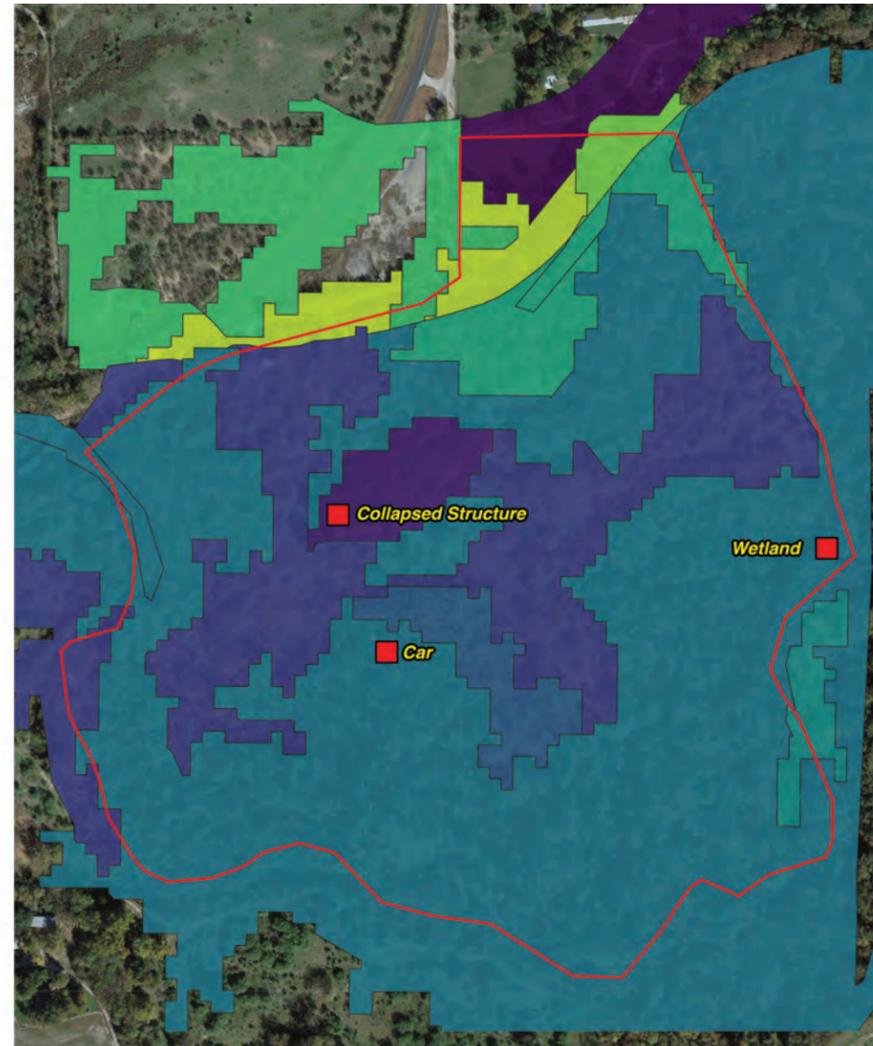
- River
- Fema X-Section
- Base Flood Elevation (BFE)

