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Sustaining culture through architecture : how can local, vernacular architectural principles be adapted to contemporary design in a village in Guyana

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SUSTAINING CULTURE THROUGH ARCHITECTURE: HOW CAN LOCAL, VERNACULAR ARCHITECTURAL PRINCIPLES BE ADAPTED TO CONTEMPORARY DESIGN IN A VILLAGE IN GUYANA

A thesis submitted in partial fulfillment of the

requirements for the degree of

MASTER OF ARCHITECTURE

by

Davina Peters Bittner

2005

To: Dean Juan Antonio Bueno
School of Architecture

This thesis, written by Davina Peters Bittner, and entitled Sustaining Culture Through Architecture: How can Local, Vernacular Architectural Principles be Adapted to Contemporary Design in a Village in Guyana, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this thesis and recommend that it be approved.

Camilo Rosales

Gray Read

Nathaniel Belcher, Major Professor.

Date of Defense: April 1, 2005

The thesis of Davina Peters Bittner is approved.

Dean Juan Antonio Bueno
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University Graduate School

Florida International University, 2005

DEDICATION

I dedicate this thesis in memory of my grandparents: Parboo (Oudit) Jagan—you were, are and always will be a source of strength and perseverance, and Annie Jagan—for your boundless love and for 'blessing' my pencils. Thank you.

ACKNOWLEDGMENTS

The successful completion of my academic studies in architecture would have been impossible without the unwavering support and assistance of my family, especially my wonderful husband, mom and sister. Thank you, your belief has made a dream into reality.

I also wish to thank the members of my committee for their support, guidance and confidence in my abilities: Professor Gray Read for her consistent direction and editing in research, analysis and composition; and Professor Camilo Rosales for his thoughtful guidance throughout my academic studies. He has always encouraged me to look beyond the obvious, to explore and design with sensitivity and awareness. My major professor, Nathaniel Belcher provided constant direction and timely critiques which led to a cohesive thesis, design project and presentation. Additionally, I would like to thank past studio professors Mario Valbuena, José Vásquez and Nicolás Quintana as well as the rest of the faculty and staff of the School of Architecture for their contribution to a fulfilling academic experience. Finally, I wish to express my gratitude and appreciation to the people of Ankerville, Port Mourant whose hospitality and cheerful contributions made the research for this study possible.

ABSTRACT OF THESIS

SUSTAINING CULTURE THROUGH ARCHITECTURE: HOW CAN LOCAL, VERNACULAR ARCHITECTURAL PRINCIPLES BE ADAPTED TO CONTEMPORARY DESIGN IN A VILLAGE IN GUYANA

by

Davina Peters Bittner

Florida International University, 2005

Miami, Florida

Professor Nathaniel Belcher, Major Professor

This thesis explores how architecture can adapt local vernacular design principles to contemporary building design in a rural setting. Vernacular buildings in Guyana present a unique and coherent set of design principles developed in response to climatic and cultural conditions. The concept of "habitus" proposed by philosopher Pierre Bourdieu describing the evolving nature of social culture was used to interpret Guyanese local buildings. These principles were then applied to the design of a Women's Center in the village of Port Mourant on the east coast of Guyana. The design specifically interpreted the "bottom-house" of local Guyanese architecture, an inherently flexible transitional outdoor space beneath raised buildings.

The design of the Women's Center demonstrates how contemporary architectural design can respond to climatic requirements, local preferences and societal needs to support the local culture.

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I. INTRODUCTION

"... accepting the need to synthesize our past with present technology, we need to examine our roots and understand them before achieving a creative life—in ... society and architecture."[1]

Culturally sensitive architecture respects local societal conditions and can respond to global influences and changing needs. A unique architectural response is produced in tropical third world countries such as Guyana, South America, when a hot-humid climate is combined with a history of multiple colonizations. Studying the social influences (local culture), and the physical (geography and climate), as well as vernacular architecture of a region such as Guyana yielded principles of architectural design specific to the place. For instance, the bottom-house created beneath raised buildings, becomes an inherently flexible and transitional space. The need for shade, shelter and the capture of breezes is reflected in the local architecture and landscaping.

The design project, a Women's Center in the rural village of Port Mourant, explores how these local architectural principles can be expressed through contemporary design while allowing cultural values to persist.

[1] Liane Lefaivre and Alexander Tzonis, Tropical Architecture: Critical Regionalism in the Age of Globalism. Alexander Tzonis, et al, editors. (Wiley-Academy, Great Britain, 2001) 31.

II. PROBLEM STATEMENT

Currently, Guyanese society is being altered by global culture. Guyanese vernacular architecture is being replaced by new building styles copied from North America and Europe, which have not been adapted to the unique existing climatic and cultural conditions. Guyanese architecture is being changed, not methodically by trial and acceptance, but by superimposition. This process threatens the core of cultural richness initially created by multiple ethnicities that have cohered into one Guyanese cultural habitus. The majority of Guyanese live in rural coastal villages; here the richness of their inherited and merged culture is evident. This thesis is centered primarily on these rural communities and their architecture, and reflects the synthesis of the vernacular with the more cosmopolitan and urban culture of the global environment.

Figure 1a: Geographic Location of Guyana

III. GUYANA

CLIMATE AND LOCATION

Guyana is a tropical country and lies about 9 miles north of the equator on the northeast coast of South America bordered by Venezuela to the west, Suriname to the east and Brazil to the south (Figures 1a and 1b). The temperature typically ranges between 79°F and 87°F, with two rainy seasons from May to July and again from November to January; average humidity is 70%. The country is cooled by the northeastern and southeastern Trade winds (Figure 2). Roughly, 90% of the population of about seven hundred and thirty thousand individuals lives on the agriculturally rich, narrow coastland. This coastal belt, about ten to forty miles wide, lies below sea level at high tide and is protected and drained by an extensive system of sea walls, canals and dykes established by the Dutch.[2] Guyana's geographic location and geologic composition protects the country from natural disasters such as hurricanes, earthquakes or volcanoes.

Figure 1b: Map of Guyana

[2]Ovid Abrams, Metegee: The History and Culture of Guyana, (Ashanti Books, ElDorado Publications, N.Y. 1997) 17-18; and Federal Research Division, Library of Congress, Guyana and Belize: Country Studies, Tim Merrill, ed. (U.S. Government Printing Office, 1993) 34-35.

HISTORY AND CULTURE

Guyana is a country of multiple ethnicities, its original inhabitants; the Amerindians were displaced by succeeding groups of Europeans and the various peoples that they brought as laborers. The Dutch began settlement of the area in 1616, bringing African slaves for labor in the sugar and coffee plantations. In 1814, the British replaced the Dutch as the ruling power and gave the name British Guiana to the colony. By 1838, the British monarchy abolished slavery; leading to an exodus from the plantations by numerous African laborers. In order to assuage the labor problem, the British brought indentured laborers from Portugal, Madeira, China and finally, India. The descendents of these peoples now constitute the Guyanese population. The population is composed of East Indians, Africans, Chinese, Portuguese, Amerindians and other Europeans. The dominant religions are Hinduism, Christianity and Islam.[3] British colonial rule continued until 1953, however, Guyana did not gain full independence until May of 1966. Following independence, the country initially experienced economic growth until the 1970s, when policy changes led to a steady drop in economic productivity and the country was declared one of the poorest nations in the world.[4] Presently, Guyana is showing evidence of recovery.

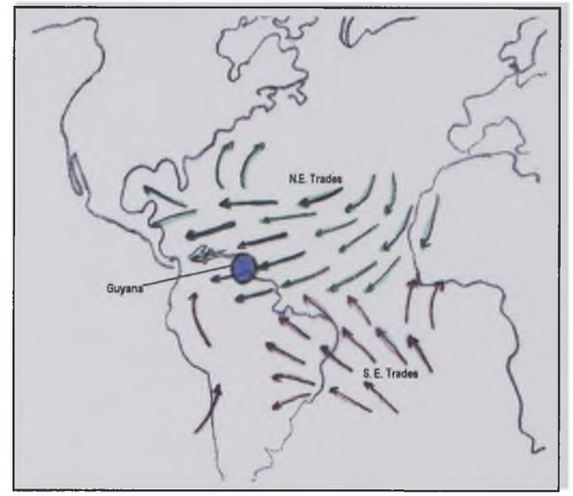

Figure 2: Diagram of the Typical Trade Wind Pattern

Figure 3: Guyana Parliament Building (above)
Stabroek Market Place (below)

Guyanese architectural style is a hybrid of European styles, mainly British and Dutch colonialism and classicism, with native African, East Indian and Amerindian influences. For instance, many government buildings rely on an aesthetic tied to colonialism (Figure 3). Temples, churches and mosques are focal areas within the communities. Most residents attend religious gatherings regularly and many Guyanese seem to relish the opportunity to celebrate holidays and festivals, regardless of religious origin. Markets are also important sites for social interaction. Guyanese culture is a synthesis of the beliefs of the colonizing peoples, the native Amerindians and of those brought in as laborers. Village architecture closely reflects this amalgamation of cultures with climatic adaptations. For example, buildings originally elevated a few feet to prevent seasonal flooding and allow for cooling are now further elevated so that the space beneath the houses can be used socially.

