

## Analysis and Recommendations for Site

### *Interior Exhibits:*

#### *Museum Galleries*

Analysis begins with the interior museum galleries. Although the interior museum space is not a *landscape* space, it is important though to address the museum as part of the overall educational experience and how it relates to the exterior landscape exhibits. These galleries are intended to present the visitor with authentic artifacts and background information and provide an overall context that sets the stage for the corresponding outdoor exhibits. The purpose of the museum exhibit galleries, as stated in the Jamestown-Yorktown Foundation publication *Jamestown Settlement*, is “to teach visitors about the background of English settlement, the plans for sailing to Virginia, the American Indians encountered by the English, and the development of the Virginia colony to 1699”. Language development, in the form of signs and graphics, and cognitive development, in connection to the information presented with the signs and graphics are the two types of development provided for, to a certain degree, within the galleries. Play is not used to its full potential to support development in these galleries.

The ships and navigation section of the English Gallery (which corresponds with the Ship Pier exterior display) focuses on the technological advances in navigation and ship construction that made the transoceanic voyage possible. Descriptions of shipboard life for the 105 men and boys that made the four and a half month voyage are given – including the diet of the passengers and the unsanitary conditions in which they spent their time. The corresponding exterior exhibit is located far from the museum, on the banks of the James River. The educational messages presented in the gallery do not survive the circuitous path taken to reach the Ship Pier. The exterior display does not continue or expand on the lessons regarding ship technology and construction. Children may board replicas of the three ships that made the voyage across the ocean, but elements of their construction or the technology that made such a long voyage possible are not evident. Information regarding the conditions aboard the ship is also missing.

The second gallery is dedicated to the Powhatan Indians. It chronicles the daily life of the Powhatan Indians, primarily on how they obtained food and supplies from the environment, using what was available throughout the year. “Powhatan men hunted and fished while women farmed and gathered wild plant foods. Women prepared foods and made clothes from deer skins, while both men and women helped in house construction. The environment also provided all the necessary supplies for make tools and equipment – stone, bone, and wood.” The Powhatan Indians went to war to defend their territory, for revenge, or to capture women and children for adoption into the tribe. Warfare provided men with the opportunity to gain honor and prestige. Most battles were small surprise attacks fought from behind trees or tall grass” (Jamestown-Yorktown Foundation, 1995). The Powhatan people took everything they needed from the environment and this gallery addresses food, shelter, clothing and weapons. The corresponding exterior exhibit is the recreated Powhatan Indian Village. It can be visited either first or last on the existing exterior footpath circuit. This outdoor exhibit is the most successful at reinforcing and expanding on the ideas presented in the museum gallery. Food, shelter, clothing and weapons are all briefly addressed in some manner in the outdoor exhibit.

The Jamestown Gallery provides information about how the early settlement came into existence. The location of the settlement was chosen due to the military advantage of being near the river. The triangular palisade was built after a skirmish with the local Powhatan Indian tribe. Construction within the walls of the fort included buildings that support everyday living. Part of the gallery focuses on the hardships that the new settlers faced – typhoid fever, starvation, lack of clean water and supplies. Other displays focus on early government, fighting with the Powhatan Indians and the cultivation of the ‘golden weed’ – tobacco. The corresponding exterior exhibit is the reconstructed James Fort and its interior contents. The fort can be visited either first or last on the existing exterior footpath circuit. Beyond the constructed buildings that fill the fort, there is little connection to the lessons taught in the museum. There is little or no representation of the hardships that overshadowed the lives of the early settlers. Tobacco, the crop ultimately responsible for the survival of the settlement, is not seen or discussed anywhere within

the fort. Construction of the fort and its interior buildings is not addressed. The relationship between the settlers and the Powhatan Indians is not presented physically although mentioned by the costumed interpreters. This exhibit presents itself as being representative of a self-contained settlement with no need for outside support.

