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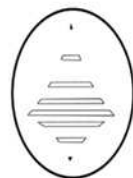
# Buckner Park Master Plan Report

July 10, 2006



prepared for:

## Fort Wayne Parks and Recreation



prepared by:

**Earth-Source Inc**  
14921 Hand Road, Fort Wayne, IN 46818 (260)489-8511

Grinsfelder Associates Architects, Inc.

Russell Engineering Associates, Inc.

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July 10, 2006

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City of Fort Wayne  
Department of Parks and Recreation

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**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

**I. INTRODUCTION**

This master plan document has been formulated through the dedicated planning efforts of many groups, organizations and individuals, including, but not necessarily limited to the following:

**Buckner Park Development Committee**

Ken Nocholet  
Christopher Crow  
Perry Ehresman  
Zenovia Pearson  
Dawn Ritchie  
Jeff Baxter  
George DeRoche  
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**Fort Wayne Parks and Recreation Department**

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Grinsfelder Associates Architects, Inc.

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Alan Grinsfelder

Russell Engineering Associates, Inc.

Steven Maxwell

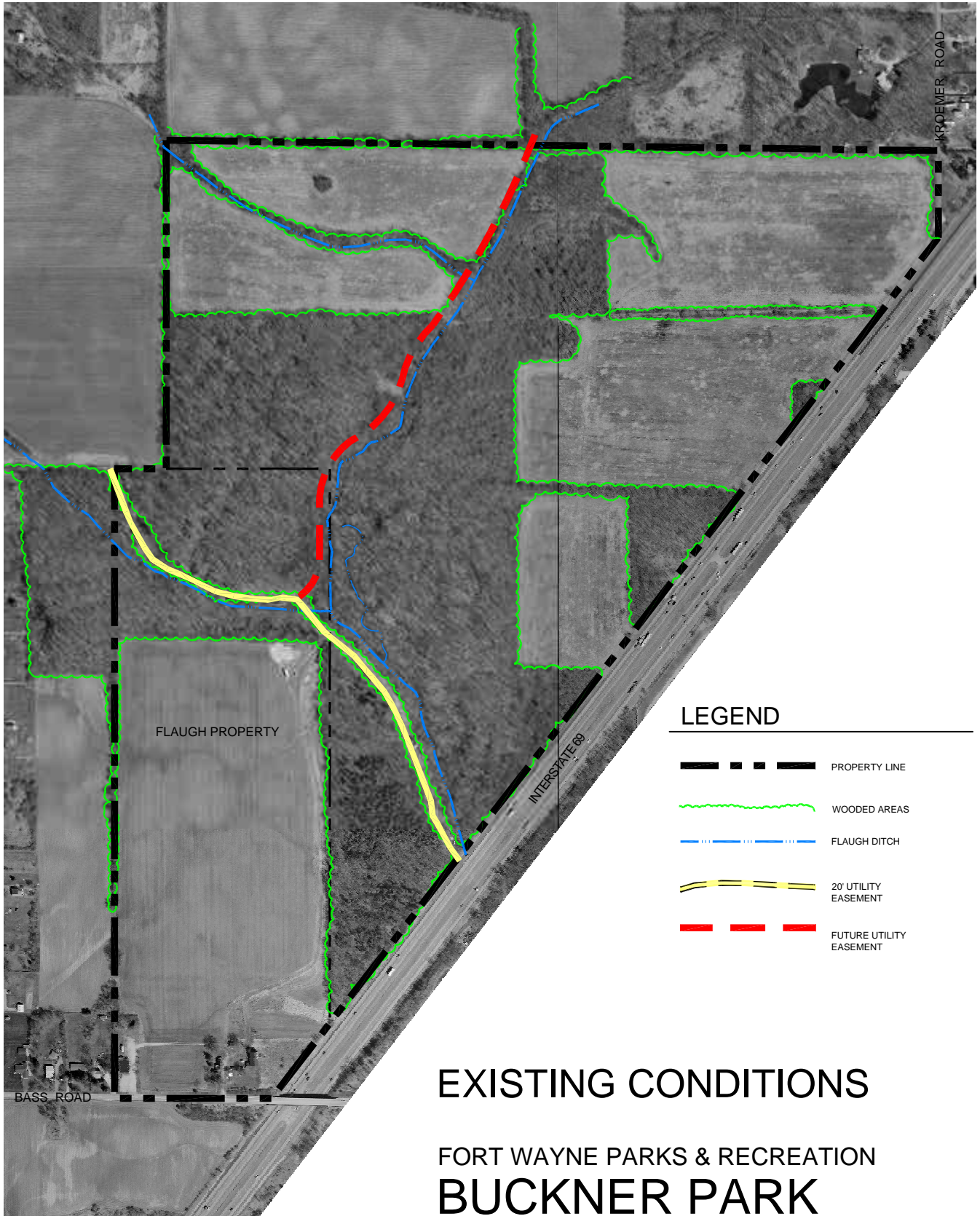
## **II. HISTORY**

This property, comprising some 200 acres, which now is known as Buckner Park, has been assembled over the past 40 years or so. The initial land purchase of approximately 150 acres, by the Parks and Recreation Department, of the Buckner farm occurred in the late 1960's. More recently, a grant from the Indiana Department of Natural Resources provided funds for purchase of approximately 50 acres of the Flaugh property. From these early days, the general consensus for development of this park, was to result in as little disturbance to the site as possible. Thanks to the diligent efforts of the Parks and Recreation Department, this conservation based approach is coming to fruition.




The first actual "disturbance" within the park was the construction of a sanitary sewer utility easement, which took place in 2003/2004. (figure #1) With much oversight, development of this project had a surprisingly low impact to the park. A second sanitary sewer utility easement is now proposed to service residential development immediately north of the park. (figure #1) Although the impact to the park in terms of site disturbance and loss of vegetative cover cannot be overlooked, the benefit is the availability of this utility which otherwise may not have been available or have been cost prohibitive to the project.

The Buckner Park Development Committee was formed mid-2004 with the task of making recommendations to the Board of Park Commissioners for the future use of the park. Following formation of this committee, a series of public meetings were held with the express purpose to gather information to aid in determining desired site use. (appendix) Overwhelmingly, the general public acknowledged the unique nature of this park and urged the park remain in as natural state as possible, while still providing amenities to the growing community.

Following this public input, Earth Source, Inc. was commissioned to prepare an overall preliminary site land use plan to incorporate the desired uses demonstrated in the public input process. As a part of this design process, Earth Source, Inc. prepared an Existing Conditions Plan illustrating elements that currently are in existence on-site to form a base for further site planning. (figure #1) A Site Inventory and Analysis Plan was then prepared to reveal how various environmental and surrounding uses impact the site. (figure #2) Finally, a Land Use Diagram was prepared in response to information revealed in the previous two plans. (figure #3) This plan was prepared to successfully address the programming requirements as outlined in the public information gathering process. This Land Use Diagram was then adopted by the Board of Park Commissioners and has led to development of this master plan. (figure #4)



**LEGEND**

-  PROPERTY LINE
-  WOODED AREAS
-  FLAUGH DITCH
-  20' UTILITY EASEMENT
-  FUTURE UTILITY EASEMENT

**EXISTING CONDITIONS**

FORT WAYNE PARKS & RECREATION

**BUCKNER PARK**

FORT WAYNE, INDIANA

MARCH 8, 2005

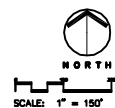
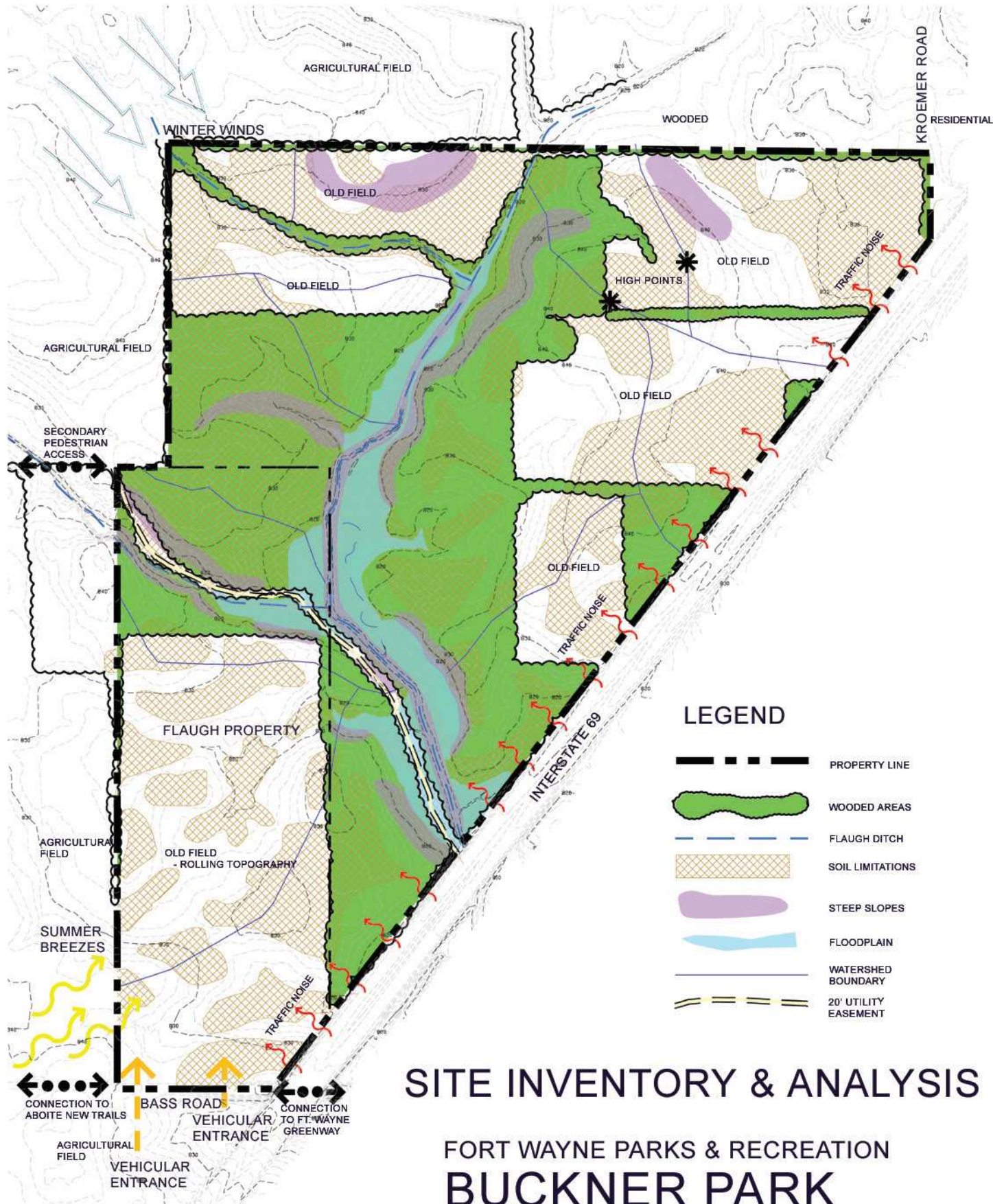










FIGURE #1



**LEGEND**

-  PROPERTY LINE
-  WOODED AREAS
-  FLAUGH DITCH
-  SOIL LIMITATIONS
-  STEEP SLOPES
-  FLOODPLAIN
-  WATERSHED BOUNDARY
-  20' UTILITY EASEMENT

**SITE INVENTORY & ANALYSIS**

**FORT WAYNE PARKS & RECREATION  
BUCKNER PARK**

FORT WAYNE, INDIANA

MARCH 8, 2005

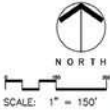


FIGURE #2



# LAND USE DIAGRAM

## FORT WAYNE PARKS & RECREATION BUCKNER PARK

FORT WAYNE, INDIANA

MARCH 8, 2005





# FORT WAYNE PARKS & RECREATION BUCKNER PARK MASTER PLAN

FORT WAYNE, INDIANA  
JULY 10, 2006

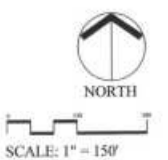


FIGURE #4

### **III. GOALS AND OBJECTIVES**

This Master Plan is designed to provide future guidance for development of Buckner Park. This guidance will be outlined in this plan by including the desired park elements as represented by preliminary planning work completed to this date, while illustrating associated costing and implementation recommendations.

Throughout this process, sensitivity to environmental design principles, both site and architecture related, are key. Minimal disturbance to the integrity of this site must be a priority. In addition, principles of environmentally friendly design balanced with economic feasibility shall be given consideration throughout.

Finally, the recommendations provided in this report are based upon the most current available programming information. However, this document is intended to remain flexible and may be modified in the future as required to accommodate current and future park needs.

## **IV. MASTER PLAN DEVELOPMENT**

### **Environmentally Friendly Design**

Although LEED (Leadership in Energy and Environmental Design) certification is not necessarily a driving criteria for a successful project, some level of certification may be desirable. The LEED Green Building Rating System<sup>®</sup> is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

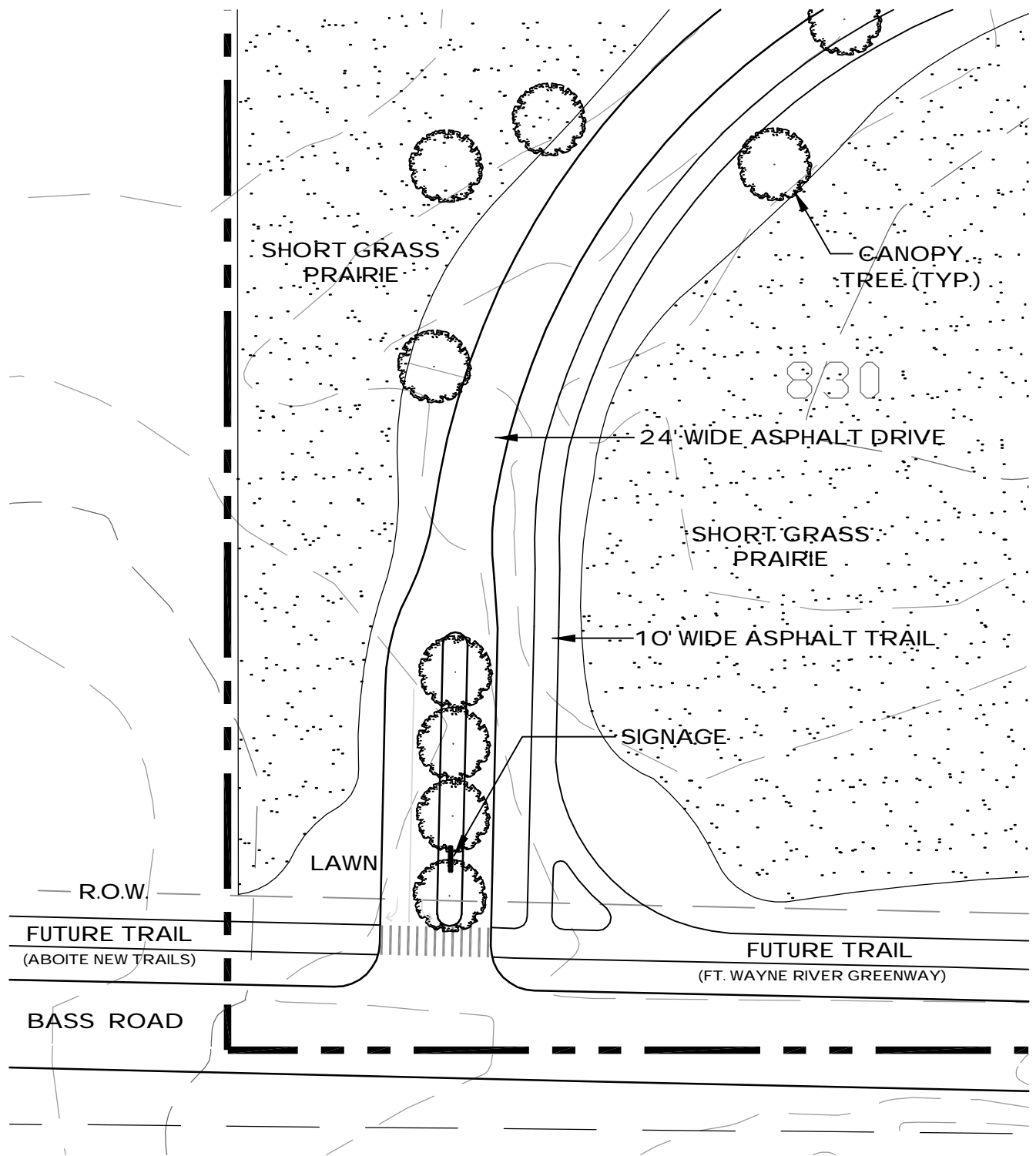
From an overall landscape perspective, this master plan gives consideration to creative stormwater management techniques, innovative pavement technologies and strives to minimize site disturbance. Architecturally, each building is to be designed as “green”, environmentally sensitive buildings, where possible. The buildings must also be constructed of strong durable materials that are as vandal resistant as possible. In addition, the Parks Department has requested utilization of natural materials to aid in blending the buildings into the surrounding landscape.

### **Vehicular & Pedestrian park entrance from Bass Road:**

The vehicular entrance from Bass road has been located to maximize the line of sight to traffic. (figure #5) However, it is recommended that future acquisition of property immediately adjacent to the west property line be considered. This acquisition would enable shifting this entrance further west improve the line of sight to westbound traffic crossing the I69 bridge on Bass road.

Proper acceleration and deceleration lanes are provided, as per Allen County Highway Department requirements, to facilitate ingress and egress of traffic to the park. (figure #6 Note: The posted speed limit on Bass Road is 40 mph.) A short boulevard style entrance is provided to aid in traffic calming and for entrance identification. Tree plantings are illustrated within this boulevard space. Respecting sight triangles and located within this boulevard, park identification signage may be placed perpendicular to Bass road. One ingress lane is provided, with one right turn and one left turn only lane provided for egress. Once into the park and past the boulevard, the pavement width narrows to a width of no greater than 24’ with no curbs or gutters to enhance the natural site drainage systems.

Providing a 10’ wide paved pedestrian trail at the park entrance accommodates pedestrian access into the park. This trail connects at Bass road to both Aboite New Trails as well as the City of Fort Wayne Rivergreenway trail system, thereby providing an outstanding destination point within the countywide trail system.

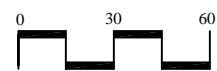


# FORT WAYNE PARKS & RECREATION BUCKNER PARK MASTER PLAN - ENTRY

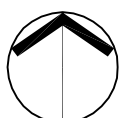
FIGURE #5



**Earth-Source Inc**  
14921 Hand Road, Fort Wayne, IN 46818 (260)489-8511

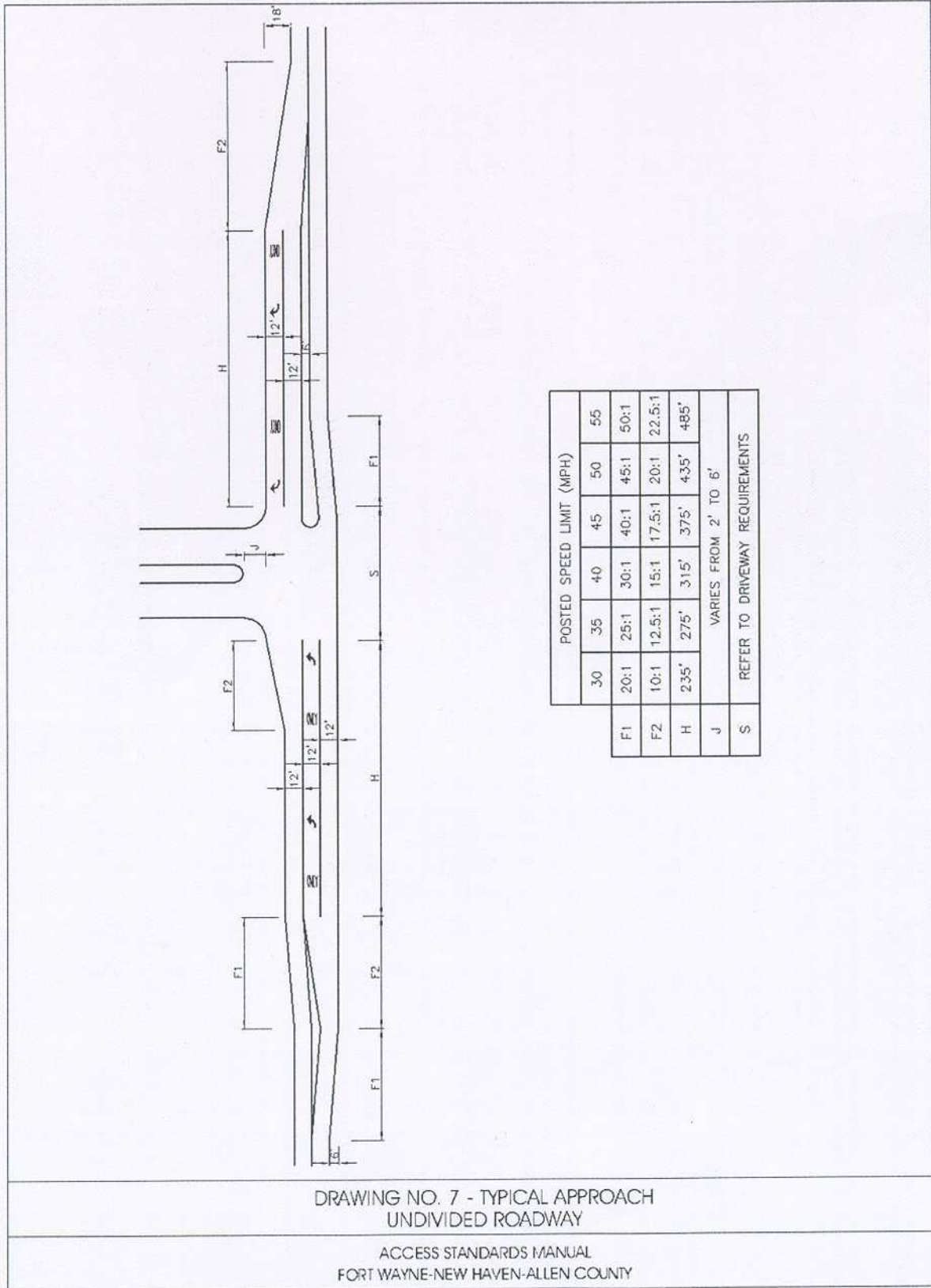


SCALE: 1" = 60'



NORTH

DRAWING #7



DRAWING NO. 7 - TYPICAL APPROACH  
UNDIVIDED ROADWAY

ACCESS STANDARDS MANUAL  
FORT WAYNE-NEW HAVEN-ALLEN COUNTY

**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

**Shelter #1:**

This area is the most active recreation use area of the park, and as such, is located near the entrance to provide effective spatial separation from the more tranquil use areas of the park. (figure #7)

*vehicular parking*

Two vehicular access points are provided into the radially aligned parking areas to improve circulation without unduly interrupting traffic flow on the primary entrance drive. Approximately 110 parking spaces are illustrated to accommodate use of the shelter, sprayground, playgrounds and the open meadow. The parking surface may be either solid surface paving such as asphalt, or an alternative paving such as porous concrete or porous brick paver. The benefit of the porous pavement is that the area required for stormwater retention may be greatly reduced or eliminated, depending upon soil porosity and pavement base design. As designed, the parking bays have been separated to accommodate surface runoff from the parking areas. Parking surface drainage flows into stormwater bio-swales between these parking areas. The stormwater runoff, upon entering these swales, is then slowed and gradually filtered through a gravel/soil planting medium. Excess runoff flows through a series of pipes and enters a constructed wetland designed specifically to capture and further cleanse the stormwater. Stormwater detention requirements will be met or exceeded by creating these individual storage/filtration cells within the system. The swales may be planted with native vegetation and maintained by either mowing or burning annually, with occasional spot herbicide treatments to control weedy species.

*lighting*

Security lighting is provided within the parking areas. A minimum of 2 poles is expected.

*garbage collection*

Trash receptacles will be placed as needed to accommodate garbage collection.

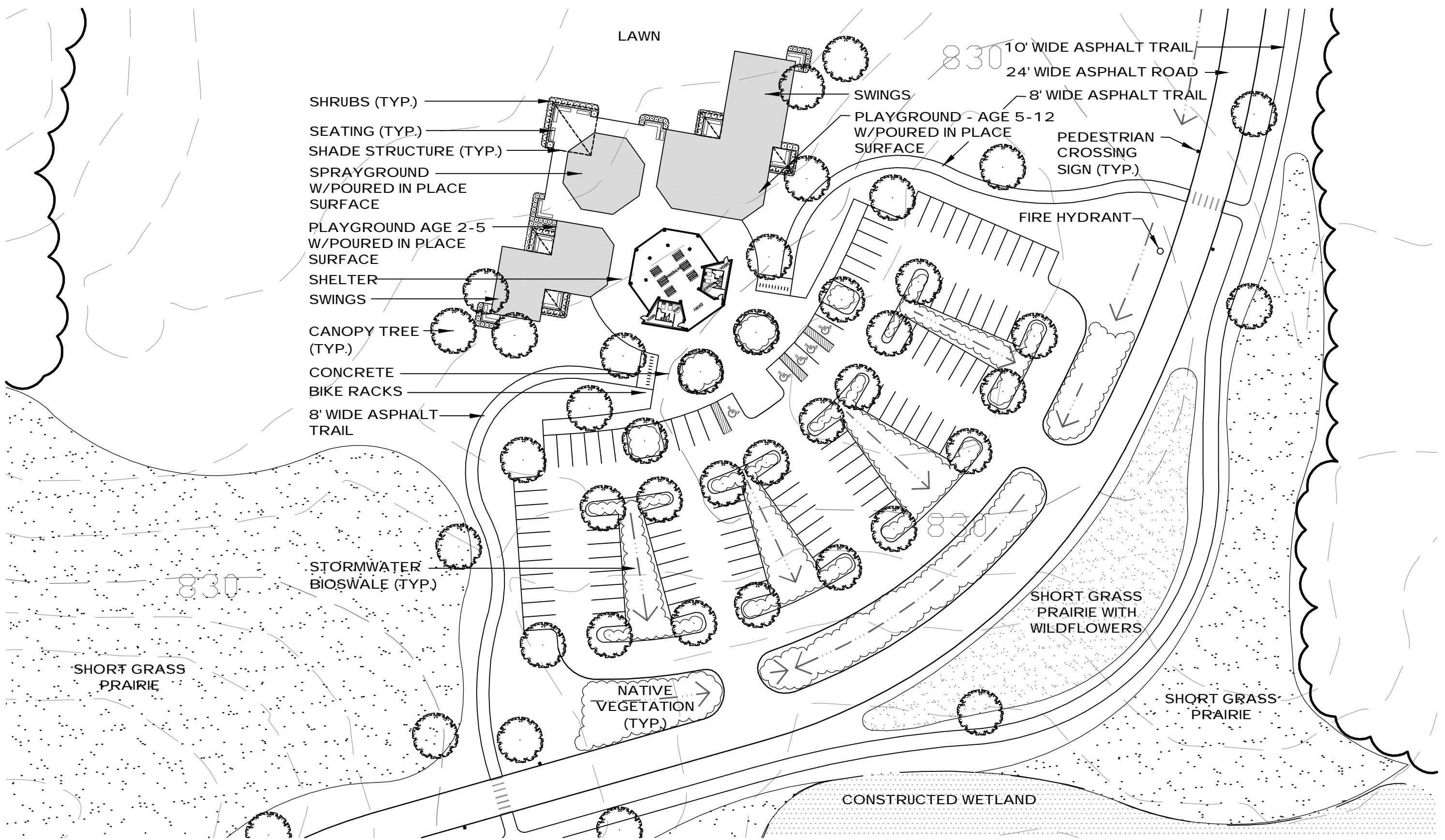
*pedestrian access*

Two, 8' wide trails are provided for pedestrian access to Shelter #1. Approximately 20 bicycle racks have been strategically placed to permit convenient bicycle storage without impeding pedestrian traffic flow.

*shelter*

This shelter is designed with an open view through to the sprayground and is completely at ground level providing excellent access from all points. The shelter provides shaded viewing of all play areas in addition to restroom facilities and picnic seating. Drinking fountains are also provided.

This building will provide shade, toilet facilities, and mechanical space for the playground/sprayground. (figure #8) This will be a 3,114 square foot octagonal shaped structure that is mostly open on all sides. It will consist of a steel frame with a metal deck and architectural standing seam metal roof. The restroom enclosures shall be constructed with concrete block. Exterior materials will be painted cement fiber siding with a cultured stone



- SHRUBS (TYP.)
- SEATING (TYP.)
- SHADE STRUCTURE (TYP.)
- SPRAYGROUND W/POURED IN PLACE SURFACE
- PLAYGROUND AGE 2-5 W/POURED IN PLACE SURFACE
- SHELTER
- SWINGS
- CANOPY TREE (TYP.)
- CONCRETE BIKE RACKS
- 8' WIDE ASPHALT TRAIL

- 8' WIDE ASPHALT TRAIL
- 10' WIDE ASPHALT TRAIL
- 24' WIDE ASPHALT ROAD
- PEDESTRIAN CROSSING SIGN (TYP.)

STORMWATER BIOSWALE (TYP.)

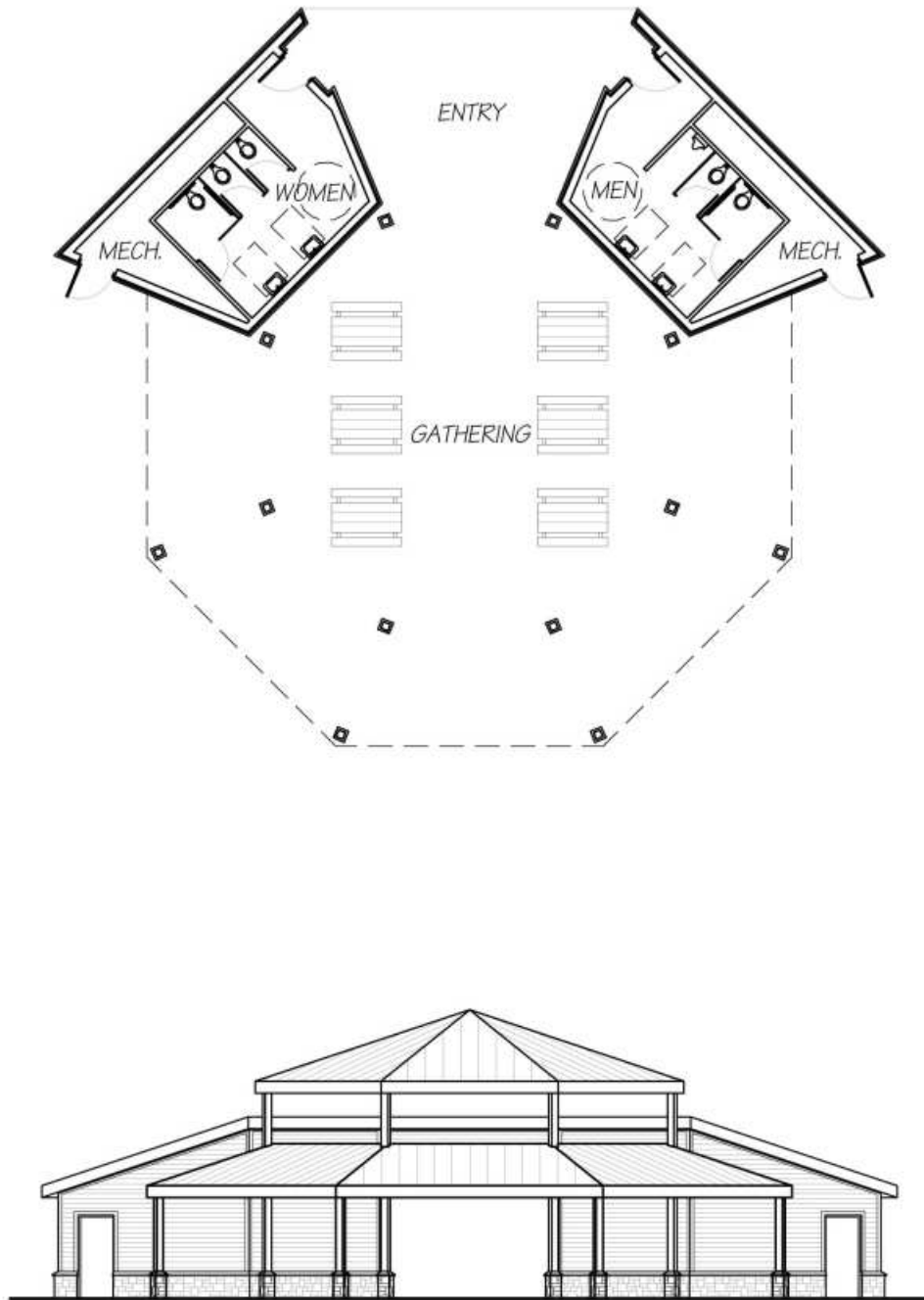
SHORT GRASS PRAIRIE

NATIVE VEGETATION (TYP.)

SHORT GRASS PRAIRIE WITH WILDFLOWERS

SHORT GRASS PRAIRIE

CONSTRUCTED WETLAND



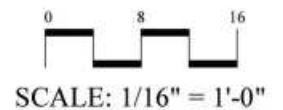
# FORT WAYNE PARKS & RECREATION BUCKNER PARK MASTER PLAN - SHELTER 1

FIGURE #8



903 West Berry Street  
Fort Wayne, Indiana 46802

p: 260.424.5942  
f: 260.422.8256





**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

watertable. The floors shall be plain concrete with good grade clear sealer. The interior restroom walls will be painted with epoxy paint. The doors and frames will be painted hollow metal.

Concrete paving provides pedestrian access from the parking area to the shelter and play areas. Sufficient space is allowed around the shelter for pedestrian traffic without crossing through the shelter space.