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[3] Federal Research Division, Library of Congress, Guyana and Belize, 3-10.

[4] Abrams, Metegee. 28,29,66,99.

These open living rooms—called the bottom-house serve most of the residents' daily activities, neighbors' visits and the daily life of the village. Verandahs are also common to most buildings, both roofed and open. These intermediary spaces provide shade and a breezy living space for residents. The heart of Guyanese culture lies in the easy and ready social relationships of the inhabitants. The mostly rural population uses the bottom house and verandahs as social spaces, where people interact with varying degrees of privacy.

IV. PORT MOURANT

The village of Port Mourant,[5] on the coastal belt to the east of the Berbice River, is the specific site of this study. It was founded on the site of a former Dutch, then British, sugar plantation. Figure 4 shows the location the village as well as the nearest town where administrative activities occur. A main road extends over most of the coastal belt, forming the primary means of access (Figure 19). The majority of the villagers of Port Mourant live mainly to the south of this road. The village seemed to have grown almost organically as need presented itself. A network of small canals, instituted originally to transport sugar cane, drains the land. The local dirt roads and pathways typically follow the path of the canals and waterways. The villagers are mostly descendents of former African slaves and East Indian indentured laborers. Presently, most of the villagers of Port Mourant are employed by the sugar and rice industries. Housing lots are typically large enough to produce vegetables. Some farm animals—chicken, goats, sheep, pigs—are raised for consumption and income. Ocean fishing also provides income. Local craftsmen, seamstresses, plumbers, electricians, and others provide everyday skilled services. A Village Office meets the villagers' basic administrative needs, such as payment of taxes. The neighboring town of Rosehall provides services such as a post office, bank, and town hall. The police station servicing the area is in the town of Whim, east of Rosehall and Port Mourant. The local primary school (elementary) and high school are off the main road, within the confines of Port Mourant. There are several small convenience shops in the bottom-house areas of private homes, which serve the community as well. A large market is held every Saturday on a site partially enclosed by a permanent structure. This market serves as both a source of products as well as a social gathering space (Figure 5). On market day, the vendors spread beyond the bounds of the building to include both sides of the public road, creating an almost pedestrian only situation for traffic.

Figure 4: Location of the Village of Port Mourant

Figure 5: Port Mourant Market--The Market spills beyond its boundaries (above), Informal, tent-like Market enclosure (below)

[5] Information contained within this section of the analysis is based upon personal experience as well discussions with various past and current residents of the village of Port Mourant.

An Anglican Christian Church, a Hindu Temple and a Muslim Mosque, all located within the boundaries of the village, represent the three main religions of Guyana. Port Mourant is also home to a horse racetrack, active only twice annually—creating a holiday like atmosphere the first Sunday in August and again in December.

IV. RESEARCH PRINCIPLES

1. HABITUS

Habitus, as defined by philosopher Pierre Bourdieu, describes an individual's or society's predisposed course of action based upon a collective historical experience and memory. Habitus is composed of myriad experiences that over time merge into a single cultural behavior.[6,7]This concept is linked to architecture by habitat, the physical manifestation of social space. Habitus and habitat are interdependent; therefore, any manipulation of the built environment will result in a corresponding change to habitus, and vice versa.

> "The more that the structures and representations of social practice can be embedded in the framework of everyday life, the less questionable they become and the more effectively they work. This 'complicitous silence' of architecture is the source of its deepest power…"[8]

The cultural habitus of most Caribbean nations is the product of numerous colonizations and immigration from various distant regions. The local Architecture of these regions reflects a unique habitus that has evolved in the interaction of many cultures and their responses to a common climate. Habitus is constantly being redefined, the old built upon, altered or replaced by the new. This process of revision allows for change without discarding traditional values or culture completely. Conversely, architectural design that is sensitive to the local habitus and adaptable to change may be an important tool in sustaining culture and local identity.

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[6]Pierre Bourdieu, Outline of a Theory of Practice: Chapter 2: Structure and the Habitus. (http://www.arts.auckland.ac.nz/ant/700/bourdieu.htm) 09-20-04

[7] Kendra Kay Englestad, Pierre Bourdieu: 1930-present (http://www.mnsu.edu/emuseum/information/biography/abcde/bourdieu_pierre.html) 09-20-04

[8] Kim Dovey, The Silent Complicity of Architecture, Habitus: A Sense of Place, Hillier, Jean, ed. (Ashgate Publishing Company, Vt, U.S.A, 2002) 275.

2. TROPICAL DESIGN

Guyana is classified as a tropical hot-wet region. Abundant, seasonal torrential rainfall, intense sunlight and the cooling effects of the trade winds characterize the country (Figure 6).

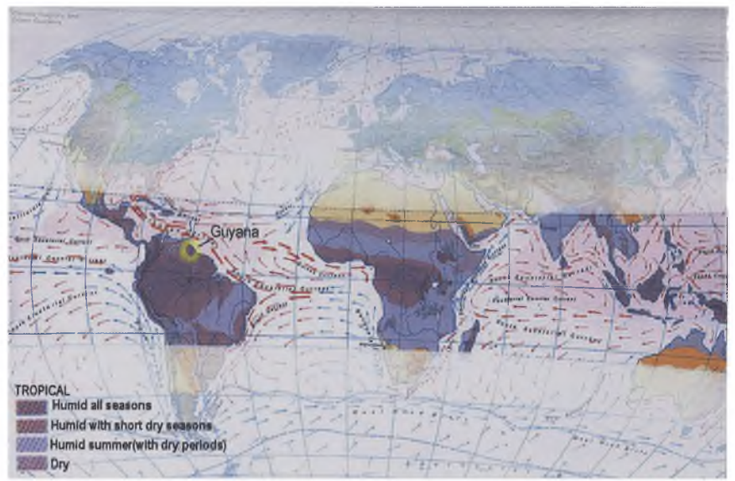


Figure 6: World's Tropical Zones

A) CULTURE AND ARCHITECTURE

The common thread of colonialism links most of the countries in the Caribbean region. These nations, dominated at some point in their history by European colonists, demonstrate similarities in their resultant architecture and cultural composition. Many of the immigrants to Guyana were originally native to lands in the east, such as Southern India, Africa, etc. These peoples brought their cultural habits and architecture. The popular British Bungalow exemplifies this connection, its form was derived from the peasant Bengali banggolo, which was then modified and transplanted throughout the British Empire.[9]

B) CLIMATE AND ARCHITECTURE

In hot-humid climates, physical human comfort is dependent primarily on the movement of air and shade. Buildings therefore, first respond to these two factors. Elements of Tropical design include:

- Orientation—due to the intense and abundant sun exposure, structures should be aligned along a long axis of east-southeast—west-northwest[10] (Figure 7).

Optimum orientation also assures cross-ventilation, which is important to passive cooling in hot-humid tropical systems since it allows air to flow across the skin.