The lack of connection between the presentations taking place within the museum galleries and the corresponding exterior exhibits shows that the museum stands alone in its educational message. It does not succeed in its effort to support and enhance the experience of corresponding exterior exhibits. The exterior exhibits cannot be visited in the order that the information is presented inside the galleries on the existing concrete circuit without backtracking and cutting through the exhibits. There does not appear to be a chronological order to the galleries. It is suggested that the galleries be configured to match the circuit of the exterior exhibits. By directing children to the path on the right on the exterior circuit, the complex can be experienced in a historically chronological order - the Powhatan Indian Village first, being that they are the people indigenous to the area; the Ship Pier second, coinciding with the arrival of the new settlers; and lastly, the James Fort, where the colonists permanently settled. Repeating the sequence in both the inside museum galleries and the outside exhibits will reinforce the educational messages that they have to offer.

The galleries, with the tedious presentation of material, are not designed to meet the needs of most children. Importantly though, these galleries have the potential to offer more to the children that they are working to educate, both as a stand alone exhibit and in connection with the related exterior displays. Turning to the concepts that form the design considerations, the interior museum space could and should be modified to support the developmental needs of children. The educational mission of the Jamestown Settlement is lost in this part of the complex. These sterile, untouchable galleries do nothing to entice children to learn about the history of the settlement. More hands-on displays – recreated replicas of the authentic artifacts that are currently behind glass that the children could manipulate, miniature models of the ships, Powhatan houses or human figurines to play with – would make the galleries more accessible for elementary school age children

and provide them with a physical connection to the buildings and artifacts that they will see in the exterior exhibits. There is the potential for the creation of interactive displays where children and existing sculptures could ‘talk’ to each other, telling the story of the history of the settlement. Lowering the wall murals to a child’s eye level could allow children to search for the ‘hidden’ Powhatan Indians and the animals depicted in the scene. Although not a landscape in the traditional sense, the overriding concepts from the research in child development, education and play theory are still relevant. The foundations are in place to make these galleries more applicable to the developmental and educational needs of elementary school age children.

#### *Exterior Exhibits:*

The overall mapping and analysis of the Jamestown Settlement revealed an educational landscape that utilizes only half of the site. The potential of the surrounding landscape and the transitional spaces between the exhibits is unrealized. In analyzing this complex from the perspective of a landscape designer that is aware of the developmental, educational and play needs of children, this study offers a number of conceptual re-design solutions to enhance the current success of the main exhibits. These conceptual solutions implement the ideas behind the design considerations and present a unique design that melds the theoretical issues surrounding a good educational environment for children with the specialized knowledge that a landscape designer brings to the design process.

#### *Powhatan Indian Village*

Many of the concepts represented by the design considerations have been applied to this exterior exhibit – it is accessible, it provides children with objects to manipulate, it stimulates the senses, it provides challenging activities and encourages social interaction with the available costumed interpreters. All three types of development, physical, cognitive and social/psychological, are provided for, to a certain degree, in this exhibit. Physically, children can grind corn or throw corncob arrows to enhance their motor skills. Listening to and asking questions of interpreters supports the child’s language skills. Cognitively, children may engage in constructive play – working to grind corn into

cornmeal for cooking; dramatic/symbolic play – pretending to be part of the Powhatan Indian tribe or participating in a tribal dance inside the dance circle; or games with rules – testing their skills by throwing arrows at targets. Socially/psychologically, children have opportunities within this exhibit to play alone or to interact with others. But the fact that this exhibit meets children’s developmental needs does not mean it is a successful educational landscape. Lacking is the connection to the surrounding landscape and the Jamestown Settlement complex as a whole. This exhibit does not embrace the land or use it to enhance the educational experience. The Powhatan Indians could not survive without the land – a fact presented repeatedly in the corresponding museum gallery. The land acted as a source of food, shelter, clothing and weapons. This exhibit could be improved by letting the natural landscape become part of the experience, since the land played such a vital role in the lives of the Powhatan Indians.

Potential improvements focus on making the connection to the surrounding landscape, expanding on the current exhibit. Children will be able to experience the landscape as a function of the exhibit – presenting it for its living, changing role in the lives of the Powhatan Indians.