Flood Zone

- Zone A
- Zone AE

APPENDICES

ECOLOGY AND ARCHEOLOGY



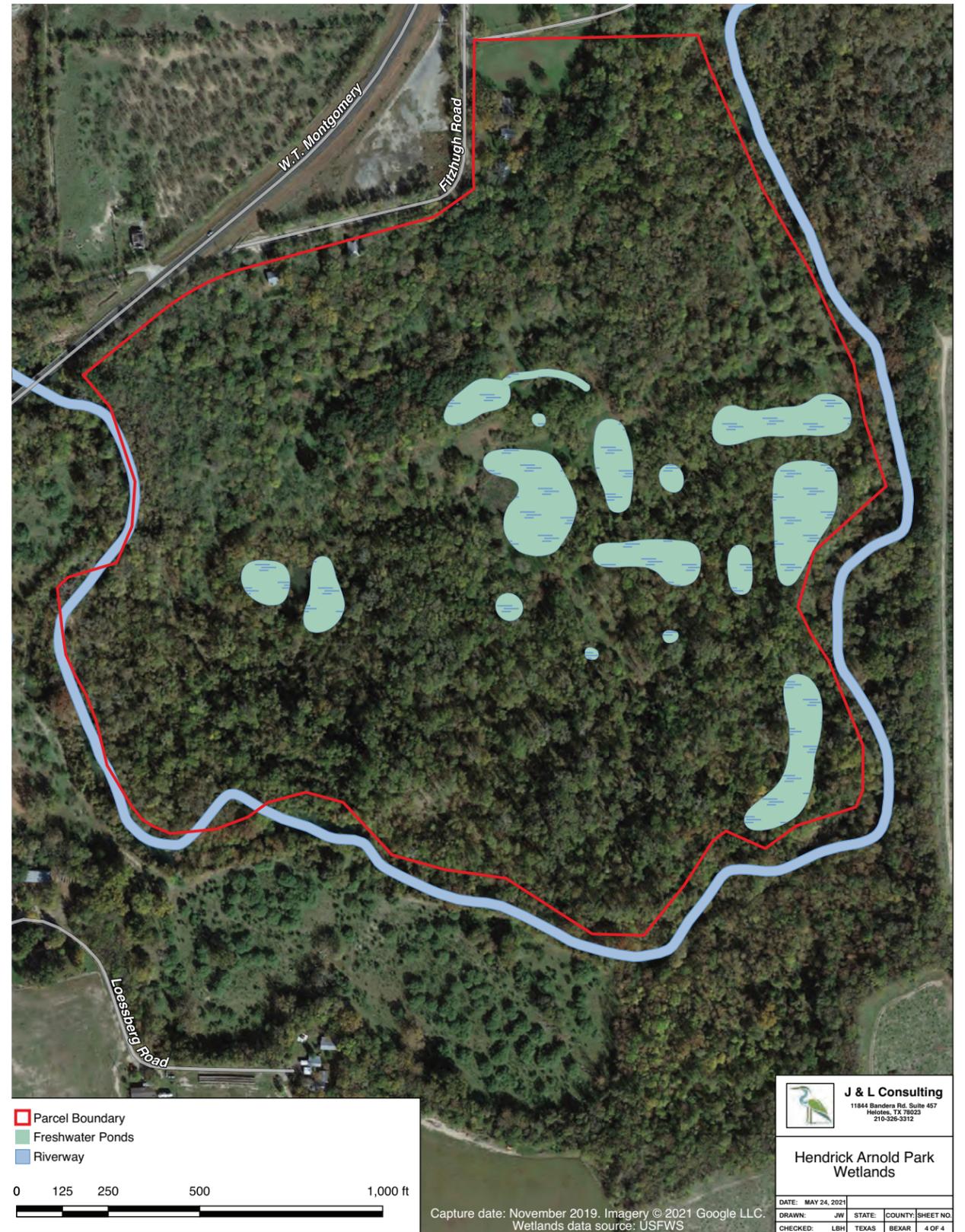
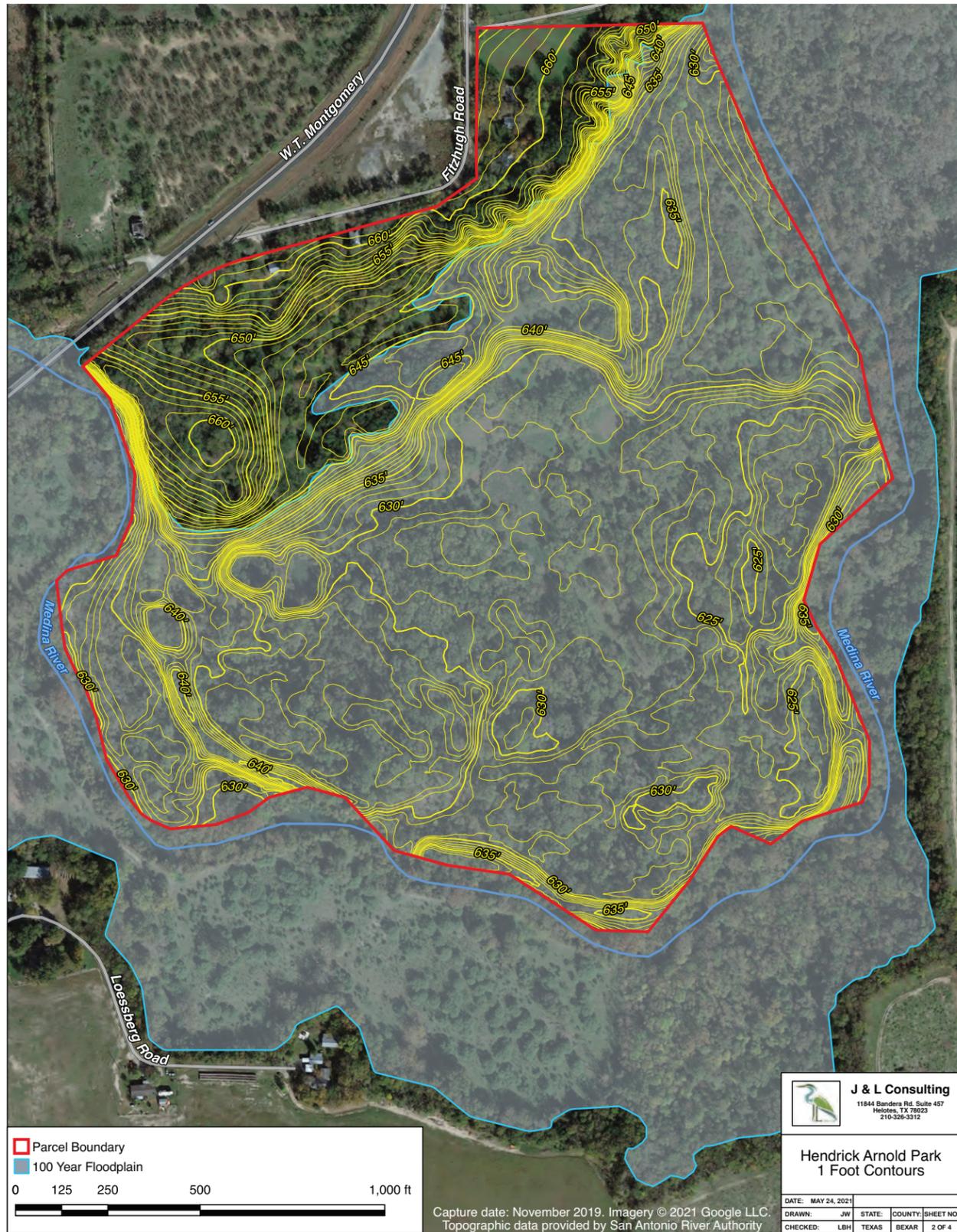
Hendrick Arnold Park

J & L Consulting
 11844 Bandera Rd., Suite 457
 Helotes, TX 78023
 210-326-3312

Site Visit Data
 6-9-2021

DATE: JUN 10 2021
 DRAWN: JWM STATE: COUNTY: SHEET N
 CHECKED: LHM TPXAN REVAD 1 OF 1

Hendrick Arnold Nature Park ecology and archaeology was extensively examined through historic research and numerous site visits. These processes allowed our team to identify site issues and assets, historic and archaeological significant features, vegetation patterns, wildlife habitat, and accessible corridors to the river channel. A series of visioning sessions was conducted with the River Authority staff and numerous stakeholder groups. These sessions were used to develop a list of potential park components that created the foundation for the individual park master plan conceptual design. Using these components several alternative concepts for each park were developed. These alternative concepts were presented at public meetings and the desired components of each park master plan concept were selected.