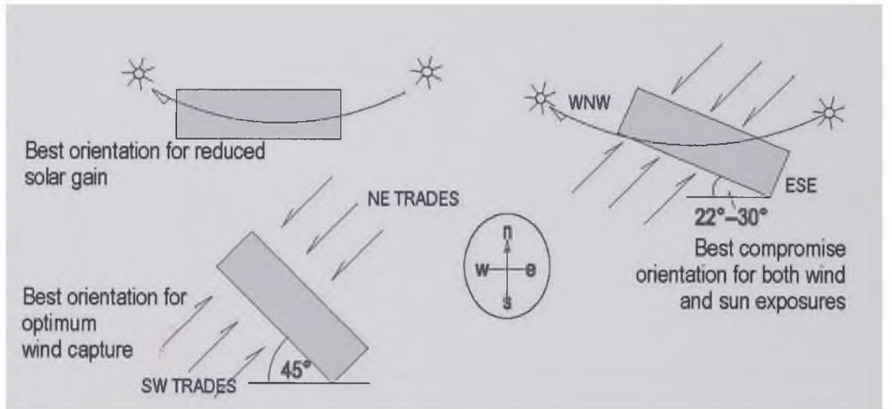


Figure 7: Diagram of Optimal Tropical Structural Orientation.

[9] Tzonis, Tropical Architecture, 14.

[10] Cleveland Salmon, Architectural Design for Tropical Regions (John Wiley and Sons, Inc., 1999) 132.

- Shading Devices—since shade is critical to comfort in hot-humid climates, it is addressed at many levels in the building process; some of which are:

  I. The roof—shelters from the intense sun and abundant rainfall. Typically, it is sharply pitched with deep overhangs to protect from both rain and sun. Flat or trafficable roofs must be easily drained and protected by secondary shading systems, such as screens. Roofs can exist without ceilings, and a lightweight, low thermal capacity material is preferred, to allow heat to dissipate quickly (Figure 8).

  Heat removal is assisted by adequate ventilation accomplished by the flow of air through rooms below and through vent spaces left open between wall and roof.[11]

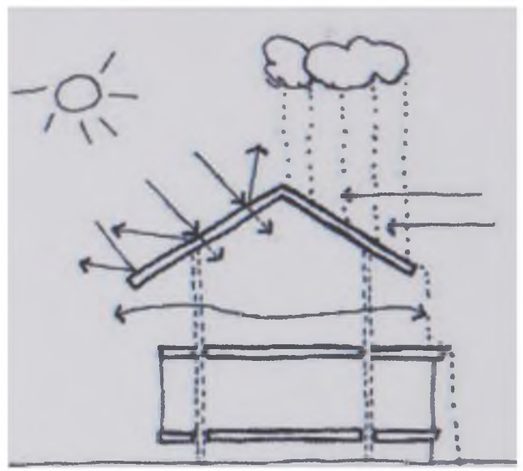
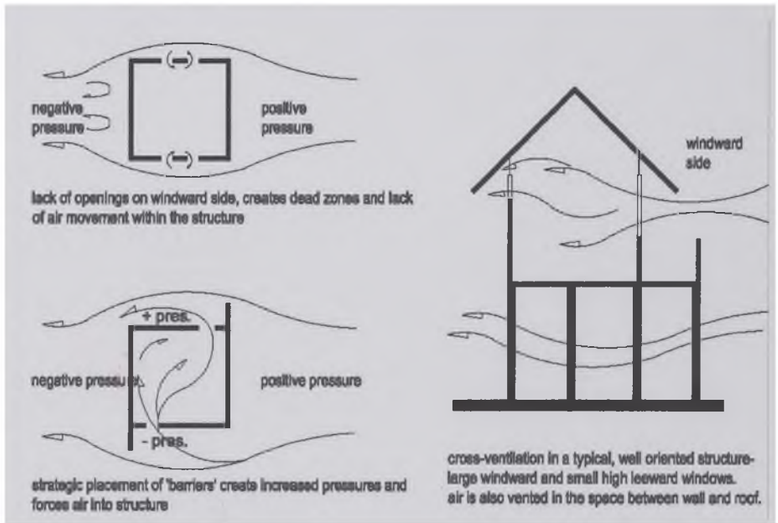


Figure 8: Diagram of Typical Pitched-Roof Functions

  II. The wall--freed from its typical role of elemental protection; is used primarily to modulate the flow of air into the structure as well as to create areas of shade, leading to a dissolution of form. It can be composed of layered openings, screens, canopies and enclosure. Structure can be manipulated to create regions of high pressure, which, then force the movement of air. Walls are also constructed of lightweight materials with low thermal capacity, allowing for the quick release of heat to the atmosphere. South facing facades should be protected by overhangs and/or landscaping and should not have many perforations[12] (Figure 9).

  III. Reduction in plan depth—the building should ideally be shallow to maximize cross-ventilation.



[11] Richard Hyde, Climate Responsive Design: A study of buildings in moderate and hot humid climates. (E&F Spon, London, 2000) 137-141.

[12] Hyde, 161-165.

IV. Verandahs are common additions to the tropical house serving to extend living spaces and act as 'breeze-catchers'. Structurally, verandahs are designed to be light and non-obstructive to the flow of breezes. Screens, vegetation and deep overhangs often protect them.[13]

V. Elevation of structures is a common practice in some regions, serving to assist in cooling of the structure as well as protection from seasonal flooding—as in Guyana.

- Landscaping is essential for shading as well as directing breezes.

Figure 10: Rural Home demonstrating Tropical Design Principles

V. RESEARCH ANALYSIS: JAGAN HOUSE

In order to study the lifestyle and cultural behavior of the villagers and how this affects the built environment, I will focus on the evolution and use of a typical house within the village—the Jagan House.[14] The house will also be analyzed using the previously studied tropical design principles.

JAGAN HOUSE: EVOLUTION

The head of the Jagan family arrived in Guyana in 1901 at the age of two. Jagan was the only name given or known, and became the last name of his descendents. Jagan grew up as a laborer in the sugar estates and married at the young age of 10, (marriage in Indian households were then arranged and performed at a very young age); the couple did not live together for another six years. Their home

[13] Hyde, 75, 209.

[14] This house was also the home of my grandparents, with whom I spent most of my summers until 1987—therefore this analysis is based upon personal experience as well as discussions with past and present residents of Port Mourant.

improvements in housing. The core of the current structure was probably built in the early 1920s, evolving slowly as needs and income grew. Figure 11 depicts this evolution.

The original Jagan house was constructed of clay-mud walls. Its successor-the house being studied-was very much like the original, but built of wood and elevated about 4 feet above grade to prevent flooding. Kitchen, outdoor lavatory and washing areas were separated from the main house primarily for sanitary and drainage purposes. The Jagan family grew to include eleven children, ten of which eventually left their home for school. Around 1955, the house was lifted to 6 feet and rooms added. The additions included a stable (for two horses), and two rooms below the now elevated house as additional living/sleeping space. At this time, the lifted second floor gained additional sleeping spaces as well as indoor bathroom facilities, which were serviced by an 'overhead' water tank. (Water was pumped via a small hand pump, and a septic tank was put in place.) In 1958, the clay-mud flooring beneath the house was replaced by concrete. The house was further raised another two feet, to accommodate the aging Jagan who bumped his head when walking beneath the house. By this time, the "bottom-house" space as it is known in Guyanese society had become the daily living room of the family. Like other homes, this space, easily ventilated and in close proximity to the kitchen and other service spaces, contained daily social activities. A larger kitchen/dining area on the ground floor and extension of the existing second floor room on the southwestern aspect of the house was finished between 1958 and 1963. A concrete driveway in front of the house replaced the clay-mud in 1963 and a new verandah was completed in 1994. In 2003, the water-tank system was improved with a reinforced concrete structure replacing the timber construction. Adequate water pressure remains a problem within the village.