- The Powhatan Indians were hunter/gatherers. Provide a path through the adjacent woods. Plant the area with native fruits, nuts, berries and other edible plants – all items discussed in the museum gallery. Let children visually ‘hunt’ for food sources. Hide statues of local animals among the plants. Let the children decide which animals were used for food and clothing by the Powhatan Indians and why. Supplement the area with child-friendly signs and graphics.
- The Powhatan Indian Village is set out in the open with a direct view of the James Fort. Use plantings to give the village a more-isolated feel. The museum gallery states that battles were fought from behind trees and tall grass. Plant trees and tall grass which children can hide behind, possibly engaging in a make-believe battle against the fort.
- The Powhatan Indians relied on the adjacent river for fish and used its waters for transportation. Connect the existing display regarding the construction of dugout canoes with the river. Use signs and graphics to describe riverside life and how it

was vital in the day-to-day life of the Powhatan Indians. Incorporate a trail through the wetlands that are present on the site. Focus on the plants, animals, aquatic creatures and birds that make the wetland a unique ecosystem. Provide an interpreter to answer questions, point out unique elements and discuss the probable relationship that the Powhatan Indians had with the water.

- Powhatan Indian women farmed. Provide an area to showcase crops that were grown in support of the interior museum gallery display. Show how farming tools were made – what materials were gathered from the land, how the tools were constructed and how they were used in farming. Let children become part of the act of farming – an activity that will be constantly changing over the course of the year. Emphasize the five-season year that the Powhatan Indians followed, with a special time dedicated to the corn harvest.
- Provide a connection that children can take with them to the next exhibit in sequence, the Ship Pier. The Powhatan Indians traded food stuffs and furs in exchange for metal tools, weapons and European glass beads and copper. The Powhatan Indians also fought with the settlers. Provide children with an object, preferably something that they created or discovered for themselves, that has relevance to the settlers arriving on the ships. This allows the children to assume a role, friend or foe, in transition to the upcoming exhibit.

### *The Ship Pier*

This exhibit is less successful at representing the ideas inherent to the design considerations. There are a limited number of objects for children to manipulate, it is multisensory, it provides challenging activities and encourages social interaction with the available costumed interpreters. Still, physical, cognitive and social/psychological development are supported by the elements that comprise the Ship Pier exhibit. Physical development is supported by climbing ramps to board the ships, using the stairs to explore the many levels of the ships, or hoisting a sail, with the help of an interpreter, on a calm day. Constructive play -hoisting the sail, and dramatic play – pretending to be sailors onboard, contribute to cognitive development. Socially/psychologically, ‘see chests’ are available for children to explore – the accompanying narrative encouraging

children to hunt through the contents of the chest to discover answers to the questions presented. This is a unique landscape, with the pier projecting out into the James River and the three replica ships floating on the water. There is a definite threshold that children must cross to ‘enter’ and experience this exhibit. Due to this threshold, it is difficult to create a spatial relationship with the Jamestown Settlement complex as a whole. The potential for improvement lies in creating a *visual* relationship with the supporting landscape.

Potential improvements focus on the visual link to the surrounding landscape and how that connection can enhance the experience of the exhibit itself. Historically, the Ship Pier is directly tied to the James Fort – one relying on the other for the success of the overall settlement. Creating a visual link to the fort will permit children to see that the Ship Pier is part of the overall complex, blurring the line created by the threshold.

- The view from the pier and the decks of the ships toward the land tells nothing of the history of the landing at Jamestown. Plant the area to represent what the settlers saw when they arrived. Use signs and graphics to explain what was special about this stretch of coastline that this is where the colonists decided to set anchor. Camouflage the existing restroom and other support building with native vegetation. ‘Hide’ Powhatan Indian statues among the plantings. Children looking back toward the land may sense they are ‘being watched’ much as the early Jamestown settlers must have felt.
- James Fort is completely visible from the Ship Pier. Different strategies could be employed. One, provide trees, shrubs and understory plants that will partially obscure the view of the fort from the Ship Pier, emphasizing the trail up to the fort. Re-create the land as it may have looked when the settlers first landed. Supplemental signs and graphics tell children about the untouched land, its plants and animals. Include statues of native animals and birds and provide viewing stations where children can observe real animals and birds that inhabit the area. When children leave the Ship Pier, their journey toward the fort will be more mysterious. The wooden walls of the fort will slowly reveal themselves through breaks in the vegetation. Stepping into a clearing, the enormity of the tall palisade walls will

surprise children. Two, the view toward the fort can be seen as if the ships are returning from a supply voyage. There are large potential play areas between the Ship Pier and the James Fort. These areas should be designed as a prelude to the fort itself. Children standing on the Ship Pier can see the activities that took place around the established fort.