*playgrounds*

Two separate playground spaces are provided to accommodate children of differing age ranges. The play space immediately north of the shelter is allocated for a play structure to accommodate approximately 90 children, ranging in age from 5-12 years old. The play space immediately west of the shelter is allocated for a play structure to accommodate approximately 50 children, ranging in age from 2-5 years old. A resilient safety surfacing is provided for maximum fall protection while eliminating the potential for mulch material tracking into the sprayground. A set of 6 swings is provided for the 5-12 year old playground and for the 2-5 year olds, a set of 4 swings is provided. These swings are placed immediately adjacent to these play areas to minimize conflict with the play structure uses. Both the play structure space and the swing area are directly connected to the sprayground to minimize tracking of debris into the sprayground area.

*sprayground*

The sprayground contains approximately 14 spray components of various types, and may focus on a nature type theme. The surfacing is a resilient material to minimize impact from falls and provide maximum slip resistance. The water source will be city water and will be released through multiple flush drains into the sanitary sewer system following use. Although a filtered, recirculatory system was considered, the maintenance history of this system, including long term maintenance expenses are not deemed justifiable. Mechanical pumping and control equipment will be a wall mounted manifold system housed within the shelter.

*observation zones*

Multiple observation/seating zones are provided throughout the play area. Many of the seating areas included buffer plantings as well as shade canopy structures. The shade canopy structures are available in a wide variety of styles and colors and will provide an element of height to these spaces in leau of canopy trees. In addition, these shade canopies allow the ability to introduce multiple colors into the play environment, further enforcing the playful nature of this space.

*plantings:*

The use of deciduous trees was minimized near the sprayground to avoid the potential maintenance issue of leaves in the drainage system. To further minimize these maintenance issues, wood mulch will not be utilized near the sprayground. Trees will be placed within the parking areas to provide a cooling effect, as well as near the play structure areas for shade benefits. It is expected that small shrub and detailed perennial plantings will be reserved for the pedestrian entry space for the shelter.

**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

*play meadow*

This rolling, mown lawn meadow is intended for use as common play space, for pickup games of ball and other active recreational uses. Approximately 1.3 acres of the lowest portion of this meadow will be utilized during and immediately following rainfall events to temporarily retain stormwater runoff in a shallow pool. This area will be maintained as mown lawn otherwise. Several hundred feet along the west property line will be re-forested for an effective screen from neighboring uses.

**Shelter #2**

This area is tucked along the woodland edge to provide a more secluded setting in which this shelter may be rented or utilized for less boisterous activities than may occur surrounding shelter #1. (figure #9)

*vehicular parking*

A single access point to this parking area minimizes drive through traffic. The linear layout limits the visual and physical impact that one larger parking area would have on this area. Since this parking area may also serve as a trail head for the pedestrian loop trail, parking is also provided nearer to the loop trail. Approximately 40 spaces are illustrated to accommodate use of the shelter, the open meadow and possible trail head. The parking surface may be either solid surface paving such as asphalt, or an alternative paving such as porous concrete or porous brick paver. The benefit of the porous pavement is that the area required for stormwater retention may be greatly reduced or eliminated, depending upon soil porosity and pavement base design. As designed, with no curb or gutter, stormwater surface flows across the pavement and is captured in stormwater bio-swales. The runoff is then slowly and gradually filtered through a gravel/soil planting medium within these swales. Excess runoff enters the low point within the grass meadow to form a shallow pool where the water may either infiltrate into the soil surface or flow through a controlled outflow beneath the roadway prior to site discharge. Again, the intent of this design system is to minimize surface runoff leaving the site.

*lighting*

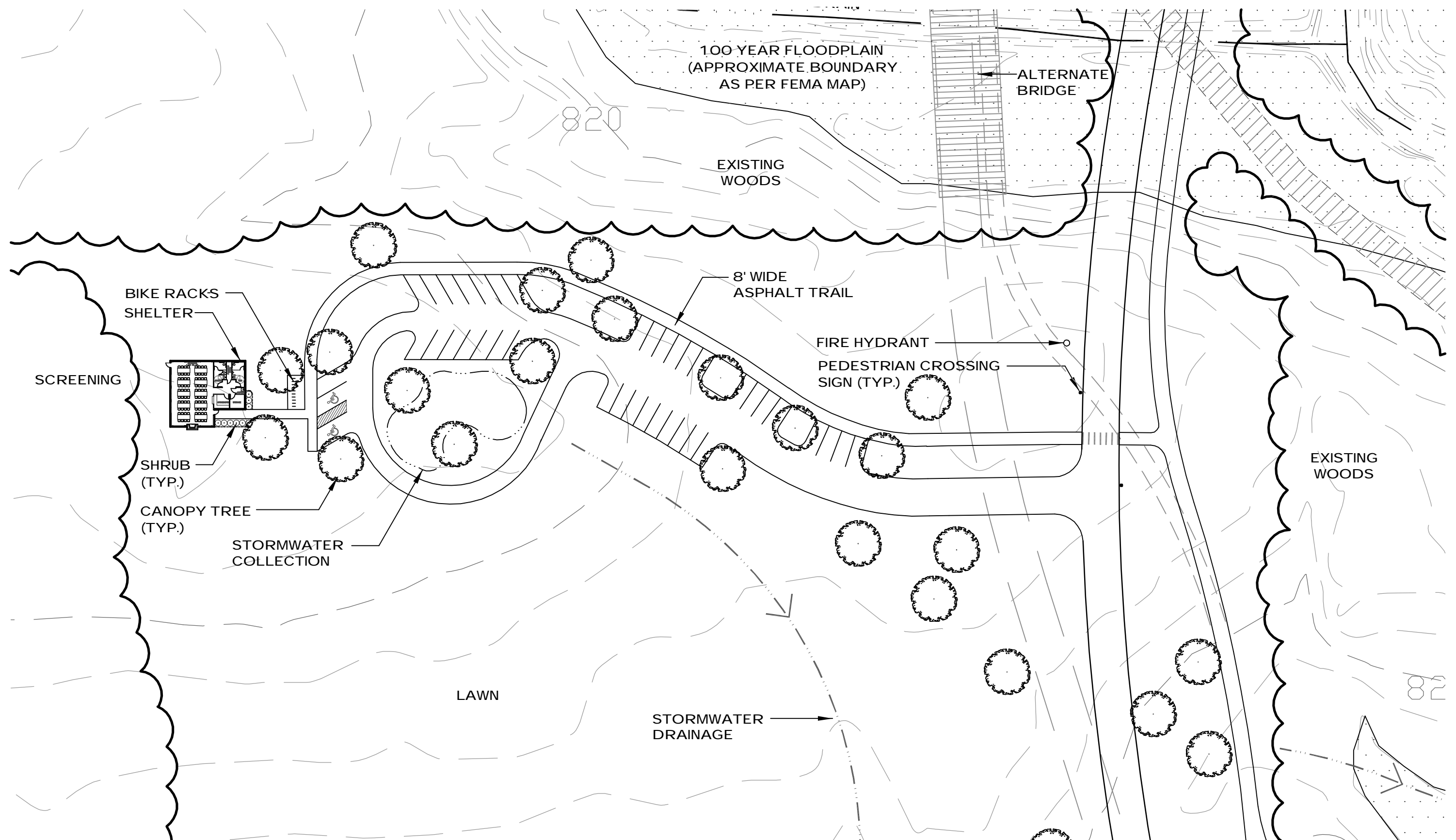
Given that this shelter is rentable and activities may extend into the evening hours, parking lot lighting is included and will be of the cut off fixture type to minimize spillage of light onto adjacent areas.

*garbage collection*

Trash receptacles will be placed as needed to accommodate garbage collection.

*pedestrian access*

An 8' wide trail connection to the primary loop trail is provided to bring pedestrian traffic into this space. Approximately 10 bicycle racks have been strategically placed to permit convenient bicycle storage without impeding traffic flow.

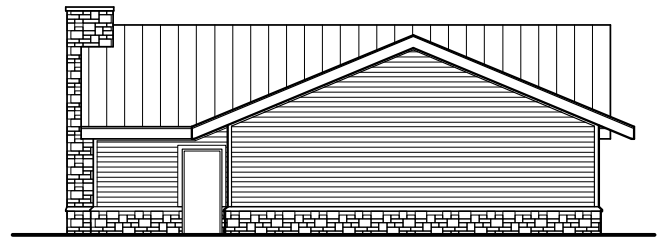
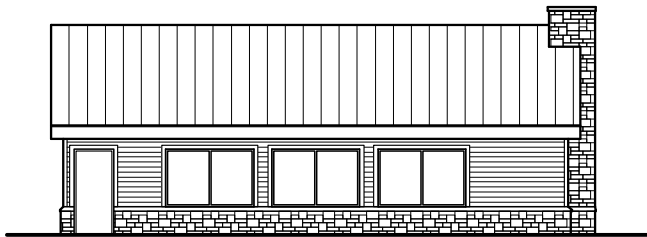
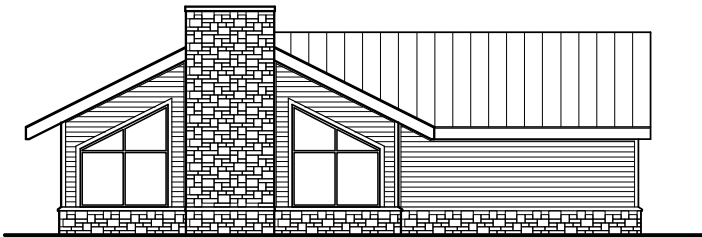
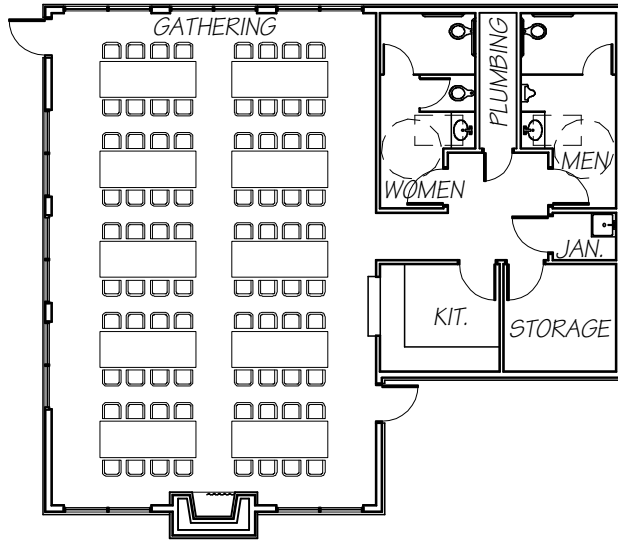


**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

*shelter*

This shelter is designed to encourage views from the interior to natural spaces to further enhance the feeling of being set apart from other areas of the site.

This building is intended as a rental facility utilized similar to other enclosed shelters throughout the park system. (figure #10) This is a 1,853 square foot "L" shaped conventionally constructed wood frame structure. Exterior materials will be painted cement fiber siding with a cultured stone waterable. The fireplace/chimney will be masonry construction. Interior walls will be painted drywall. The kitchen, toilet rooms and janitor closet will be covered with fiberglass reinforced panels. The windows will be clad wood, with low E insulated glass. All floors will be sealed concrete. This building will be heated and cooled with a closed loop ground source geothermal heat pump system.



# FORT WAYNE PARKS & RECREATION BUCKNER PARK MASTER PLAN - SHELTER 2

FIGURE #10



903 West Berry Street p: 260.424.5942  
Fort Wayne, Indiana 46802 f: 260.422.8256



SCALE: 1/16" = 1'-0"

**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

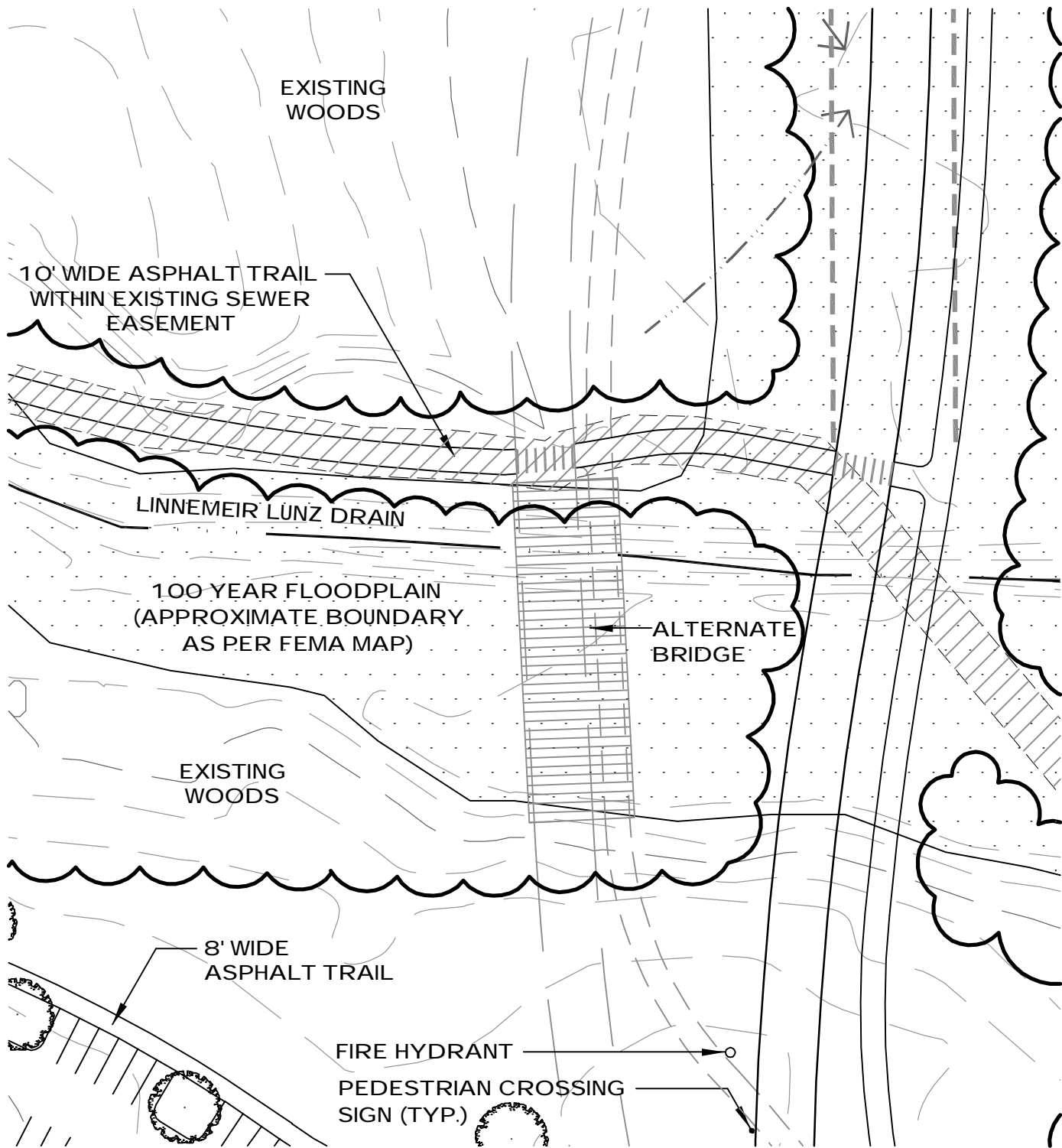
**Vehicular and Pedestrian Bridge Crossing**

Alignment of the vehicular drive has been maintained completely west of the Flaugh Drain to avoid crossing this drain. However, a crossing of the Linnemeir Lunz Drain is required to extend access to the Nature Center. The site plan (figure #11) illustrates two options for this crossing.

The preferred option shifts the roadway closer to Flaugh Drain, following the currently proposed sanitary sewer easement corridor. The benefit of this option is that the necessary tree clearing will have already been performed due to the sanitary sewer installation, thereby minimizing additional tree clearing that would be required should this roadway be located elsewhere. However, this location does require crossing approximately 430 linear feet of floodplain and possible wetland. In addition, to avoid flooding of this roadway during significant storm events, the pavement surface must be elevated above this floodplain. This will require “mitigation” or in other words re-construction of this floodplain elsewhere on-site as well as State and possible Federal water quality permitting for impacts to wetlands.

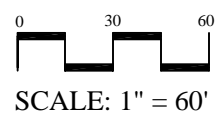
A second option is to shift this roadway slightly west to a point where the floodway begins to narrow. At this point a concrete bridge structure may be constructed to negate impacts to the floodplain, therefore not requiring mitigation. The bridge would be sufficiently wide to accommodate a separate pedestrian trail as well. It should be noted that any shift in the road pavement should ideally be accompanied by a similar shift in the location of the new sanitary sewer easement to avoid tree clearing for the sewer easement and for the roadway. Should the proposed sewer easement not be able to be feasibly relocated in this manner, then a much larger tree clearing swath would be required to accomplish this option, with much greater site impact.

Although the first option does require mitigation of the impacted floodplain areas, this is the recommended option due to the fact that the possible additional tree clearing required for the second option will result in more significant visual disturbance that is much more difficult to compensate for. In other words, it is easier to mitigate for the floodplain by excavating than to replace large trees removed from clearing.



# FORT WAYNE PARKS & RECREATION BUCKNER PARK MASTER PLAN - BRIDGE

FIGURE #11



**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

**Pond**

Approximately 2.8 acres in size, the pond is sited to take advantage of the natural topography that forms a ravine, approximately 12-16' in depth. (figure #12) This ravine developed over time from the drainage occurring through an ephemeral drainage channel that empties into the Flaugh Drain. The second advantage of this site for a pond is the drainage occurring through this ephemeral drainage channel. Approximately 20 acres drains through this point, thereby providing ample water source to support a pond of this size. This watershed area will be sufficient to provide the necessary water flow to provide proper oxygen levels and aid in flushing excess nutrients through the system. However, it should be noted that since a majority of this watershed exists offsite to the west, future development of this adjacent property could affect the amount and quality of water entering the pond. If development of this adjacent property should occur, the Parks Department should pursue entering into an agreement with the proposed development or landowner to insure the drainage continues to charge the pond.

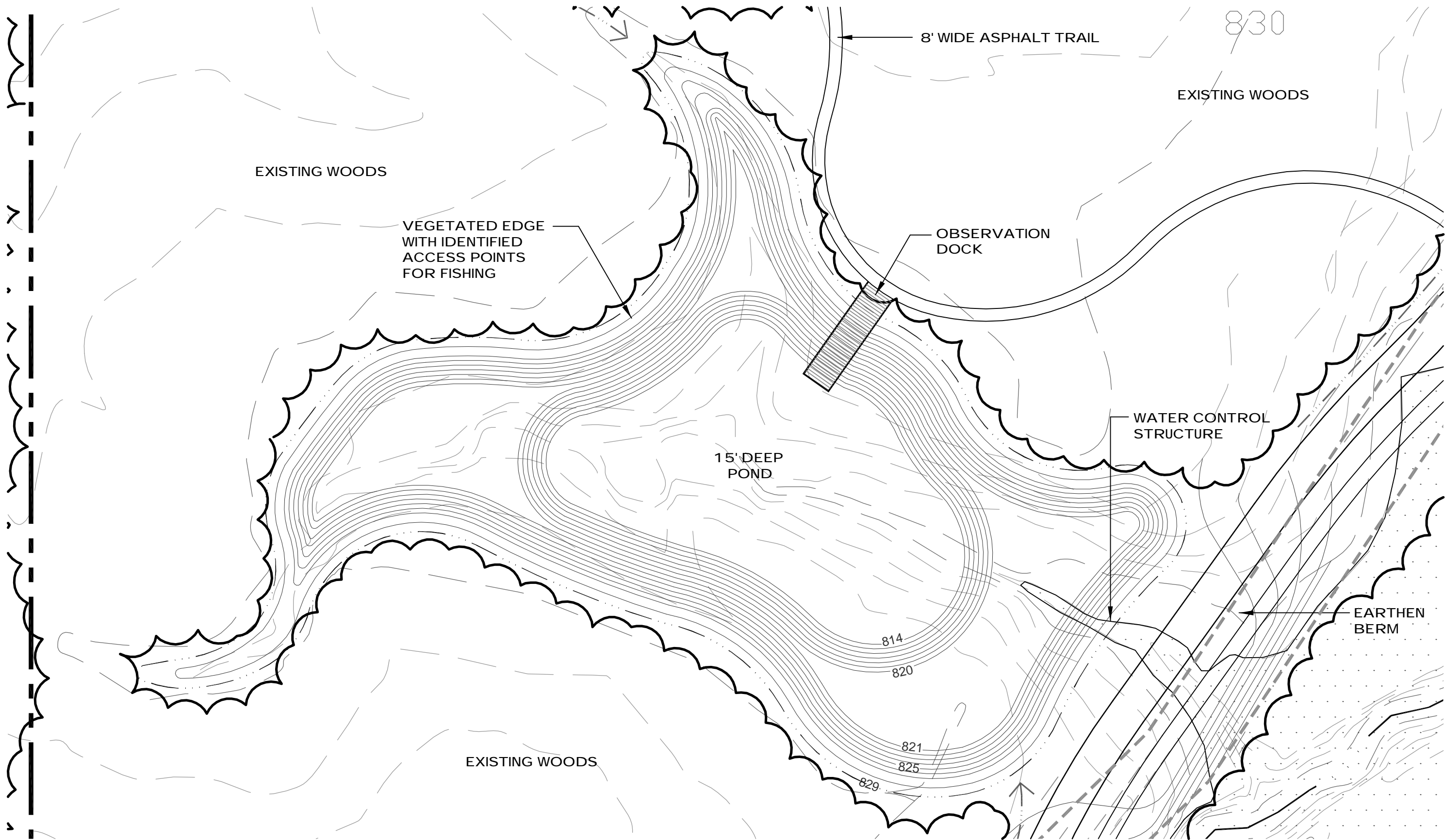
The soil types in this area include Blount silt loam and Shoals silty clay loam. According to the Allen County Soil Survey, both soil types demonstrate characteristics supporting pond development. These characteristics include a slow seepage rate, fair to good compaction characteristics and a seasonable high water table.

Roughly 1/3 of the pond area will be 15' deep, with the remainder in the 4-8' range. This configuration will support a healthy fish population, while minimizing deep water aquatic weeds. The pond edge will be constructed to support shallow aquatic vegetation providing a stable pond edge and excellent fisheries habitat. Select locations along the shoreline may be identified and constructed with stone outcroppings to provide specific access points for fishing. This technique minimizes foot traffic on the vegetated pond edge that can have the long-term effect of degrading the pond edge. A 75' long observation dock will extend over the pond from the pedestrian trail.

Clearing of the wooded area within the pond boundary will be required for pond construction. Although this approach may appear in contrast to the overall goal of minimizing site impacts, the resulting pond and wetland edges will increase wildlife diversity and provide stormwater filtration for water entering the site from the west. In addition, the tree clearing limits will be held tight to the pond edge to minimize clearing to only those trees necessary for the pond construction. Finally, several trees may be selected to remain within the pond boundary to provide wildlife habitat.

An earthen embankment will be constructed to provide the outlet control structure for the pond. This embankment will serve the dual purpose of providing the road bed as well. Although the embankment will not be excessive in height, non-intrusive, protective guard railing will be placed along both sides of the road as a safety precaution. These railings may be constructed of materials with low visual impact and will blend with the site. The fill for this embankment will impact the floodplain and require "mitigation" or replacement of this floodplain elsewhere on-site. Fortunately, the area of impact is relatively small resulting in a relatively straight forward mitigation.





**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

**Nature Center**

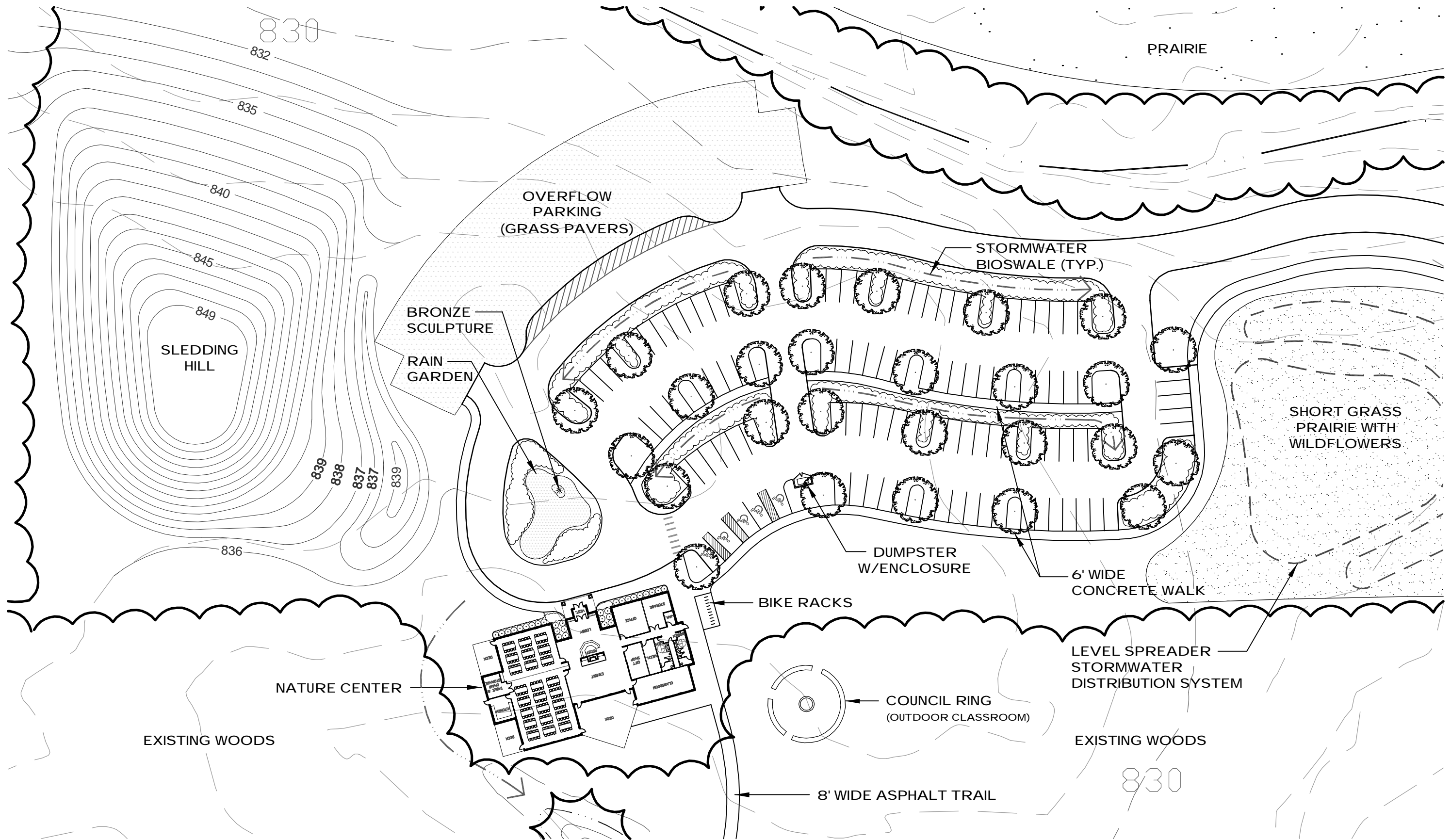
This location of the Nature Center provides a serene setting with significant existing vegetation to buffer noise from Interstate 69 and is well separated from other more active uses on-site. (figure #13) This location provides the ideal location for use as an education center, banquet hall, corporate meeting space and many other events.

*vehicular parking*

While approximately 106 permanent parking spaces are provided, the pavement areas are divided into smaller lots to minimize the visual impact that one large lot would have. The primary entrance drive exits the woods into a short grass prairie with wildflowers to transition into the more maintained look of turf grass. As this drive passes the parking area, a 15-20' separation is provided between this drive and the first parking area. Additional green space is provided between the two parking bays as well as multiple tree planting islands within the parking lot to permit shade and cooling of the pavement surfaces. Stormwater drainage of the parking lot is proposed to be accomplished via surface drainage from the lots into stormwater bio-swales, much as the parking area for Shelter #1. The parking surface may be either solid surface paving such as asphalt, or an alternative paving such as porous concrete or porous brick paver. As previously mentioned, the benefit of the porous pavement is that the area required for stormwater retention may be greatly reduced or eliminated, depending upon soil porosity and pavement base design. As designed, the parking bays have been separated to accommodate surface runoff from the parking areas. Parking surface drainage flows into stormwater bio-swales between these parking areas. The runoff is then slowed and gradually filtered through a gravel/soil planting medium within these swales. Excess runoff flows both east and west, as the parking will follow the existing topography to minimize site disturbance. Approximately 2/3 of the lot will drain to the east. This runoff will be temporarily captured in a shallow stormwater treatment basin, planted with native plants to aid in cleansing this runoff. This water will then enter a series of level spreader structures designed to allow this water to infiltrate back to groundwater. The remaining 1/3 of the lot will surface drain to the west into a rain garden located within the center of the circle drive at the entrance to the Nature Center. This rain garden, demonstrating the cleansing effects of plants, will provide an ideal entrance feature for the Nature Center. Bronze nature statuary may be introduced to add a touch of whimsy. Detailed flowering plantings not only assist in the stormwater cleansing process, but will also enhance the entrance aesthetically. Excess runoff from the rain garden will flow beneath the loop drive and into a stormwater bio-swale prior to entering the pond.

An overflow parking area has also been designated to contain approximately 60 spaces on an as-needed basis. The pavement surface for this parking will be a reinforced turf surface that will tolerate occasional parking, effectively absorb rainfall and visually appear much less intrusive than a gravel or paved lot.

Several handicap parking spaces are conveniently located near the building entrance. The overall layout of the parking serves to minimize visual impact upon views from the Nature Center. Particular consideration was given to the conference rooms on the west side of the building to insure the primary views from these spaces are not of paved areas.



**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

*garbage collection*

A dumpster pad and screened enclosure is illustrated immediately accessible from the parking, but not largely within view of the Nature Center.

*lighting*

Given the use expected in the Nature Center may extend into the evening hours, parking lot lighting is included and will be of the cut off fixture type to minimize spillage of light onto adjacent areas.

*pedestrian access*

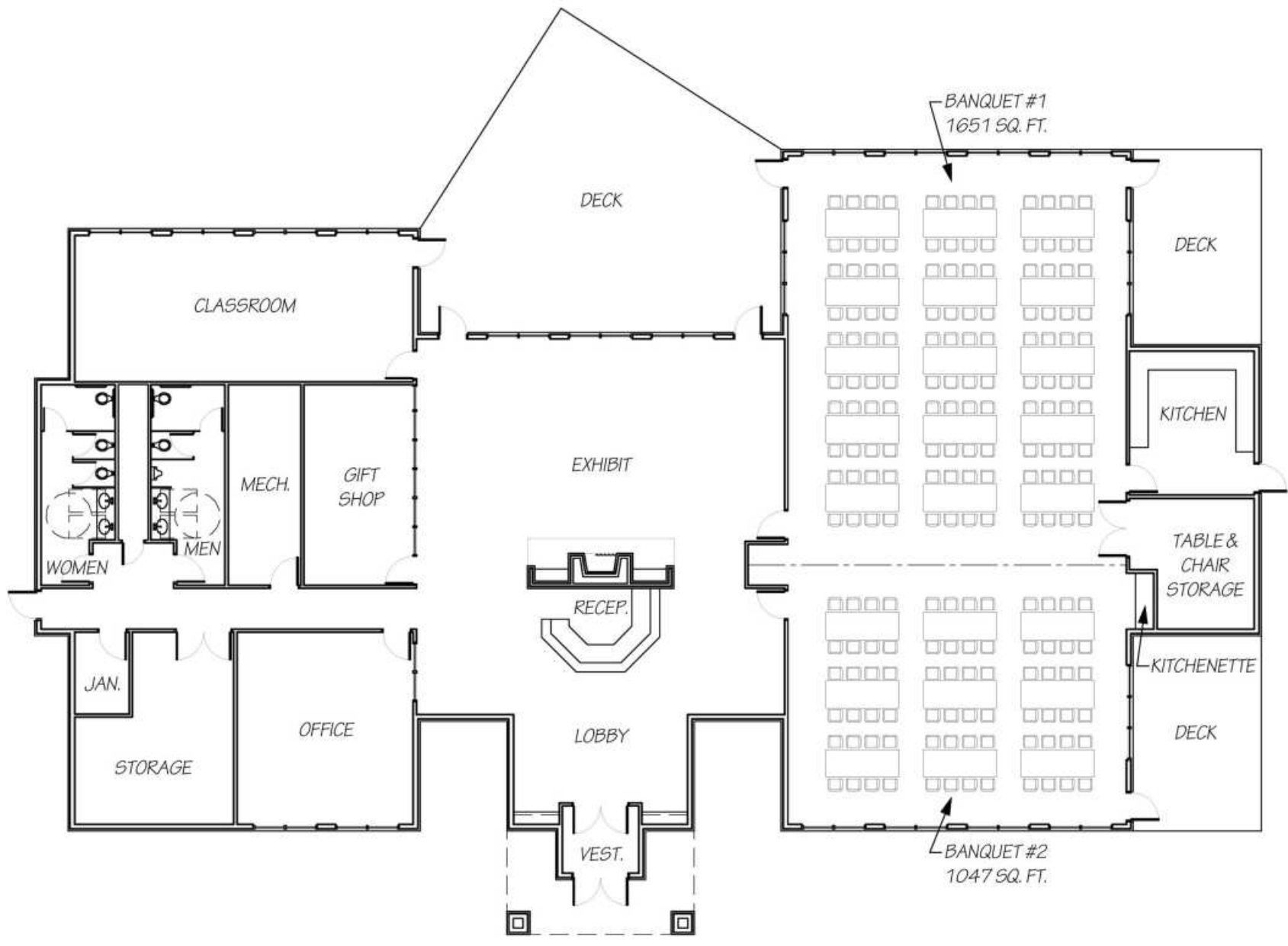
An 8' wide trail is provided for pedestrian access to the Nature Center. This trail branches off the primary loop trail, travels through the woods and then traverses the pond edge before providing access to both the rear and front of the Nature Center. Approximately 10 bicycle racks have been strategically placed to permit convenient bicycle storage without impeding pedestrian traffic flow.