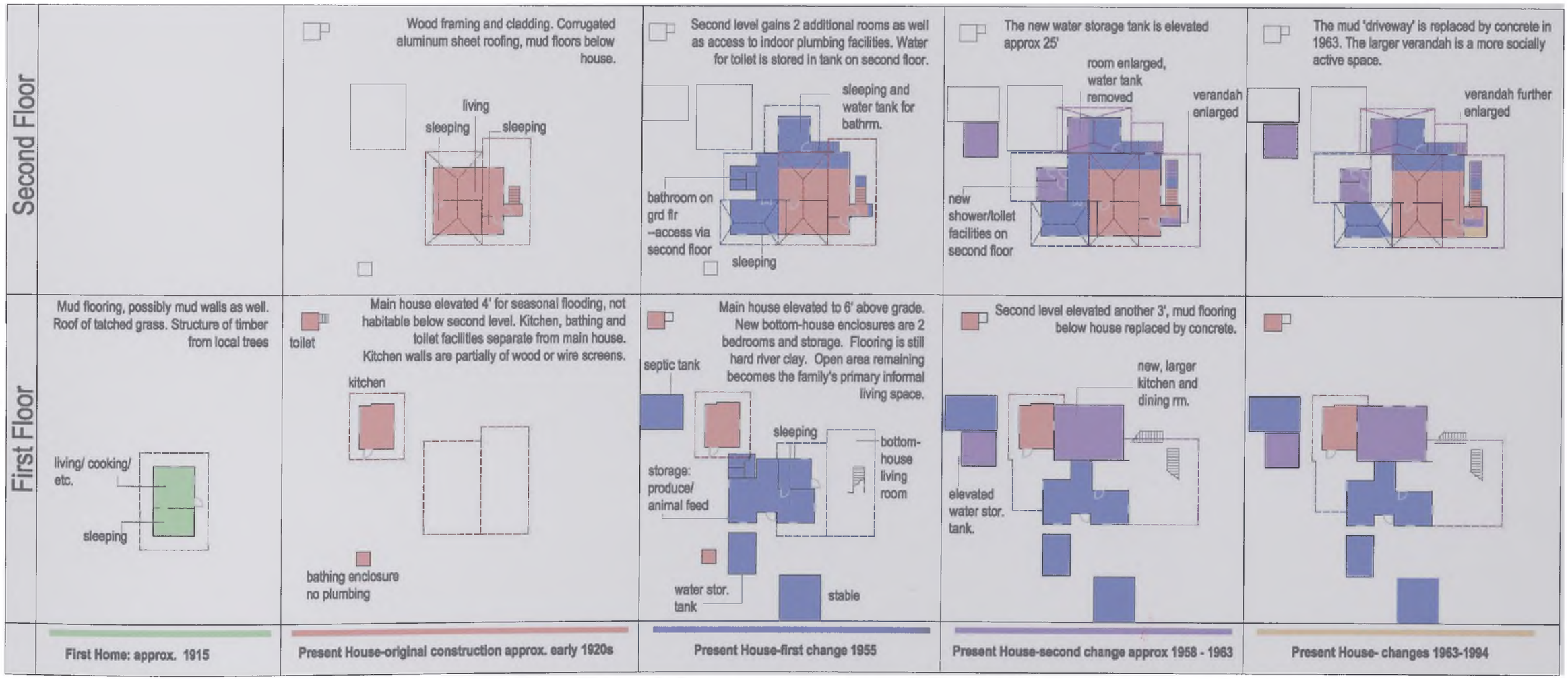


Figure 11: Diagram of the Evolution of the Jagan House

The ease of addition and subtraction as need presents itself is characteristic of Guyanese rural architecture. This implies a self-sufficiency of the structural system used in the construction of homes.

STRUCTURE AND MATERIALS

In much of Guyana, homes grow, contract, and change as circumstances dictate. A post and beam system of construction facilitates change; each unit that is added is structurally self sufficient, and as such, removal and/or additions do not affect the structure of the core building. (Figure 11) The roof system usually demonstrates the additive nature of building, as in the Jagan house. The evolution of most homes is readily observed in the segmented nature of the roof, which corresponds to the rooms added, (Figure 13A, second floor plan illustrates the additive process of the Jagan House). Rich clay-mud excavated from riverbanks was used originally as a floor below houses, allowing easy addition construction of footings. The clay floor is now being replaced by a concrete slab. Materials used in the construction of homes are timber, wood planks and shingle, corrugated metal sheeting, and concrete. Concrete block construction is now common for the construction of new buildings; it is also being used extensively in new additions to existing wooden structures. This latter use reflects the traditional additive nature of Guyanese architecture, where the old house is simply expanded, built over, or demolished as the need and funding dictate (Figure 12). The blocks are made locally using cement imported from neighboring Trinidad and local sand. In an attempt to retain the craftsmanship of the traditional wooden houses, elaborate molds are made for the concrete blocks which form the front facades of houses. These are typically found on verandahs and the pediment of the roofs above. Concrete is also being used to create elaborate curved staircases, and ornamental banisters. Glass is now being widely used in window openings. The Jagan house does not have any glass-windows. Figure 13 shows the house in its present state.

Figure 12: Concrete Addition to Existing Wooden House. The addition is of concrete block construction and is directly attached to the original wooden house.

CULTURAL ADAPTATIONS

As the theory of habitus suggests, cultures change over time adopting and discarding various aspects of behavior as these are tested in everyday life. The Guyanese people have always built houses to respond to climate and culture. Figure 14a and 14b shows patterns of use of the Jagan house by family members during the day and night respectively. The open spaces of the 'bottom-houses' exemplify its adaptability and flexibility. In the daytime, all open spaces, especially the bottom-house, extend into the local 'street' beyond the confines of the wooden-picket fence. Conversations and village 'business' is conducted over and through the fences and neighbors will 'drop' in for impromptu visits. The front gate, doors and windows remain unlocked throughout the day.

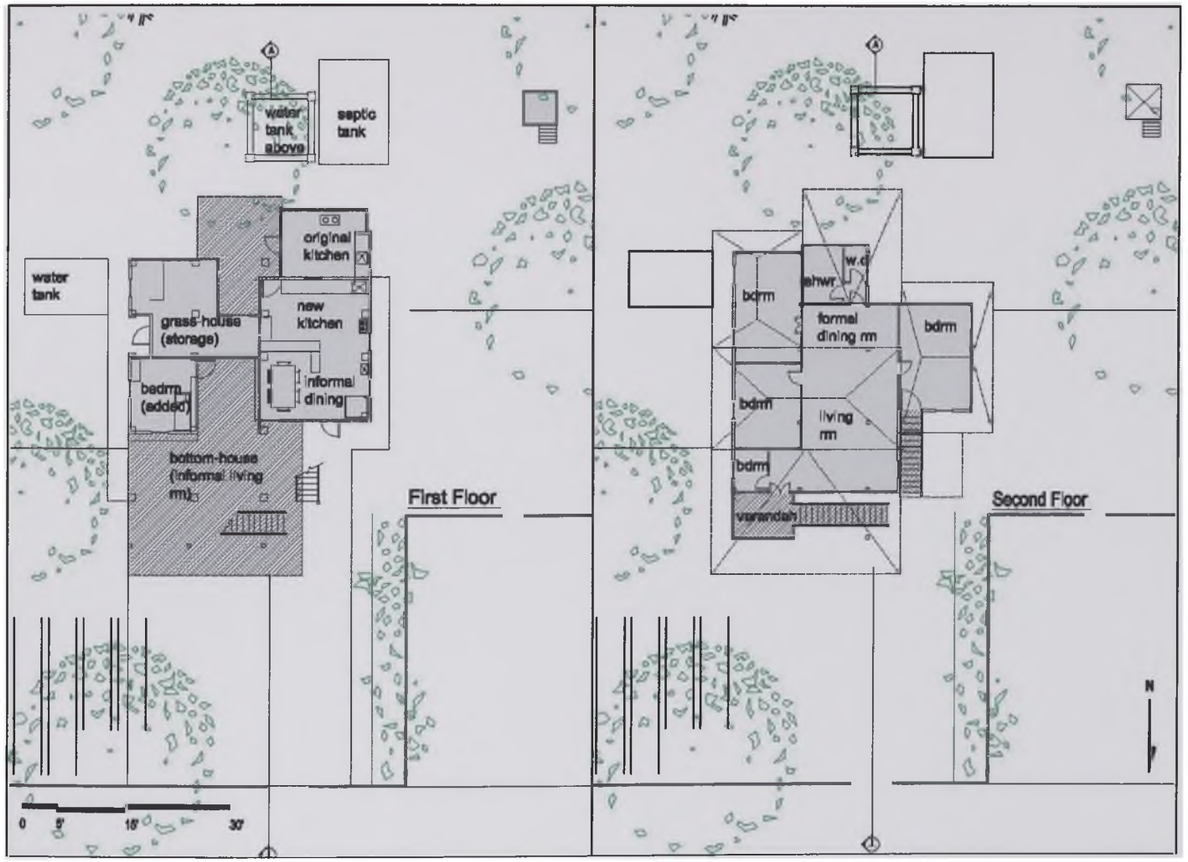


Figure 13a: Plan of Current Jagan House

Figure 13b: Longitudinal Section through current Jagan House

Figure 13c: Front View of current Jagan House.