- The James River provides another opportunity to educate children about the settlement landscape. The wind, salt water, fish and birds can be put to use to teach children about the importance of the river to the early settlers, for everything from wind power to sail the ships to food. With the river lies the potential to teach children about water cleanliness – how the settlers polluted the water, unaware of the long term effects on water quality, what the health of the river is today and what it can be in the future. Nearby marshlands provide insight into a sensitive ecosystem unique to the river.
- Again, it is important to provide children with a connection to the next exhibit. Either as a newly landed settler, unloading personal items that made the voyage from England or as a sailor returning with supplies for the entire settlement, the child may carry an object with them that directly relates to life at James Fort.

### *James Fort*

The ideas represented by the design considerations have been applied fairly successfully to this exterior exhibit – it is accessible, it provides children with objects to manipulate, it stimulates the senses, it provides challenging activities, and it encompasses play in a variety of ways. The James Fort and its contents include all three types of development; physical, cognitive and social/psychological to a certain extent. Physically, children can climb the ramp to the upper level overlook, try on military armor, or chase a resident chicken. Cognitively, there is opportunity to engage in dramatic play, complete with props and costumes at the armor tent. Social/psychological development is supported by playing 16<sup>th</sup> century games in a competition with other children. The James Fort is self-contained by design. This is accurate with the security needs of a new settlement. Unfortunately, it makes it difficult to connect the fort to the remainder of the Jamestown Settlement complex. Two openings in the high palisade walls, on opposite sides of the



fort, allow children to enter/exit. Once inside, there is little spatial or visual connection to the surrounding landscape. This exhibit provides the greatest challenge in terms of the landscape. Inside the fort, it is important that the land be ‘civilized’ – crops being sown in neat rows, livestock kept enclosed in pens, and buildings constructed of hewn wood. Outside the walls of the fort, ‘wild’ landscape is dominant. Trees are harvested, animals are hunted, and Powhatan Indians are fought. Designing the spaces around this exhibit should stress the two opposing landscapes.

Potential improvements emphasize James Fort’s connection to and reliance on the landscape for its survival. Providing the contrast of two opposing landscape types, wild and tame, will give children a sense of the realities of life at James Fort, where the early settlers were forced to tackle the surrounding land and all its challenges – the river, the forest, the Powhatan Indians – in order to start the new settlement.

- The interior of James Fort should represent a rigid, more structured landscape. Gardens of vegetables and herbs should be installed, supporting the information presented in the museum gallery. Children should be included in the planting and harvesting of the crops. Allow children to manipulate gardening tools. Let children comment on the similarities and differences in the settlers’ tools and those of the Powhatan Indians.
- Allow children to participate in the construction of a colonial house. Let children determine where, within the Jamestown Settlement complex, the building materials come from – which trees provide the wood? Where does the clay come from that helps hold the house together? Where did the settlers find the marsh reeds that are used to thatch the roof? Signs and graphics can engage children in a scavenger hunt, looking for building materials throughout the Jamestown Settlement complex.
- The colonists at James Fort needed to be vigilant of activities going on outside the walls of the fort. Provide children with a vantage point inside the fort where they can observe the Ship Pier, emphasizing the important connection between the two exhibits. Provide other vantage points where children can search the ‘wild’ landscape for birds, animals and Powhatan Indians.

- The growing of tobacco was key to the survival of James Fort. Plant a field of tobacco. Let children participate in the planting, harvesting and the preparing of the tobacco for shipment.

*Summary:*

These conceptual design solutions strive to expand on the developmentally successful elements already present within the exhibit and work to combine the exhibits into one educational landscape experience. Using the surrounding landscape and transitional spaces to reinforce the educational messages of the exhibits and to make the missing connections - spatially, visually, through signs and graphics, through play – between the four exhibits; the museum galleries, the Powhatan Indian Village, the Ship Pier and James Fort; binds them together into one singular learning landscape.