REVIEW & RECOMMENDATION: ANTIQUITIES CODE

Emily Dylla
Terrestrial Archeology Reviewer
Texas Historical Commission
PO Box 12276
Austin, TX 78711

And

Matthew Elverson and Shawn Marceaux
City Archaeologists
City of San Antonio Office of Historic Preservation
1901 South Alamo
San Antonio, Texas 78283

RE: **Review, Recommendation, and Coordination under the Antiquities Code of Texas For Henrick Arnold Park City of San Antonio, Bexar County, Texas Terracon Project No. 96217200, Task 1**

Terracon is pleased to submit this desktop review and recommendation to the Texas Historical Commission (THC) and City of San Antonio Office of Historic Preservation (CoSA OHP) for review and concurrence. This letter serves as coordination with the THC and OHP for the proposed Hendrick Arnold Park in southwestern San Antonio, Bexar County, Texas (Exhibits 1 and 2). As the proposed project is sponsored by the San Antonio River Authority (SARA), a political subdivision of the State of Texas, it is within purview of the Antiquities Code of Texas (Texas Natural Resource, Title 9, Chapter 191) administered by the THC (Texas Administrative Code, Title 13, Part 2, Chapter 26). Accordingly, such undertakings require coordination with the THC. The project must also be coordinated with CoSA OHP under the CoSA Unified Development Code. At this time, it is our understanding that no additional triggers, such as federal funding or permits, will require compliance with provisions of Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (Title 36 Code of Federal Regulations Part 800).

Project Area Description

The proposed project will consist of the construction of recreational facilities in southwestern San Antonio, Bexar County, Texas. For the purposes of the current desktop review and consultation, the total area of the potential ground disturbances is considered as the project area (PA). The total area of the PA is approximately 83 acres (see Exhibits 1 and 2). The PA is located in an undeveloped wooded parcel, at the intersection of Fitzhugh Road and Straus Medina Road. San Antonio River Authority (SARA) has developed a master plan for this parcel; please see the attached proposed master plan for the project area. According to the master plan and information from the client, anticipated depth of impacts for the project are as follows:

Desktop Cultural Resources Review and Coordination

Hendrick Arnold Park ■ San Antonio, Bexar County, Texas

July 15, 2021; Revised September 27, 2021 ■ Terracon Project: 96217200, Task 1

- Entry and boat launches – 3 feet
- Trailheads and restrooms – 10 feet
- Parking and drives – Up to 3 feet
- Paved roads – Up to 2 feet
- Birding stations – 10 feet
- Social circle and overlooks – 15 feet
- Picnic areas, outdoor classroom, and butterfly garden – 1 foot
- Trails will be built at grade

Environmental Context

The PA is situated within the Northern Blackland Prairie ecoregion, characterized by rolling hills to nearly level topography (Griffith et al. 2007). The natural vegetation of the ecoregion can be characterized as tallgrass prairie vegetation with woods in riparian areas. In general terms, the project area is located in an undeveloped, wooded parcel (see Exhibit 2).

Bedrock geology of the project area is mapped as Holocene Alluvium (Qal) (USGS, TNRS, & BEG 2021). The unit is best described as consisting of sand, silt, clay, and gravel.

Although agricultural in nature, county soil surveys provide a description of soil characteristics, including depth, color, inclusions, etc., which can be used to elucidate formation processes and environmental characteristics. Two soils are mapped in the project area (Exhibit 3). Loire clay loam, 0 to 2 percent slopes, occasionally flooded (Fr) consists of well-drained, deep (80 inches to bedrock) soils located on flood plains. Sunev clay loam, 1 to 3 percent slopes (VcB) consists of well-drained, deep (72 inches to bedrock) soils located on stream terraces (USDA NRCS 2021).

Site Records and Literature Review

The Texas Archeological Sites Atlas (Atlas), Texas Historic Sites Atlas, the National Register of Historic Places (NRHP), Texas Freedom Colonies Atlas, Texas Department of Transportation (TxDOT) NRHP Listed and Eligible Bridges of Texas, and TxDOT Historic Districts and Properties of Texas databases informed this review. Review of the Atlas shows that none of the proposed project area has likely been previously surveyed and that no archeological sites have been recorded within the PA (Exhibit 4) (THC 2021a,b). Three previously recorded archeological sites are located within the 0.5-mile-buffer and are summarized in Table 1. No NRHP properties, State Antiquities Landmarks (SALs), Texas Freedom Colonies entries, Historic Bridges, or Recorded Texas Historic Landmarks (RTHLs) are located within the project area or within the 0.5-mile search buffer (NPS 2021; TFCP 2021; TxDOT 2021a,b).

Table 1. Summary of previously recorded archeological sites within 0.5-mile buffer.