*building*

This 7,929 square foot, conventionally constructed wood frame building is planned as a truly multi-functional structure. (figure #14) The heart of the Nature Center will be the exhibit hall. With high vaulted ceilings featuring exposed wood trusses and a massive stone fireplace at its center, it will be filled with various objects and displays. This space will serve as the nucleus for the activities and programs that take place in this part of the park. In addition to exhibition space, it will have meeting rooms, equipped with the latest audio-visual technology and wireless Internet access. These rooms will accommodate 200 people banquet style or can be divided for smaller groups. A serving kitchen is provided to facilitate catering. The program includes a classroom for day camp participants that will also double as a warming shelter for ice skating and sledding. There is also space allocated for a gift shop and administrative offices.

The exterior materials will be painted cement fiber siding with a cultured stone watertable. The interior materials will be similar to shelter two except the exhibit space floors will be constructed of stamped/colored concrete to simulate natural stone. The meeting room floors will be carpeted. These spaces will also have vaulted ceilings with exposed wood trusses. This building will be heated and cooled with a closed loop geothermal heat pump system with the coils located in the pond.

The gray water reclamation system for this building will include collecting the rainwater from the building roof with gutters and downspouts and piping it to an underground holding tank. This water is pumped from the tank through pipes to fixtures and may be utilized for flushing toilets, urinals and for irrigation. Simple float controls add water from the potable system if the water level drops too low. An overflow pipe prevents the storage tank from becoming too full. The water must be filtered to remove large organic matter and treated with ozone gas to eliminate microbial activity while in the storage tank.

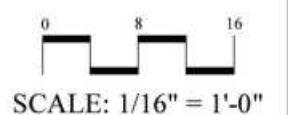


FORT WAYNE PARKS & RECREATION  
**BUCKNER PARK MASTER PLAN - NATURE CENTER**

FIGURE #14



903 West Berry Street  
 Fort Wayne, Indiana 46802  
 p. 260.424.5042  
 f. 260.422.8256



**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

*landscape*

In addition to the centralized rain garden, as previously discussed, landscaping should be relatively minimal and more naturalistic to result in a more sustainable system and contribute to the overall setting of the Nature Center. Outdoor spaces for learning should be incorporated. One of these types of outdoor spaces may be a “Council Ring”. This term, originally coined by landscape architect Jens Jensen, is well suited to a naturalistic environment such as this park. The Council Ring may be constructed from a variety of materials, but should be complimentary of building components and natural site elements. The circular nature of the council ring, with seating at the perimeter serves to focus attention at the speaker in the center of the ring.

**Sledding Hill**

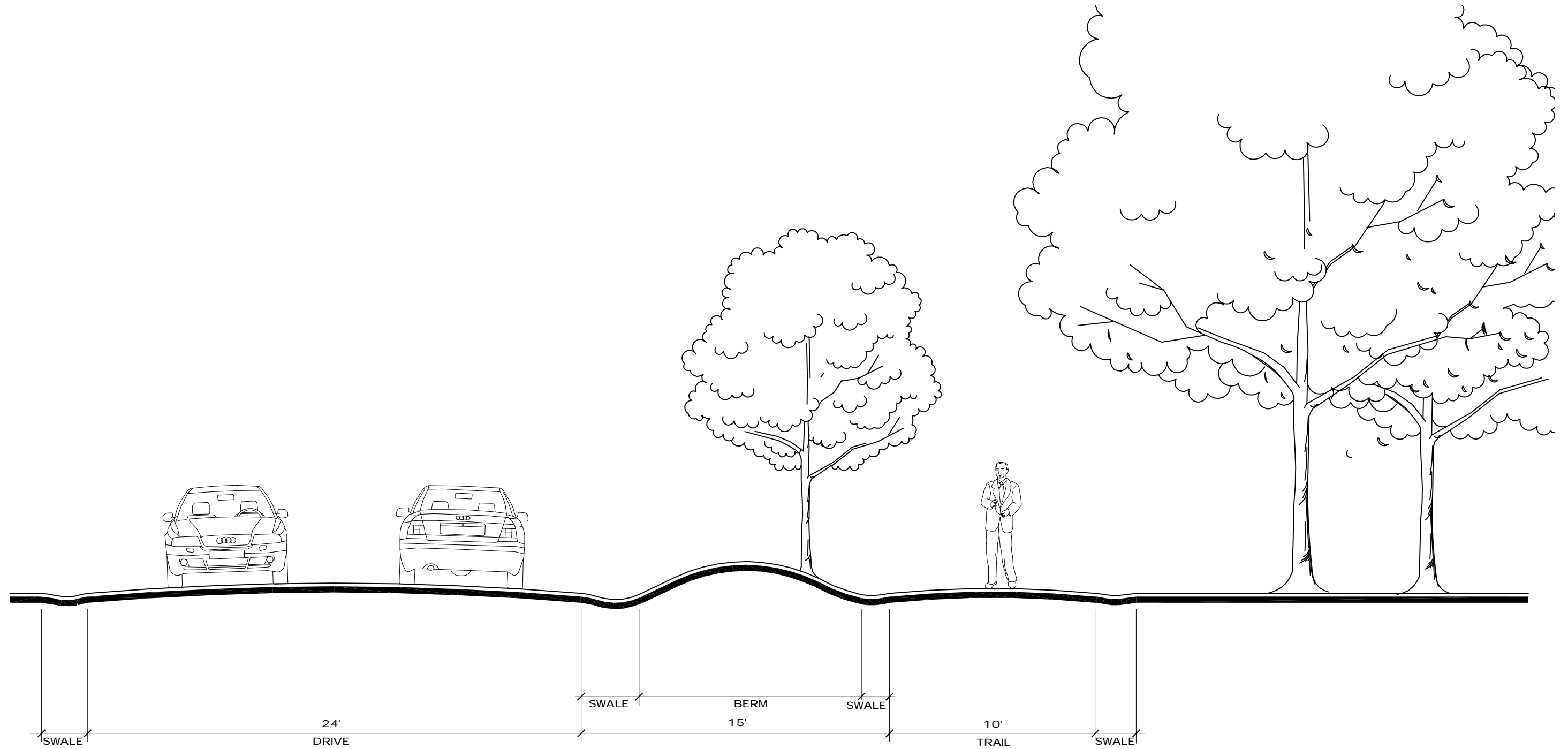
The sledding hill is located immediately northwest of the Nature Center and will provide winter sledding with close proximity to the warming shelter within the Nature Center. (figure #13) The northern orientation of the sledding slope minimizes the warming effects of the sun, thereby allowing snow to remain for a longer period. The peak of the hill is approximately 15 feet above existing grade. The relatively gentle slope, beginning at approximately 8’ horizontal to 1’ vertical, provides conditions for gaining speed gradually, then slowing at the base by expanding the slope to meet with existing grade. The east, south and west facing slopes of this hill are designed at a 5’ horizontal to 1’ vertical slope ratio to permit mowing. Although it is likely that sledding will occur on these slopes as well, taller grass or prairie vegetation may be allowed to grow on these slopes to discourage sledding in these areas. In addition, a low berm is illustrated at the base of the east facing slope to discourage errant sledding into the parking areas.

Soil from the pond excavation and Nature Center construction will be utilized for construction of the sledding hill. The intent is to balance the soil excavated from the pond, Nature Center and other areas with fill required for the sledding hill and other areas on-site where soil fill is required.

**Multi-Use Pedestrian Trail**

This trail provides access to all areas of the park via a 10’ wide paved surface. (figure #4) Upon entering the park from Bass road, two intersections provide access to Shelter #1. The trail meanders along the primary entrance drive, but at no point is closer than 15’, with the possible exception of the culverted crossing of the Linnemeir Lunz Drain. In the locations where the trail parallels the drive, a low earthen berm with mown lawn will be maintained to provide physical as well as visual separation between the vehicular drive and the pedestrian trail. (figure #15) The primary loop trail, approximately 1.2 miles in length, provides access through various elements of the park, including a white pine grove, oak hickory woods, floodplain communities, several bridge crossings of the Flaugh Drain, an oak savanna community, tallgrass prairie communities as well as traversing varied topography. The entire paved trail is intended to be handicap accessible as well. Benches, placed on solid surface pads, are to be provided at select locations along the trail as well.

A northern trail connection is illustrated providing pedestrian connection to future residential development immediately north of the park. The final location of this trail will be coordinated with this future development. Also, a second pedestrian access point may be developed



**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

following the existing sanitary sewer utility corridor and connecting to future neighborhoods to the west. (figure #4) Finally, secondary mulch or non-surfaced trails may be expanded off of this primary trails to further explore the park.

The northern trail crossing of the Flaugh Drain is combined with the service drive. This crossing will utilize a pre-manufactured wooden bridge designed for emergency vehicular traffic. The remaining bridge crossings will also be pre-manufactured wooden structures that will accommodate pedestrians and light maintenance vehicles.

### **Utilities**

To minimize tree clearing and land disturbance, all site utilities will be placed within the clearing for the sewer easement and circulation corridor. (figure #16)

#### *sewer*

The proposed sewer main running north from the existing sewer main will be installed by others. The Parks Department will be responsible for the installation of the sewer main running south to service both shelter #1 and shelter #2 and also the sewer line to service the nature center.

#### *water*

Although there are several possibilities for the proposed water route, the most feasible route will bring water into the park from Bass Road. The water main will follow the drive to service shelter #1 and shelter #2. The water main will be extended into the park from the north by the development to the north of the park and will end at a fire hydrant. A water line can be extended from this fire hydrant to the nature center.

#### *electric and telephone*

Electric and telephone service will be brought into the site from Bass Road and extended through the site along the drive.

### **General Site**

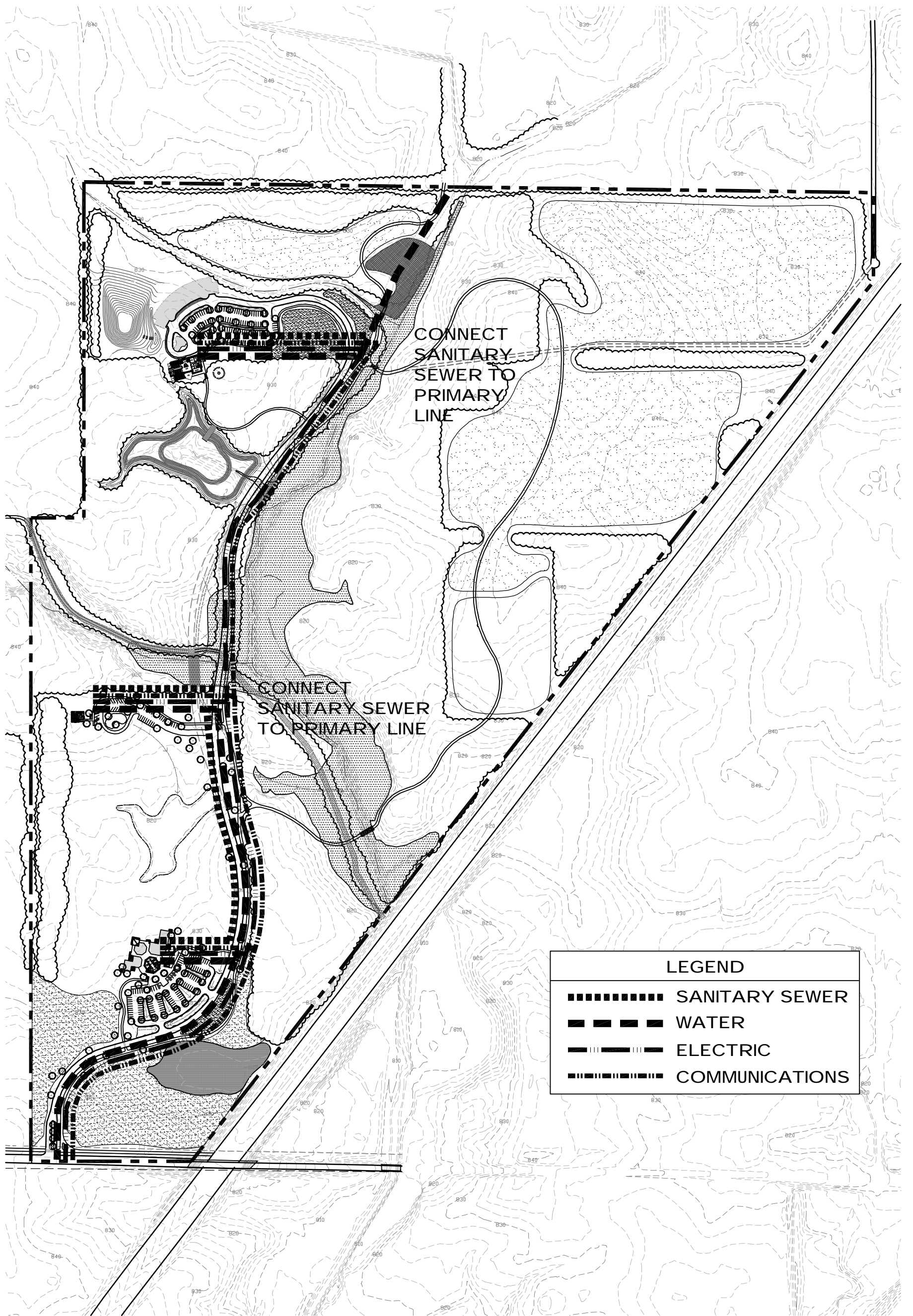
#### *groundplane*

An overall effort has been made to minimize site maintenance. As a result, mown lawn areas are limited to areas requiring play surfacing or where space is too small to effectively maintain a more natural system. Larger areas may be better managed through the development of prairie or intensive wildflower plantings. These natural communities require less maintenance than lawn areas, and can be successfully established and maintained through either annual burning or mowing and removal of the remaining vegetative layer.

#### *existing woods*

The intent is to keep the existing wood in their existing condition. Removal of invasive species such as honeysuckle and multiflora rose is encouraged. Placement of trails should minimize tree removal. Trails should be staked in the field to aid in avoiding significant existing trees.





# FORT WAYNE PARKS & RECREATION BUCKNER PARK MASTER PLAN - UTILITIES

FIGURE #16

**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

*re-forestation (screening)*

Areas indicated to receive screening treatments may be planted with a variety of tree and/or shrub seedlings and managed to encourage successful re-forestation vegetation that, over time, will serve as effective screening from adjacent land uses. Native hardwood species should be strongly considered for these plantings. This re-forestation also provides compensation to mitigate the loss of some existing tree canopy resulting from clearing for utilities, roads and buildings.

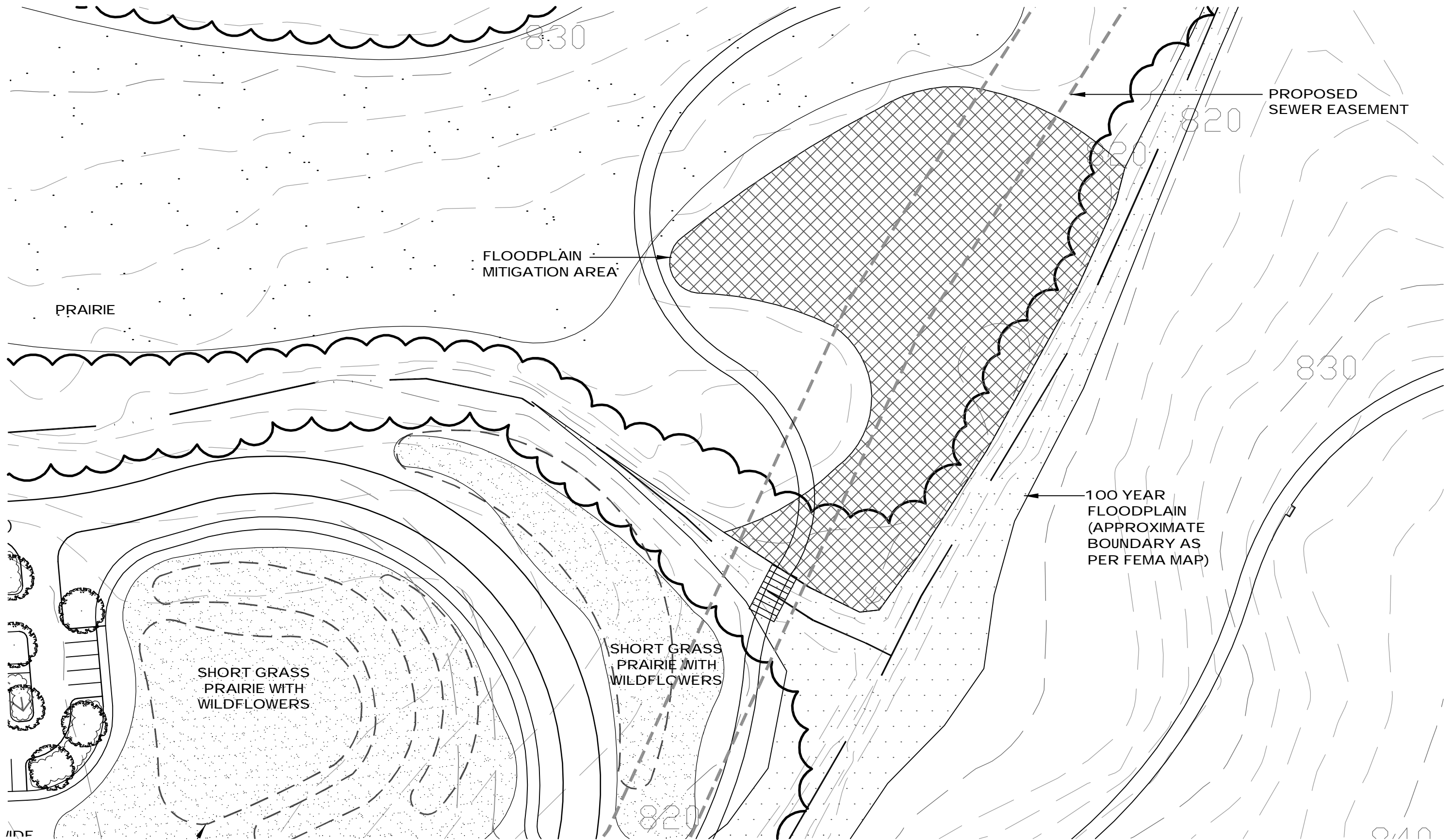
*drainage*

Proper drainage should be considered in construction of the roadway and trail systems to insure that upland drainage is not impounded or restricted. This may be accomplished through a series of culvert pipes placed at existing grade beneath the roadway. Another method to allow for this drainage is the placement of an open aggregate base to permit the ebb and flow of water without the concern of culverts becoming clogged or blocked.

Stormwater runoff from paved surfaces is either being collected and transferred back to groundwater or captured, treated and allowed to slowly leave the site.

*floodplain mitigation*

Excavation will need to occur adjacent to the floodplain to mitigate for the fill needed to construct the road above floodplain elevation. The site plan illustrates an area ideal for mitigation without any tree clearing necessary. (figure #17)



**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

**V. CONSTRUCTION COSTING**

**Cost Summary**

The cost summary below illustrates a synopsis of anticipated costs of construction per each identified “area” of the park. These areas follow a logical development progression and are illustrated in figure #18.

Area	Cost
1. Entrance, Access Road & Shelter 1	<b>\$2,795,738.00</b>
- phase 1 (figure #19) *	\$1,965,691.00
- phase 2 (figure #19)	\$603,813.00
- phase 3 (figure #19)	\$330,947.00
2. Access Road and Shelter 2	<b>\$1,522,665.00</b>
3. Access Road, Pond & Nature Center	<b>\$5,524,421.00</b>
4. Loop Trail	<b>\$404,568.00</b>

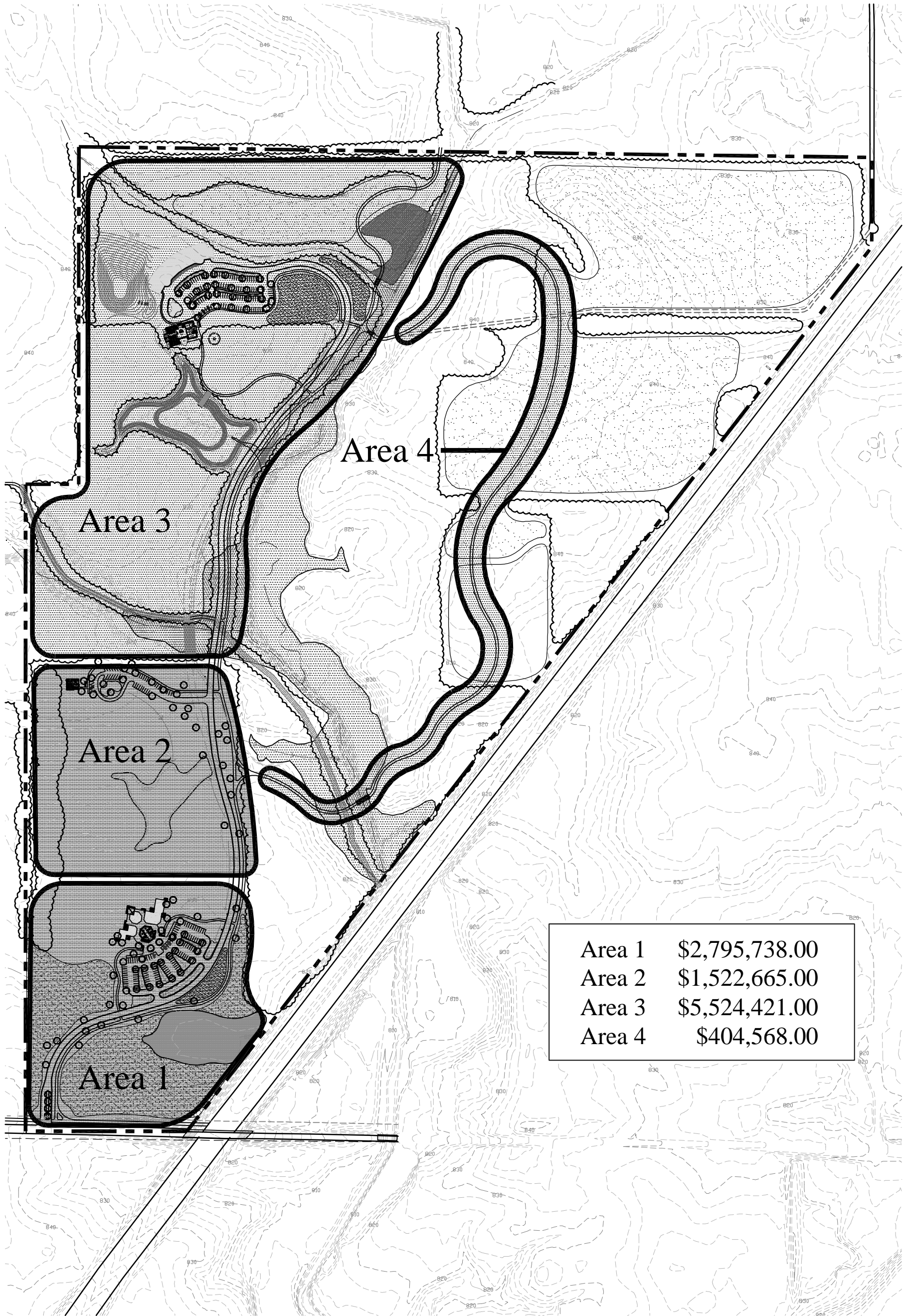
\* Refer to the following page for a detailed breakdown of phase 1 costs.

Note: Due to the breakdown of areas and phasing, these costs are higher than the total cost reflected in the detailed cost estimate which follows.

**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

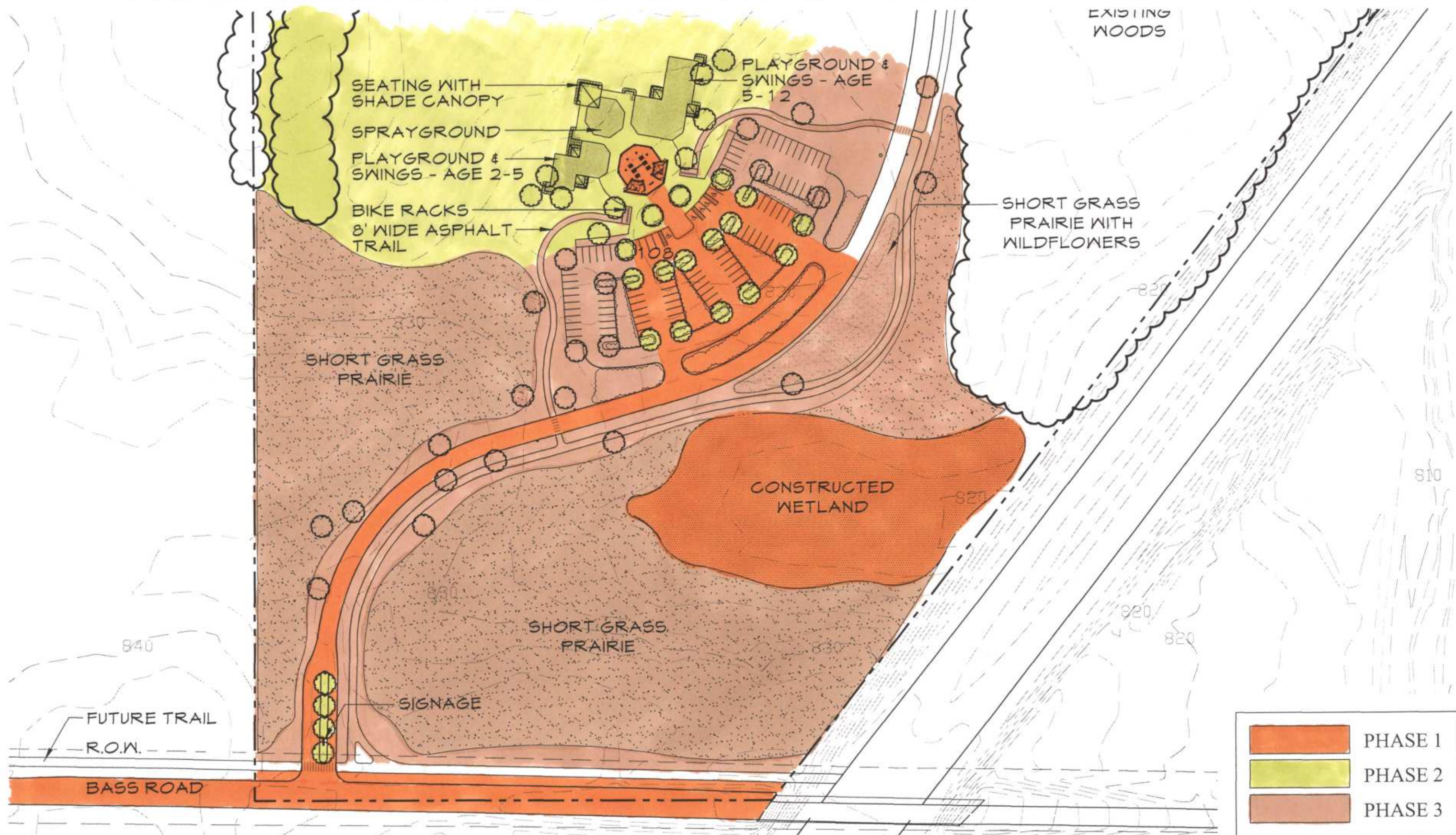
**Area 1, Phase 1, Anticipated Construction Costs**

<b>Phase One Subtotal</b>		<b>\$934,802.18</b>
<hr/>		
Field Supervision/general conditions	5.0%	\$46,740.11
Overhead & Profit	10.0%	\$98,154.23
Contractor's Bond	1.0%	\$10,796.97
		<hr/>
<b>Total Sitework Budget (No Contingency)</b>		<b>\$1,090,493.48</b>
<hr/>		
<b>Shelter 1</b>		
<hr/>		
building cost	LS	\$355,982.00
A/E Fee Allowance	8.0%	\$28,478.56
		<hr/>
<b>Total Shelter I Building Budget</b>		<b>\$384,460.56</b>
<hr/>		
<b>Design and Review</b>		
<hr/>		
A/E Fee Allowance	8.0%	\$87,239.48
Permitting & Approvals	LS	\$25,000.00
<hr/>		
<b>Total Phase One Construction Budget (No Contingency)</b>		<b>\$1,587,193.52</b>
<hr/>		
<b>Management &amp; Inspection (Construction)</b>		
<hr/>		
Owner Administration costs	1.0%	\$12,027.33
<hr/>		
<b>Reservations:</b>		
<hr/>		
Contingency (design)	10.0%	\$121,476.03
Contingency (construction)	5.0%	\$66,811.82
Escalation (Summer 2007 midpoint)	4.7%	\$65,943.26
<hr/>		
<b>TOTAL PHASE ONE COST</b>		<b>\$1,965,691.44</b>



FORT WAYNE PARKS & RECREATION  
 BUCKNER PARK MASTER PLAN - AREAS

FIGURE #18



**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

**Cost Estimate**

The following cost estimate provides a detailed breakdown of the anticipated project construction costs.