The design considerations assist the landscape designer in making those connections in a developmentally appropriate way that speaks the manner in which children learn while utilizing the attributes that the land itself has to offer. They incorporate ideas relating to the senses, to challenges, to spatial representation, and to visual presentation. In conjunction with the landscape designers specialized knowledge of the land, its function and its potential to engage and educate children, the resulting landscape is one of diversity, offering multiple opportunities that allow the child to learn at their own pace, in their own particular style.

Today's landscape designer is in the rare position of being called upon to manipulate the physical landscape in ways that challenge children and that provide developmentally appropriate learning opportunities. By understanding and incorporating the ideas that the design considerations encompass, the Jamestown Settlement can enhance and improve the educational exhibits existing on the site. The result is a flexible learning environment specific to the developmental needs and educational abilities of children, as well as, an environment that capitalizes on the unique features that a living landscape has to offer. (Figs. 13,14,15, & 16) An educational landscape needs to stimulate children's senses and nurture children's curiosity. It should allow for interaction with other children, with

adults and with the resources available in the environment. The guiding principle is not to dictate the experience but to encourage children to discover what the landscape has to offer on their own.





Figure 42

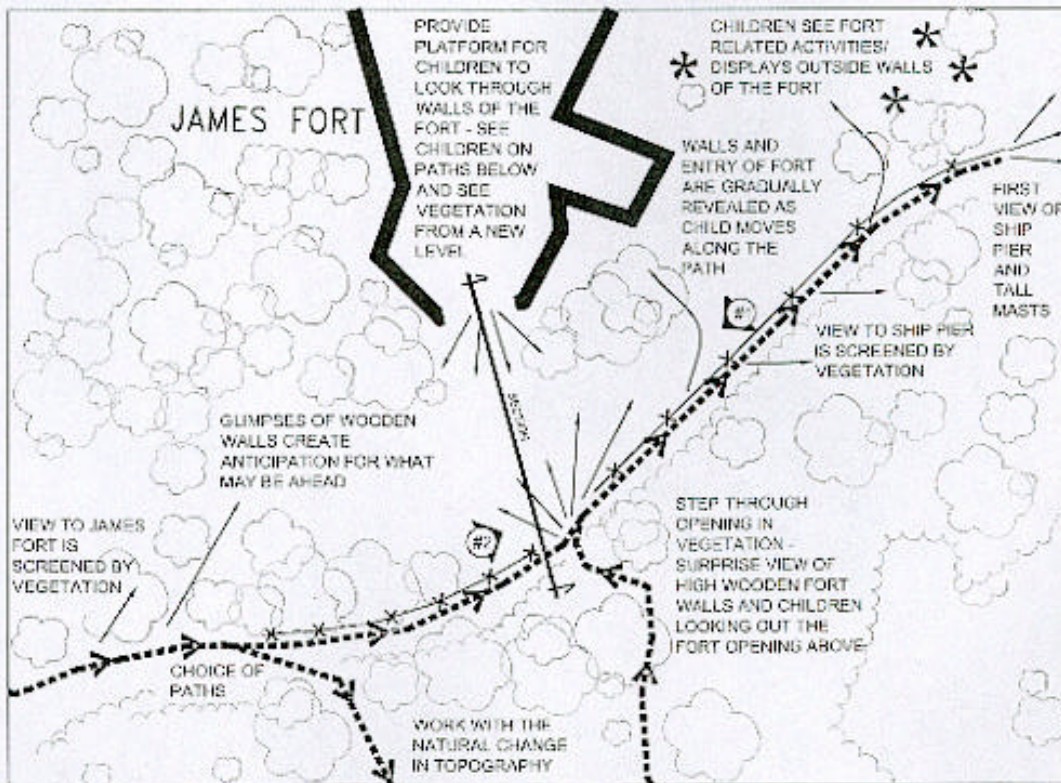
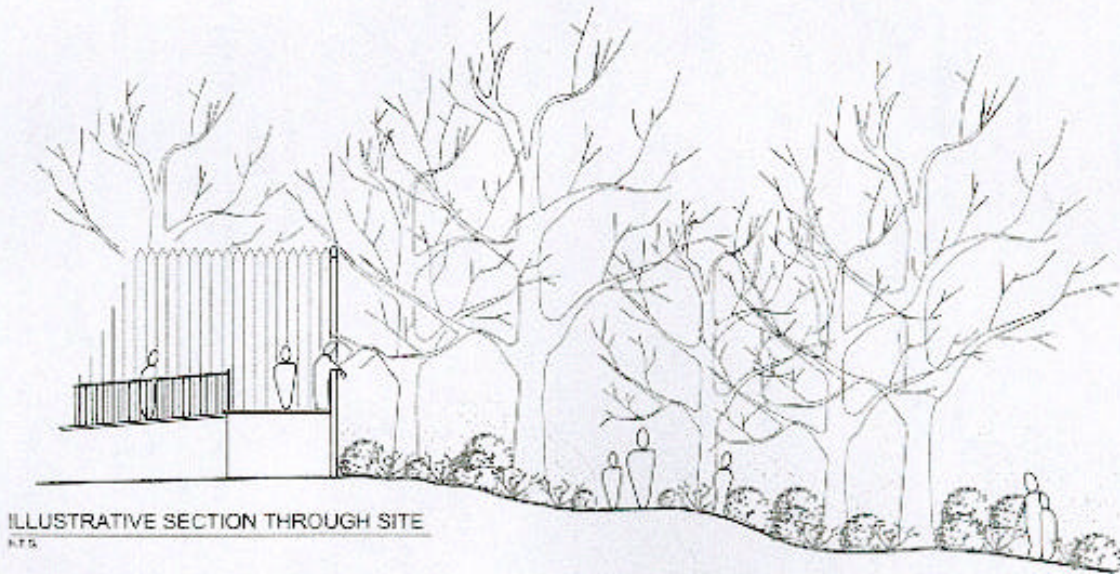