Site #	Site Type	Year Recorded/Company	NRHP Eligibility Determination by THC
41BX1836	Prehistoric open campsite	2009/SWCA Environmental Consultants	Undetermined
41BX1841	Prehistoric lithic scatter	2009/SWCA Environmental Consultants	Ineligible within right-of-way
41BX1842	Prehistoric lithic scatter	2009/SWCA Environmental Consultants	Ineligible within right-of-way

One archeological survey has been conducted within the 0.5-mile buffer. The survey was conducted in 2009 by SWCA Environmental Consultants for San Antonio Water Systems under TAC permit number 5129 (Hartnett et al. 2012). As part of this survey, just over 30 backhoe trenches were excavated within a half mile of the current project area. Four of those trenches contained buried prehistoric artifacts and/or features, and one contained a buried glass fragment (it was not noted whether the fragment was modern or historical). Prehistoric artifacts and features in the backhoe trenches associated with 41BX1836 were found to a depth of 150 centimeters below surface (cmbs), at which point the trenches were terminated. A geoarcheological examination of the trenches found that the majority of the trenches near the current project area contained deep Holocene deposits (Hartnett et al. 2012). Based on these examinations, even though the majority of the trenches near the current PA did not contain prehistoric artifacts or features, there is good potential for deeply buried archeological deposits in the nearby area.

The Hybrid Potential Archeological Liability Map (HPALM) developed by Texas Department of Transportation archeologists for the San Antonio District was reviewed (Abbot and Pletka 2016) (Exhibit 5). The HPALM shows that the PA is considered to have moderate to high potential for shallowly buried (less than three feet in depth) prehistoric archeological resources and high potential to contain deeply buried (over three feet in depth) prehistoric archeological resources.

Historic Maps and Aerial Review

Historical resources used to inform this review included maps and other resources available online (NETR 2021; USGS 2021). Topographic maps from 1953, 1967, 1973, 1982, and 1991 were reviewed. Historic aerials from 1955, 1963, 1966, 1973, 1983, 1986, 1995, 2004, and 2016 were also examined.

In the topographic map from 1953, four structures are marked in the project area. In the 1967 and 1973 maps, three of the structures from the 1953 map are no longer marked; two structures are marked in the northern portion of the PA. The 1967 and 1973 maps also have a gravel pit marked in the southern portion of the project area. The structures from the 1967 and 1973 maps are also marked in the 1982 topographic map; area marked as a gravel pit has expanded to the north in the 1982 map. In the 1991 map, a gravel pit is no longer marked in the PA; four structures are marked in the project boundary.

In the 1955 aerial photograph, the PA appears as a generally cleared parcel and two structures are visible. Structures were not observed in the PA in the 1963 aerial, but they may be present and covered by tree canopy; a small gravel pit is present in the central portion of the project area. In the 1966 aerial, two structures which were not observed on earlier photographs are present in the northern portion of the PA; the gravel pit has expanded and covers much of the southern portion of the PA. Several structures are visible along Fitzhugh Road in the 1973 aerial and the gravel pit appears generally unchanged from the 1966 aerial. The structures along Fitzhugh Road appear unchanged in the 1983 aerial photograph and the gravel pit has expanded to cover most of the central portion of the PA. The gravel pits appear to have been filled in the 1986 and 1995 aerials. In the 2004 and 2016 aerials, wooded vegetation has grown to cover the majority of the project area.

Conclusions and Recommendations

This review relied primarily upon public and nonpublic sources of information, as well as information from the client. At this time, it is understood that development of the proposed Hendrick Arnold Park would be sponsored by a political subdivision of the State of Texas, and therefore, the proposed project is required to coordinate with the THC. The project must also be coordinated with CoSA OHP under the CoSA Unified Development Code. This letter assesses potential impacts to cultural resources under the Antiquities Code of Texas, as necessary.

The Hybrid Potential Archeological Liability Map (HPALM) by Texas Department of Transportation archeologists has the project area mapped as containing high potential for archeological resources. Mechanical trenching as part of a nearby investigation found deep soils with the potential to contain buried prehistoric cultural materials. Based on historical aerial photographs and topographic maps, there is also some potential for the PA to contain historic-age cultural resources. The review of the historical aerial photographs and topographic maps also showed that a large portion of the PA was a mined gravel pit from the 1960s to the 1980s that has since been filled (Exhibit 6).

The master plan for the proposed Hendrick Arnold Park is attached. It is Terracon’s recommendation that an archeological investigation would be required for the portions of the project area outside of the former gravel pit. The level of effort for that investigation would be dependent on the proposed construction plans and the vertical depths of impacts. However, Terracon recommends shovel testing in locations where ground disturbances will be shallow (three feet or less) and mechanical trenching in areas where ground disturbances will be deep (greater than three feet). “No survey necessary” is recommended for the portions of the project area within the formerly mined gravel pits (see Exhibit 6). Terracon does advise San Antonio River Authority to stop work, protect the find, and contact the appropriate authorities, including the THC, should any human remains or intact cultural materials be encountered during construction.

Terracon appreciates your review of this project. Should you need further information or have any questions, please do not hesitate to contact Caitlin Gulihur at 512.891.2649 or via email at Caitlin.Gulihur@Terracon.com.

Sincerely,
Terracon Consultants, Inc.