**SD Estimate**

**Buckner Park Site Development  
Fort Wayne, Indiana**

**Prepared For**

**Earth Source Inc**

14921 Hand Road  
Fort Wayne, IN 46818

**Prepared By**

**Moss Construction Cost Management Inc.**

**6/30/06**

**PROJECT COST SUMMARY**



Proj. No.:		Date:	<b>30-Jun-06</b>
Project Name:	<b>Buckner Park Site Development</b>	Classification:	<b>Public</b>
Project Location:	<b>Fort Wayne, Indiana</b>	Estimated by:	<b>JM</b>
Estimate Type:	<b>SD Estimate</b>	Checked by:	<b>DD</b>
		Bid Date:	<b>Various</b>

		Base Scope	Alternates
<b>Construction:</b>		<b>\$ 5,378,800</b>	<b>\$ 226,400</b>
General Construction (per attached)	<a href="#">Access Road - 1st Phase</a> <a href="#">Access Road - 2nd Phase</a> <a href="#">Access Road - 3rd Phase</a> <a href="#">Loop trail</a> <a href="#">Shelter 1</a> <a href="#">Shelter 2</a> <a href="#">Nature Center</a> <a href="#">Miscellaneous</a>	665,180 343,586 1,089,132 213,855 778,196 248,963 632,099 639,914	144,713 22,438 7,267 19,698
<b>Subtotal (rounded)</b>		<b>\$ 4,610,900</b>	<b>\$ 194,100</b>
Field Supervision/general conditions	5.0%	230,500	9,700
Overhead & Profit	10.0%	484,100	20,400
Contractor's Bond	1%	53,300	2,200
<b>Total Construction Budget (No contingency)</b>		<b>\$ 5,378,800</b>	<b>\$ 226,400</b>
<b>Design and Review:</b>		<b>\$ 455,300</b>	<b>\$ 18,100</b>
A/E Fee allowance	8.00 %	430,304	18,112
Permitting & approvals	1 LS	25,000	Included
<b>Management &amp; Inspection (Construction):</b>		<b>\$ 58,300</b>	<b>\$ 2,400</b>
Owner Administration costs	1%	58,300	2,400
<b>Reservations:</b>		<b>\$ 1,233,180</b>	<b>\$ 51,680</b>
Contingency (design)	10%	589,200	24,700
Contingency (construction)	5%	324,080	13,580
Escalation (Summer 2007 midpoint)	4.7%	319,900	13,400
<b>Total Project Estimate</b>		<b>\$ 7,125,580</b>	<b>\$ 298,580</b>
<b>Cost/SF</b>			



Project Number: **0.000**  
 Project Name: **Buckner Park Site Development**  
 Project Location: **Fort Wayne, Indiana**  
 Component: **SD Estimate**

Date: **30-Jun-06**  
 SG Bldg No.: **Public**  
 Bid Date: **Various**

SYSTEM	SUBSYSTEM	QUANTITY	UNIT	INSTN	MATL'S	UNIT COST	ITEM COST	SYS.COST
<b>Access Road - Phase 1</b>								
02	Site clearance - general	3.3	ACRE	2602.32	0.00	2,602.32	8,458	
02	Site clearance - trees	0	EA					
02	Strip topsoil	550	CY	4.34	0.00	4.34	2,385	
02	Grading - roads & trails	4,589	SY	3.47	6.66	10.13	46,469	
02	Paving - asphalt w/12" crushed stone base (Vehicle)	3,167	SY	13.01	19.02	32.03	101,436	
02	Paving - asphalt w/4" crushed stone base (ped/light)	1,422	SY	1.95	14.27	16.22	23,060	
02	Acceleration lanes, county spec	8,000	SF	1.43	2.38	3.81	30,470	
02	Curb & Gutter, concrete - @ ENTRANCE ONLY	1,800	LF	4.34	9.51	13.85	24,925	
02	Drainage - open swale, cut & grade	1,250	LF	6.51	3.80	10.31	12,887	
02	Sewer Main	1,311	LF	9.54	19.02	28.56	37,445	
02	Water Main, 8" PVC	2,000	LF	10.84	23.78	34.62	69,236	
02	Underground services - electric, direct buried	1,250	LF	43.37	9.51	52.88	66,103	
02	Underground services - telephone duct	1,250	LF	34.70	16.64	51.34	64,175	
02	Underground services - manholes and structures, allow	9	EA	1040.93	1902.00	2,942.93	26,486	
02	Construction entrance/wheelwash	1	EA	693.95	1426.50	2,120.45	2,120	
02	Erosion/sedimentation control measures	1	LS	1734.88	2853.00	4,587.88	4,588	
02	Maintain erosion control	4	MOS	1387.91	0.00	1,387.91	5,552	
02	Grass prairie planting - short grass	25,900	SY	0.22	0.33	0.55	14,237	
02	Grass prairie planting - short grass w/wildflowers	1,600	SY	0.48	0.82	1.29	2,072	
02	Grass prairie planting - tall grass	0	SY	0.26	0.41	0.67	0	
02	Constructed wetland allowance	13,000	SY	4.34	4.76	9.09	118,199	
02	Driveway lighting	0	EA					
02	Traffic markings, allow	2,700	LF	0.09	0.14	0.23	619	
02	Signage - main entrance	1	LS	1040.93	2853.00	3,893.93	3,894	
02	Signage - traffic signs	2	EA	86.74	95.10	181.84	364	
<b>Access Road - Phase 1</b>								<b>\$665,180</b>
<b>Access Road - Phase 2</b>								
02	Site clearance - general	2.6	ACRE	2602.32	0.00	2,602.32	6,766	
02	Site clearance - trees	0	EA					
02	Strip topsoil	440	CY	4.34	0.00	4.34	1,908	
02	Grading - roads & trails	3,967	SY	3.47	6.66	10.13	40,177	
02	Paving - asphalt w/12" crushed stone base (Vehicle)	2,533	SY	13.01	19.02	32.03	81,149	
02	Paving - asphalt w/4" crushed stone base (ped/light)	1,434	SY	1.95	14.27	16.22	23,255	
02	Drainage - open swale, cut & grade	1,000	LF	6.51	3.80	10.31	10,310	
02	Concrete paving adjacent detention ponds, 8"	840	SF	1.73	4.28	6.01	5,052	
02	Water main, 8" PVC	1,500	LF	10.84	23.78	34.62	51,927	
02	Underground services - electric, direct buried	1,000	LF	43.37	9.51	52.88	52,882	
02	Underground services - telephone duct & cable	1,000	LF	34.70	16.64	51.34	51,340	
02	Underground services - manholes and structures, allow	1	EA	1040.93	1902.00	2,942.93	2,943	
02	Construction entrance/wheelwash	1	EA	693.95	1426.50	2,120.45	2,120	
02	Erosion/sedimentation control measures	1	LS	3469.76	4755.00	8,224.76	8,225	
02	Maintain erosion control	3	MOS	1387.91	0.00	1,387.91	4,164	
02	Driveway lighting	0	EA					
02	Traffic markings, allow	2,000	LF	0.09	0.14	0.23	459	
02	Signage - traffic signs	5	EA	86.74	95.10	181.84	909	
<b>Access Road - Phase 2</b>								<b>\$343,586</b>

Project Number: **0.000**  
 Project Name: **Buckner Park Site Development**  
 Project Location: **Fort Wayne, Indiana**  
 Component: **SD Estimate**

Date: **30-Jun-06**  
 SG Bldg No.: **Public**  
 Bid Date: **Various**

SYSTEM	SUBSYSTEM	QUANTITY	UNIT	INSTN	MATL'S	UNIT COST	ITEM COST	SYS.COST
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**Access Road - Phase 3**

02	Site clearance - general	7.2	ACRE	2602.32	0.00	2,602.32	18,607	
02	Site clearance - trees	0	EA					
02	Strip topsoil	1,210	CY	4.34	0.00	4.34	5,248	
02	Grading - roads & trails	11,281	SY	3.47	6.66	10.13	114,239	
02	Paving - asphalt w/12" crushed stone base (Vehicle)	6,967	SY	13.01	19.02	32.03	223,159	
02	Paving - asphalt w/4" crushed stone base (ped/light)	4,314	SY	1.95	14.27	16.22	69,959	
02	Drainage - open swale, cut & grade	2,750	LF	6.51	3.80	10.31	28,352	
02	Vehicle bridge w/pilings & supports		Alternate					
02	Culvert crossing	100	LF	190.84	420.82	611.65	61,165	
02	Concrete paving & sub base adjacent detention ponds, 8"	3,960	SF	1.73	4.28	6.01	23,817	
02	Pedestrian/golf cart bridge, timber, 10' wide	25	LF	108.43	427.95	536.38	13,410	
02	Water Main, 8" PVC	1,500	LF	10.84	23.78	34.62	51,927	
02	Underground services - gas main	2,750	LF	26.02	23.78	49.80	136,945	
02	Underground services - electric, direct buried	2,750	LF	43.37	9.51	52.88	145,426	
02	Underground services - telephone duct & cabling	2,750	LF	34.70	16.64	51.34	141,185	
02	Underground services - manholes and structures, allow	2	EA	1040.93	1902.00	2,942.93	5,886	
02	Construction entrance/wheelwash	1	EA	693.95	1426.50	2,120.45	2,120	
02	Erosion/sedimentation control measures	1	LS	1734.88	2853.00	4,587.88	4,588	
02	Maintain erosion control	6	MOS	1387.91	0.00	1,387.91	8,327	
02	Grass prairie planting - short grass w/wildflowers	23,100	SY	0.48	0.82	1.29	29,913	
02	Grass prairie planting - tall grass	4,900	SY	0.26	0.41	0.67	3,279	
02	Driveway lighting	0	EA					
02	Traffic markings, allow	5,300	LF	0.09	0.14	0.23	1,216	
02	Signage - traffic signs	2	EA	86.74	95.10	181.84	364	

**Access Road - Phase 3**

**\$1,089,132**

**Loop Trail**

02	Site clearance - general	1.0	ACRE	3469.76	0.00	3,469.76	3,470	
02	Site clearance - trees		included					
02	Strip topsoil	820	CY	4.34	0.00	4.34	3,557	
02	Grading - roads & trails	5,000	SY	3.47	6.66	10.13	50,634	
02	Paving - asphalt w/12" crushed stone base (Vehicle)	250	SY	13.01	19.02	32.03	8,008	
02	Paving - asphalt w/4" crushed stone base (ped/light)	4,750	SY	1.95	14.27	16.22	77,030	
02	Drainage allowance	1	LS	1734.88	1521.60	3,256.48	3,256	
02	Remove bridge	1	LS	1040.93	0.00	1,040.93	1,041	
02	Pedestrian/golf cart bridges, timber, 10' wide	50	LF	108.43	427.95	536.38	26,819	
02	Vehicular bridge, 15' wide	25	LF	346.98	951.00	1,297.98	32,449	
02	Erosion/sedimentation control measures	1	LS	1040.93	1426.50	2,467.43	2,467	
02	Maintain erosion control	3	MOS	693.95	0.00	693.95	2,082	
02	Lighting	0	EA					
02	Bench seat on concrete pad	2	EA	173.49	665.70	839.19	1,678	
02	Signage - allow	15	EA	43.37	47.55	90.92	1,364	

**Loop Trail**

**\$213,855**

Project Number: **0.000**  
 Project Name: **Buckner Park Site Development**  
 Project Location: **Fort Wayne, Indiana**  
 Component: **SD Estimate**

Date: **30-Jun-06**  
 SG Bldg No.: **Public**  
 Bid Date: **Various**

SYSTEM	SUBSYSTEM	QUANTITY	UNIT	INSTN	MATL'S	UNIT COST	ITEM COST	SYS.COST
<b>Shelter 1</b>								
02	Site clearance - general	2.0	ACRE	2602.32	0.00	2,602.32	5,205	
02	Site clearance - trees	0	EA					
02	Strip topsoil	1,700	CY	4.34	0.00	4.34	7,373	
02	Grading - roads & trails	7,700	SY	3.47	6.66	10.13	77,976	
02	Paving - asphalt w/12" crushed stone base (Vehicle)	7,100	SY	13.01	19.02	32.03	227,424	
02	Paving - asphalt w/4" crushed stone base (ped/light)	600	SY	1.95	14.27	16.22	9,730	
02	Paving - concrete walks	8,800	SF	2.17	2.38	4.55	40,006	
02	Paving - playground	942	SY	8.67	6.66	15.33	14,442	
02	Paving - splash & play	2,065	SF	0.43	3.14	3.57	7,376	
02	Playground equipment, allow	1	LS	15613.94	84639.00	100,252.94	100,253	
02	Splash & Play accessories(14 EA), allow	1	LS	10843.01	33285.00	44,128.01	44,128	
02	Splash & play pumps & equipment	2,065	SF	4.77	10.94	15.71	32,436	
02	Splash & play piping, allow	2,065	SF	3.90	1.14	5.04	10,417	
02	Drainage - splash & play, allow	2,065	SF	5.20	1.43	6.63	13,693	
02	Drainage - open swale, cut & grade, allow	600	LF	6.51	3.80	10.31	6,186	
02	Sewer Main, 8" PVC	360	LF	8.67	14.27	22.94	8,258	
02	Water Main, 8" PVC	360	LF	10.84	23.78	34.62	12,462	
02	Fire hydrant	1	EA	130.12	237.75	367.87	368	
02	Storm drainage, 15"	150	LF	9.54	17.12	26.66	3,999	
02	Underground services - electric, direct buried	360	LF	43.37	9.51	52.88	19,038	
02	Underground services - telephone duct	360	LF	34.70	16.64	51.34	18,482	
02	Erosion/sedimentation control measures	1	LS	1040.93	2377.50	3,418.43	3,418	
02	Maintain erosion control	6	MOS	1387.91	0.00	1,387.91	8,327	
02	Seating, L shaped, 20'	9	EA	173.49	1331.40	1,504.89	13,544	
02	Seating, 8'	3	EA	95.42	855.90	951.32	2,854	
02	Shade structure - large	1	EA	693.95	5040.30	5,734.25	5,734	
02	Shade structure - small	6	EA	346.98	2567.70	2,914.68	17,488	
02	Bike racks	20	EA	43.37	47.55	90.92	1,818	
02	Landscape & planting allowance	1	LS	13011.62	47550.00	60,561.62	60,562	
02	Basic security/safety lighting, allowance	1	LS	1734.88	951.00	2,685.88	2,686	
02	Traffic markings, allow	2,200	LF	0.09	0.14	0.23	505	
02	Signage - entrance	Included below						
02	Signage - allow	1	LS	477.09	1531.11	2,008.20	2,008	
<b>Shelter 1</b>							<b>\$778,196</b>	
<b>Shelter 2</b>								
02	Site clearance - general	0.7	ACRE	2602.32	0.00	2,602.32	1,822	
02	Site clearance - trees	0	EA					
02	Strip topsoil	600	CY	4.34	0.00	4.34	2,602	
02	Grading - roads & trails	2,890	SY	3.47	6.66	10.13	29,266	
02	Paving - asphalt w/12" crushed stone base (Vehicle)	2,300	SY	13.01	19.02	32.03	73,673	
02	Paving - asphalt w/4" crushed stone base (ped/light)	590	SY	1.95	14.27	16.22	9,568	
02	Sewer Main, 8" PVC	520	LF	8.67	14.27	22.94	11,928	
02	Water Main, 8" PVC	520	LF	10.84	23.78	34.62	18,001	
02	Fire hydrant	1	EA	130.12	237.75	367.87	368	
02	Storm drainage, 15"	30	LF	9.54	17.12	26.66	800	
02	Underground services - electric, direct buried	520	LF	43.37	9.51	52.88	27,499	
02	Underground services - telephone duct & cable	520	LF	34.70	16.64	51.34	26,697	
02	Erosion/sedimentation control measures	1	LS	1040.93	1426.50	2,467.43	2,467	
02	Maintain erosion control	6	MOS	1387.91	0.00	1,387.91	8,327	
02	Bike racks	10	EA	43.37	47.55	90.92	909	
02	Landscape & planting allowance	1	LS	6505.81	20922.00	27,427.81	27,428	
02	Lighting, allowance	1	LS	2602.32	2853.00	5,455.32	5,455	
02	Traffic markings, allow	1,800	LF	0.09	0.14	0.23	413	
02	Signage - entrance	1	LS	173.49	475.50	648.99	649	
02	Signage - allow	6	EA	86.74	95.10	181.84	1,091	
<b>Shelter 2</b>							<b>\$248,963</b>	

Project Number: **0.000**  
 Project Name: **Buckner Park Site Development**  
 Project Location: **Fort Wayne, Indiana**  
 Component: **SD Estimate**

Date: **30-Jun-06**  
 SG Bldg No.: **Public**  
 Bid Date: **Various**

SYSTEM	SUBSYSTEM	QUANTITY	UNIT	INSTN	MATL'S	UNIT COST	ITEM COST	SYS.COST
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**Nature Center**

02	Site clearance - general	2.3	ACRE	2602.32	0.00	2,602.32	5,985	
02	Site clearance - trees & stump removal	10	Ea	216.86	0.00	216.86	2,169	
02	Strip topsoil	1,700	CY	4.34	0.00	4.34	7,373	
02	Grading - roads & trails	7,780	SY	3.47	6.66	10.13	78,786	
02	Paving - asphalt w/12" crushed stone base (Vehicle)	6,180	SY	13.01	19.02	32.03	197,955	
02	Paving - asphalt w/4" crushed stone base (ped/light)	1,600	SY	1.95	14.27	16.22	25,947	
02	Overflow parking - grasspave	2,400	SY	8.67	17.12	25.79	61,902	
02	Sewer Main, 8" PVC	550	LF	8.67	14.27	22.94	12,617	
02	Water Main, 8" PVC	550	LF	10.84	23.78	34.62	19,040	
02	Fire hydrant	1	EA	130.12	237.75	367.87	368	
02	Storm drainage, 15"	180	LF	9.54	17.12	26.66	4,799	
02	Underground services - electric, direct buried	520	LF	43.37	9.51	52.88	27,499	
02	Underground services - telephone duct & cable	520	LF	34.70	16.64	51.34	26,697	
02	Erosion/sedimentation control measures	1	LS	1387.91	2853.00	4,240.91	4,241	
02	Maintain erosion control	9	MOS	1387.91	0.00	1,387.91	12,491	
02	Bike racks	10	EA	43.37	47.55	90.92	909	
02	Rain garden & sculpture, allow	1,500	SF	21.69	9.51	31.20	46,794	
02	Council ring, allow	1	LS	10409.29	4755.00	15,164.29	15,164	
02	Landscape & planting allowance	1	LS	17348.82	52305.00	69,653.82	69,654	
02	Exterior lighting - poles	6	ea	520.46	951.00	1,471.46	8,829	
02	Traffic markings, allow	1,800	LF	0.09	0.14	0.23	413	
02	Signage - entrance	1	LS	173.49	475.50	648.99	649	
02	Signage - allow	10	EA	86.74	95.10	181.84	1,818	

**Nature Center**

**\$632,099**

**Miscellaneous**

02	Sledding hill - grading & fill	29,000.0	CY	10.84	0.00	10.84	314,447	
02	Sledding hill seeding	10,000.0	SY	0.13	0.26	0.39	3,869	
02	Clear trees and grade for pond	13,000	SY	8.67	0.00	8.67	112,767	
02	Grading for flood plain mitigation	12,200	SY	8.67	0.00	8.67	105,828	
02	Earthen dam, allow	900	CY	3.25	4.76	8.01	7,207	
02	Premanufactured dock system, 16' wide, allowance	150	LF	171.75	428.24	600.00	90,000	
02	Feature signage @ I69, solar powered lighting	1	LS	1040.93	4755.00	5,795.93	5,796	

**Miscellaneous**

**\$639,914**

**Grand Total**

**\$4,610,900**

Project Number: **0.000**  
 Project Name: **Buckner Park Site Development**  
 Project Location: **Fort Wayne, Indiana**  
 Component: **SD Estimate**

Date: **30-Jun-06**  
 SG Bldg No.: **Public**  
 Bid Date: **Various**

SYSTEM	SUBSYSTEM	QUANTITY	UNIT	INSTN	MATL'S	UNIT COST	ITEM COST	SYS.COST
<b>Alternate 1: Vehicle bridge in lieu of Culvert</b>								
02	Culvert crossing	(100.0)	LF	190.84	420.82	611.65	(61,165)	
02	Vehicle bridge w/pilings & supports	100.0	LF	346.98	1711.80	2,058.78	205,878	
<b>Alternate 1: Vehicle bridge in lieu of Culvert</b>								<b>\$144,713</b>
<b>Alternate 2A: Porous paving in lieu of Asphalt parking - Shelter 1</b>								
02	Paving - asphalt w/12" crushed stone base	(7,040.0)	SY	13.01	19.02	32.03	(225,503)	
02	Porous concrete paving	7,040	SY	9.54	25.68	35.22	247,941	
<b>Alternate 2A: Porous paving in lieu of Asphalt parking - Shelter 1</b>								<b>\$22,438</b>
<b>Alternate 2B: Porous paving in lieu of Asphalt parking - Shelter 2</b>								
02	Paving - asphalt w/12" crushed stone base	(2,280.0)	SY	13.01	19.02	32.03	(73,032)	
02	Porous concrete paving	2,280	SY	9.54	25.68	35.22	80,299	
<b>Alternate 2B: Porous paving in lieu of Asphalt parking - Shelter 2</b>								<b>\$7,267</b>
<b>Alternate 2C: Porous paving in lieu of Asphalt parking - Nature Center</b>								
02	Paving - asphalt w/12" crushed stone base	(6,180.0)	SY	13.01	19.02	32.03	(197,955)	
02	Porous concrete paving	6,180	SY	9.54	25.68	35.22	217,653	
<b>Alternate 2C: Porous paving in lieu of Asphalt parking - Nature Center</b>								<b>\$19,698</b>





Project Name: Buckner Park Pavillions  
Estimate Type: Schematic Design  
June 23, 2006

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Client: Grinsfelder Associates Architects Inc.  
Fort Wayne, Indiana

Prepared By: Moss Construction Cost Management Incorporated  
308 South Jackson Street  
Auburn, Indiana 46706  
260 925 3416

Contact: Jonathan Moss FRICS CCC LEED A.P.  
Email: [jonathan@mosscost.com](mailto:jonathan@mosscost.com)

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**Basis of Estimate**

This estimate has been prepared in accordance with generally accepted estimating principles and practices by a team of professional quantity surveyors and cost estimators. Questions regarding the application and use of this estimate should be directed to:

Jonathan Moss, Cost Consultant                      T. 260 925 3416

The estimate is based upon the following information:

Grinsfelder drawings dated 26 May 2006  
Meeting with Ed Welling 30 May 2006  
Meeting with Ed Welling 16 June 2006

This opinion of the probable cost of construction is made on the basis of experience, qualifications, and best judgment of qualified professionals familiar with the construction industry. Moss Construction Cost Management Inc has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, competitive bidding and market conditions.

Moss Construction Cost Management Inc can not and will not guarantee that actual construction costs will not vary from this estimate

**Assumptions**

The estimate assumes the following construction approach:

Shelter 1 and Shelter 2 for summer 2006 bidding and construction start  
Nature Center for spring 2007 bidding and construction start

**Pricing Information**

Unit cost is based on historical database of similar facilities, updated for current market conditions and project location.

An escalation allowance to cover materials and labor inflation is included. Due to the recent volatility of the construction market, it is recommended that this allowance be revalidated on a frequent basis.

Supply cost of materials is current as of May 2006. Prices should be revalidated at each design submittal and monitored during bidding period.

The estimate assumes a competitive bid situation. A minimum of five competitive bids from prime contractors and adequate subcontractor bid coverage is assumed. Other delivery methods will result in potential additional cost to the project.

No construction contingency is included. It is recommended that all project budgets carry an allowance for change orders and unforeseen circumstances that may occur during construction of the works.

**Exclusions**

Architect, Engineer and other Consultants fees  
Other project "soft" costs  
Work to existing buildings and structures, except as specifically described  
Overtime/extended shift work  
Equipment except as itemized  
A/V systems and telecom systems except data cabling as allowance only  
Furnishings except as itemized  
Gas service and equipment  
Sitework  
Utility company charges  
Items specifically described as "NIC", "FFE", "Future" and/or "excluded"

Location	Cost/SF	Grand Total
<b>Nature Center</b>	<b>188.24</b>	<b>\$1,495,599</b>
<b>Shelter 1</b>	<b>113.73</b>	<b>\$355,982</b>
<b>Shelter 2</b>	<b>256.79</b>	<b>\$462,989</b>
<b>Grand Total</b>		<b>\$2,314,570</b>

Location	Cost/SF	Grand Total
<b>Nature Center</b>	<b>154.65</b>	<b>\$1,228,724</b>
<b>Shelter 1</b>	<b>93.44</b>	<b>\$292,461</b>
<b>Shelter 2</b>	<b>210.97</b>	<b>\$380,373</b>
<b>Grand Total</b>		<b>\$1,901,559</b>

General Contractors OHP, Bonds	202,596
Subtotal	2,104,155
Design & Pricing Contingency	210,415
Total Estimate	2,314,570

CSI Division	Grand Total	Cost/SF
<b>Nature Center</b>		
1000 General Conditions	\$122,448	
2000 Sitework	\$60,159	
3000 Concrete	\$95,174	
5000 Steel	\$7,622	
6000 Wood & Plastics	\$160,025	
7000 Thermal & Moisture Protection	\$208,660	
8000 Doors & Windows	\$126,067	
9000 Finishes	\$74,849	
10000 Specialties	\$33,017	
15000 Mechanical	\$201,494	
16000 Electrical	\$139,209	
<b>Nature Center Total</b>	<b>\$1,228,724</b>	<b>154.65</b>
<b>Shelter 1</b>		
1000 General Conditions	\$23,079	
2000 Sitework	\$23,530	
3000 Concrete	\$42,612	
4000 Masonry	\$17,581	
5000 Steel	\$3,811	
6000 Wood & Plastics	\$25,817	
7000 Thermal & Moisture Protection	\$76,718	
8000 Doors & Windows	\$4,058	
9000 Finishes	\$9,644	
10000 Specialties	\$7,100	
15000 Mechanical	\$30,762	
16000 Electrical	\$27,749	
<b>Shelter 1 Total</b>	<b>\$292,461</b>	<b>93.44</b>
<b>Shelter 2</b>		
1000 General Conditions	\$29,963	
2000 Sitework	\$21,219	
3000 Concrete	\$31,313	
5000 Steel	\$3,811	
6000 Wood & Plastics	\$41,108	
7000 Thermal & Moisture Protection	\$92,331	
8000 Doors & Windows	\$26,587	
9000 Finishes	\$15,059	
10000 Specialties	\$12,643	
15000 Mechanical	\$60,659	
16000 Electrical	\$45,681	
<b>Shelter 2 Total</b>	<b>\$380,373</b>	<b>210.97</b>

CSI	Division	Grand Total	Cost/SF
	<b>Nature Center</b>		
1000	General Conditions	\$122,448	
2000	Sitework	\$60,159	
3000	Concrete	\$95,174	
5000	Steel	\$7,622	
6000	Wood & Plastics	\$160,025	
7000	Thermal & Moisture Protection	\$208,660	
8000	Doors & Windows	\$126,067	
9000	Finishes	\$74,849	
10000	Specialties	\$33,017	
15000	Mechanical	\$201,494	
16000	Electrical	\$139,209	
	<b>Nature Center Total</b>	<b>\$1,228,724</b>	<b>154.65</b>
	<b>Grand Total</b>	<b>\$1,228,724</b>	

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
<b>Nature Center</b>					
<b>1000 General Conditions</b>					
1020	escalation allowance - spring 2007 bid	1.0	lsum	46,250.00	46,250.00
1020	general conditions	1.0	lsum	67,000.00	67,000.00
1500	scaffolding, exterior	6,870.0	sf	1.34	9,198.00
<b>General Conditions Total</b>					<b>122,448.00</b>
<b>2000 Sitework</b>					
2200	site clearance (building footprint plus 5')	3,620.0	sy	1.39	5,018.00
2200	strip topsoil - stockpile onsite	600.0	cy	5.39	3,233.00
2200	foundation excavation	345.0	cy	20.79	7,173.00
2200	hand trim and compaction excavation	7,945.0	sf	0.37	2,936.31
2200	backfill working space	115.0	cy	10.17	1,169.00
2200	gravel / sand below slab	443.0	cy	19.00	8,417.00
2210	dispose surplus excav. on-campus	230.0	cy	2.31	531.00
2270	erosion control - stabilized construction entrance	1.0	ea	2,905.00	2,905.00
2270	erosion control - super silt fence	600.0	lf	5.21	3,123.00
2270	erosion control - maintenance	12.0	mos	1,108.83	13,306.00
2500	connect to utilities/site distribution	1.0	ls	1,128.00	1,128.00
2600	foundation drain	600.0	lf	18.70	11,220.00
<b>Sitework Total</b>					<b>60,159.31</b>
<b>3000 Concrete</b>					
3100	formwork, foundations	3,600.0	sf	4.08	14,699.00
3100	formwork key	502.0	lf	1.10	552.00
3100	misc. formwork accessories	1.0	ls	405.00	405.00
3210	supply only rebar, FOB warehouse	15.4	ton	700.58	10,789.00
3210	reinforcement foundation continuous	15.0	ton	1,084.87	16,273.05
3210	reinforcement column footings	0.4	ton	977.50	391.00
3220	reinforcement ground slab wwf	8,931.0	sf	0.63	5,601.00
3300	concrete foundation continuous	200.0	cy	112.49	22,497.16
3300	concrete ground slab, 6"	158.0	cy	115.92	18,315.25
3300	concrete column/misc foundation	4.0	cy	125.20	500.78
3300	vapor barrier below ground slab	8,931.0	sf	0.16	1,441.00
3300	extra cost, stamped finish, stained & sealed	2,654.0	sf	1.10	2,922.00
3300	miscellaneous concrete details, allow	1.0	ls	788.00	788.00
<b>Concrete Total</b>					<b>95,174.25</b>
<b>5000 Steel</b>					
5050	misc. metals (galv. lintels/angle/bracing/clips/etc)	2.0	ton	3,811.00	7,622.00
<b>Steel Total</b>					<b>7,622.00</b>
<b>6000 Wood &amp; Plastics</b>					
6100	misc blocking	2,000.0	bf	2.72	5,443.00
6100	wall framing and sheathing	4,750.0	sf	4.50	21,364.00
6100	roof framing, wood truss w/sheathing	8,732.0	sf	4.98	43,517.63
6100	extra cost @ exposed ceilings	5,500.0	sf	2.93	16,116.00
6100	columns @ porch	22.0	lf	29.05	639.00
6100	deck construction, Trex	1,644.0	sf	13.30	21,863.56
6100	deck guardrail, Trex	128.0	lf	23.00	2,944.00
6400	FRP panels	1,504.0	sf	2.81	4,224.00
6400	interior millwork - information desk	23.0	lf	464.13	10,675.00

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
6400	interior millwork - built in bookshelves @ fireplace, allow	1.0	ls	2,476.00	2,476.00
6400	interior millwork - wall cabinet	50.0	lf	195.50	9,775.00
6400	interior millwork - base cabinet	50.0	lf	351.86	17,593.00
6400	interior millwork - vanity counter	28.0	sf	58.61	1,641.00
6400	interior millwork - hat rack/shelving	10.0	lf	36.10	361.00
6400	interior millwork - misc. finish carpentry / trim - allowance	7,945.0	sf	0.18	1,393.21
<b>Wood &amp; Plastics Total</b>					<b>160,025.40</b>
<b>7000</b>	<b>Thermal &amp; Moisture Protection</b>				
7200	roof insulation, 8" rigid	8,732.0	sf	2.25	19,609.98
7200	rigid insulation - to exterior walls	5,220.0	sf	1.63	8,531.00
7200	perimeter insulation	1,500.0	sf	1.34	2,013.00
7200	batt insulation to interior walls, 2.1/2"	5,860.0	sf	0.90	5,278.00
7400	standing seam roofing, .02"	92.0	sq	1,026.38	94,427.00
7400	siding, hardiplank or similar	3,250.0	sf	3.08	10,009.00
7400	siding, cultured stone panels	1,706.0	sf	17.26	29,454.05
7600	aluminum fascias & soffits	1,204.0	sf	20.32	24,466.45
7600	extra cost, cap/trim	447.0	lf	20.70	9,253.18
7600	misc. flashing/penetrations	1.0	ls	2,118.00	2,118.00
7700	rainwater goods	1.0	ls	3,500.00	3,500.00
<b>Thermal &amp; Moisture Protection Total</b>					<b>208,659.67</b>
<b>8000</b>	<b>Doors &amp; Windows</b>				
8100	galvanized steel doors, 3'x7'	8.0	lvs	327.75	2,622.00
8100	HM frames, 3'x7'	8.0	ea	164.63	1,317.00
8200	exterior windows, wood clad w/trim	1,650.0	sf	40.00	66,000.00
8200	exterior windows, storefront	62.0	sf	38.60	2,393.00
8200	interior storefront	320.0	sf	42.93	13,737.00
8200	extra cost doors	5.0	lvs	736.40	3,682.00
8300	interior doors, 3'0" x7'0"	13.0	lvs	454.23	5,905.00
8300	interior doors, closet, sliding	4.0	lvs	302.50	1,210.00
8300	extra cost, rated doors, 45 min	2.0	lvs	58.00	116.00
8710	finish hardware, lockset	23.0	sets	522.00	12,006.00
8710	panic hardware	4.0	lvs	646.75	2,587.00
8710	auto opener, w/pedestal control	2.0	lvs	5,751.00	11,502.00
8810	glazing, doors & side lites, 1/4" fire rated	50.0	sf	53.02	2,651.00
8810	mirrors	30.0	sf	11.30	339.00
<b>Doors &amp; Windows Total</b>					<b>126,067.00</b>
<b>9000</b>	<b>Finishes</b>				
9250	wood stud framing, 2 x 4 @ 16"	5,860.0	sf	2.84	16,658.00
9250	5/8 GWB	4,321.0	sf	0.67	2,908.00
9250	5/8 GWB, type X	14,100.0	sf	0.70	9,829.00
9250	5/8 GWB @ exterior wall	4,750.0	sf	0.67	3,197.00
9250	taping and finish, level 4	16,121.0	sf	0.41	6,676.00
9250	extra cost water resistant	347.0	sf	0.05	18.00
9250	sealants	5,000.0	lf	0.99	4,964.00
9250	extra cost, 24" access panel	4.0	ea	317.25	1,269.00
9545	acoustical ceiling, 2 x 2 tile	3,000.0	sf	3.21	9,620.00
9600	vinyl flooring, small quantities	442.0	sf	3.89	1,719.00
9600	vinyl cove base, 4"	1,950.0	lf	1.70	3,308.00
9900	paint partitions & walls	16,121.0	sf	0.76	12,186.00
9900	paint doors	15.0	lvs	28.53	428.00
9900	paint frames	510.0	lf	1.15	585.00



CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
9900	miscellaneous painting/detail	1,000.0	sf	1.48	1,484.00
<b>Finishes Total</b>					<b>74,849.00</b>
<b>10000</b>	<b>Specialties</b>				
10100	marker board/tack board	100.0	sf	27.27	2,727.00
10160	toilet partition; HDPE, ADA	2.0	ea	950.00	1,900.00
10160	toilet partition; HDPE, standard	3.0	ea	783.00	2,349.00
10160	urinal screen	1.0	ea	334.00	334.00
10250	plumbing access panel, 20" x 24"	2.0	ea	140.00	280.00
10260	corner guard	100.0	lf	15.14	1,514.00
10300	fireplace insert, flue and hearth	1.0	ls	4,873.00	4,873.00
10400	main signage	1.0	ls	3,183.00	3,183.00
10400	interior signage, generally	7,945.0	sf	0.24	1,933.00
10650	folding partition, 10'	21.0	lf	577.62	12,130.00
10670	janitorial shelving, racks	1.0	lot	94.00	94.00
10800	grab bars, set	2.0	ea	83.00	166.00
10800	toilet paper holder	5.0	ea	35.00	175.00
10800	napkin disposal	3.0	ea	135.67	407.00
10800	paper towel dispenser	4.0	ea	53.50	214.00
10800	waste receptacle	4.0	ea	101.00	404.00
10800	soap dispenser	7.0	ea	47.71	334.00
<b>Specialties Total</b>					<b>33,017.00</b>
<b>15000</b>	<b>Mechanical</b>				
15300	fire alarm system, allowance	7,945.0	sf	2.03	16,118.00
15300	wet sprinkler system, allowance	7,945.0	sf	2.73	21,653.00
15400	sanitary waste/vent piping, allow	50.0	lf	21.56	1,078.00
15400	storm drain/overflow piping, allow	50.0	lf	53.12	2,656.00
15400	domestic cold water piping, allow	100.0	lf	11.53	1,153.00
15400	domestic hot water piping, allow	100.0	lf	11.53	1,153.00
15400	sanitary waste/vent piping, allow	200.0	lf	16.68	3,336.00
15400	storm/overflow piping, allow	100.0	lf	53.09	5,309.00
15400	test and clean domestic water piping	1.0	ls	500.00	500.00
15400	electric water heater 7.4 gpm, demand	1.0	ea	1,950.00	1,950.00
15400	water closet, ADA	2.0	ea	1,044.50	2,089.00
15400	water closet	3.0	ea	947.67	2,843.00
15400	urinal	1.0	ea	352.00	352.00
15400	lavatory, countertop	4.0	ea	599.00	2,396.00
15400	mop sink	1.0	ea	624.00	624.00
15400	drinking fountain (no refrigeration)	2.0	ea	450.00	900.00
15400	miscellaneous equipment/fixtures	7,945.0	sf	0.36	2,897.00
15410	trenching/backfill	34.0	cy	31.76	1,080.00
15500	HVAC equipment, multi zone split system, allowance	7,945.0	sf	1.76	14,020.00
15500	toilet exhaust	500.0	cfm	1.28	640.00
15500	HVAC piping allowance	200.0	lf	8.34	1,667.00
15500	HVAC pipe insulation	200.0	lf	7.40	1,481.00
15500	miscellaneous valves & appurtenances	1.0	ls	3,765.00	3,765.00
15500	miscellaneous HVAC equipment	7,945.0	sf	0.12	973.00
15500	HVAC testing & balancing	1.0	ls	1,837.00	1,837.00
15880	diffusers	30.0	ea	208.93	6,268.00
15880	duct insulation	5,400.0	sf	2.26	12,216.00
15880	acoustic lining	210.0	sf	1.20	251.00
15880	ductwork - general	7,000.0	lbs	10.30	72,120.00
15880	flexible ductwork	500.0	lf	8.48	4,238.00
15880	return/exhaust grille	20.0	ea	122.60	2,452.00