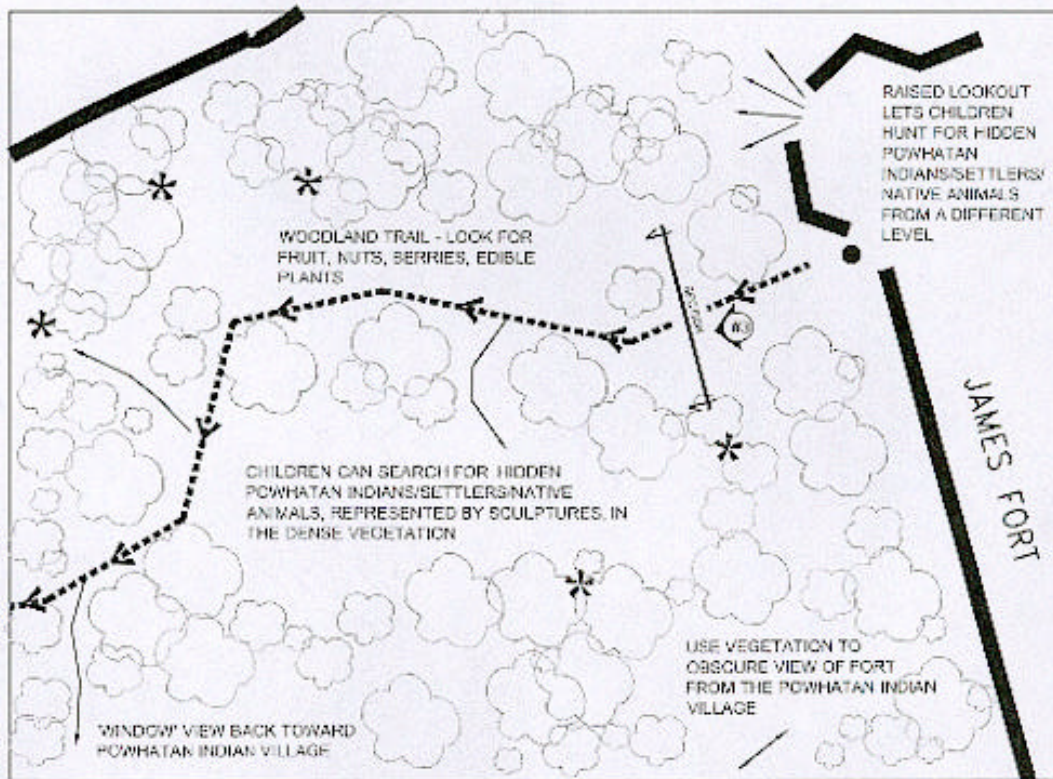


Figure 43



ILLUSTRATIVE SECTION THROUGH SITE

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