Caitlin Gulihur, MA, RPA
Principal Investigator



Ann M. Scott, PhD, RPA
Environmental Planning Group Manager

Exhibit Attachments: 1) 1991 USGS Topographic Map: Macdona
2) 2020 Aerial Photograph
3) NRCS Web Soil Survey
4) THC Atlas and TARL Data
5) TxDOT HPALM
6) Extent of Previous Gravel Mining Master Plan

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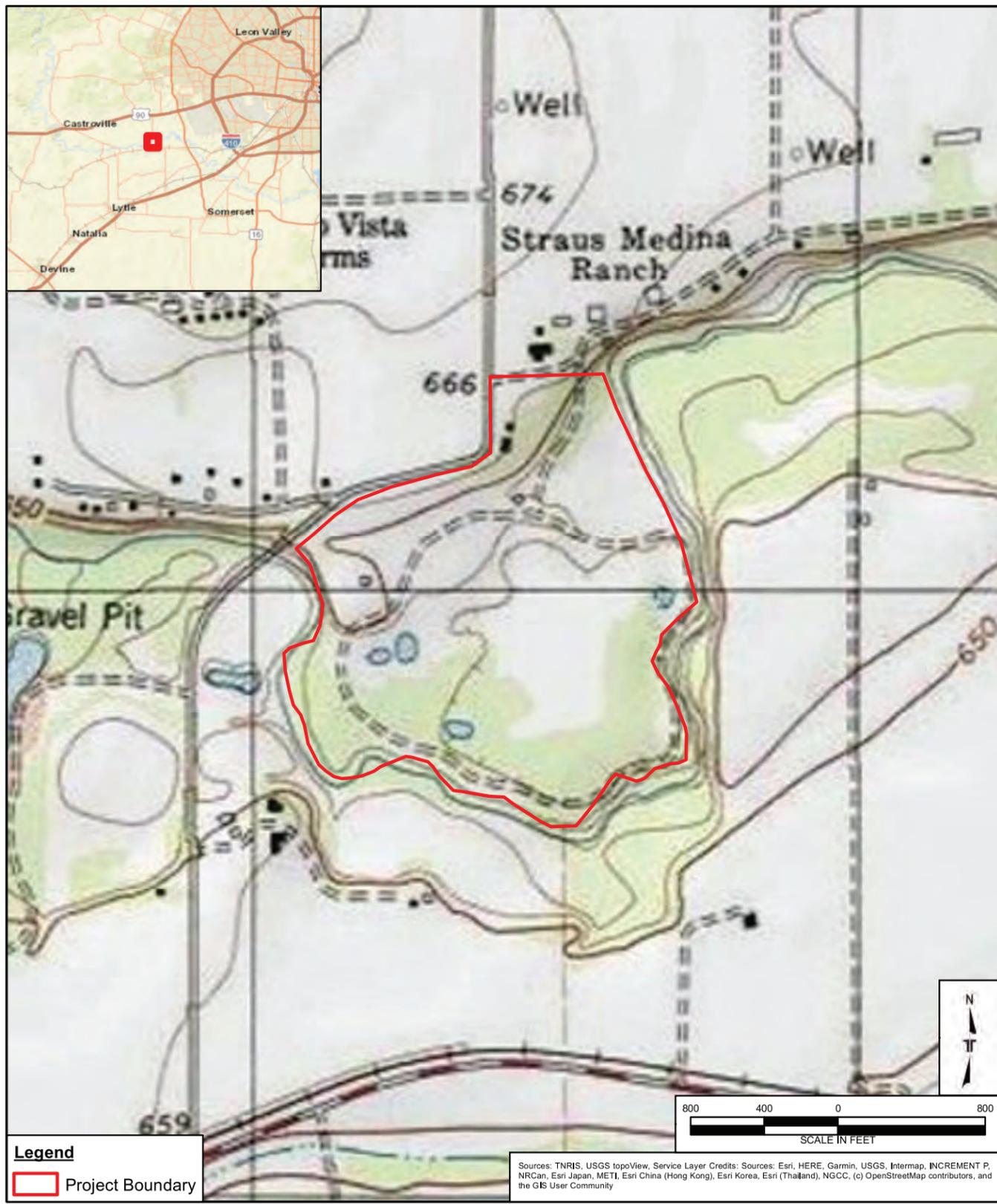
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Desktop Cultural Resources Review and Coordination

Hendrick Arnold Park ■ San Antonio, Bexar County, Texas
July 15, 2021; Revised September 27, 2021 ■ Terracon Project: 96217200, Task 1