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
15880	miscellaneous fittings, dampers and the like	7,945.0	sf	1.44	11,479.00
<b>Mechanical Total</b>					<b>201,494.00</b>
<b>16000</b>	<b>Electrical</b>				
16200	switchgear/main distribution	1.0	ea	10,746.00	10,746.00
16200	grounding	1.0	ls	2,408.00	2,408.00
16200	lighting & power panelboards, allow	4.0	ea	4,154.25	16,617.00
16200	equipment wiring	600.0	lf	2.73	1,636.00
16200	miscellaneous equipment and accessories	7,945.0	sf	0.66	5,234.00
16400	main distribution	100.0	lf	17.62	1,762.00
16400	conduit & cabling - power	2,979.0	lf	5.41	16,129.00
16500	lighting fixtures, interior, allow 1 per 60 SF	132.0	ea	214.56	28,321.92
16500	lighting fixtures, exterior	6.0	ea	362.00	2,172.00
16500	emergency battery unit	4.0	ea	194.50	778.00
16500	exit fixture single face	12.0	ea	114.42	1,373.00
16500	exit fixture double face	5.0	ea	122.60	613.00
16500	extra cost emergency circuiting	29.0	ea	99.76	2,893.00
16500	occupancy sensor, wall mount	10.0	ea	134.00	1,340.00
16500	occupancy sensor, ceiling mount	4.0	ea	148.50	594.00
16500	lighting switches & controls	7,945.0	sf	0.30	2,373.00
16500	devices & receptacles, allow 1 per 40 SF	199.0	ea	21.55	4,289.00
16500	device box w/cover	295.0	ea	8.66	2,556.00
16500	device plate	402.0	ea	3.22	1,294.00
16500	conduit & cabling - lighting	3,946.0	lf	5.56	21,926.00
16500	conduit & cabling - exterior lighting	450.0	lf	5.56	2,500.00
16600	lightning protection - allowance	7,945.0	sf	0.16	1,233.00
16600	security system - basic allowance	7,945.0	sqft	0.75	5,958.75
16700	tel/data/AV device box w/conduit stub	10.0	ea	51.50	515.00
16700	plywood backboard	32.0	sf	2.59	83.00
16700	3/4" conduit	200.0	lf	2.43	485.00
16700	1" conduit (main/riser)	100.0	lf	3.06	306.00
16700	pull box	2.0	ea	314.00	628.00
16700	device plates	10.0	ea	3.30	33.00
16900	bdg automation and control - minimal allowance	7,945.0	sf	0.30	2,412.00
<b>Electrical Total</b>					<b>139,208.67</b>
<b>Nature Center Total</b>		<b>7,945.0</b>	<b>SF</b>	<b>154.65</b>	<b>1,228,724.29</b>

CSI	Division	Grand Total	Cost/SF
	<b>Shelter 1</b>		
1000	General Conditions	\$23,079	
2000	Sitework	\$23,530	
3000	Concrete	\$42,612	
4000	Masonry	\$17,581	
5000	Steel	\$3,811	
6000	Wood & Plastics	\$25,817	
7000	Thermal & Moisture Protection	\$76,718	
8000	Doors & Windows	\$4,058	
9000	Finishes	\$9,644	
10000	Specialties	\$7,100	
15000	Mechanical	\$30,762	
16000	Electrical	\$27,749	
	<b>Shelter 1 Total</b>	<b>\$292,461</b>	<b>93.44</b>
	<b>Grand Total</b>	<b>\$292,461</b>	

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
<b>Shelter 1</b>					
<b>1000</b>	<b>General Conditions</b>				
1020	general conditions	1.0	lsum	20,200.00	20,200.00
1500	scaffolding, exterior	2,150.0	sf	1.34	2,879.00
<b>General Conditions Total</b>					<b>23,079.00</b>
<b>2000</b>	<b>Sitework</b>				
2200	site clearance (building footprint plus 5')	482.0	sy	1.39	667.70
2200	strip topsoil - stockpile onsite	97.0	cy	5.39	523.00
2200	foundation excavation	140.0	cy	20.79	2,911.00
2200	hand trim and compaction excavation	3,130.0	sf	0.37	1,156.94
2200	backfill working space	48.0	cy	10.17	488.00
2200	gravel / sand below slab	97.0	cy	19.00	1,843.00
2200	dispose surplus excav. on-campus	92.0	cy	2.32	213.00
2270	erosion control - stabilized construction entrance	1.0	ea	2,905.00	2,905.00
2270	erosion control - super silt fence	250.0	lf	5.20	1,301.00
2270	erosion control - maintenance	6.0	mos	1,108.83	6,653.00
2500	connect to utilities/site distribution	1.0	ls	1,128.00	1,128.00
2600	foundation drain	200.0	lf	18.70	3,740.00
<b>Sitework Total</b>					<b>23,529.64</b>
<b>3000</b>	<b>Concrete</b>				
3100	formwork, foundations	1,080.0	sf	4.08	4,410.00
3100	formwork key	180.0	lf	1.10	198.00
3100	misc. formwork accessories	1.0	ls	405.00	405.00
3210	supply only rebar, FOB warehouse, substructure	6.9	ton	701.74	4,842.00
3210	reinforcement foundation continuous	6.0	ton	1,084.87	6,509.22
3210	reinforcement column footings	0.9	ton	977.50	879.75
3220	reinforcement ground slab wwf	3,597.0	sf	0.63	2,256.09
3300	concrete foundation continuous	80.0	cy	112.49	8,998.87
3300	concrete ground slab, 6"	97.0	cy	115.91	11,243.15
3300	concrete column/misc foundation	12.0	cy	125.20	1,502.35
3300	vapor barrier below ground slab	3,597.0	sf	0.16	579.96
3300	miscellaneous concrete details, allow	1.0	ls	788.00	788.00
<b>Concrete Total</b>					<b>42,612.38</b>
<b>4000</b>	<b>Masonry</b>				
4150	sealants	200.0	lf	1.00	199.00
4200	CMU - 8", reinforced	2,150.0	sqft	8.08	17,381.80
<b>Masonry Total</b>					<b>17,580.80</b>
<b>5000</b>	<b>Steel</b>				
5050	misc. metals (galv. lintels/angle/bracing/clips/etc)	1.0	ton	3,811.00	3,811.00
<b>Steel Total</b>					<b>3,811.00</b>
<b>6000</b>	<b>Wood &amp; Plastics</b>				
6100	misc blocking	200.0	bf	2.72	544.00
6100	roof framing, wood truss w/sheathing	3,912.0	sf	4.98	19,496.15
6100	columns	180.0	lf	29.04	5,228.00
6200	interior millwork - misc. finish carpentry / trim - allowance	3,130.0	sf	0.18	548.63
<b>Wood &amp; Plastics Total</b>					<b>25,816.78</b>

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
<b>7000</b>	<b>Thermal &amp; Moisture Protection</b>				
7200	Roof Insulation - 2" Rigid	3,912.0	sqft	1.50	5,868.00
7200	rigid insulation - to exterior walls	2,150.0	sf	1.63	3,514.00
7200	perimeter insulation	540.0	sf	1.34	725.00
7400	standing seam roofing, .02"	39.0	sq	1,026.39	40,029.07
7400	siding, hardiplank or similar	1,616.0	sf	3.08	4,977.00
7400	siding, cultured stone panels	534.0	sf	17.27	9,220.00
7600	aluminum fascias & soffits	270.0	sf	20.32	5,487.00
7600	extra cost, cap/trim	228.0	lf	20.70	4,720.00
7600	misc. flashing/penetrations	1.0	ls	685.00	685.00
7700	rainwater goods	1.0	ls	1,493.00	1,493.00
	<b>Thermal &amp; Moisture Protection Total</b>				<b>76,718.07</b>
<b>8000</b>	<b>Doors &amp; Windows</b>				
8100	galvanized steel doors, 3'x7'	4.0	lvs	327.75	1,311.00
8100	HM frames, 3'x7'	4.0	ea	164.75	659.00
8710	finish hardware, lockset	4.0	sets	522.00	2,088.00
	<b>Doors &amp; Windows Total</b>				<b>4,058.00</b>
<b>9000</b>	<b>Finishes</b>				
9250	GWB Furring to CMU Walls	2,150.0	sqft	2.00	4,300.00
9500	acoustical ceiling, 2 x 2 tile	862.0	sf	3.21	2,764.00
9900	paint partitions & walls	2,860.0	sf	0.76	2,162.00
9900	paint doors	4.0	lvs	28.50	114.00
9900	paint frames	136.0	lf	1.15	156.00
9900	miscellaneous painting/detail	100.0	sf	1.48	148.00
	<b>Finishes Total</b>				<b>9,644.00</b>
<b>10000</b>	<b>Specialties</b>				
10160	toilet partition; HDPE, ADA	2.0	ea	950.00	1,900.00
10160	toilet partition; HDPE, standard	3.0	ea	783.00	2,349.00
10400	main signage	1.0	ls	1,335.00	1,335.00
10400	interior signage, generally	3,130.0	sf	0.11	336.51
10800	grab bars, set	2.0	ea	83.00	166.00
10800	toilet paper holder - install only	5.0	ea	21.31	106.53
10800	napkin disposal	3.0	ea	135.67	407.00
10800	paper towel dispenser	2.0	ea	53.50	107.00
10800	waste receptacle	2.0	ea	101.00	202.00
10800	soap dispenser	4.0	ea	47.75	191.00
	<b>Specialties Total</b>				<b>7,100.04</b>
<b>15000</b>	<b>Mechanical</b>				
15400	sanitary waste/vent piping, allow	100.0	lf	21.55	2,155.00
15400	storm drain/overflow piping, allow	100.0	lf	53.13	5,313.00
15400	domestic cold water piping, allow	100.0	lf	11.53	1,153.00
15400	domestic hot water piping, allow	100.0	lf	11.53	1,153.00
15400	sanitary waste/vent piping, allow	100.0	lf	16.68	1,668.00
15400	storm/overflow piping, allow	100.0	lf	53.09	5,309.00
15400	test and clean domestic water piping	1.0	ls	300.00	300.00
15400	water closet, ADA	2.0	ea	1,044.50	2,089.00
15400	water closet	3.0	ea	947.67	2,843.00
15400	urinal	1.0	ea	352.00	352.00
15400	lavatory, wall mounted	4.0	ea	732.75	2,931.00
15400	EWC	2.0	ea	922.00	1,844.00
15400	miscellaneous equipment/fixtures	3,130.0	sf	0.36	1,141.12
15410	trenching/backfill	68.0	cy	31.78	2,161.00

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
15500	Mechanical Louver	10.0	sqft	35.00	350.00
<b>Mechanical Total</b>					<b>30,762.12</b>
<b>16000</b>	<b>Electrical</b>				
16200	switchgear/main distribution	1.0	ea	2,211.00	2,211.00
16200	grounding	1.0	ls	1,319.00	1,319.00
16200	lighting & power panelboards, allow	2.0	ea	1,416.00	2,832.00
16200	equipment wiring	400.0	lf	2.73	1,091.00
16200	miscellaneous equipment and accessories	3,130.0	sf	0.66	2,062.22
16400	Electric main distribution	50.0	lf	17.62	881.00
16400	conduit & cabling - power	160.0	lf	5.41	866.00
16500	lighting fixtures, interior	10.0	ea	214.70	2,147.00
16500	lighting fixtures, exterior	12.0	ea	362.00	4,344.00
16500	occupancy sensor, wall mount	2.0	ea	134.00	268.00
16500	devices & receptacles	8.0	ea	21.63	173.00
16500	device box w/cover	33.0	ea	8.67	286.00
16500	device plate	32.0	ea	3.22	103.00
16500	conduit & cabling - lighting	240.0	lf	5.55	1,333.00
16500	conduit & cabling - exterior lighting	900.0	lf	5.56	5,000.00
16600	lightning protection - allowance	3,130.0	sf	0.16	485.35
16600	security system - basic allowance	3,130.0	sqft	0.75	2,347.50
<b>Electrical Total</b>					<b>27,749.07</b>
<b>Shelter 1 Total</b>		<b>3,130.0</b>	<b>SF</b>	<b>93.44</b>	<b>292,460.92</b>

CSI	Division	Grand Total	Cost/SF
	<b>Shelter 2</b>		
1000	General Conditions	\$29,963	
2000	Sitework	\$21,219	
3000	Concrete	\$31,313	
5000	Steel	\$3,811	
6000	Wood & Plastics	\$41,108	
7000	Thermal & Moisture Protection	\$92,331	
8000	Doors & Windows	\$26,587	
9000	Finishes	\$15,059	
10000	Specialties	\$12,643	
15000	Mechanical	\$60,659	
16000	Electrical	\$45,681	
	<b>Shelter 2 Total</b>	<b>\$380,373</b>	<b>210.97</b>
	<b>Grand Total</b>	<b>\$380,373</b>	

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
<b>Shelter 2</b>					
<b>1000</b>	<b>General Conditions</b>				
1020	general conditions	1.0	lsum	26,750.00	26,750.00
1500	scaffolding, exterior	2,400.0	sf	1.34	3,213.28
<b>General Conditions Total</b>					<b>29,963.28</b>
<b>2000</b>	<b>Sitework</b>				
2200	site clearance (building footprint plus 5')	303.0	sy	1.39	420.00
2200	strip topsoil - stockpile onsite	5.0	cy	5.40	27.00
2200	foundation excavation	135.0	cy	20.79	2,807.00
2200	hand trim and compaction excavation	1,803.0	sf	0.37	666.00
2200	backfill working space	45.0	cy	10.16	457.00
2200	gravel / sand below slab	34.0	cy	19.00	646.00
2200	dispose surplus excav. on-campus	90.0	cy	2.31	208.00
2270	erosion control - stabilized construction entrance	1.0	ea	2,905.00	2,905.00
2270	erosion control - super silt fence	300.0	lf	5.21	1,562.00
2270	erosion control - maintenance	6.0	mos	1,108.83	6,653.00
2500	connect to utilities/site distribution	1.0	ls	1,128.00	1,128.00
2600	foundation drain	200.0	lf	18.70	3,740.00
<b>Sitework Total</b>					<b>21,219.00</b>
<b>3000</b>	<b>Concrete</b>				
3100	formwork, foundations	650.0	sf	4.08	2,654.00
3100	formwork key	217.0	lf	1.10	238.00
3100	misc. formwork accessories	1.0	ls	405.00	405.00
3210	supply only rebar, FOB warehouse, substructure	6.8	ton	696.62	4,737.00
3210	reinforcement foundation continuous	6.8	ton	1,084.87	7,377.12
3220	reinforcement ground slab wwf	1,893.0	sf	0.63	1,187.00
3300	concrete foundation continuous	90.0	cy	112.49	10,123.72
3300	concrete ground slab, 6"	34.0	cy	115.91	3,940.90
3300	vapor barrier below ground slab	1,893.0	sf	0.16	305.00
3300	miscellaneous concrete details, allow	1.0	ls	345.00	345.00
<b>Concrete Total</b>					<b>31,312.74</b>
<b>5000</b>	<b>Steel</b>				
5050	misc. metals (galv. lintels/angle/bracing/clips/etc)	1.0	ton	3,811.00	3,811.00
<b>Steel Total</b>					<b>3,811.00</b>
<b>6000</b>	<b>Wood &amp; Plastics</b>				
6100	misc blocking	800.0	bf	2.72	2,177.60
6100	wall framing and sheathing	2,400.0	sf	4.50	10,794.13
6100	roof framing, wood truss w/sheathing	2,546.0	sf	4.98	12,689.00
6100	extra cost @ exposed ceilings	1,176.0	sf	2.93	3,446.00
6200	interior millwork - wall cabinet	8.0	lf	195.50	1,564.00
6200	interior millwork - base cabinet	16.0	lf	351.88	5,630.00
6200	interior millwork - counter	5.0	lf	68.40	342.00
6200	interior millwork - vanity counter	13.0	sf	58.62	762.00
6200	interior millwork - misc. finish carpentry / trim - allowance	1,803.0	sf	0.18	316.00
6400	FRP panels	1,206.0	sf	2.81	3,387.00
<b>Wood &amp; Plastics Total</b>					<b>41,107.73</b>
<b>7000</b>	<b>Thermal &amp; Moisture Protection</b>				



CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
7200	roof insulation, 8" rigid	2,546.0	sf	2.25	5,718.00
7200	rigid insulation - to exterior walls	2,020.0	sf	1.63	3,302.23
7200	perimeter insulation	560.0	sf	1.34	752.00
7200	batt insulation to interior walls, 2.1/2"	738.0	sf	0.90	665.00
7200	rigid insulation - to exterior walls		sf	1.40	
7400	standing seam roofing, .02"	26.0	sq	1,026.38	26,686.00
7400	siding, hardiplank or similar	1,292.0	sf	3.08	3,978.70
7400	siding, cultured stone panels	728.0	sf	17.27	12,569.93
7600	aluminum fascias & soffits	1,564.0	sf	20.32	31,782.00
7600	extra cost, cap/trim	227.0	lf	20.70	4,699.34
7600	misc. flashing/penetrations	1.0	ls	685.00	685.00
7700	rainwater goods	1.0	ls	1,493.00	1,493.00
<b>Thermal &amp; Moisture Protection Total</b>					<b>92,331.19</b>
<b>8000</b>	<b>Doors &amp; Windows</b>				
8100	galvanized steel doors, 3'x7'	3.0	lvs	328.00	984.00
8100	HM frames, 3'x7'	3.0	ea	165.00	495.00
8200	interior doors, 3'0" x7'0"	6.0	lvs	454.00	2,724.00
8210	exterior windows, wood clad w/trim	380.0	sf	37.73	14,338.16
8300	overhead steel shutter, counter, manual	20.0	sf	23.85	477.00
8710	finish hardware, lockset	9.0	sets	522.00	4,698.00
8710	panic hardware	3.0	lvs	647.00	1,941.00
8810	glazing, doors & side lites, 1/4" fire rated	15.0	sf	53.00	795.00
8810	mirrors	12.0	sf	11.25	135.00
<b>Doors &amp; Windows Total</b>					<b>26,587.16</b>
<b>9000</b>	<b>Finishes</b>				
9250	wood stud framing, 2 x 4 @ 16"	738.0	sf	2.84	2,098.00
9250	5/8 GWB	1,278.0	sf	0.67	860.00
9250	5/8 GWB @ exterior wall	2,400.0	sf	0.67	1,614.08
9250	taping and finish, level 4	4,955.0	sf	0.41	2,052.20
9250	extra cost water resistant	198.0	sf	0.05	10.00
9250	sealants	600.0	lf	0.99	596.00
9545	acoustical ceiling, 2 x 2 tile	627.0	sf	3.21	2,011.00
9600	vinyl flooring, small quantities	56.0	sf	3.89	218.00
9600	vinyl cove base, 4"	210.0	lf	1.70	356.00
9900	paint partitions & walls	4,955.0	sf	0.76	3,744.78
9900	paint doors	9.0	lvs	28.57	257.14
9900	paint frames	306.0	lf	1.15	351.00
9900	miscellaneous painting/detail	600.0	sf	1.48	890.40
<b>Finishes Total</b>					<b>15,058.60</b>
<b>10000</b>	<b>Specialties</b>				
10100	marker board/tack board	48.0	sf	27.27	1,309.00
10160	toilet partition; HDPE, ADA	2.0	ea	950.00	1,900.00
10160	toilet partition; HDPE, standard	1.0	ea	783.00	783.00
10160	urinal screen	1.0	ea	334.00	334.00
10260	corner guard	32.0	lf	15.16	485.00
10300	fireplace insert, flue and hearth	1.0	ls	4,873.00	4,873.00
10400	main signage	1.0	ls	1,335.00	1,335.00
10400	interior signage, generally	1,803.0	sf	0.26	476.00
10670	janitorial shelving, racks	1.0	lot	94.00	94.00
10800	grab bars, set	2.0	ea	83.00	166.00
10800	toilet paper holder - install only	3.0	ea	21.34	64.02
10800	napkin disposal	2.0	ea	135.50	271.00
10800	paper towel dispenser	3.0	ea	53.33	160.00

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
10800	waste receptacle	2.0	ea	101.00	202.00
10800	soap dispenser	4.0	ea	47.75	191.00
<b>Specialties Total</b>					<b>12,643.02</b>
<b>15000</b>	<b>Mechanical</b>				
15300	fire alarm system, allowance	1,803.0	sf	2.03	3,657.76
15300	wet sprinkler system, allowance	1,803.0	sf	2.73	4,914.40
15400	sanitary waste/vent piping, allow	20.0	lf	21.55	431.00
15400	storm drain/overflow piping, allow	20.0	lf	53.15	1,063.00
15400	domestic cold water piping, allow	50.0	lf	11.54	577.00
15400	domestic hot water piping, allow	50.0	lf	11.54	577.00
15400	sanitary waste/vent piping, allow	50.0	lf	16.68	834.00
15400	storm/overflow piping, allow	50.0	lf	53.08	2,654.00
15400	test and clean domestic water piping	1.0	ls	400.00	400.00
15400	Electric water heater 3.7gpm, demand	1.0	ea	891.72	891.72
15400	water closet, ADA	2.0	ea	1,044.50	2,089.00
15400	water closet	1.0	ea	948.00	948.00
15400	urinal	1.0	ea	352.00	352.00
15400	lavatory, countertop	2.0	ea	599.00	1,198.00
15400	mop sink	1.0	ea	624.00	624.00
15400	EWC	1.0	ea	922.00	922.00
15400	miscellaneous equipment/fixtures	1,803.0	sf	0.36	657.00
15410	trenching/backfill	14.0	cy	30.86	432.00
15500	HVAC equipment, multi zone split system, allowance	1,803.0	sf	1.76	3,182.00
15500	toilet exhaust	500.0	cfm	1.28	640.00
15500	piping allowance	100.0	lf	8.34	834.00
15500	pipe insulation	100.0	lf	7.41	741.00
15500	miscellaneous valves & appurtenances	1.0	ls	3,765.00	3,765.00
15500	miscellaneous equipment	1,803.0	sf	0.12	221.00
15500	testing & balancing	1.0	ls	1,600.00	1,600.00
15880	diffusers	14.0	ea	209.00	2,926.00
15880	duct insulation	1,160.0	sf	2.26	2,624.50
15880	ductwork - general	1,500.0	lbs	10.30	15,453.00
15880	flexible ductwork	220.0	lf	8.48	1,865.60
15880	return/exhaust grille	8.0	ea	122.50	980.00
15880	miscellaneous fittings, dampers and the like	1,803.0	sf	1.44	2,605.00
<b>Mechanical Total</b>					<b>60,658.98</b>
<b>16000</b>	<b>Electrical</b>				
16200	switchgear/main distribution	1.0	ea	3,906.00	3,906.00
16200	grounding	1.0	ls	547.00	547.00
16200	lighting & power panelboards, allow	1.0	ea	2,532.00	2,532.00
16200	equipment wiring	300.0	lf	2.73	818.00
16200	miscellaneous equipment and accessories	1,803.0	sf	0.66	1,188.00
16400	main distribution	50.0	lf	17.62	881.00
16400	conduit & cabling - power	694.0	lf	5.40	3,750.90
16500	lighting fixtures, interior, allow 1 per 60 SF	30.0	ea	214.70	6,441.00
16500	lighting fixtures, exterior	6.0	ea	362.00	2,172.00
16500	emergency battery unit	2.0	ea	194.50	389.00
16500	exit fixture single face	1.0	ea	114.00	114.00
16500	extra cost emergency circuiting	8.0	ea	96.50	772.00
16500	occupancy sensor, wall mount	6.0	ea	134.00	804.00
16500	occupancy sensor, ceiling mount	4.0	ea	148.50	594.00

CSI	Item Description	Takeoff Qty	Unit	Unit Price	Grand Total
16500	lighting switches & controls	1,803.0	sf	0.30	538.00
16500	devices & receptacles, allow 1 per 40 SF	45.0	ea	21.60	972.00
16500	device box w/cover	180.0	ea	8.67	1,560.00
16500	device plate	129.0	ea	3.22	415.48
16500	conduit & cabling - lighting	1,774.0	lf	5.55	9,852.66
16500	conduit & cabling - exterior lighting	450.0	lf	5.56	2,500.00
16500	exit fixture single face	2.0	ea	114.00	228.00
16500	exit fixture double face	2.0	ea	122.00	244.00
16500	extra cost emergency circuiting	4.0	ea	99.00	396.00
16500	occupancy sensor, wall mount	6.0	ea	133.50	801.00
16500	occupancy sensor, ceiling mount	4.0	ea	148.00	592.00
16600	lightning protection - allowance	1,803.0	sf	0.16	280.00
16600	security system - basic allowance	1,803.0	sqft	0.75	1,352.25
16700	tel/data/AV device box w/conduit stub	2.0	ea	51.50	103.00
16700	plywood backboard	8.0	sf	2.63	21.00
16700	3/4" conduit	20.0	lf	2.45	49.00
16700	pull box	1.0	ea	314.00	314.00
16700	device plates	2.0	ea	3.50	7.00
16900	bldg. automation and control - minimal allowance	1,803.0	sf	0.30	546.36
<b>Electrical Total</b>					<b>45,680.66</b>
<b>Shelter 2 Total</b>		<b>1,803.0</b>	<b>SF</b>	<b>210.97</b>	<b>380,373.36</b>

## **VI. IMPLEMENTATION RECOMMENDATIONS**

Area one, consisting of the entrance, access road, and shelter #1 and its surrounding amenities is the logical first step in development of Buckner Park. Due to limited funding, area one will be developed in phases. It is our recommendation that phase one consists of the entrance, access road, shelter #1, and three bays of parking. Phase one will also need to include the improvements to Bass Road, utilities to service shelter #1, and the constructed wetland to treat stormwater drainage. Phase two will consist of the playgrounds and swings, sprayground, seating, shade canopies, and landscaping including the lawn area surrounding the playgrounds and the screening on the west side of the property. Phase three will consist of the pedestrian trails, bike racks, outer two bays of parking, and the prairie plantings.

Area two is the next logical progression for development and consists of shelter #2, the surrounding amenities, and the necessary drive and utility extensions.

The development of area three should follow area two. It consists of the excavation of the pond and installation of the earthen berm in order to construct the final portion of the access road. Excess fill from the pond can be used to construct the sledding hill at this time. The nature center and its surrounding amenities could also be included in this phase or a following phase. The construction of the nature center cannot precede the excavation of the pond and construction of the earthen berm, as that is necessary to build the drive to the nature center.

Since the drain crossings are included as part of area three, the completion of the loop trail is reserved for area four.

**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

## **VII. SUMMARY**

The development of Buckner Park has indeed been a long and arduous process. Over the course of acquiring and assembling the properties that now form this park, the Park Department and Park Board developed a distinct respect for and understanding of this site and its unique character. The rolling topography, forest communities, open grasslands and drainage corridors provide a wide range of educational opportunities unique to Allen County.

Tremendous consideration of these unique features has been given throughout the design process and continues in this master plan document. Development and design of each "Area" indicated in this master plan has been carefully crafted to fully utilize site resources while minimizing disturbance and striving to maintain an ecological balance. Consideration has been given to sound principles of environmentally sensitive design as related to both site and building components.

The first area proposed for implementation (Area 1) includes the entrance drive, pedestrian trail, shelter 1, playgrounds and sprayground. This development provides site access, parking and activities, while minimizing site infrastructure costs. The second area proposed for implementation (Area 2) includes extending the entrance drive and pedestrian trail, construction of shelter 2 and associated parking. This development provides rentable shelter space, trailhead parking and separate and unique recreational opportunities compared to shelter 1. The third area proposed for implementation (Area 3) includes the pond, Nature Center, sledding hill and extension of the access road and pedestrian trail. This development greatly expands opportunities for on-site education and conferences, and promotes greater use of the site's natural resources for passive recreation. The final area proposed for implementation (Area 4) completes the 1.2 mile pedestrian loop trail by providing a paved, handicap accessible trail that winds throughout the site, providing access to varying geological and landscape features.

Anticipated construction costs have been illustrated for each Area. In addition, a further breakdown of construction costs is illustrated for Area 1, including costs for construction of phases 1-3.

As mentioned earlier, this document is intended as a guideline for future park development, but remains flexible and may be modified in the future as required to accommodate current and future park needs.

**Fort Wayne Parks and Recreation Department  
Buckner Park Master Plan**

**APPENDIX**

Compiled Results from School Children Regarding Buckner Park  
12/20/04

**Nature Related comments:**

Pond (for skating/fishing) (12)  
Flower garden (9)  
Barn with animals (8)  
Lake (4)  
Sledding/snowboard/Toboggan track/hills (3)  
Open space for kite flying (2)  
Lots of trees  
Bridge over the pond  
Picnic tables

**Amenities:**

Playground (types of various playground features were mentioned) (27)  
Swimming pool (26)  
Rock Climbing Wall (23)  
Ice Skating Rink (22)  
Train ride (9)  
Campground (9)  
Indoor-Outdoor Waterpark (7)  
Skatepark (7)  
Tree House (7)  
Arcade (4)  
Bungie for kids to play on (3)  
Indoor pool (3)  
Roller coaster Park (2)  
Go cart track  
Stage  
Rides  
Gambling Center  
War ship  
Dinosaur Dig place  
Statues  
Ferry ride  
Monument of George Bush  
Statue of Mayor Richard & Family  
Roller skating ramp for beginners  
Discovery Center  
Statue of John Bass (he helped people get to Fort Wayne by making railroad car wheels and axles for trains)  
Ferris wheel  
Zip cord  
Cave  
Circus  
Gymnastics

## Compiled Results from Buckner Park Public Meetings

### Nature Related comments:

- Keep as a natural area/nature preserve (5)
- Pond (for skating/fishing) (3)
- Pavilions (3)
- Outdoor education-camping skills in outdoors (2)
- Arboretum (2)
- Picnic areas (2)
- Reforest open areas
- Flood control
- Historic woods
- Nature Learning Center
- Wetlands
- Clean air/water
- Save the trees
- Trees planted around the whole perimeter
- Open space for kite flying, model airplane flying, informal pick-up games, rallies, family picnics
- Please keep a lot of the acreage in condition for activity that doesn't involve one-use activity (ball diamonds, tennis courts, etc.) as we have enough of that already. Let's not have sports dominate the acreage. Let's have a park that actually looks like a park and not just another sports complex.

### Amenities:

- Cross country skiing (5)
- Indoor-Outdoor Waterpark (2)
- Toboggan (2)
- Ice Skating
- Parking
- Space for short term (weekend) tent camping (Boy Scouts/Youth)
- Interpretive Signing
- Provide Use Permits
- Snowmobiling
- Skateboard area consider Kroemer Road entrance
- Flower garden (perennials)
- Senior Activities
- Ski lift
- Indoor track
- 3 hole golf (par 3)
- Pole barn with basketball courts
- Ice Rink-outdoor, natural 1000 x 1000
- Climbing Wall
- Playground
- Tree House
- Petting Zoo
- Drinking Fountain



## Buckner Park Development

*Meeting notes from November 30, 2004 – 8:30 a.m.*

The meeting began with a brief welcome and introductions of new committee members, Tom Walls and Dr. Crowe.

A summary of input from the public meetings was distributed, all agreed the challenges for this park will be to remain self-sustained and revenue. Several letters been written and received concerning the development of the park, from various interest groups and educational facilities (Deer Ridge Elementary School)

The top 10 options / activities based on public input are as follows:

1. Walking and hiking trails
- 2. Natural setting / use
3. Pony / hay rides
4. Outdoor Climbing
5. Nature Lodge
6. Outdoor Educational Skills facility
- 7. Use land as it is, keep natural setting
8. Horse Trail Riding
9. Create both dirt and paved trails
- 10. Preserve property for nature / natural use

After a brief discussion on fund development and the notation that no monies have been donated to date, Dianne Hoover referred to the comprehensive plan; suggested parks be developed that will generate revenue. Suggestions such as an endowment, golf course and to get input from City Council members. A question was raised as to what degree should the park be amenity driven? Several issues are at the forefront, maintaining the number of horses (if allowed) a design plan for the trail riders and the entrance to the park is currently very narrow, and other property along Bass Road.

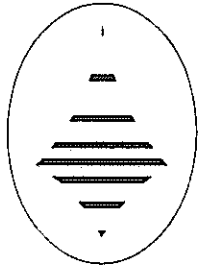
The committee agreed to look at Toledo Metro Parks and Little Miami Trails in Ohio as models for trail riders. At one Franke Park maintained a Bridal path.

Considering the growth of the area, future development suggest in 10-15 years, the park will be surrounded by housing, creating additional sewer lines through the park. Buckner Park is the only park of its kind in the City; the committee agreed the park needs a blanket of protection to keep the natural setting. Once wetlands and woods are eliminated, they cannot be replaced. The Board of Park Commissioners is not in favor of horse trails.

The committee discussed a concept plan, to collaborate with other interest groups, strategic look at specific needs and benefits countywide.

A meeting with the Allen County Trail Riders Coalition will be scheduled. Committee members volunteering to meet with the group of horse enthusiasts are Zenovia Pearson, Tom Walls, Dr. Crowe and Dianne Hoover. A meeting will be scheduled with Tony Acosta and Carolyn McNagny, from ACRES, for their expertise with other issues in the park. A timeline was discussed with the suggestion of a selection committee and exploring options that are available as developing the park as a dedicated nature preserve. A review of the stewardship committee report will be conducted.

The purpose of the Buckner Park development committee is to make recommendations to the Board of Park Commissioners for the future use of the park.