The Jagan House displays the typical enclosed spaces of the ground floor—kitchen, eating areas, storage and work areas—which are also maximally used during the day. At night, the pattern is inverted. The inner spaces of the second floor become active, while the ground floor is vacant. Sleeping and additional living spaces are typically located on the second floor. Throughout both day and most of the night, the verandah is active. It serves as a space for relaxation, entertaining, and sleeping. As the Jagan House demonstrates, (Figure 15) large gatherings such as weddings, funerals, celebration of births, and religious occasions calls for the erection of a temporary structure, attached to the bottom of the house and constructed of 'posts and beams' from nearby trees or rough lumber, and covered by canvas or light corrugated metal sheets. This extends the bottom-house space even further, allowing large numbers to gather. In rural Guyanese culture, the number of invitations extended never equals the number of guests who arrive. Villagers consider these occasions as open invitations, and a 'small' affair can quickly become very large. As a by-product of this tendency, many neighbors have 'flexible' fencing, meaning the fencing material is removed in sections, leaving the posts in place. This allows 'guests' to use the neighbor's bottom house as additional gathering space. During large social gatherings, the upper portions of the house remain private, although left open and unlocked; only the family and 'special' guests use it.

Figure 14a: Sectional Diagram of Jagan House showing Day-time Use by the Family

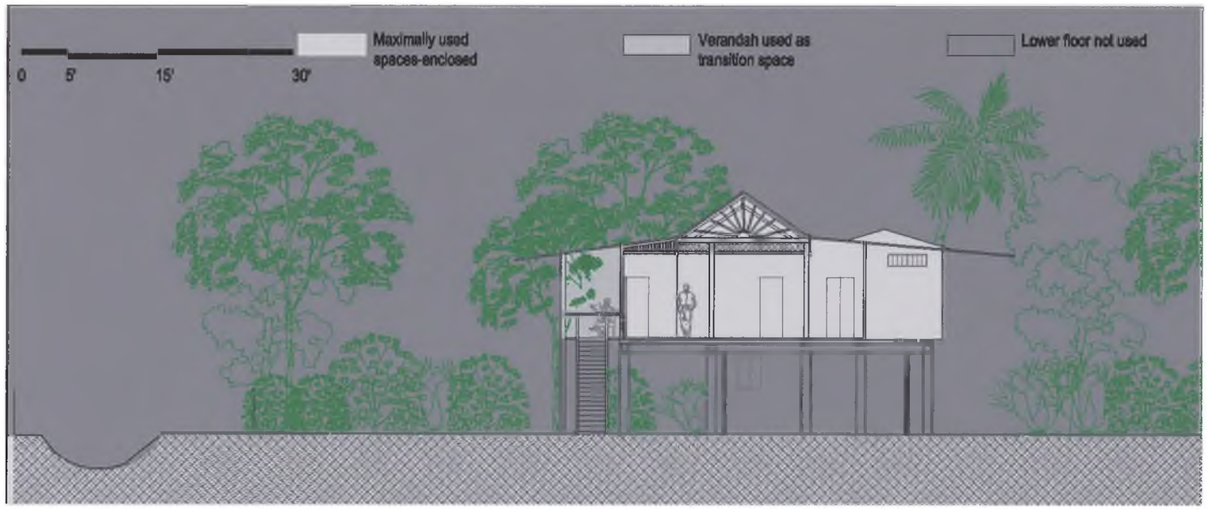


Figure 14b: Sectional Diagram of Jagan House showing Night-time Use by the Family

Figure 15a: Jagan House: Large Social Gathering. A temporary structure of wood and canvas extends the bottom-house space.

Figure 15b: Sectional Diagram of Jagan House showing Use for a Large Social Gathering

JAGAN HOUSE: CLIMATIC DESIGN

The Jagan House is oriented (east-west axis) for reduction of solar gain, but not for maximum wind channeling (Figure 16). The entire structure is elevated, which assists in cooling of both the building and the occupants, since breezes are more readily caught and channeled. The house has several openings along both the windward and leeward sides, permitting cross-ventilation. The northeast and southwest trade winds are allowed in at both levels. The house is more than two rooms deep in some areas; however, the perforations within the skin and placement of the rooms ensure adequate cooling (Figures 13a, 13b, 16 and 17). The verandah on the north side of the house provides additional shading as well as being an extension of the living spaces. Deep overhangs of the roof, allow for easy shedding of rain as well as providing shade for the structures below (Figures 13 and 17). Additionally, the roof is constructed mainly of lightweight corrugated aluminum panels supported by a wood truss system that allows air circulation within and through the building. The wall system does not form an airtight barrier with the roof, thereby allowing air to circulate into and throughout the house (Figure 18). The Jagan house is heavily landscaped—large coconut palms and fruit trees on the south of the structure. Trees and other plant materials are also present to a lesser degree around the house. Figure 18 shows the site plan for the Jagan House.

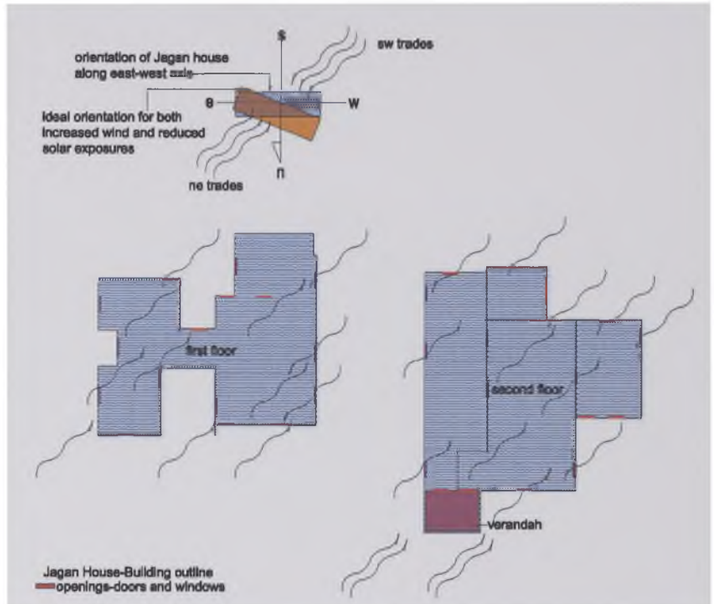


Figure 16: Analytical Orientation Diagram--Jagan House.
Window openings permit cross-ventilation.

Figure 17a: Interior View of Opening between Roof and Wall.
This narrow gap facilitates cooling of interior spaces
as well as the roof.

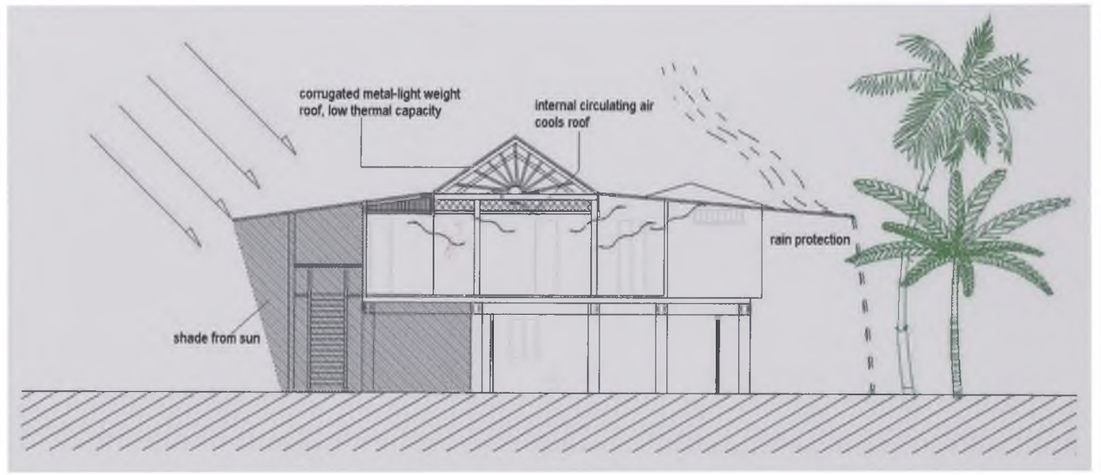


Figure 17b: Analytical Diagram of Climatic Adaptations-Jagan House.
Deep overhangs protect from rain and solar exposures.