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Legend
 Project Boundary

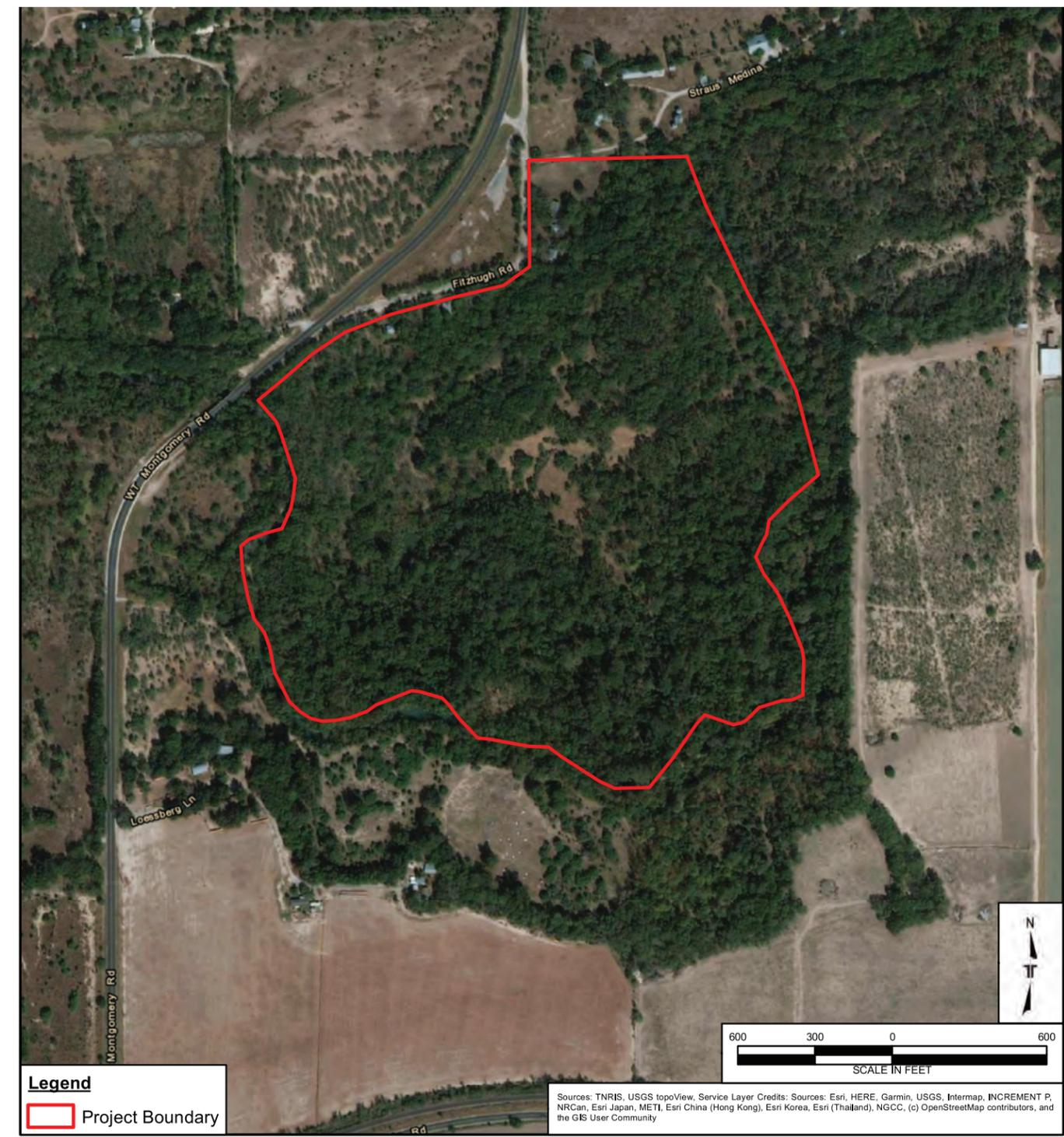
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Project Mgr:	CG
Drawn By:	Terracon
Checked By:	CG
Approved By:	AS

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1991 USGS Topographic Map: Macdona
 Hendrick Arnold Park
 Fitzhugh Road and Straus Medina Road
 San Antonio, Bexar County, Texas

EXHIBIT
 1



Legend
 Project Boundary

Sources: TNRS, USGS topoView, Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