# Earth Source Inc

## MEETING MINUTES

### Buckner Park

**PERSONS PRESENT:** Steve McDaniel, Jeff Baxter, Al Moll, Mike Graves, Tony Acosta, Perry Ehresman, James Christian (Parks and Rec.), Karl Bandemer (Sturges Development), Christopher Crow (IPFW), Sharon Repka (Aboite New Trails), Dawn Ritchie (City of Fort Wayne – River Greenway), Paul Powers (City of Fort Wayne – Sanitary Sewer), Tom Walls (City of Fort Wayne), Mike Eckert (Allen County Highway Dept.), Alan Grinsfelder and Ed Welling (Grinsfelder Associates), Steve Maxwell (Russell Engineering), Dan Ernst and Stacy Haviland (Earth Source, Inc)

**DATE:** February 16, 2006

**RE:** Programming Discussion

### ITEMS NOTED AND ACTIONS TAKEN:

#### Utilities

1. An existing gravity sewer runs along Flaugh ditch. There are future plans of an additional interceptor that will run along the ditch to the north and to the northwest off of that, as service is needed to the north. It is easier to locate sewer lines in the lowest areas of park due to required coverages over the pipes, meaning that along the ditches seems to be the most feasible location. Parks Dept. wants to combine utilities with road and trail to minimize clearing and provide easier access for maintenance of utilities.
2. Sturges Development (SGT) is proposing 189 +/- lots on 100 acres north of the park. They hope to begin development this year, and will need sewer access.
3. City prefers to tap into gravity sewer with manhole connections. Tap into manholes at Bass Road for south end of site. City and Parks Dept. will need to work out tap fees.
4. SGT is planning to bring city water to their development from the Stratford subdivision along the sewer and trail easement to Flaugh Road. Water along Bass Road ends at the industrial park. The sewer easement would need to be negotiated to include water from Flaugh to the park. Contact for Matthew with city water. SGT is to meet with Parks Dept. to review proposed water and sewer routes.
5. Existing electric utilities are located along Bass Road to Flaugh Road. ESI is to look into feasibility of getting electric to park.
6. ESI is to also look into feasibility of getting gas and telephone to park.

### Stormwater Management

1. County Surveyor could not attend meeting. ESI will need to meet with Surveyor to discuss the following issues: gray water discharge from spray ground, standard detention requirements, ditch crossing, floodway/floodplain issues, and drain maintenance. Need to have an agreement with County Surveyor and Parks Dept. about drain maintenance. There is concern of County clear cutting 75' along both sides of the ditch.
2. Steve McDaniel is to assemble a group to walk the site and choose primary route for proposed utilities and road, as well as a few alternate routes, within the next couple of weeks. After routes are chosen, the Drainage Board members, County Surveyor, Al Mol, and ESI to walk site and discuss proposed routes.

### Pedestrian Trails

1. Aboite New Trails is proposing a new trail along Bass Road in 2007/2008. There will be signals and a crosswalk at Hadley and Bass Roads
2. River Greenway is proposing an extension from Swinney Park to Buckner Park. This will be called the "Cougar Trail".
3. NIRCC has recommended a 10' wide asphalt trail from Hillegas Road to Scott Road.
4. Paved trails within the park should be a minimum of 10' wide to meet AASHTO standards (NIRCC has adopted same standards). Any boardwalk or bridge crossing along the trail should be the same width of the trail, **although if space is limited, a narrower crossing would be okay.**
5. Consider ADA slope requirements when laying out trail to avoid extensive grading. Mention of walking the site to locate trail routes.
6. Mike Fitch has been hired to develop design standards for the River Greenway.
7. Suggestion of using firebreaks as trails and not making too many new trails throughout the park other than the paved multi-use trail.
8. Suggestion of a trail connecting park and development to the north.

### Vehicular Connections

1. Kroemer Road access can be gated and used as a service drive/emergency route, but not a secondary public entrance. Service drive should be gravel and can be used as a firebreak and pedestrian access. This drive could also be used as a construction entrance when building the nature center.
2. Consider providing parking or at least a cul-de-sac at dead end of Kroemer Road.
3. Main entrance to park needs to be located as far west as possible to maintain site lines to the bridge over I-69. County Highway Dept. requires 585' from the entrance to the bridge for a right turn lane (at the current design speed of 40 m.p.h.).
4. There is a 40' from centerline right of way on Kroemer road and 60' from centerline right of way on Bass road.
5. The entrance to the park will need a 315' left turn lane and 360' taper. All distances are listed in the Highway Department design standards.
6. The Highway Department will do a traffic study on the proposed park and generate a trip study and will consider allowing phasing of the road improvements to coincide with phasing of the park elements.

## Event and Activity Planning

1. Outdoor Recreation spaces
  - a. Mountain bike trails – kids will come to the park on bikes and should be allowed on multi-use trails, mountain bikes create problems, enforce rule of no racing, use natural barricades along trails made by bikes
  - b. Sledding
  - c. Skating on pond – need a warming shelter preferably in the nature center, distance from pond to nature center is a concern, may need a separate shelter/wind barrier closer to pond for putting on skates, consideration for moving skating near spray ground, don't want anything as involved as an artificial rink like at Headwaters park, skate rental is a possibility.
  - d. Pond – active or passive observation area? Will need to clear trees for construction of pond. Concern about amount of watershed needed to maintain pond's water level. Would like to see wetland plants around pond for additional habitat and educational areas. A deck overlooking the pond is desired.
  - e. Ski rental – don't want to duplicate all of Fox Island County Park.
  - f. Fitness stations or ropes course along multi-use trail
  - g. Day camps – held in nature center or rental shelter until nature center is built, 100 kids per week
  - h. No festivals or reenactments
2. Primary Shelter
  - a. Open air shelter with picnic tables
  - b. Size of Kids Crossing, maybe larger
  - c. Made of natural materials to match nature center and secondary shelter
  - d. Not rental – leery of closing shelter due to Land and Water Conservation Fund grant
  - e. Located for parents to watch children in either playground or spray ground
  - f. Needs restrooms – open most of the day
    - i. sizing addressed by state building code determined by number of park users but typically 3 stalls for women and 2 stalls and 1 urinal for men
    - ii. consider family restroom
    - iii. will be closed in winter
    - iv. doors are typically propped open for most of the day after they are cleaned out by hose
    - v. need hose bib
    - vi. durable and vandal resistant materials desired, consider glass block to show movement within restroom and provide daylight
    - vii. locate entrance to restroom for easy visibility from road (police drive-by)
3. Playground
  - a. 2 separate playground structures for age groups of 2-5 years and 5-12 years
  - b. layout playground so that age appropriate structures are near age appropriate spray ground structures
  - c. plastic/steel
  - d. colors – green and brown with dark decks
  - e. poured in place surfacing is a must for playgrounds since they will be located near the spray ground, don't want chance for tracking mulch into spray ground

4. Water Feature
  - a. Size similar to Memorial park, but use 1/3 less equipment
  - b. "Natural" theme for elements
  - c. design for all age groups to use same area, provide different elements for different age groups
  - d. rubber surfacing preferred over concrete if budget allows, rubber surfacing will need to be power washed and can be vandalized, but provides a little cushioning and color to the area
  - e. need more than one drain for the entire area, prefer to drain to the perimeter of the area or use multiple drains that are not connected
  - f. Memorial park's water is considered gray water and is dumped into the sanitary sewer. Re-circulating systems require too much maintenance with filters and chlorine and testing. Would prefer to dump the water for maintenance reasons, but look at both for costs. Also consider filtering water through wetland.
  - g. Can get g.p.m. from manufacturer for pipe sizing
  - h. Would like a timer to control hours of operation and touch pads for users to turn on equipment with 4 minute cycles.
5. Secondary Shelter
  - a. Rental facility
  - b. Sized for 80-90 people
  - c. Similar to Franke park
  - d. Enclosed facility, could build it as open air pavilion and phase in enclosures
  - e. Natural materials to match nature center and primary shelter
  - f. Possible sheltered patio similar to Kettler park
  - g. Full kitchen, for set up and serving trays for reunions, etc.
  - h. Small storage area
  - i. Possible natural gas fireplace
  - j. Restrooms – accessible from indoors only
  - k. Day camps and group activities during the week until nature center is available
  - l. Look into possible additional detention area near shelter for runoff
6. Nature Center
  - a. Natural materials to match shelters (stone, wood, etc.)
  - b. Sized for school groups of 20-50 people (50 average, over 100 rare), day camps of 100 people per week
  - c. Staff of 4 people – don't need 4 separate offices
  - d. Bus parking
  - e. Office space
  - f. Restrooms
  - g. Exhibit space – enter nature center into this space
  - h. Gift shop (near exhibit space)
  - i. Amphitheater – built up from main level, need ADA access
  - j. Work space for employees with concrete or vinyl flooring
  - k. Workshop space for building maintenance
  - l. Basement for day camp recreation area
  - m. Kitchen – for staff and day camp – most things catered in

- n. Common room for rental – could be same area for day camp recreation (multi-purpose room)
  - o. Ample storage area
  - p. Classroom within exhibit area for naturalist presentation
  - q. Outdoor gathering area with possible outdoor firepit
  - r. Wildlife observation window – benches built in around window or could be incorporated into classroom area with possible A/V screen over window
  - s. Basement entrance area for rentals (skis, skates, etc.), possibly enter into multi-purpose room
  - t. fireplace
  - u. Desire definite front of building – possible drive-up with covered entrance
  - v. Consider future expansion
  - w. Don't duplicate what Fox Island is doing
  - x. Consider LEED certification – sets standards to judge building against certain criteria, possible funding opportunities,
7. Signage – no detailed signage at this point, but need to be able to assign costs.
- a. Signage to coincide with related phasing
  - b. Theme signage for park, materials similar to buildings
  - c. Entrance sign – possibly stone/wood, with image of prairie grass and topography
  - d. Consider planting prairie grasses at entrance to reinforce natural site elements.
  - e. The DNR signage located in the current open areas must stay up in the park.
8. Phasing
- a. Oak savanna, prairies, and forested buffer starting as time allows, funding available from DNR
  - b. Primary shelter, playground, spray ground, and infrastructure
  - c. Secondary shelter
  - d. Nature center

#### Miscellaneous

1. Trash collection will be provided by the Parks Dept. for the trash cans near the playground and shelter areas and a small dumpster will most likely be rented for use at the nature center.
2. There is concern over focusing too much attention on generating revenue rather than preserving the natural habitat of the park. The question of how important the income stream is has been brought up in the past. Would like to tie in ecological research at the grade school level and/or local colleges as an environmental laboratory. Space rental is a bigger revenue producer than other rentals. School group tours tend to lose revenue, but day camps produce revenue. It was agreed that the focus should be on developing programs around natural site elements. Need to install infrastructure for possible future needs while trying to find a balance between producing revenue and preserving the natural habitats of the park.
3. Buffer (from development) along north property line is desired.

Submitted by,  
*Earth Source Inc*

Stacy L. Haviland, ASLA  
Project Manager

Cc: all present at meeting  
ESI file

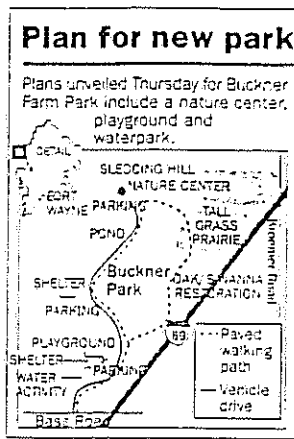
Note: Please provide corrections, revisions or additions to Earth Source, Inc. within 30 days of this meeting date, following which time, these minutes will stand approved as submitted.

# Keeping it real

City park department leaders demonstrated foresight when they acquired the bulk of the acreage for Buckner Farm Park in a land exchange deal more than 33 years ago. Park leaders also showed wisdom by hosting several meetings to discover what amenities residents might want at the nearly 200-acre area when it came time to plan the park. City leaders should continue the streak of good judgment by honoring residents' wishes for minimal development of the land.

The overwhelming sentiment gleaned from those public meetings was the desire to preserve the existing nature of the park so that visitors could enjoy an oasis from the city.

In 2002, the Board of Park Commissioners appointed a committee to plan the development of the park. At the most recent park board meeting, Dan Ernst, a landscape architect with Earth Source Inc. and a member of the committee, showed board members a plan for the park based on the public meetings. The next step is to share the proposed plan with residents and gather feedback.



The Journal Gazette

The plan calls for paved and unpaved hiking trails, a playground, two pavilions and a nature center. The land is largely forest and prairie, but Ernst says that the topography of the land lends

itself well to creating a lake. The proposed four-acre lake would add fishing and boating opportunities. And in the winter it will be the perfect place for ice skating. There is also discussion of a water park, but the exact character of the waterpark remains undetermined.

"Being able to develop this wisely and conserve the natural beauty is definitely the way to go," Ernst says.

Some have suggested a large water park with elaborate slides and other features visible from nearby Interstate 69 would attract out-of-town visitors. But a water park that complements the existing topography of the land is more in line with views expressed by the public and the budget of the park department. Ultimately, the park department will have to pay for the upkeep and liability associated with the park's facilities. Something similar to the popular spray park at Memorial Park would be more practical than something on a grander scale.

As the park department moves forward with planning the development of Buckner Park it should remember that often, less is more.

## PARK: Board likes idea of it remaining in a natural state

Continued from Page 11

and environmental services.

That might be a good idea, considering the unique nature of the land at Buckner Farm.

"This property is unique in the fact there is a lot of topography left in it," Ernst said, referring to its rolling hills and terrain. Unlike much of northeastern Indiana, it's not flat.

In a list of "wants" for the park, walking and hiking trails and a nature lodge rose to the top. Ernst lauded the city for having the foresight to buy much of the land in the 1950s. Among its amenities he described large trees, prairie areas, rolling fields, ravines and good visibility from I-69.

Noise from the interstate does impede the ability to commune with nature, however. Ernst said those concerns "need to be considered as this development proceeds."

Early suggestions include building the entrance to the park off Bass Road on the far west end to alleviate a safety issue with vehicles coming down off the hill that goes over I-69. A driveway could meander through the park to the northwest corner, which could be an ideal location for a nature center.

A paved walking path could be built farther to the east, with other mulched paths branching off along the way.

One suggestion would keep the more active attractions, such as a playground, toward the front of the park. A pond on the property could be used for ice skating in the winter, and a hill toward the back could be used for sledding.

Ernst noted housing developments springing up on the west side of the park, and suggested a walking path could tie the housing development to the park.

Board members were pleased with the concept for the park and voted unanimously to proceed. "It looks great," said board President Charles McNaggy.

### In other park board news

◆ Greenway Manager Dawn Ritchie said 45 people have volunteered to be Greenway Rangers.

"This property is unique in the fact there is a lot of topography left in it."

— DAN ERNST, A LANDSCAPE ARCHITECT WITH EARTH SOURCE

charged with walking a section of the greenway each week to clean it up and look for potential problems such as graffiti or potholes. Problems will be reported to authorities. "We do not want vigilantes out there," Ritchie said. Rangers will be outfitted with identification tags and Parks and Recreation shirts.

◆ Hispanic and Latino volunteers also will be working in Foster Park this summer as liaisons between police and park-goers. Officer Michael McQueen of the Fort Wayne Police Department said because of cultural and language differences, the large number of Hispanics and Latinos in Foster Park, especially on the weekends, frequently caused problems that included loud music, blocking the roadway and drinking alcohol.

Twenty-five volunteers have offered to patrol the park to approach offenders and explain the rules — not enforce them, McQueen emphasized. If a family, for example, decides to picnic on the golf course, an ambassador could "politely point out that's not how we do it here."

He'd also like to expand the program and add Burmese volunteers to address the growing number of Burmese who use the park.

◆ The park board gave approval to Historic Fort Wayne Inc. to replant gardens at the replica of the Old Fort that sits on the St. Marys River alongside Spy Run Avenue. The board also agreed to spend \$152 for four signs pointing the way to the Old Fort, and to allow Boy Scout Adam Mason and his father to restore the outside of the burned part of the fort as part of his Eagle Scout project.

Historic Fort Wayne Inc. is a non-profit group trying to revive the fort, which has been shuttered for years and is owned by the Parks Department.





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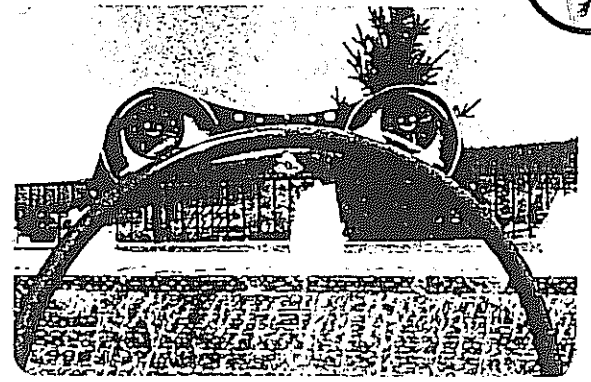
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# BullFrog

All kids love to play with this frog. Imagination abounds as Splashlanders jump through his gaping mouth. Then, even if they try to run or climb, they'll still get dumped on by his huge feet. Realistic and intricate graphics combined with translucent See/No polymer make the play area just as big as the frog.



## BULLFROG VOR-0524.0000

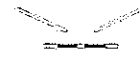
WATER FLOW: 20-25 gpm (68-87 lpm)      PRESSURE: 15-20 psi (1.0-1.4 bar)

9' (2.7m)



10' (3m)

10'

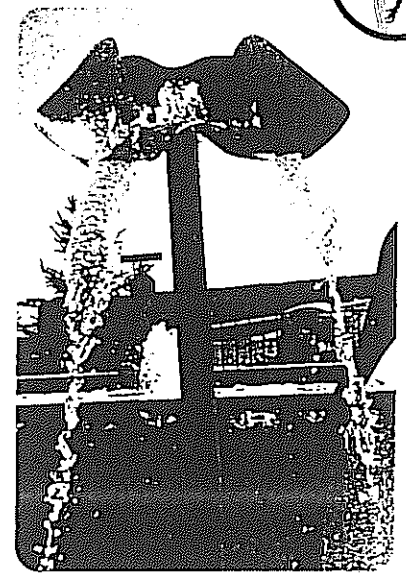


10' (3m)

10'

# TipToad™

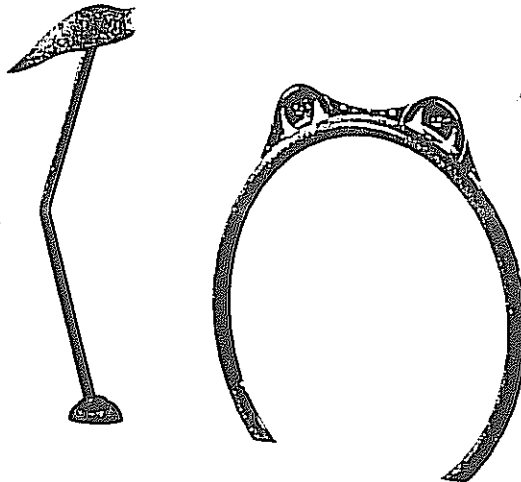
All kids love to play with this toad. Imagination abounds as Splashlanders jump through his gaping mouth. Then, even if they try to run or climb, they'll still get dumped on by his huge feet. Realistic and intricate graphics combined with translucent See/No polymer make the play area just as big as the toad.



## TIPTOAD VOR-1342.0000

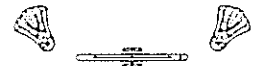
WATER FLOW: 30-60 gpm (114-227 lpm)      PRESSURE: 15-20 psi (1-1.4 bar)

9' (2.7m)



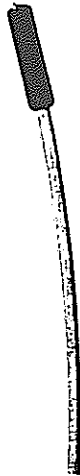
SPRAY/FEET

13' (4m)



21' (7m)

112" (2.9m)



**CATTAIL VOR-0514.0000**

WATER FLOW      PRESSURE  
30-60 gpm (115-225 lpm)      10-15 psi (0.7-1.0 bar)

SPRAY/DIAM  
13' (05m)

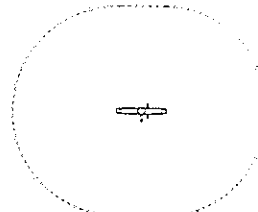
40" (1.0m)



**CACTUS VOR-7390.0000**

WATER FLOW      PRESSURE  
25-30 gpm (95-114 lpm)      15-20 psi (1.0-1.4 bar)

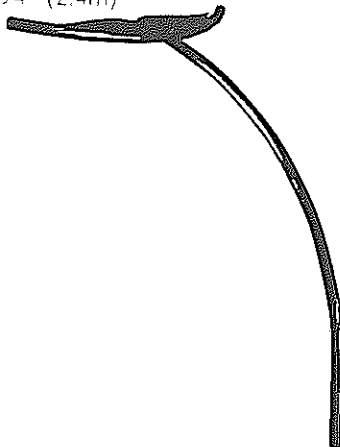
SPRAY/DIAM



14' (4m)

17' (5m)

94" (2.4m)

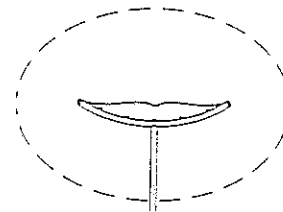


**WHALE TAIL VOR-0523.0000**

WATER FLOW      PRESSURE  
13-23 gpm (68-87 lpm)      15-20 psi (1.0-1.4 bar)

SPRAY/DIAM

9' (3m)



13' (4m)

# Power Volcano 01



The Power Volcano 01 provides a powerful and effective cleaning action. This dynamic jet eventer will cover higher as kids stand together to cover the pool sprays.



## POWER VOLCANO 01 VOR-7650.0000

WATER FLOW: 1500 gpm (5678 lpm)      PRESSURE: 3-8 psi (0.2-0.6 bar)



SPRAYING  
Ø13 (Ø3m)

# Power Volcano 03



The Power Volcano 03 provides a powerful and effective cleaning action. This dynamic jet eventer will cover higher as kids stand together to cover the pool sprays.

## POWER VOLCANO 03 VOR-7650.0001

WATER FLOW: 45-60 gpm (170-227 lpm)      PRESSURE: 3-8 psi (0.2-0.6 bar)



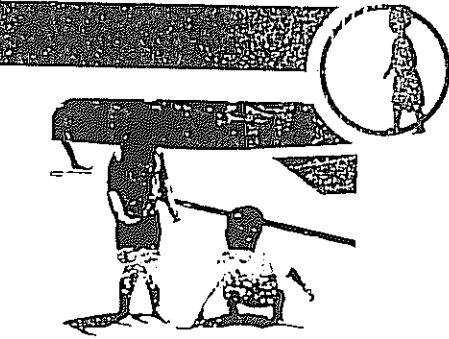
SPRAYING  
Ø19 (Ø5m)





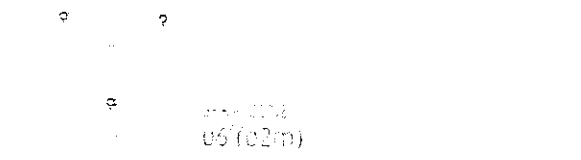
# Waterjelly™

Waterjelly is a high-pressure water jetting system designed for industrial cleaning. It is used for removing dirt, grease, and other contaminants from various surfaces. The system consists of a high-pressure pump, a water supply, and a spray lance. The high-pressure water jet is used to clean the surface of the object being cleaned. The high-pressure water jet is used to clean the surface of the object being cleaned.



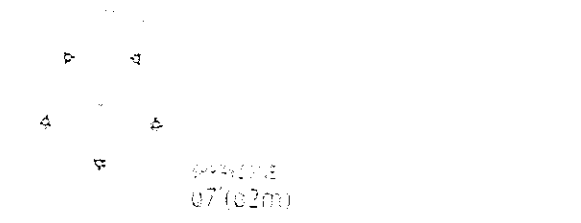
## WATERJELLY 03 VOR-7010.0000

WATER FLOW: 30-35 gpm (114-130 lpm)      PRESSURE: 1-2 psi (0.05-0.14 bar)

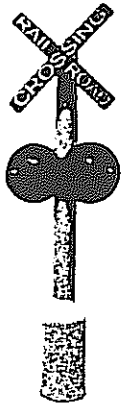


## WATERJELLY 05 VOR-7010.0001

WATER FLOW: 50-60 gpm (139-227 lpm)      PRESSURE: 1-2 psi (0.05-0.14 bar)



76" (1.93m)



**MAGIC TOUCH CROSSING GATE VOR-0602.0000**

WATER FLOW: 8-10 gpm (30-38 lpm)  
PRESSURE: 15-20 psi (1.1-1.4 bar)

SPRAY/ON



6" (152mm)

6" (152mm)

39" (1m)



**magic touch bollard 01**

VOR-0600.0000



39" (1m)



**magic touch bollard 02**

VOR-7399.0000

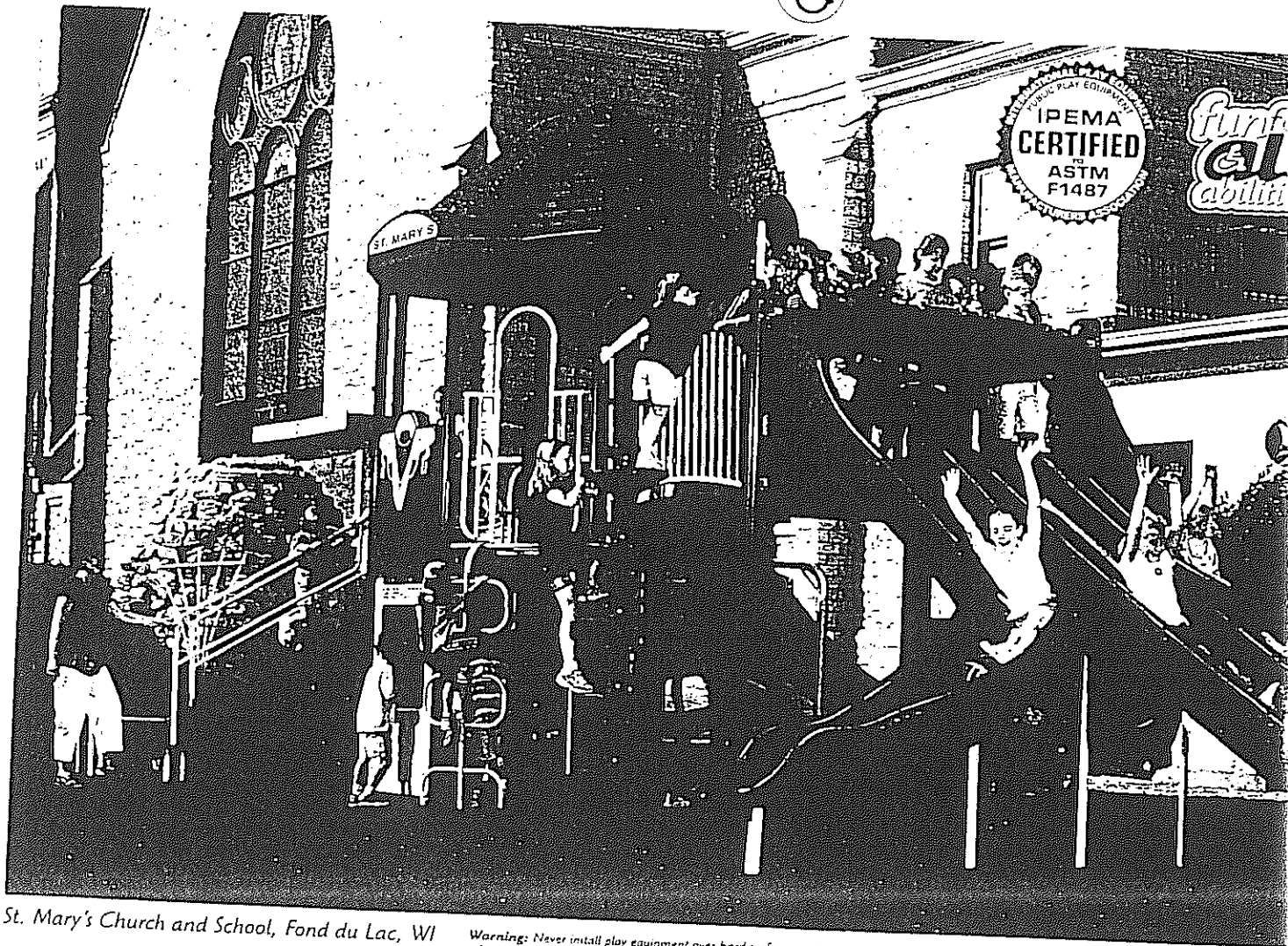
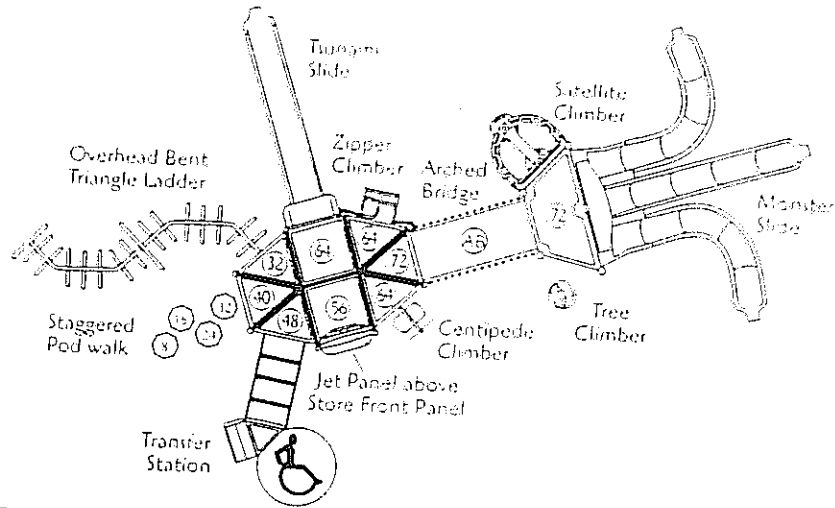
**foot activator**

VOR-0606.0000



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Warning: Never install play equipment over hard surfaces such as asphalt, concrete, grass or compacted earth. It is the owner's responsibility to install the appropriate amount of resilient surfacing material under and around all play equipment. Consult ASTM and CPSC guidelines for appropriate amounts of impact attenuating material.

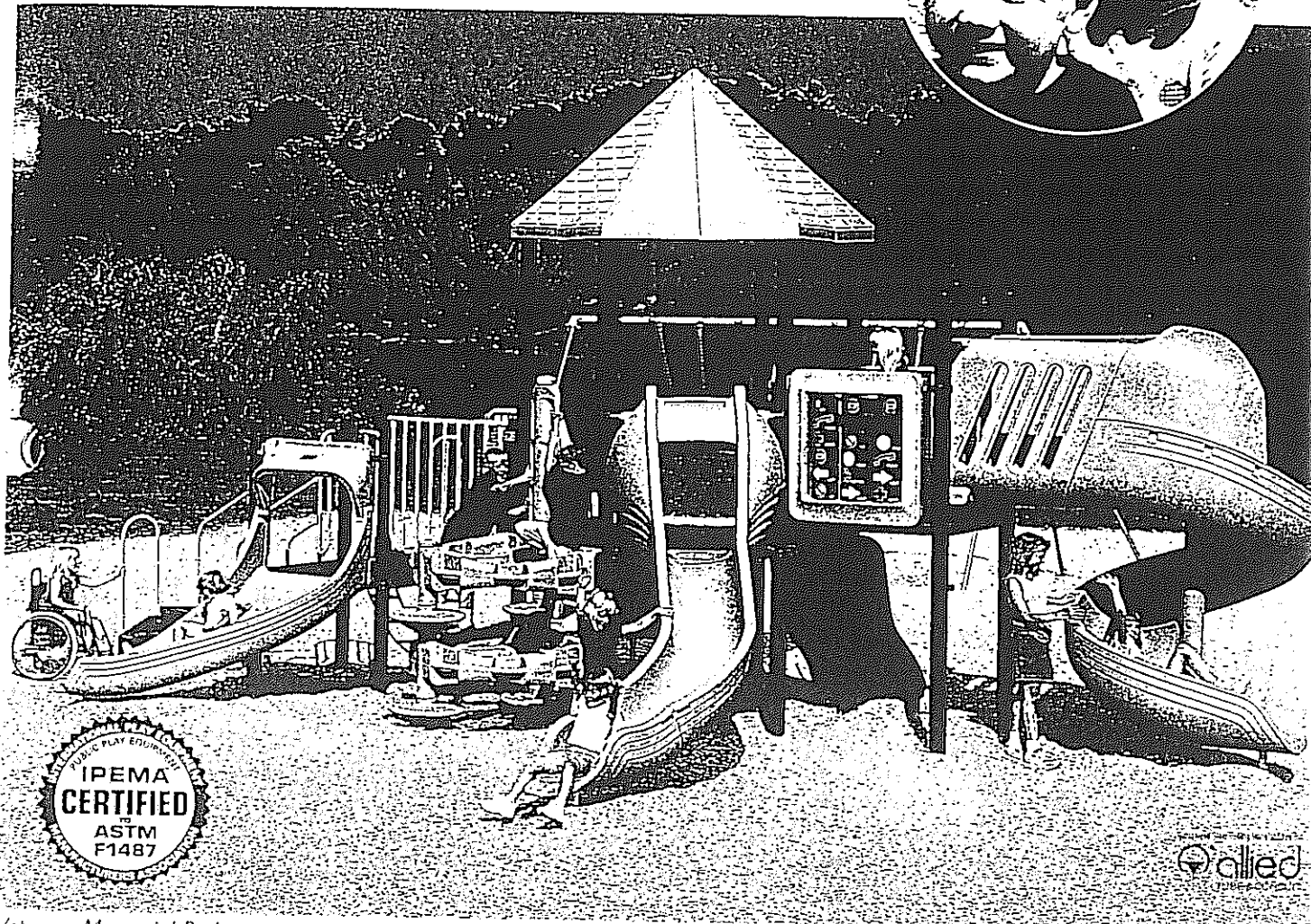
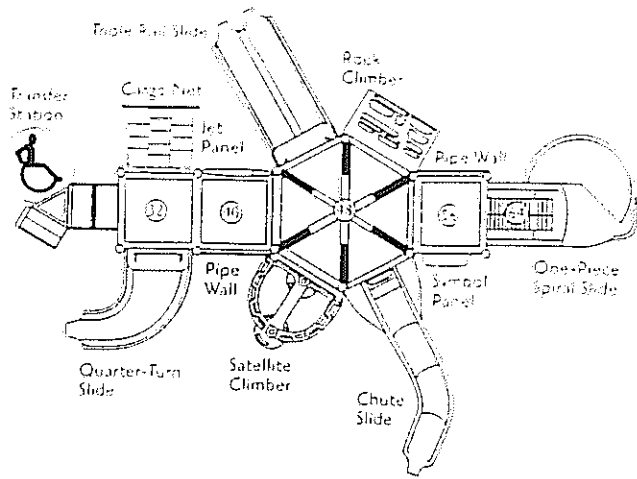
## Model 952

**Circus Big Top**  
Ages 5-12

Model	Approx. List Price	Play Value	Use Zone	Play Area Capacity up to	Delivery Weight	Accessibility
3000-952	\$24,500*	14 events	41' x 58'	91 kids	4,191 lbs.	This play structure meets the current ADAAG requirements for accessibility.
2000-952	\$29,100*	14 events	42' x 58'	92 kids	4,579 lbs.	