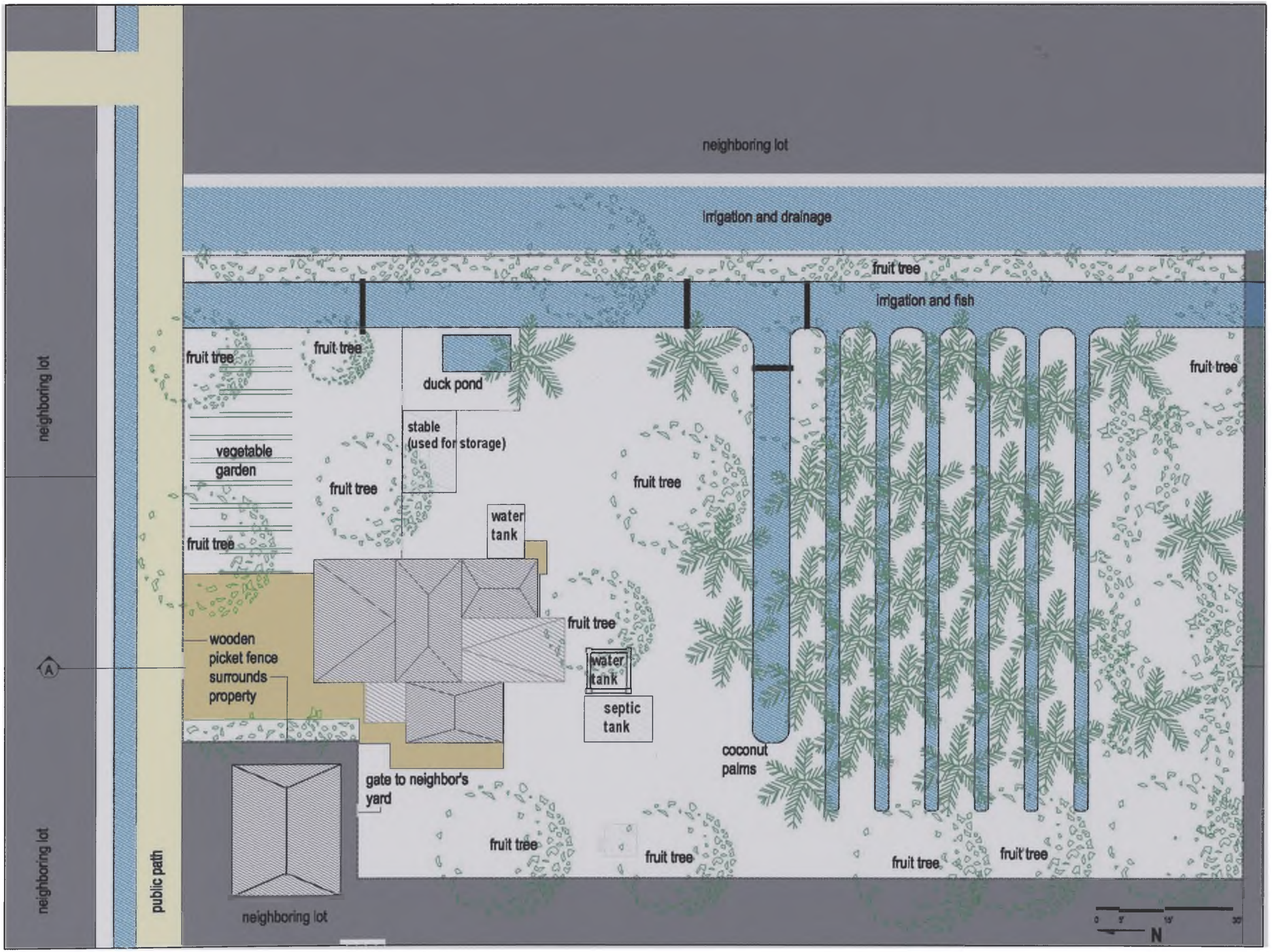


Figure 18: Site Plan of Jagan House. Water is used extensively in irrigation and drainage and for storage.

VI. SITE ANALYSIS

LOCATION

The site for the Women's Center is located in Ankerville, a division within the Village of Port Mourant. Access to Port Mourant is largely via the main coastal road which runs the length of the north-east coast of Guyana. A ferry is needed to navigate the Berbice River, which separates the area from the capital city of Georgetown. Small aircraft can also be used to access the village, since there is an airstrip in the neighboring town of Albion, west of Port Mourant.

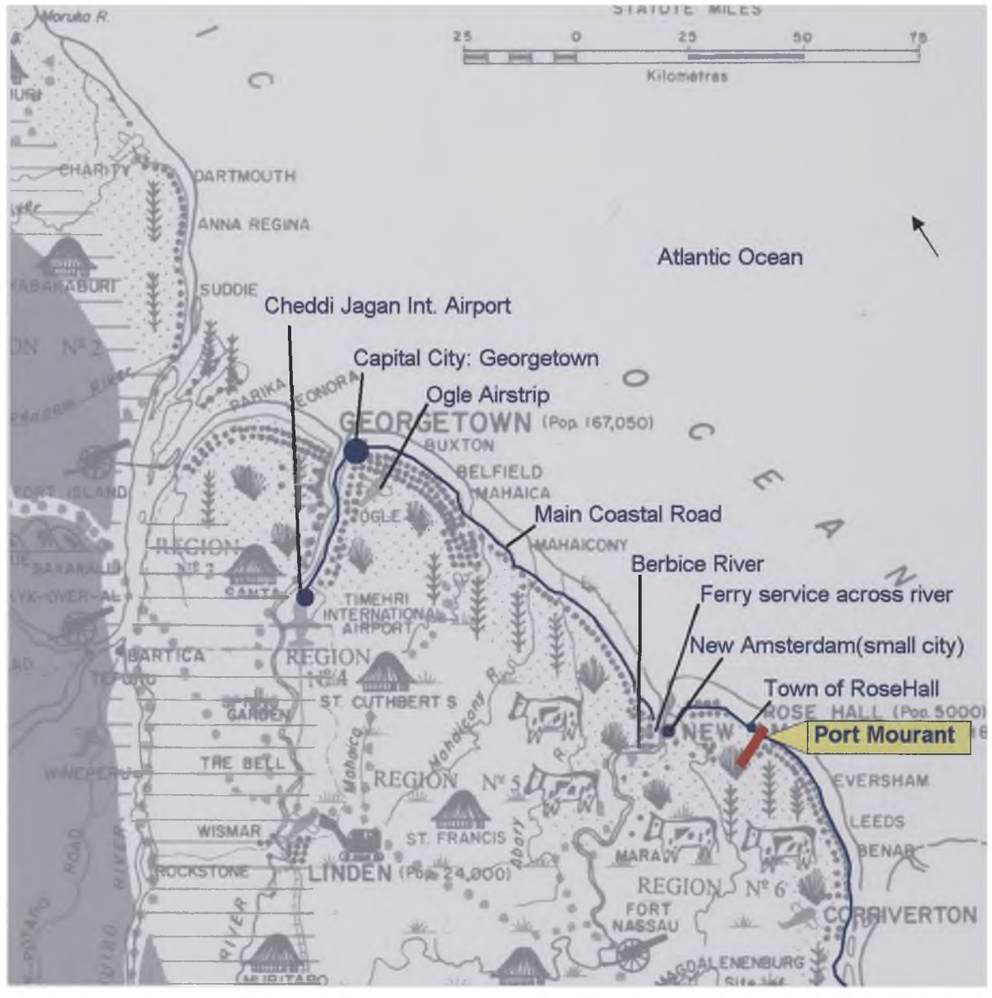


Figure 19: Location and Means of Access to Port Mourant

Figure 20: Plan of Port Mourant. The Village is composed of several divisions reflecting its colonial sugar plantation ownership. The Project site is located in Ankerville-South.

PHOTOGRAPHIC ANALYSIS

Main Coastal Road-paved

Street into Ankerville-paved

Internal streets in Ankerville-unpaved, mainly crushed red stone

Footpath

Religious Ceremony

Hammocks, tables, benches and wooden swings are standard furniture for most homes.

Bottom-house tutoring

Small convenience shop occupies the Bottom-house space.