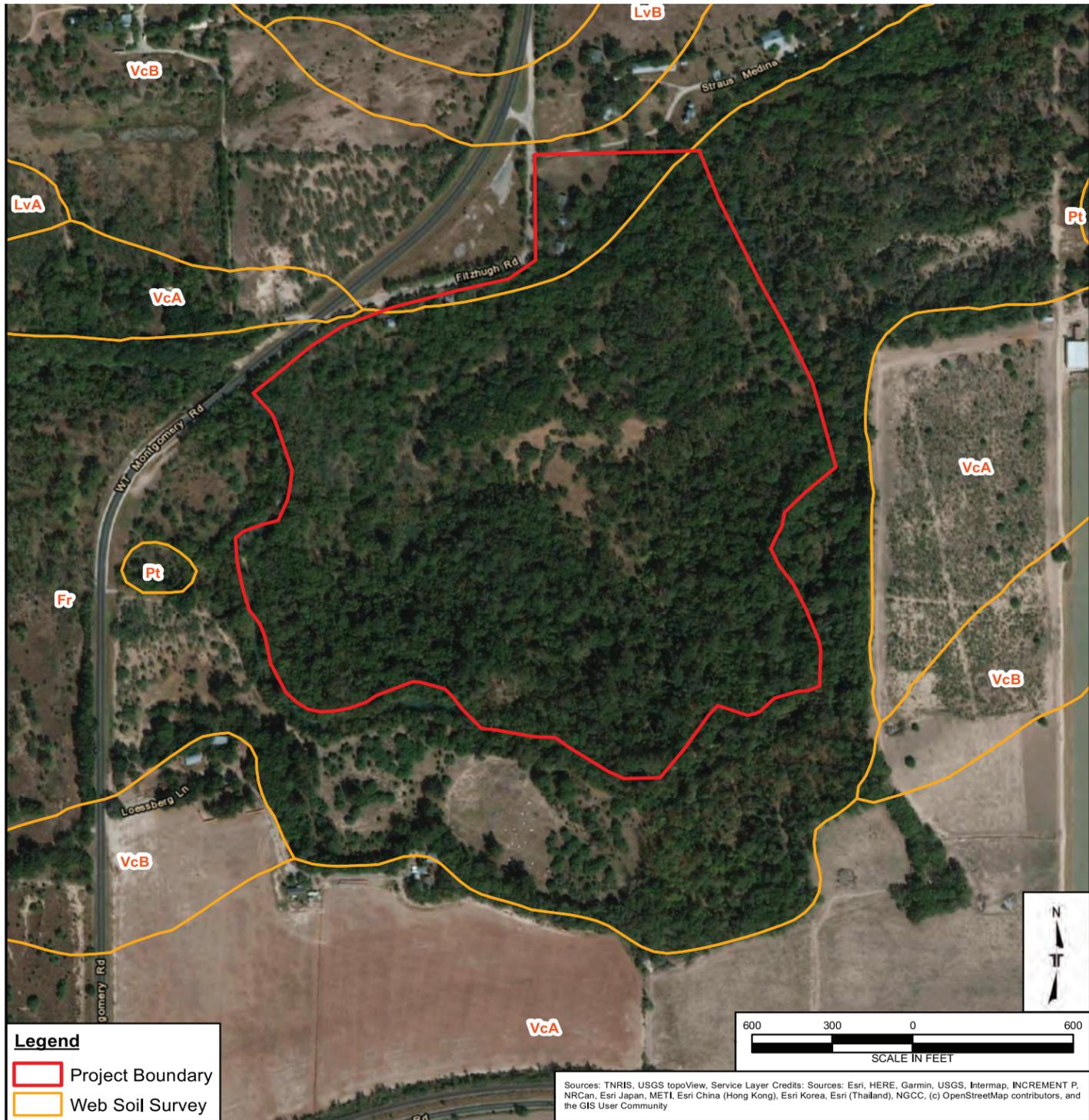
Project Mgr:	CG
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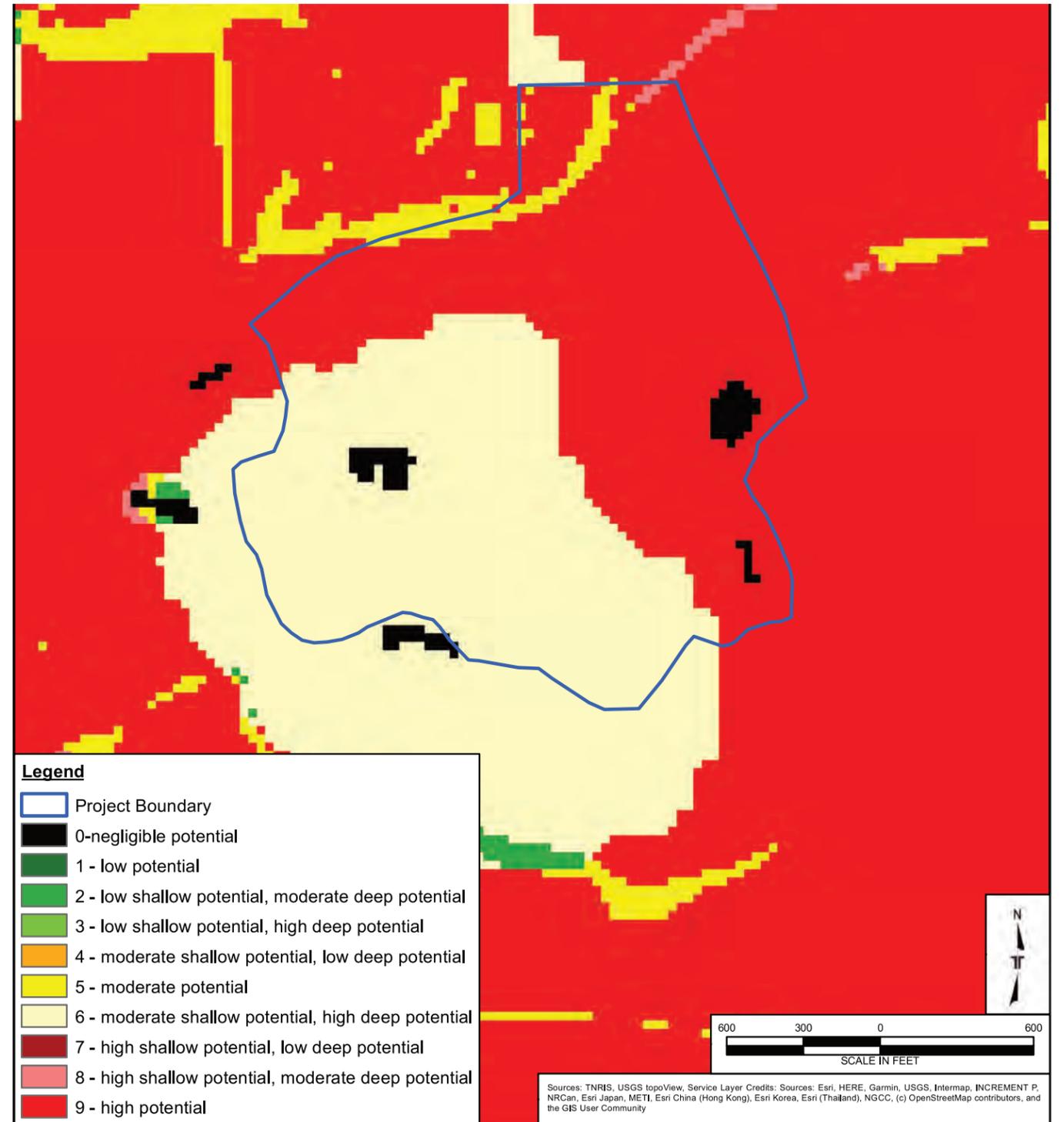
2020 Aerial Photograph
 Hendrick Arnold Park
 Fitzhugh Road and Straus Medina Road
 San Antonio, Bexar County, Texas