# Kids Camp



Veterans Memorial Park

Warning: Never install play equipment over hard surfaces such as asphalt, concrete, grass or compacted earth. It is the owner's responsibility to install the appropriate amount of soft surfacing material under and around all play equipment. Consult ASTM and CPSC guidelines for appropriate amounts of impact attenuating material.

## Model 908

**Kids Camp**  
Ages 2-5

2000-908

Approx.  
List Price

\$20,000\*

\$23,800\*

Play  
Value

9 events

9 events

Use  
Zone

39' x 45'

39' x 45'

Play Area  
Capacity  
to

60 kids

60 kids

Delivery  
Weight

3,096 lbs.

3,346 lbs.

Accessibility

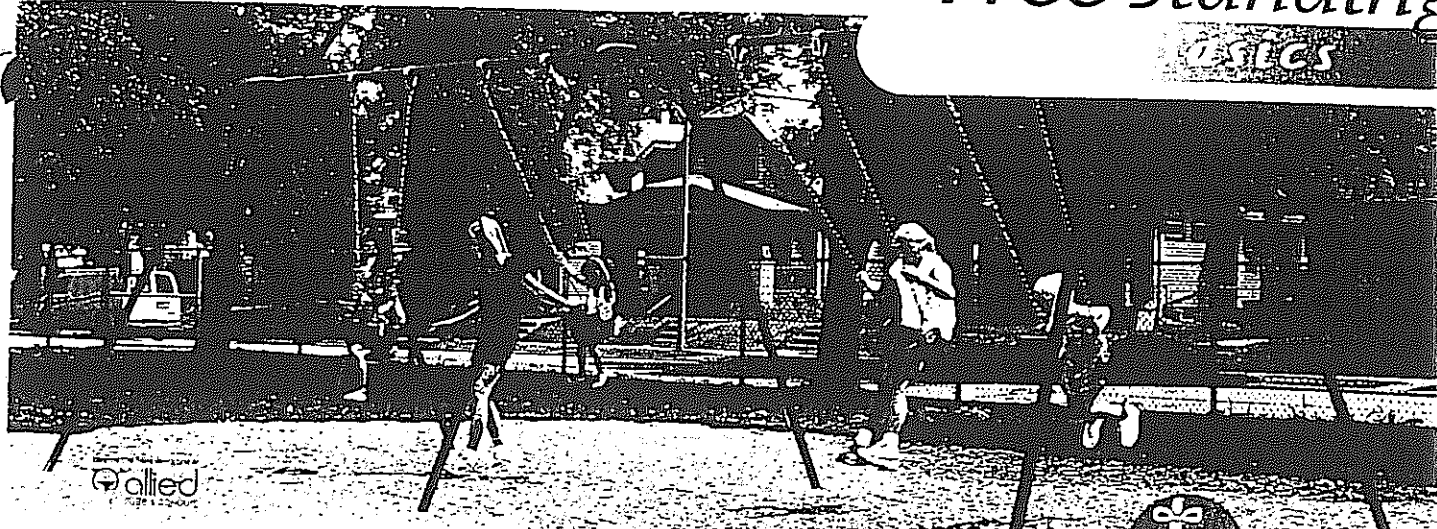
This play structure needs 3 additional ground-level components to meet the current ADAAG requirements for accessibility.

\*Contact your local Burke Rep for exact pricing based on design specifics to meet your needs. Price does not include free-standing equipment or site furnishing.

Contact your Burke Rep at: **800-266-1250**

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# Free Standing



**8' High Contemporary, Two-Way with 2 Bays** shown.  
Model 550-0007 / 550-0004 Shown in powdercoat



Don't Forget! Seats are sold separately.

**Contemporary, Two-Way End Supports** 2 3/8" O.D. Top Pipe / 2 3/8" O.D. Support Pipe



To Receive This:

Limit 5 on 10-business day Quickship.

Beam Height	Quantity	Model #	Use Zone	Weight	Galvanized Price	Powdercoat Price
8'	order this and 1	550-0007	32' x 26'	243 lbs.	\$589	\$659
10'	order this and 1	550-0005	40' x 26'	271 lbs.	\$618	\$691
8'	order this and 1	550-0007 550-0004	32' x 33' Added Bay	390 lbs.	\$764	\$1,092
10'	order this and 1	550-0005 550-0002	40' x 33' Added Bay	433 lbs.	\$1,099	\$1,131
8'	order this and 2	550-0007 550-0004	32' x 50' Added Bay	517 lbs.	\$1,338	\$1,524
10'	order this and 2	550-0005 550-0002	40' x 50' Added Bay	535 lbs.	\$1,399	\$1,570
8'	order this and 3	550-0007 550-0004	32' x 62' Added Bay	634 lbs.	\$1,716	\$1,957
10'	order this and 3	550-0005 550-0002	40' x 62' Added Bay	757 lbs.	\$1,793	\$2,009

**Contemporary, Three-Way End Supports** 2 3/8" O.D. Top Pipe / 2 3/8" O.D. Support Pipe



To Receive This:

Limit 5 on 10-business day Quickship.

Beam Height	Quantity	Model #	Use Zone	Weight	Galvanized Price	Powdercoat Price
8'	order this and 1	550-0003	32' x 32'	332 lbs.	\$777	\$857
10'	order this and 1	550-0001	40' x 34'	375 lbs.	\$826	\$919
8'	order this and 1	550-0003 550-0004	32' x 44' Added Bay	479 lbs.	\$1,155	\$1,301
10'	order this and 1	550-0001 550-0002	40' x 46' Added Bay	537 lbs.	\$1,217	\$1,355
8'	order this and 2	550-0003 550-0004	32' x 55' Added Bay	626 lbs.	\$1,527	\$1,733
10'	order this and 2	550-0001 550-0002	40' x 57' Added Bay	699 lbs.	\$1,609	\$1,797
8'	order this and 3	550-0003 550-0004	32' x 67' Added Bay	773 lbs.	\$1,904	\$2,166
10'	order this and 3	550-0001 550-0002	40' x 69' Added Bay	861 lbs.	\$1,997	\$2,237



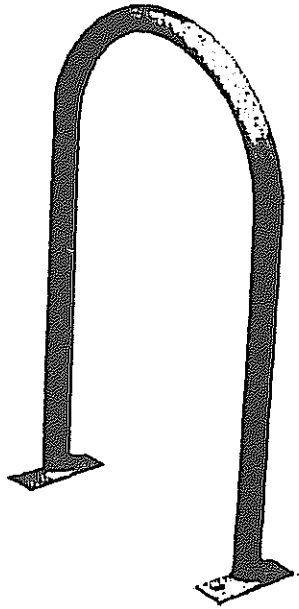
**8' High Contemporary, Three-Way with 2 Bays** shown.  
Model 550-0003 / 550-0004 Shown in powdercoat



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# HOOP RACK



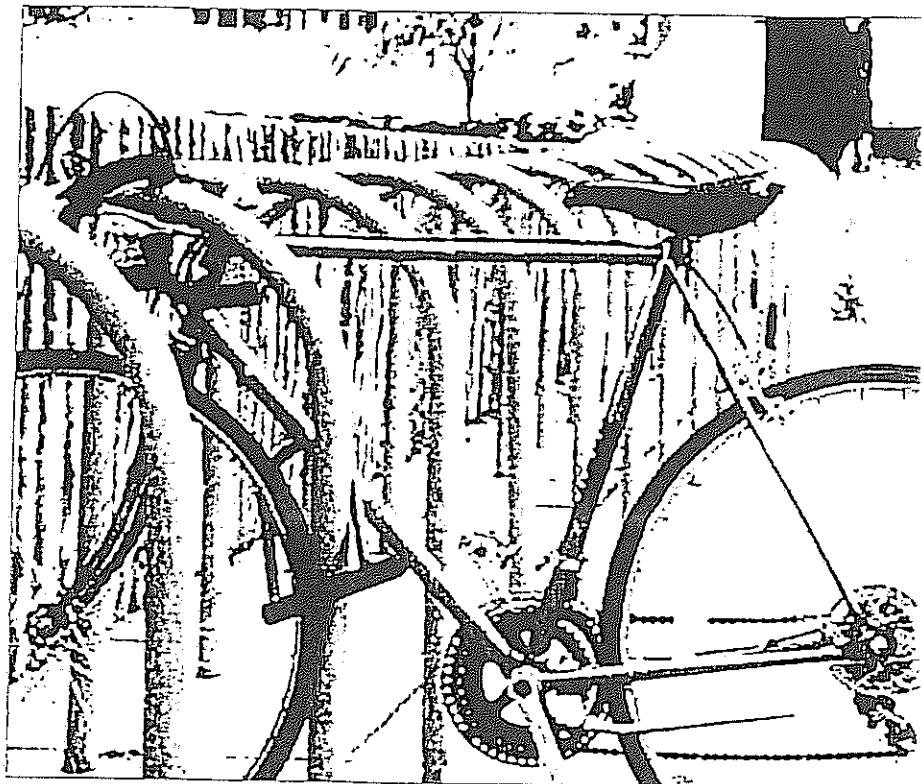
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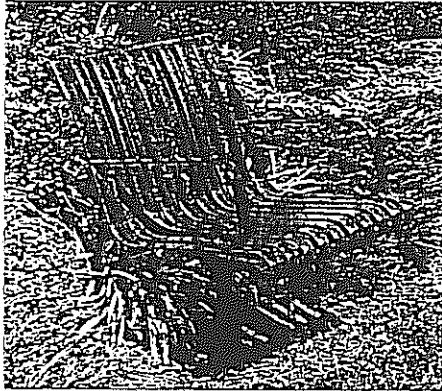
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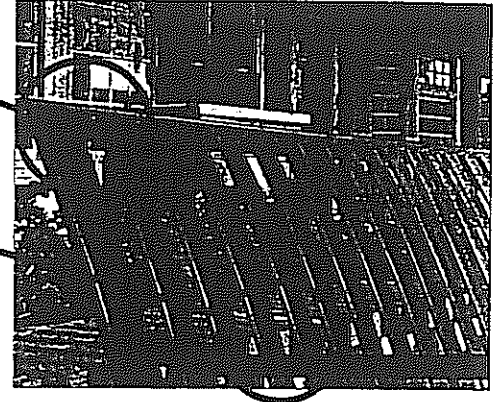
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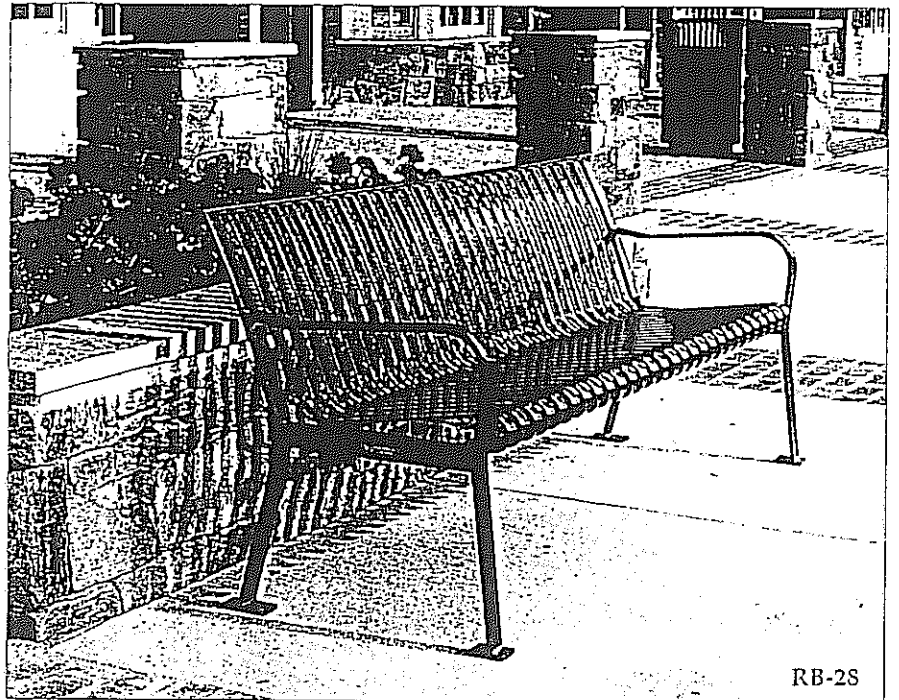


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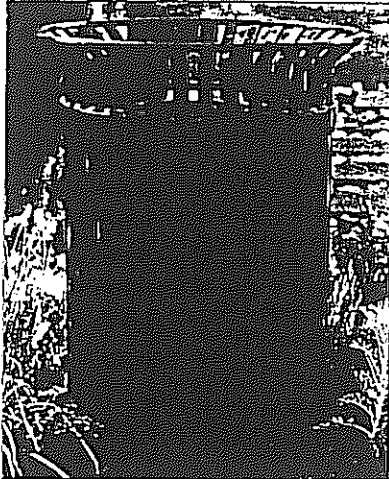


RBF-28

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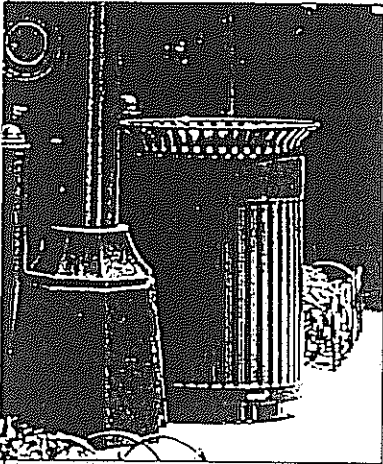
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Model PS-535 - A center-post mounted 24-gallon alternative with in-ground or surface-mount options... a new variation on the S-35.

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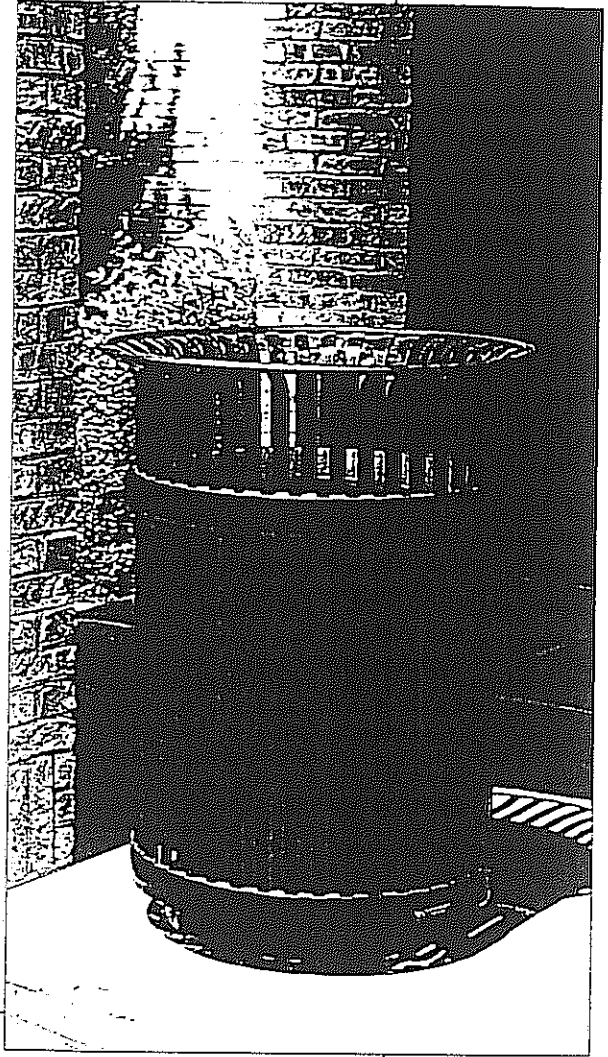
The Product  
That Became  
a Family...



Model S-45 - the BIG one... 45-gallon capacity but as graceful as all the rest.



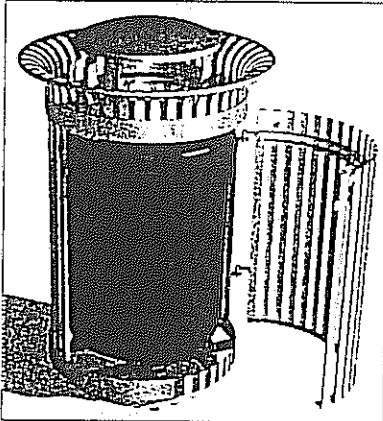
Model S-20 - Stand-alone ash urn, with stainless steel ash tray.



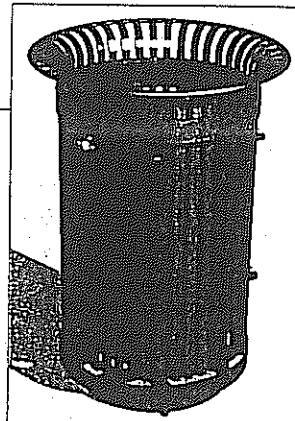
Model S-42 - 36-gallon litter receptacle.

Now available with side opening doors...

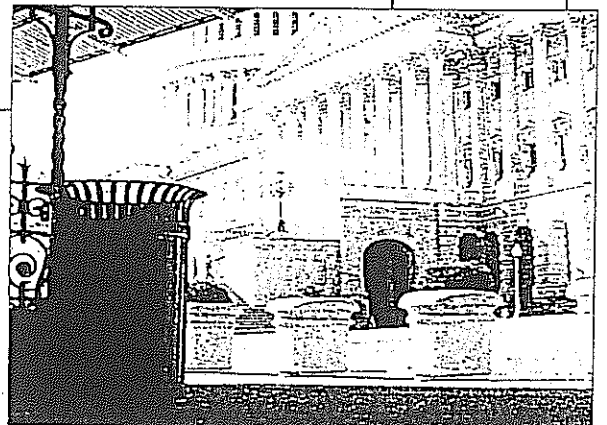
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For product information or design assistance, please contact your local representative or call us at 1-800/547-1940, Ext. 991.

See more at [www.TimberForm.com](http://www.TimberForm.com)

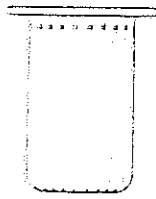
**TimberForm Renaissance**

TimberForm Renaissance	Style	Model	Diameter	Height	Mounting Options
Litter Container	Open Top	2811-OT	2' 2" (560mm)	2' 10" (565mm)	-E, -P or -L
	Flat Top	2811-FT	2' 2" (560mm)	2' 10" (565mm)	-E, -P or -L
	Dome Top	2811-DT	2' 2" (560mm)	3' 3" (790mm)	-E, -P or -L
	Ash/Dome Top	2811-AT	2' 2" (560mm)	3' 2" (765mm)	-E, -P or -L

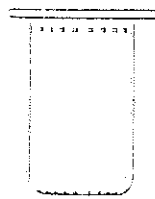
Material: Powder-coated steel

Options: Mounting method and powder-coating color

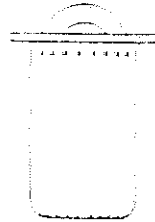
Notes: Includes 23-gallon plastic liner. Top matches container unless otherwise specified. Key-locking tops are standard on -FT, -DT and -AT models.



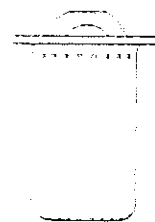
2811-OT



2811-FT



2811-DT



2811-AT



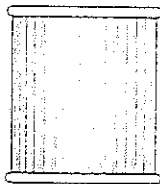
"Standard Capacity"

TimberForm Renaissance	Style	Model	Diameter	Height	Mounting Options
Litter Container	Open Top	2814-OT	2' 2" (560mm)	2' 10" (565mm)	-E, -P or -L
	Flat Top	2814-FT	2' 2" (560mm)	2' 10" (565mm)	-E, -P or -L
	Dome Top	2814-DT	2' 2" (560mm)	3' 5" (1040mm)	-E, -P or -L
	Ash/Dome Top	2814-AT	2' 2" (560mm)	3' 4" (1015mm)	-E, -P or -L

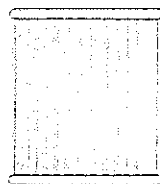
Material: Powder-coated steel

Options: Mounting method and powder-coating color

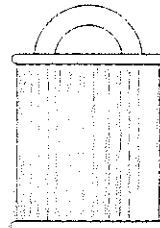
Notes: Includes 32-gallon plastic liner. Top matches container unless otherwise specified. Key-locking tops are standard on -FT, -DT and -AT models.



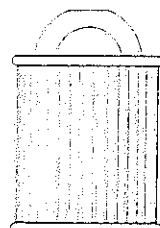
2814-OT



2814-FT



2814-DT



2814-AT



"Large Capacity"

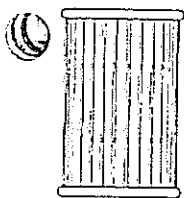
TimberForm Renaissance	Style	Model	Diameter	Height	Mounting Options
Litter Container, Side Empty	Open Top	2815-OT <sup>1</sup>	1' 9" (535mm)	2' 10" (665mm)	-E, -P or -L
	Flat Top	2815-FT	1' 9" (535mm)	2' 10" (665mm)	-E, -P or -L
	Dome Top	2815-DT	1' 9" (535mm)	3' 5" (1040mm)	-E, -P or -L
	Ash/Dome Top	2815-AT	1' 9" (535mm)	3' 4" (1015mm)	-E, -P or -L

Material: Powder-coated steel

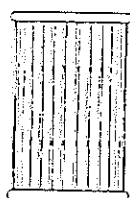
Options: Mounting method and powder-coating color

Notes: Includes 23-gallon plastic liner. Top matches container unless otherwise specified. Key-locking tops and side opening door are standard on -FT, -DT and -AT models.

<sup>1</sup> Key-locking top and side opening door not required on Open Top (-OT) model.



2815-OT



2815-FT

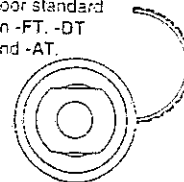


2815-DT

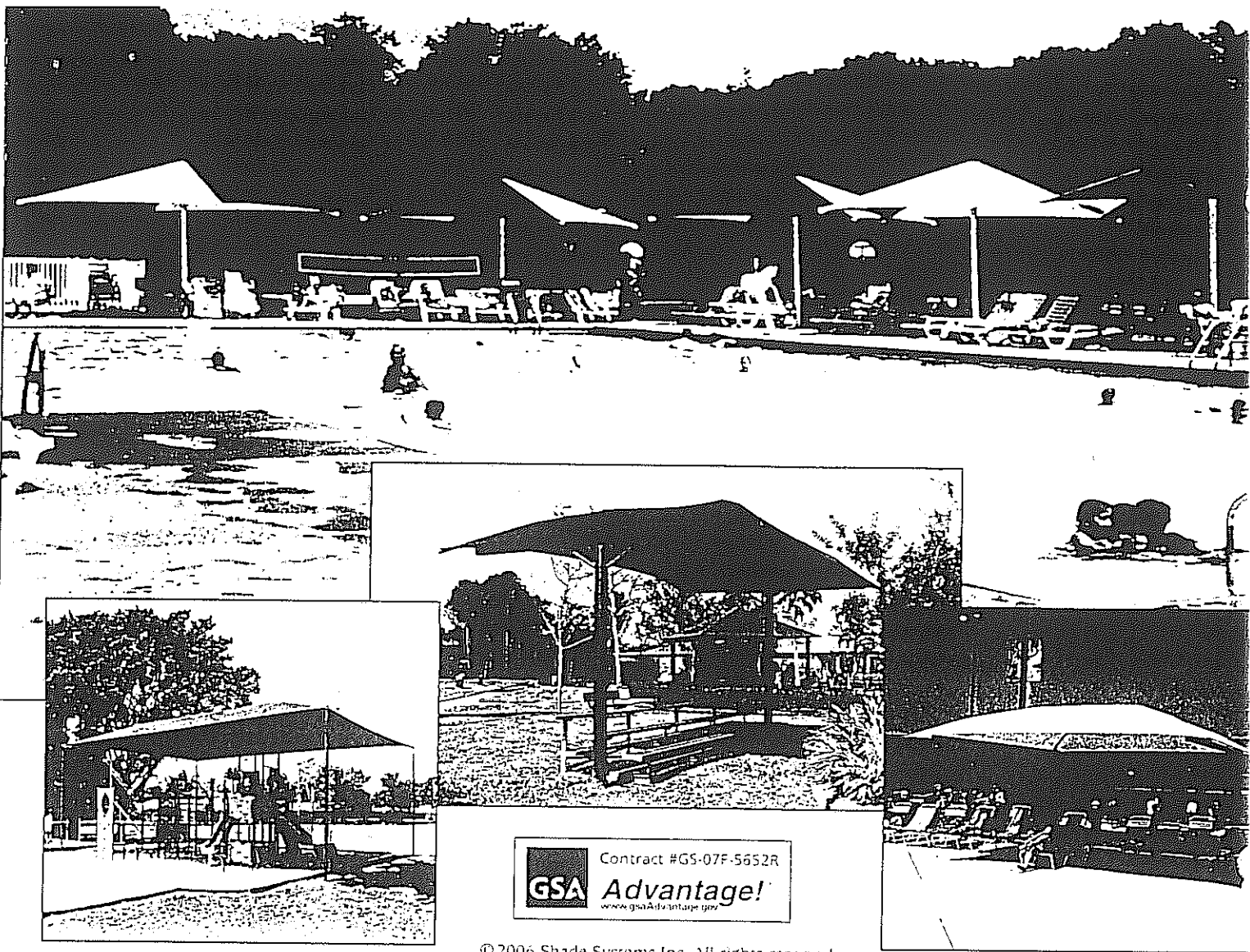


2815-AT

Side opening door standard on -FT, -DT and -AT.



"Standard Capacity"



Contract #GS-07F-5652R  
**GSA** Advantage!  
www.gsaAdvantage.gov

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# Shade systems<sup>INC</sup>

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Pompano Beach, FL 33064

Toll-free: 1-800-609-6066

Local: 954-971-6066

Fax: 954-971-1208

[www.shadesystemsinc.com](http://www.shadesystemsinc.com)

e-mail: [shadesystems@comcast.net](mailto:shadesystems@comcast.net)

# Shade Kites

Available in sizes from 15' x 15' to 30' x 30'

Shown with optional two-tone fabric

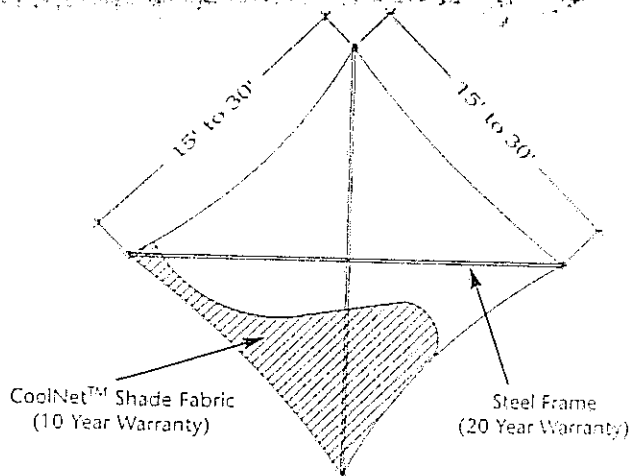


Hawn Park  
City of Sherman Parks & Recreation  
Sherman, Texas  
Aquatic Blue & Eggshell White Fabric / Alpine White Frame  
20' x 20' x 7'11/14' eave height

Named 'Shade Kites' for their soaring sky-bound shapes, these imaginative designs are a clever variation of our popular square frame-supported shades. With one corner post twice the height of the other three, Shade Kites offer the design flexibility of orienting them tilted toward the sun for maximum shading. Typical applications include poolside, by spraygrounds, or over traditional playground equipment. Shade Kites can be purchased as a single, or connected together in groups of two, three, four, or more.

Of course, Shade Kites come standard with our patented Turn-N-Slide® easy canopy fastening and removal system. No other shade manufacturer offers the unique combination of such a shade system design with a handy canopy removal and re-attachment feature built right in! Please refer to the Turn-N-Slide® details shown on page 5.

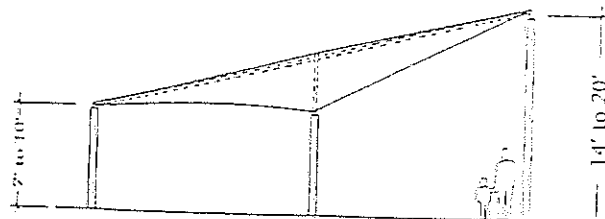
Shade Kites are available in square sizes ranging from 15'x15' to 30'x30'. Post heights vary from 7'11/14' to 10'20'. All other specifications are equivalent to our regular square frame-supported shade systems.



CoolNet™ Shade Fabric  
(10 Year Warranty)

Steel Frame  
(20 Year Warranty)

**PLAN VIEW**  
(not to scale)



**ELEVATION**  
(not to scale)

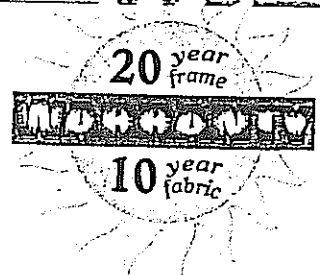
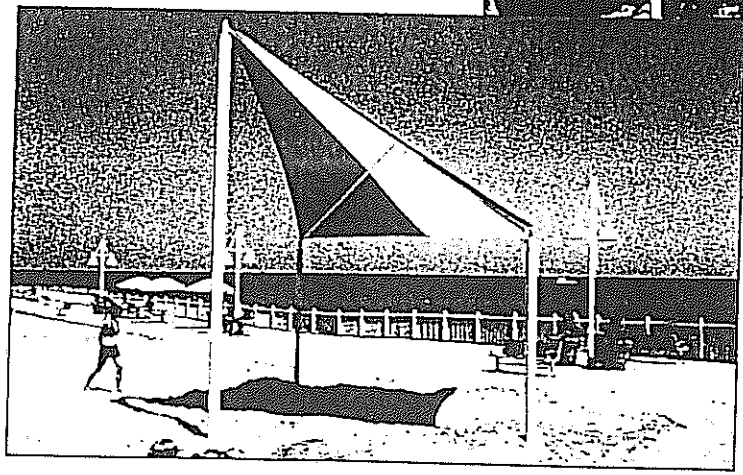






**SHADE KITES  
ARE PERFECT FOR:**

- ✓ Pool areas
- ✓ Spraygrounds
- ✓ Playgrounds
- ✓ Any outdoor area



[www.shadesystemsinc.com](http://www.shadesystemsinc.com)

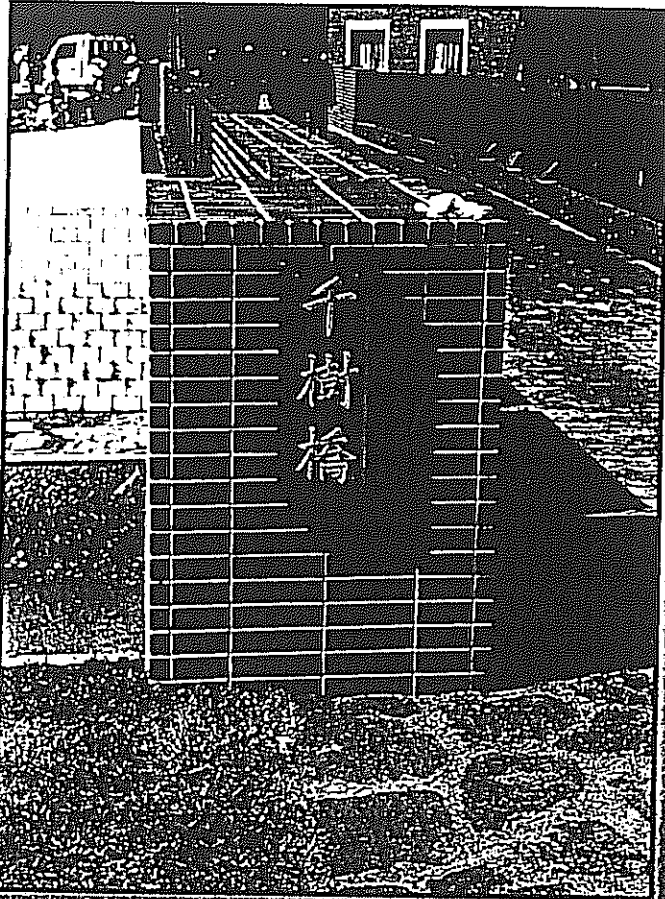


1-800-609-6066



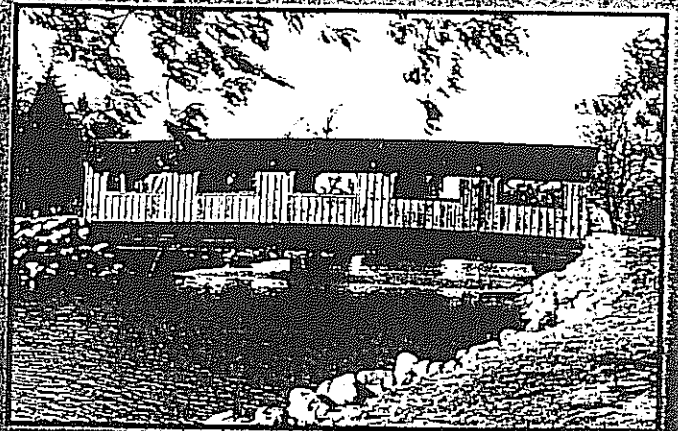
# FiRP® Panel Reinforced Glued Laminated Wood Beams

*Stronger, Safer And More Economical*

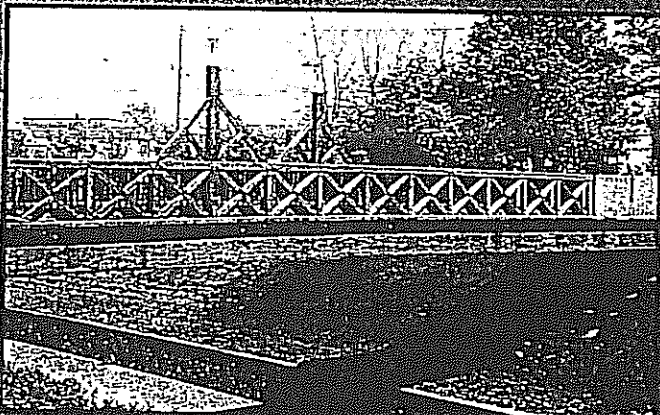


*The Tonebutsu Bridge in Hokkaido Japan is designed to carry TS (HS15) loading.*

Western Wood Structures, Inc. and Fiber Technologies, Inc. have combined to introduce one of the most effective new structural wood products to enter the structural wood composite market place: High-Strength Fiber-Reinforced Glulams or FiRP® Glulams.