Hammocks are used extensively.

Figure 21: Ankerville, Port Mourant—Roads and Internal streets (above)
Figure 22: Ankerville, Port Mourant—Bottom House Use (below)

Figure 23: Ankerville, Port Mourant—Traditional Housing (above)
Figure 24: Ankerville, Port Mourant—New Housing (below)

PHOTOGRAPHIC ANALYSIS

Traditional wood shingle cladding and wooden window.

Façade detailing

Wood craftsmanship is characteristic of traditional housing construction.

New façade added to existing wooden home. Texture is accomplished with the use of specially designed moulds.

Curved concrete stairs

Concrete verandah detail

New wood construction-ornamentation results from construction detailing.

Figure 25: Ankerville, Port Mourant—Traditional Housing Details (above)
Figure 26: Ankerville, Port Mourant—Current Interpretation of Details (below)

PHENOMENOLOGICAL MAP: ANKERVILLE

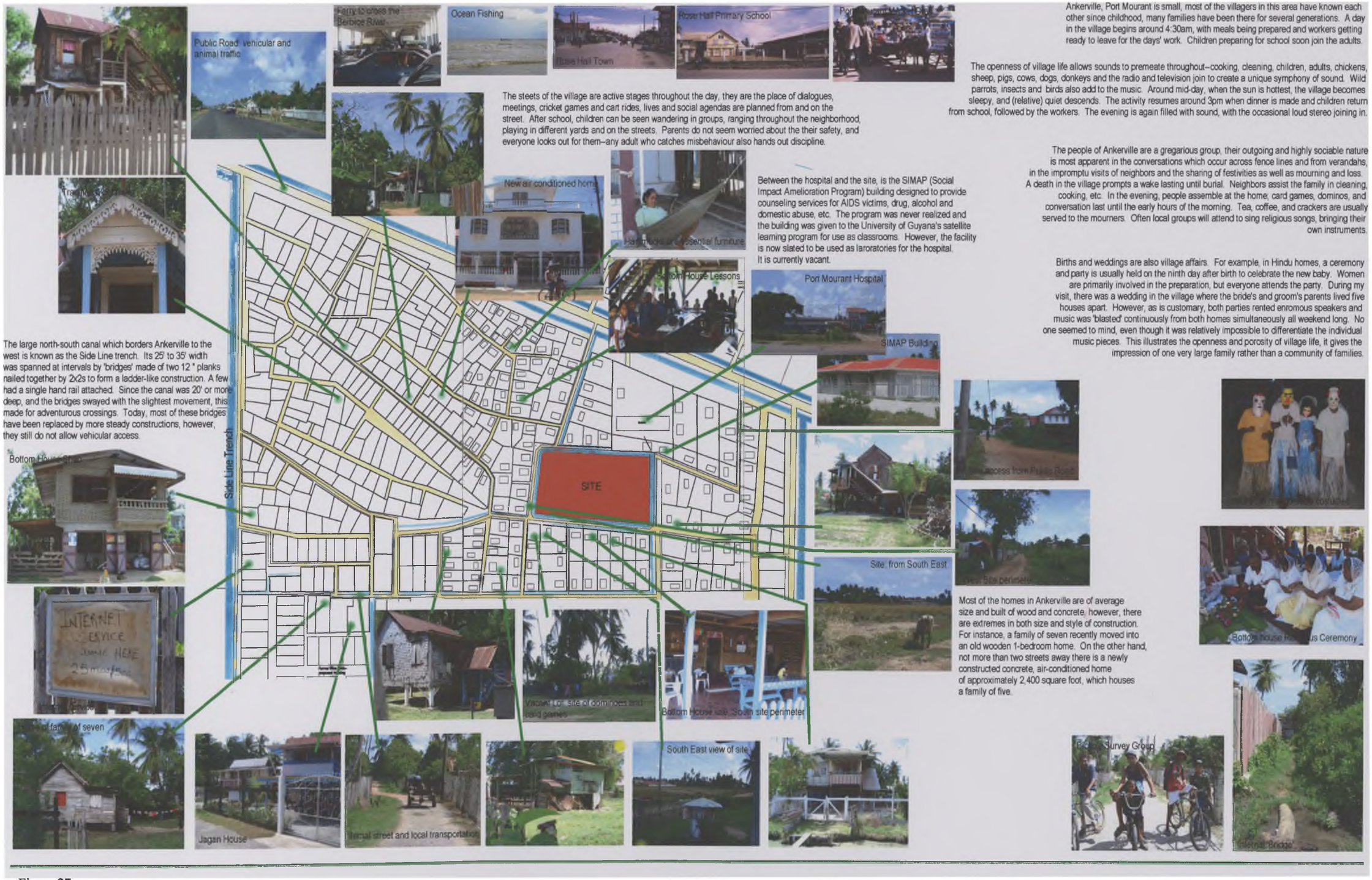


Figure 27

Figure 28: Texture Collage

Ankerville is a rich and textured place. A visitor to the village is subjected to an experience of sensory bombardment, where sight, sound, textures and even smells are constant. Figures 21 through 28 depict this vibrant atmosphere. In figure 27, the easy social interactions of the villagers are apparent. While fences surround most properties, they do not restrict the flow of neighbors or conversation.

SITE PLAN: ANKERVILLE, PORT MOURANT

Figure 29: Site Plan of Ankerville, showing location of site, building density, wind directions and points of interest.

GRID LAYOUT: ANKERVILLE, PORT MOURANT

The original village was developed organically, meaning a patchwork of small lot additions without an over arching pattern. The resulting grid demonstrates a distinctly non-orthogonal configuration. In contrast\the areas of more recent as well as proposed development show more uniform plots with a definite, planned orthogonal strategy. As Figure 30 illustrates, these two grids do not merge but rather one is simply extended or continued from the other. The project site lies along this line of convergence.