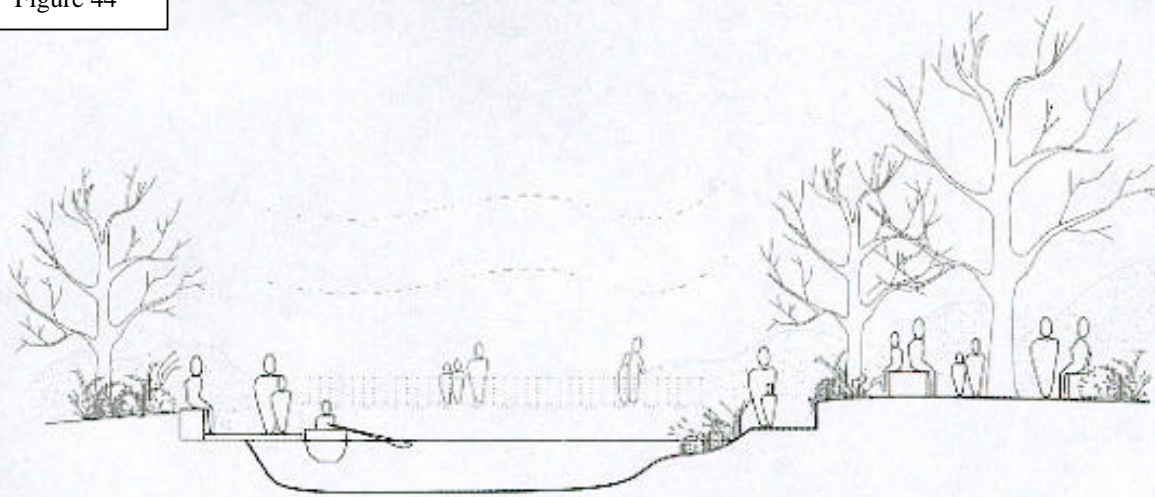


SITE CONCEPT MAP - DETAIL 'B'

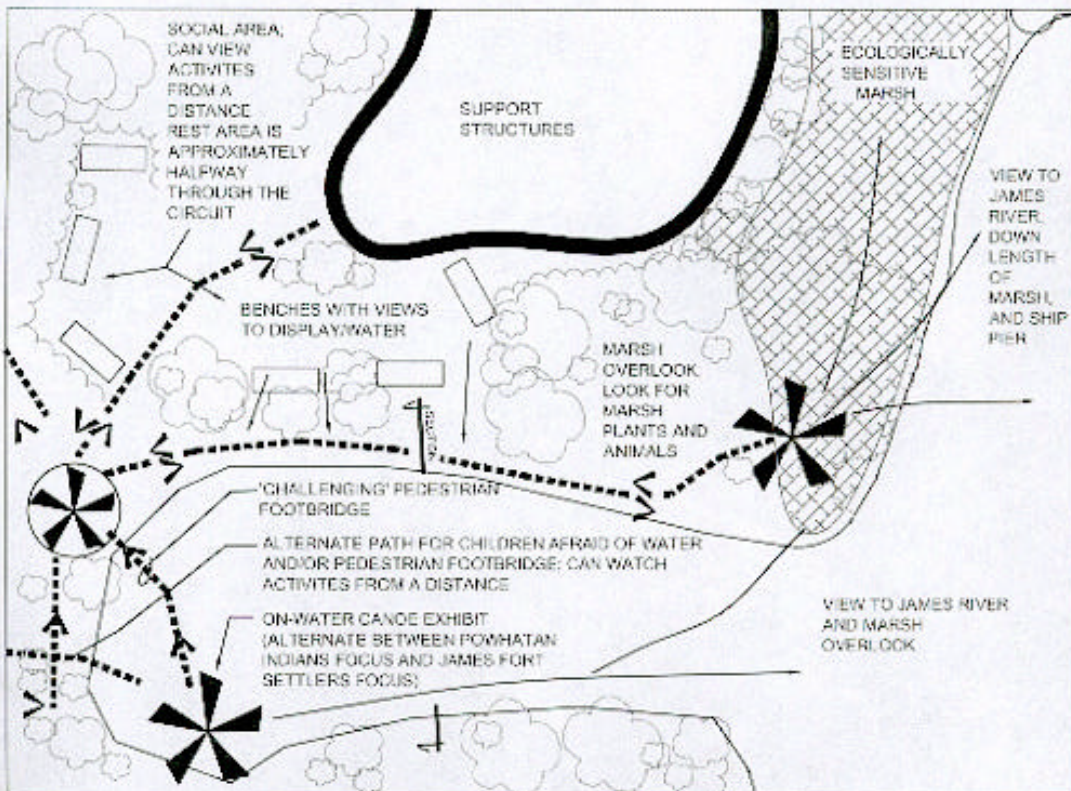
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Figure 44