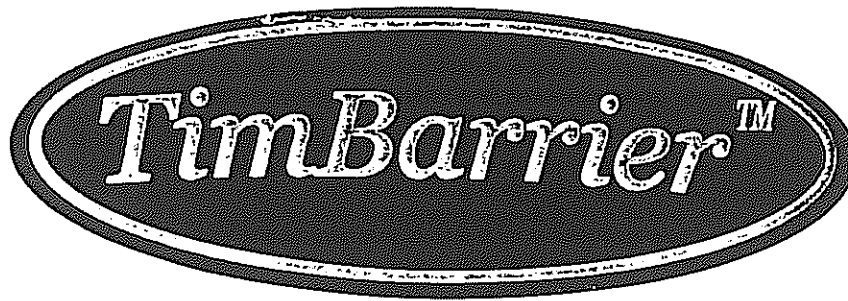
*The Lakeside Covered Bridge in Fond du Lac, WI was the first bridge to use the new FiRP® technology in 1993.*



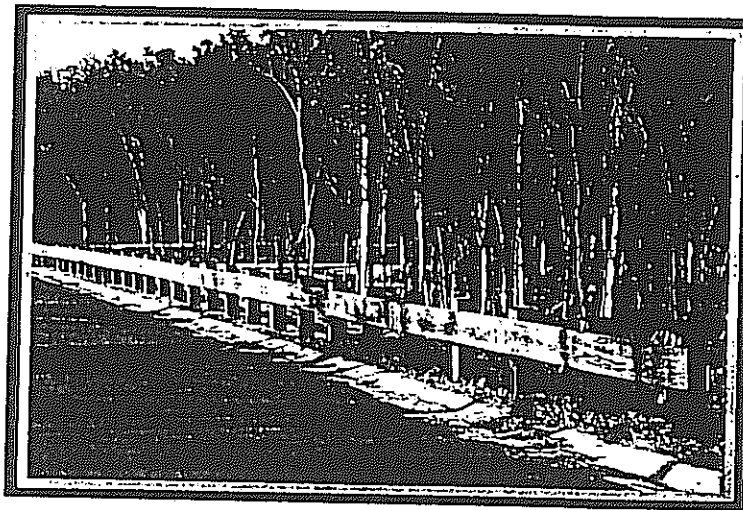
*The Tonebutsu Bridge is 11' wide with a 106' clear span and utilizes four FiRP® reinforced Glulam stringers.*



*This is one of four FiRP® bridges at the Browns Ferry Park in Tualatin, Oregon. Note the 2 x 4 balusters and observation area.*



# Aesthetic Timber Barrier Systems



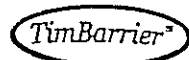
**S.I. Storey**

LUMBER COMPANY, INC.



**S.I. Storey**  
LUMBER COMPANY, INC.

SINCE 1920



**CHARLES R. COLEMAN**

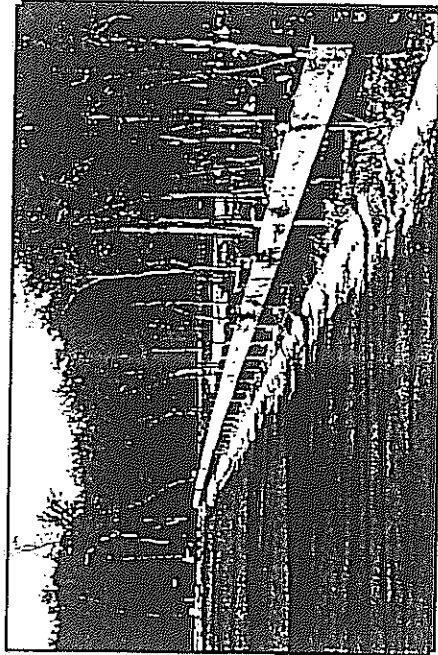
*Charlie@sistoreylumber.com*  
285 Sike Storey Road NW  
PO Box 99  
Armuchee, GA 30105

Phone: (706) 234-1605  
Facsimile: (706) 235-8132  
[www.sistoreylumber.com](http://www.sistoreylumber.com)  
[www.timbarrier.com](http://www.timbarrier.com)

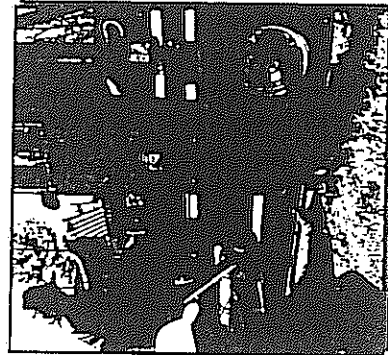
# StreetGuard™

## ON THE ROAD

Designed to meet the special needs of Developers and land planners, StreetGuard™ is the safety barrier solution that enhances the landscape. Intended for use along low speed roadways in parks, private developments and subdivisions, StreetGuard™ is the aesthetic alternative to traditional galvanized steel W-beam guardrail.



Similar in concept to the steel backed timber barrier used in national parks, StreetGuard™ was designed to utilize conventional timber components and less steel, resulting in an aesthetic barrier that installs quickly and easily at a price that won't break your budget.



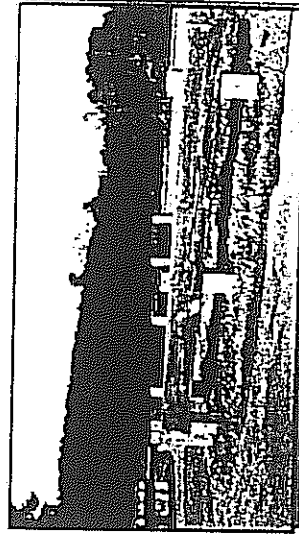
# LotGuard™

## AROUND THE BORDER

For lighter duty applications, LotGuard™ continues the basic TimBarrier™ concept at a more economical cost. Intended for use along driveways and parking lots, LotGuard™ maintains bumper height protection utilizing a downsized post and rail.



The LotGuard™ design is extremely flexible. The less massive timber components permit the architect to take full advantage of TimBarrier™ *splice plate technology* to make tight radius turns. With TimBarrier™ no special cutting or mitering is required, the splice plate bends and adapts automatically for each angle of a turn. This feature keeps the barrier uniform and speeds installation.





*"Leap of Faith"*

lifesize

## JAY WRIGHT BRONZE SCULPTURE

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# Pervious Concrete Frequently Asked Questions

**Q: What about drainage issues in soils with high clay content?**

**A:** Typically if a soil type has sufficient percolation to support a septic tank system it will be allowable for pervious concrete. If a soil is truly impervious, the pervious concrete system will still be useful for detention pond requirements. Soil percolation rates are most important if you must meet stormwater quality requirements. A typical parking lot design may have 5"–8" of pervious pavement on top of a 6"–12" sub-base of #57 stone (40% voids) on a geotextile fabric. In sandy areas pervious is placed directly above the sand.

**Q: What about freeze-thaw issues?**

**A:** Pervious concrete has been placed in freeze-thaw climates for over 15 years. Successful applications of pervious concrete in freeze-thaw environments have two common design features—the cement paste is air-entrained, and the pervious concrete is placed on 6–12 inches of drainable aggregate base (3/4" or larger clean gravel). For more information on pervious pavement in freeze-thaw applications go to [www.concretetoparking.org](http://www.concretetoparking.org) and view documents on pervious concrete, including "Freeze-Thaw Resistance of Pervious Concrete" and "Concrete in Practice #38—Pervious Concrete."

**Q: What about clogging?**

**A:** Clogging problems are mainly an issue of design. If a natural area with grass or exposed soil is allowed to drain stormwater across a pervious concrete pavement, fine material can be introduced into the system causing localized clogging. Vegetative matter can collect on the surface of the pervious concrete causing some clogging, but routine sweeping or vacuuming will restore porosity. Studies have been conducted that indicate pressure washing will restore most of the porosity of clogged pervious concrete to nearly new conditions.

**Q: What other uses are there for pervious concrete?**

**A:** Pervious concrete has been successfully used for low volume streets, driveways, sidewalks, golf cart paths, retaining walls, slope protection, and French drains. Pervious concrete can be utilized in a variety of paving applications to provide hardscape without altering hydrology of the land.

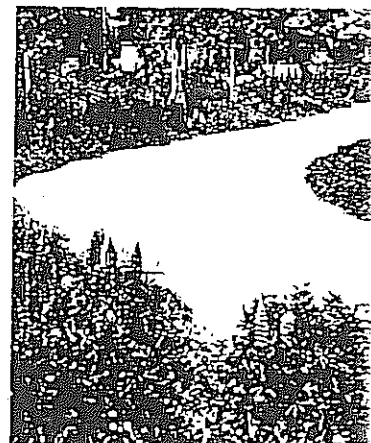
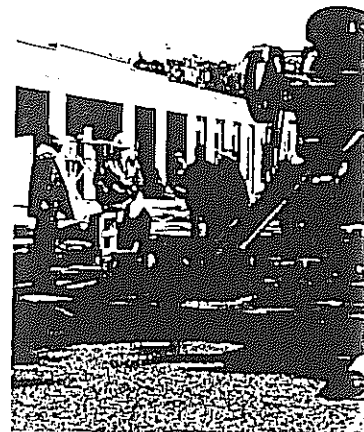
## Concrete Delivers

*Engineered concrete solutions for sustainability, durability and value.*

**For more information and contacts  
on pervious concrete, visit:**

© National Ready Mixed Concrete Association  
900 Spring Street, Silver Spring, MD 20910  
888.84.NRMCA, [www.nrmca.org](http://www.nrmca.org)

**Count on Concrete**

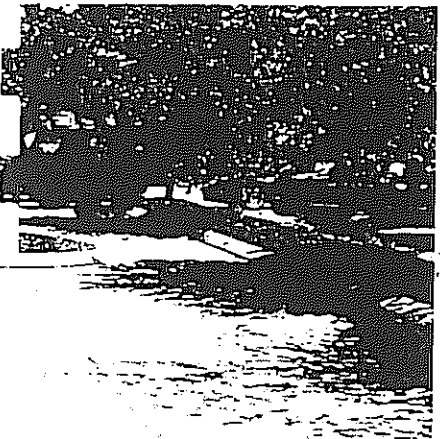




## Pervious Concrete: The Natural Choice

It's tough to balance the demand for development with the need to preserve our natural resources. However, this balance becomes easy to achieve when you construct parking lots using pervious concrete.

Pervious concrete is a mix of coarse aggregate, cement, water, and little to no sand. Also known as "no-fines" or porous concrete, this mixture creates an open-cell structure, allowing rainwater to filter through to underlying soil. By modeling natural ground cover, pervious concrete is an excellent choice for stormwater management.

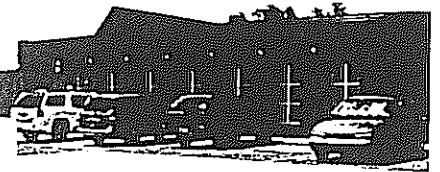


## Pervious Concrete: The Environmentally Sound Choice

According to the United States Environmental Protection Agency (EPA), stormwater runoff can send as much as 90% of the pollutants—such as oil and other hydrocarbon liquids found on the surface of traditional parking lots—directly into our rivers and streams. The EPA now requires state and local governments to implement measures to reduce and improve the overall quality of stormwater runoff in an effort to address this important pollution problem. Pervious concrete has been recognized by the EPA as a best management practice (BMP) to address this most vital environmental concern. The open-cell structure of pervious concrete provides a medium for aerobic bacteria that break down many of the pollutants that seep from parked cars.

Pervious concrete also contributes to enhanced air quality by lowering atmospheric heating through lighter color and lower density, decreasing the impact of heat island effects. The heat island effect occurs when tree-covered areas are replaced with dark pavement surfaces, and is characterized by up to a 12-degree average temperature increase between an urban area and its surrounding countryside. This heat island effect increases ground level ozone production by as much as 30%.

Concrete surfaces, both pervious and conventional, have a much higher albedo—a measure of reflectance—than competitive paving materials. Specifications requiring minimum surface albedo are becoming increasingly popular. The inherently light color of concrete naturally reflects heat and light. *Studies have shown as much as a 30% savings in lighting costs over other pavement types due to concrete pavement's reflectivity.*



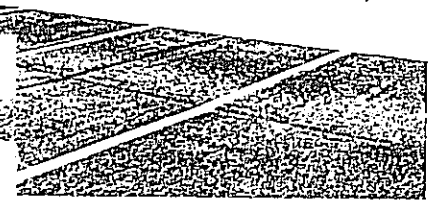
## Pervious Concrete: The Smart Business Choice

Using pervious concrete pavement in your parking lot can reduce the need for large detention ponds because the pavement acts as a detention area. Parking lot owners will spend fewer dollars on labor, construction and maintenance of detention ponds, skimmers, pumps, drainage pipes, and other stormwater management systems. Expensive irrigation systems can also be downsized or eliminated.

A pervious concrete parking lot will help reduce demands upon sewer systems. Today, many government agencies are now implementing stormwater impact fees for all impervious areas. Pervious concrete can reduce these fees for the property owner.

Developers are using pervious concrete for parking lots to increase utilization of commercial properties. The land ordinarily devoted to costly stormwater management practices or compliance with maximum impervious area ordinances can now be developed or preserved, enhancing the bottom line.

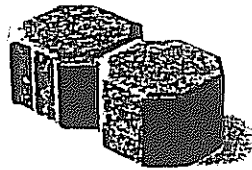
Pervious concrete is a durable material—parking areas properly designed and constructed will last 20-40 years with little or no maintenance. Thus concrete, conventional or pervious, is widely recognized as the lowest life cycle cost option available for paving.



# Uni Eco-Stone®

US Pat. No. 4,834,575  
 Can. Pat. No. 1,276,494

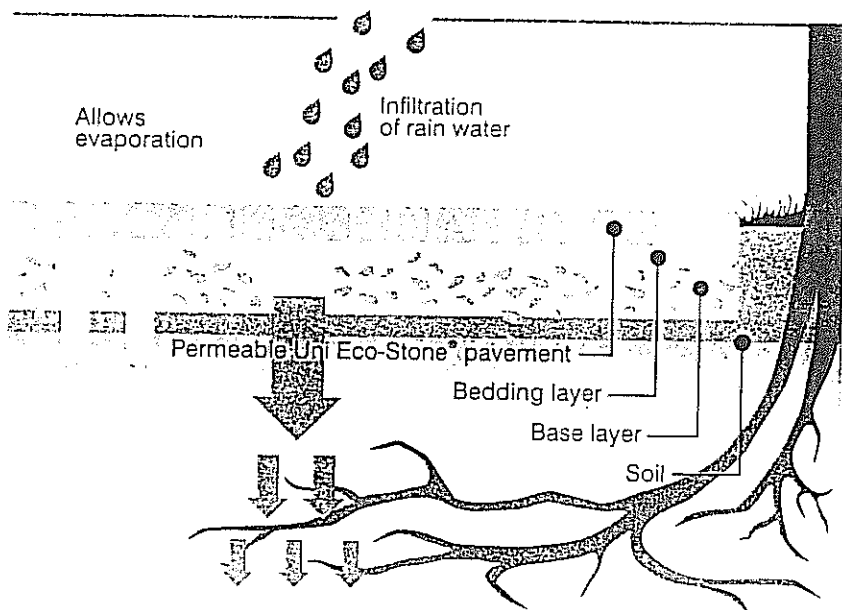
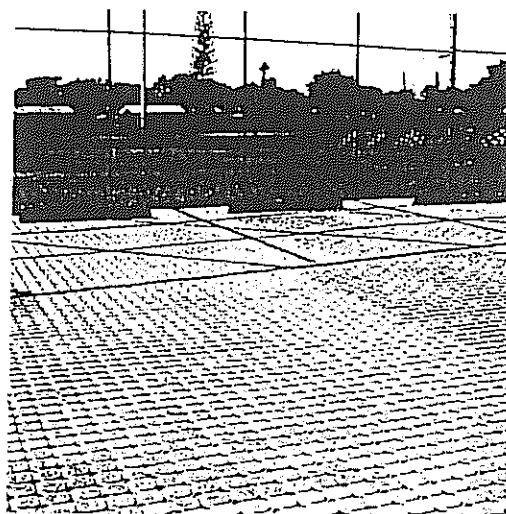
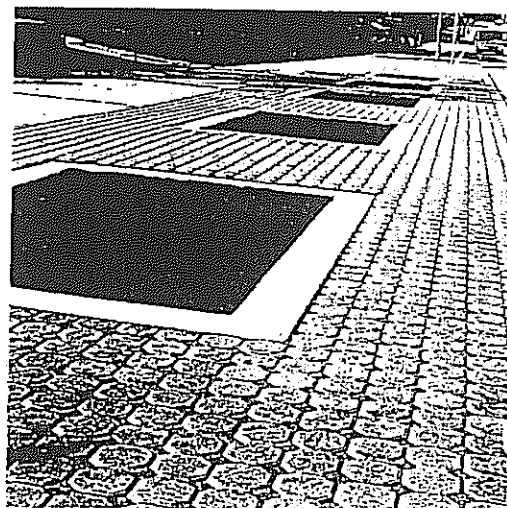
4.375" x 8.875" x 3.125"  
 11.5cm x 23cm x 8cm



*Can be mechanically installed.  
 All measurements are nominal.*

Uni Eco-Stone® allows maximum drainage while maintaining a driveable surface. Unlike solid paving surfaces which can negatively impact the environment, storm drainage systems, and property, through stormwater runoff, Uni Eco-Stone® allows natural drainage and migration of water into the earth below.

Public works, engineering professionals and conservation commissions recognize the benefits of this environment-conscious paver.



Typical Cross Section - for more information see Unilock specifications for Uni Eco-Stone®.

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## Grasspave<sup>2</sup> Product Specifications

Unit size:	20" x 20" x 1" (.5m x .5m x 2.5cm)
Unit weight:	15 oz. (510 grams)
Manufacturing:	Injection molded
Strength:	5720 psi (400 kg/cm <sup>2</sup> ) filled with sand
Color:	Standard = black
Resin:	Standard = 100% post-consumer recycled HDPE/LDPE
Shipped:	Single or preassembled four units (1 m <sup>2</sup> )

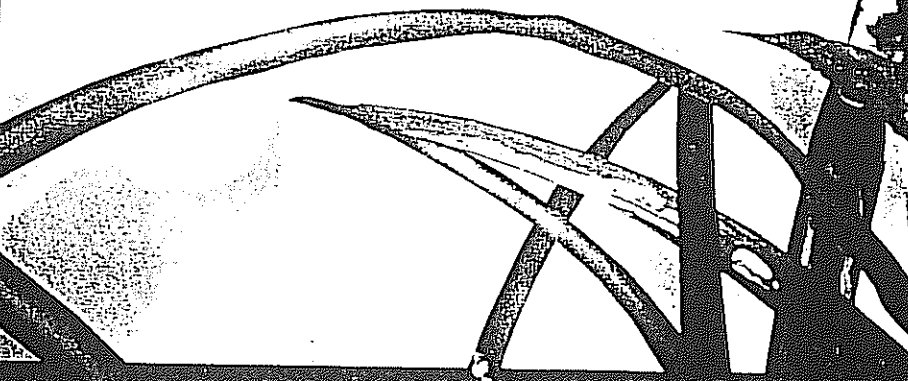
### Technical Assistance

How can Grasspave<sup>2</sup> enhance your project design? For answers to your technical and site-specific questions, call the experts at Invisible Structures. Our staff, which includes a registered landscape architect, is always available to answer your questions or discuss your project--without charge or obligation to you.

We are continually evaluating existing applications and designs and researching new applications, materials, and grasses. This gives us a constant source of new and updated information to pass along to you. For a complete design and installation specification with guidelines in CSI format for base course, product, and grass installation, call our toll-free number, 1-800-233-1510, or fax your request to (303) 344-2232. For the location of your nearest Sales Representative, call toll-free, 1-800-233-1510.

USA and world patents pending.

**Invisible Structures, Inc.** 14704-D East 33rd Place  
Aurora, Colorado 80011  
Toll Free USA and Canada: 800-233-1510  
Overseas: Country Code + 303-344-2233  
FAX: 303-344-2232



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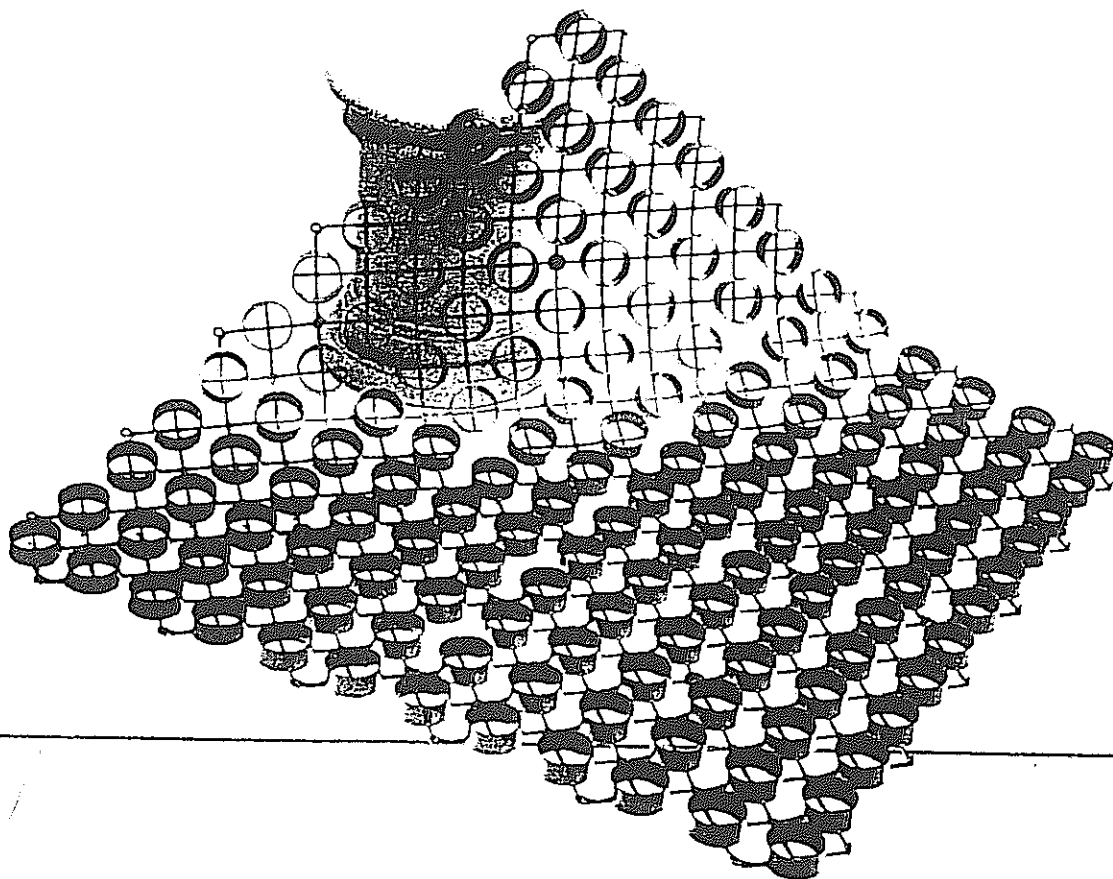
## *The Grasspave<sup>2</sup> Porous Paving System*

Grasspave<sup>2</sup> is the environmental choice of architects, engineers, landscape architects, and contractors for two reasons:

1. Grasspave<sup>2</sup> is manufactured entirely from recycled plastics; specifically, from 35 mm film canisters and the bottoms of pop bottles. Grasspave<sup>2</sup> units themselves can be recycled if removed due to remodeling or reconstruction.
2. The Grasspave<sup>2</sup> porous paving system, unlike impervious pavements, adds to the quality and beauty of the built environment. The park-like appearance created by Grasspave<sup>2</sup> greatly enhances the appeal of urban projects, replacing concrete squares with sparkling green spaces.

There are many environmental advantages of the Grasspave<sup>2</sup> system, including:

- Porosity - Rain water is controlled on the site, percolating immediately into the ground and, ultimately, the water table. By minimizing runoff, Grasspave<sup>2</sup> reduces the need for large and costly drainage systems.
- Lower temperature - Unlike asphalt or concrete, grass has low light/heat reflectivity and low heat retention, which results in a cooler environment. Lower temperatures ensure the survival of existing trees and the successful planting of new trees.
- Cleaner air and water - Grass acts as a water filter and as a dust and dirt collector, thus returning cleaner water to the water table and reducing airborne particulates on site.



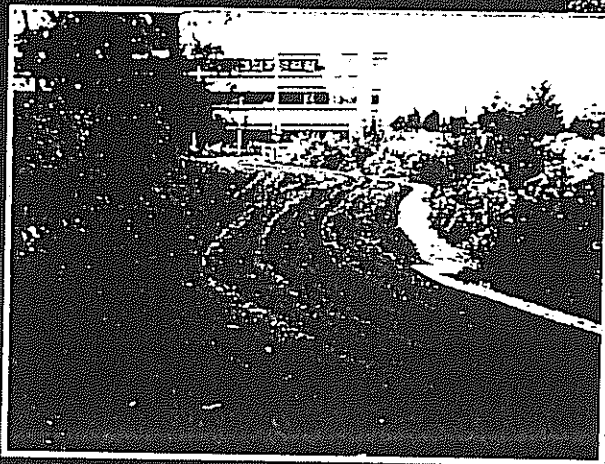
# Geoblock<sup>®</sup>

## Porous Pavement System

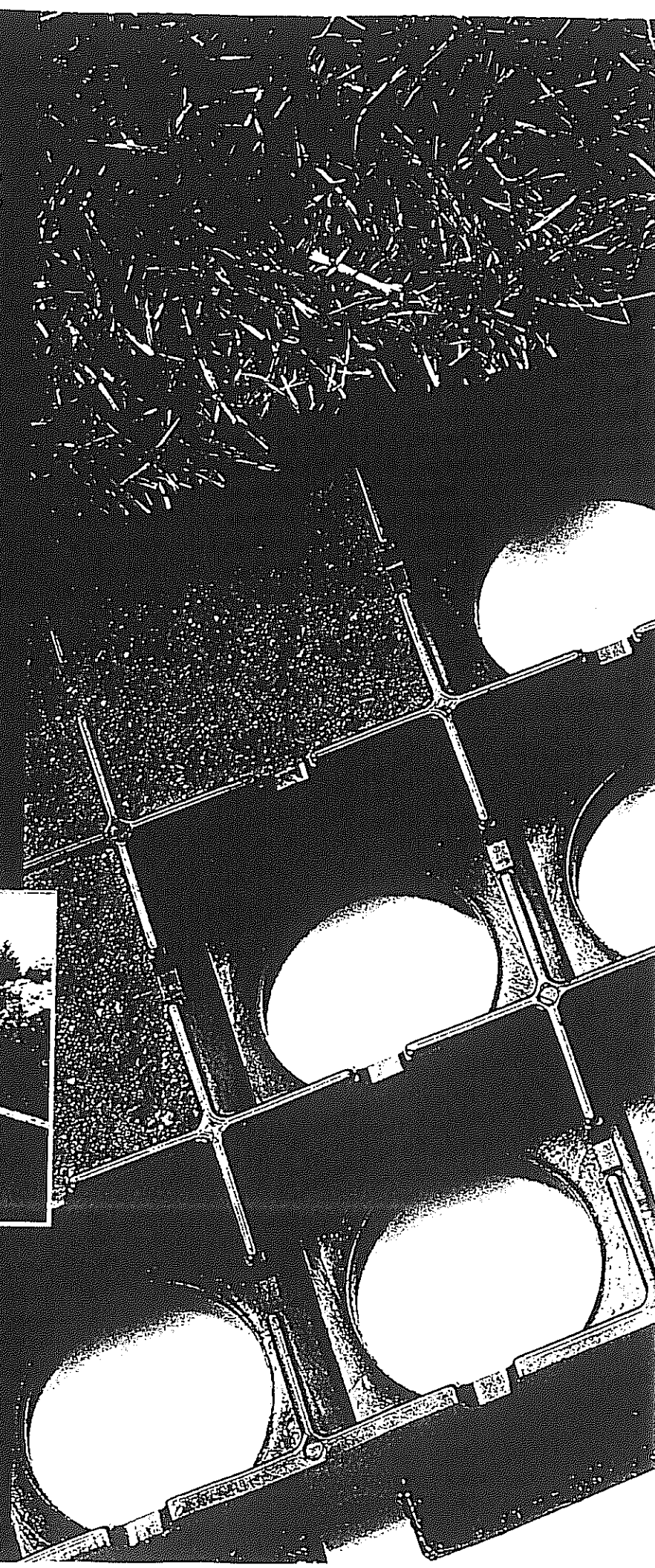
The Presto **Geoblock<sup>®</sup> Porous Pavement System** is a result of innovation designed to provide the right solution for a wide range of turf and load support applications.

The **Geoblock** system is a series of interlocking, high-strength blocks made from recycled plastic materials. The system is designed to handle the most demanding turf protection and load support requirements while allowing for vigorous growth of turf grass. And the larger size, .50 m x 1.00 m x 50 mm (20 x 40 x 2 inch nominal), is easier to handle and install.

The **Geoblock** system is an ideal paving solution in traffic areas where the natural beauty of grass and permeability of topsoil are desired.



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Geotechnology™**



## Easy Installation

The Geoblock system is designed for easy installation, requiring less site preparation, less subgrade improvement, less excavation and less granular backfill than other porous pavement systems.

The Geoblock system is easily installed around obstructions and contours, and can be cut with ordinary hand or power tools. No forklifts, cranes or concrete saws are required.

The tabular, interlocking design saves installation time and money by eliminating the need for special tools, staples, cleats and rings. Plus, the system's larger, easy-to-handle size minimizes the quantity of blocks required on a given job, reducing installation costs and labor.

## Assistance

Presto Geosystems and its authorized distributors offer assistance in determining the ideal system for your specific application. In addition, the following information is available for use by design professionals and contractors:

**Design Guideline** - Load and base recommendations.

**Material Specification** - An inclusive list of material properties and specifications.

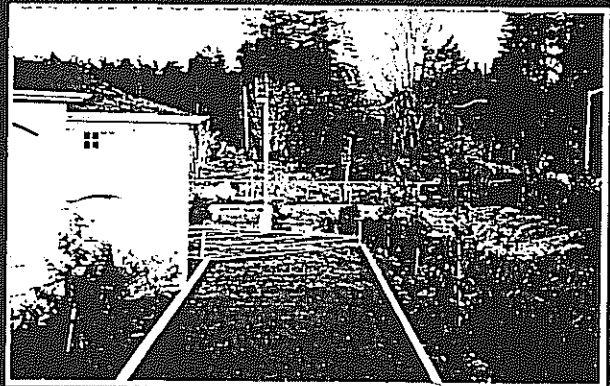
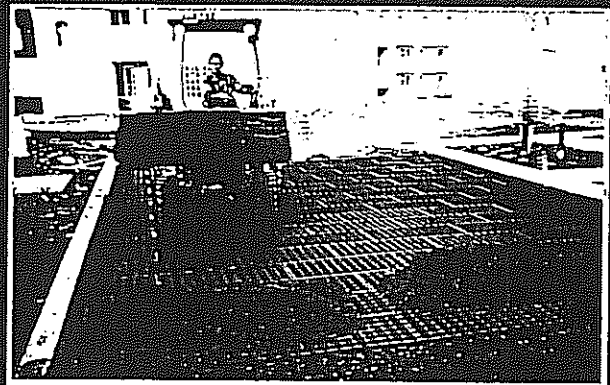
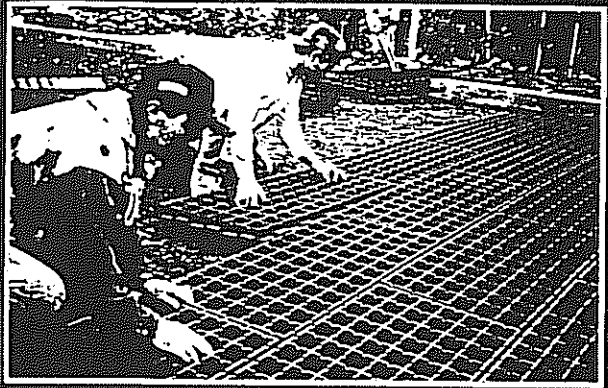
**CSI Format Specification** - A comprehensive product specification in CSI format.

**Installation Guideline** - An illustrated, step-by-step set of installation guidelines.

**Case Histories** - Case studies and project-specific papers with design, construction and performance information.

**Technical Overview** - Product data, basic engineering concepts and theory for general application.

**Test Documentation** - laboratory and reference site installation test results.



For more information, call the Presto Assistance Line at (800) 548-3424 or (920) 738-1118.



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