EXHIBIT
 2

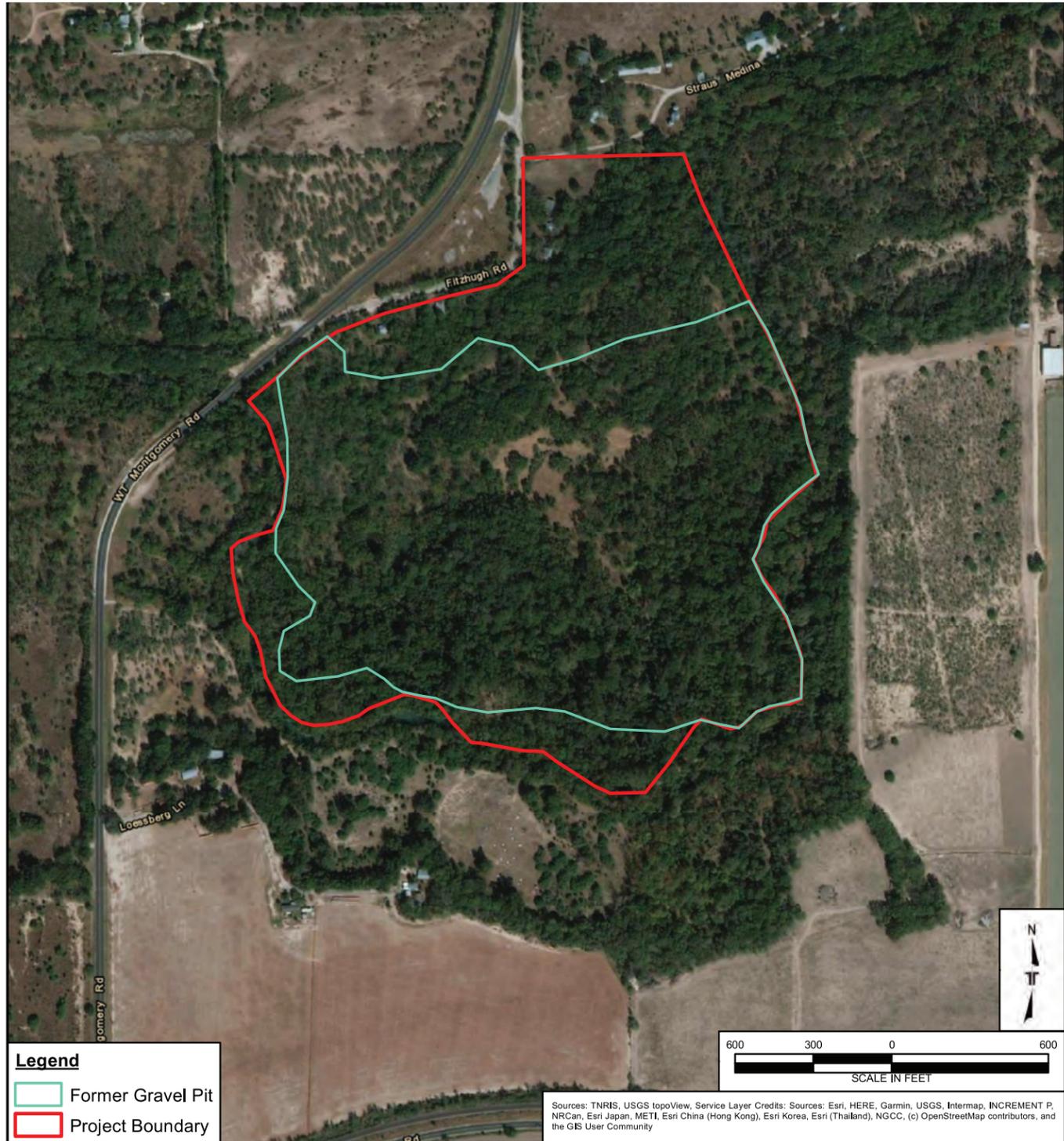
APPENDICES



Project Mngr: CG	Project No: 96217200	 5307 INDUSTRIAL OAKS BLVD. - #160 AUSTIN, TX 78735 PH. (512) 442-1122 FAX. (512) 442-1181	NRCS Web Soil Survey	EXHIBIT
Drawn By: Terracon	Scale: AS SHOWN		Hendrick Arnold Park	3
Checked By: CG	File No.: 96217200		Fitzhugh Road and Straus Medina Road	
Approved By: AS	Date: Jul 1, 2021		San Antonio, Bexar County, Texas	



Project Mngr: CG	Project No: 96217200	 5307 INDUSTRIAL OAKS BLVD. - #160 AUSTIN, TX 78735 PH. (512) 442-1122 FAX. (512) 442-1181	TxDOT HPALM	EXHIBIT
Drawn By: Terracon	Scale: AS SHOWN		Hendrick Arnold Park	5
Checked By: CG	File No.: 96217200		Fitzhugh Road and Straus Medina Road	
Approved By: AS	Date: Jul 1, 2021		San Antonio, Bexar County, Texas	



Legend
 Former Gravel Pit
 Project Boundary

Sources: TNRS, USGS topoView, Service Layer Credits, Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Project Mngr:	CG
Drawn By:	Terracon
Checked By:	CG
Approved By:	AS

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Extent of Previous Gravel Mining
 Hendrick Arnold Park
 Fitzhugh Road and Straus Medina Road
 San Antonio, Bexar County, Texas

EXHIBIT
 6