ILLUSTRATIVE SECTION THROUGH SITE



SITE CONCEPT MAP - DETAIL 'C'





View #1  
Transition between Powhatan Indian Village and Ship Pier; passing in full view of James Fort (Corresponds to Section A)

View #2  
Transition between Powhatan Indian Village and Ship Pier; James Fort is located to the left. (Corresponds to Section A)



View #3  
Transition between James Fort and Museum Building; Powhatan Indian Village is located to the left. (Corresponds to Section C)



## Summary and Conclusions

### Summary

As presented at the beginning of this paper, the purpose of this study has been to explore the applied behavioral research available regarding how children develop, learn and play, and determine what aspects of that research can be extracted and applied to a physical landscape design. These ideas are presented as design considerations that designers should be aware of in the creation of educational landscapes for children. Much of the study was devoted to collecting and analyzing the research that is available. Eighteen design considerations were recognized from dozens of sources in the fields of human development, psychology, education, architecture, landscape architecture, environmental planning and environmental psychology. The design considerations are presented as a tool for landscape designers, incorporating developmental/play theory ideas that may be translated into a physical design solution.

Designers today rarely have the luxury of becoming deeply involved with the users of the space they are designing. It is important to be aware of the needs of the user, particularly if that user is a child. Adults control the design of children's spaces. It is the obligation of the designer to *know* about children. The design considerations presented here are meant to raise the designer's awareness and understanding of children's developmental needs in an educational landscape and to encourage the designer to move beyond the 'primary colors' and 'fairy tale imagery' that often structure children's designs. The landscape designer brings a fresh perspective to the creation of children's environments. The resulting design can be dynamic and powerful. This study has shown one example of how, through understanding of the issues surrounding these design considerations, an existing educational environment can be transformed from an uninspired collection of exhibits placed upon the land to an exhilarating, fully integrated learning landscape where children will play, discover and interact.

### Conclusions

The outdoor learning environment is the site of the highest level of children's activity. It represents, at best, a potential site for investigation, exploration and practice of skills at

various levels of complexity. At its worst, it is a static collection of objects offering little toward the developmental needs of the child. The educational objectives surrounding the creation and maintenance of the Jamestown Settlement show its commitment to educating children. Within the Jamestown Settlement complex lies the potential for a developmentally appropriate educational experience that children will find to be fun as well as educational. “Play is all about learning. It is the essential work of childhood” (Bennett, 1998, p.98). “Play is learning in its most experiential sense, but it is only as rich as the supporting social and physical environment” (Moore, Goltsman and Iacofano, 1992, p. xi). The landscape designer should take advantage of the design considerations now available to provide children with an environment where the child’s natural inclination to play can be utilized to support development and education in a setting that takes advantage of the many joys the natural landscape has to offer.