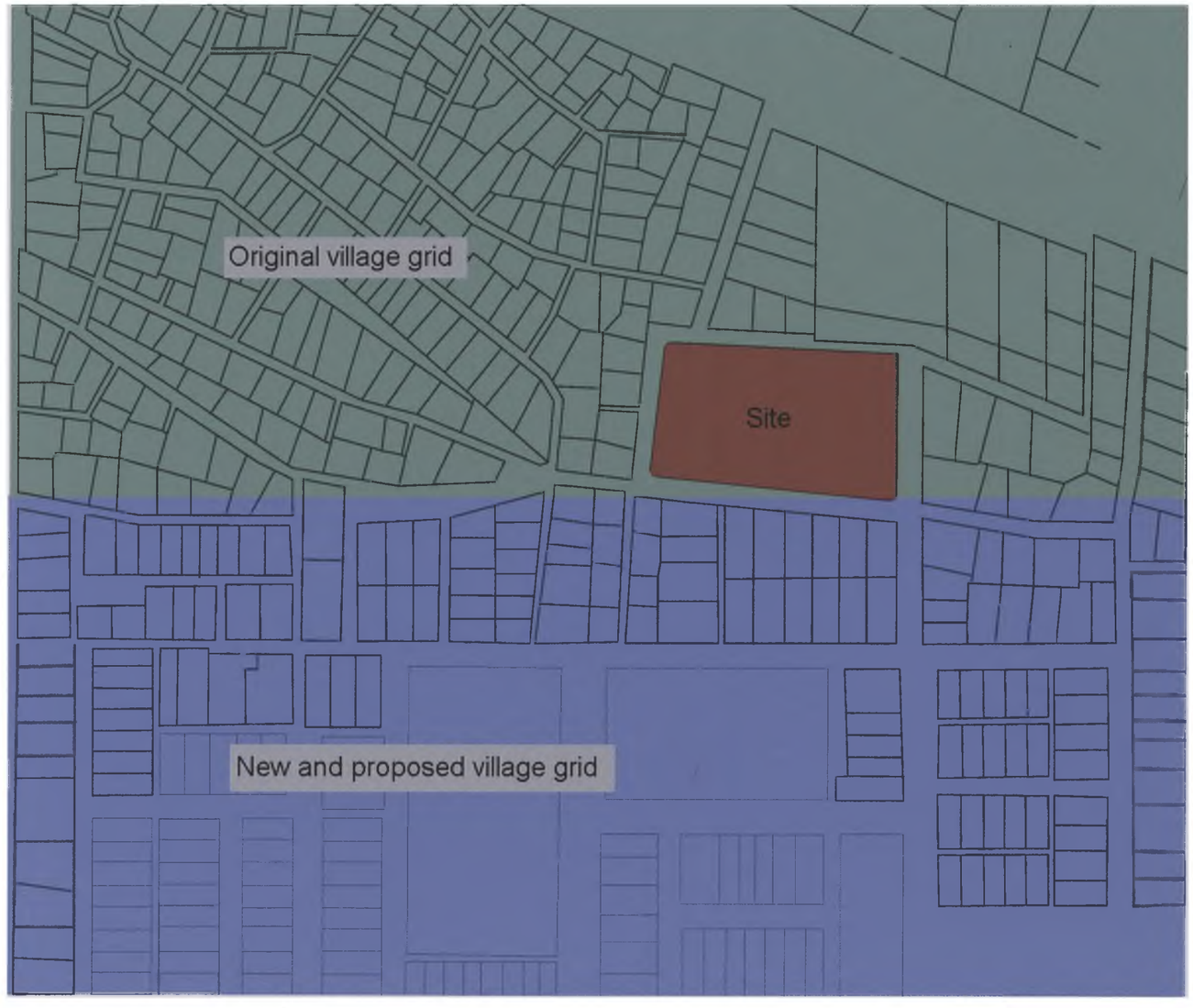


Figure 30: Grid Configuration of Ankerville

SECTIONAL ANALYSIS

Longitudinal Section 01

Longitudinal Section 02

Figure 31: Sectional Analysis of Ankerville.

PHOTOGRAPHIC ANALYSIS: SITE EDGE

Figure 32: North Perimeter (above), East Perimeter (right)

PHOTOGRAPHIC ANALYSIS: SITE EDGE

Figure 33: West Perimeter (above), South Perimeter (below)

SITE MODEL PHOTOGRAPH

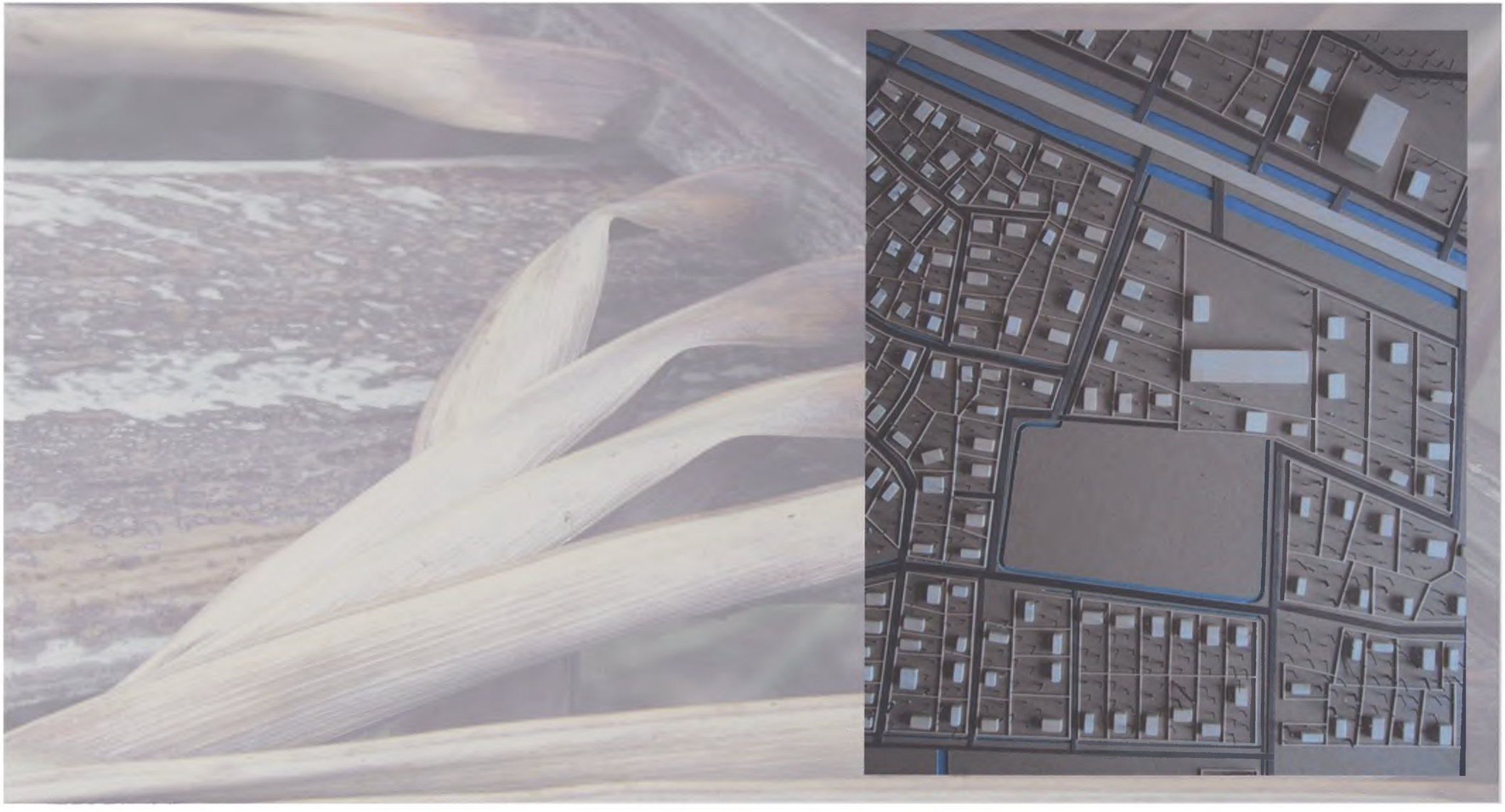


Figure 34: Site Model Photograph showing building density around site. Most structures are two levels, the lower floors are used mainly as bottom-house living room spaces, and for cooking, and other daily activities. There are a few homes which are only one level on grade or elevated to 4' above ground.

VIII. DESIGN DEVELOPMENT

PROGRAM

Research and site analysis of Ankerville indicate that the majority of women within the village were not educated beyond high-school level. Poverty is a problem and many women are unemployed. Exposure to means of further education or entrepreneur opportunities and general information is severely limited. Based upon this discovery, the program developed is the Port Mourant Women's Center aimed primarily at providing information and exposure to issues such as small business opportunities, micro-banking, healthcare education, childcare, recreation, computer use and research. The Center will also provide services and advice from various nonprofit organizations within Guyana and professionals interested in pro-bono work.

The primary function of the Women's Center is to provide information and learning opportunities. The programmatic elements in support of this purpose are:

1) Library and Information Tower: to allow displays of current events and information boards on relevant subjects, as well as to provide a source for further research.
2) Daycare Center: to accommodate young preschool children so that their mothers may freely use the services of the Library and Information Tower.
3) Caretaker's Residence: so that there may be a twenty-four hour on-site presence aimed at creating a more neighborly atmosphere.
4) Gallery and Classrooms: to provide additional space for educational displays as well as exhibits of local talents. Visiting professionals and / or the satellite branch of the University of Guyana can use the classrooms.
5) Guest House: the homes of most villagers are small and there are no nearby hotels, this facility will provide some accommodation for guests of members for occasions such as weddings, birth celebrations or funerals.
6) Office for the organization SIMAP-Social Impact Amelioration Program, a non-governmental, non profit organization involved in rendering assistance to villagers throughout Guyana in such areas as health and social issues.

7) Auditorium or Hall: a non-raked facility of flexible configuration, which can be used for large social gatherings. It will also support the activities of the recreation center when necessary, for instance, during the rainy season. Storage and a small kitchen will be included. The storage will house a growing collection of cooking utensils, plates, etc, as well as furniture such as folding chairs and tables to be made available to the villagers. Large communal collections of these items is a standard village practice in Guyana as it allows individuals to host large gatherings.
8) Recreation Center and small Gymnasium: to provide equipment and dedicated space for games and other activities. A community swimming pool is included.

The program of the Port Mourant Women's Center is developed in three phases. These reflect the local architectural preference to build in stages over time. It also reflects and incorporates the concept of 'Habitus', where the Center will be given time to be integrated into the existing architectural and cultural fabric experientially. This allows the intent and effects of the Women's Center to be realized progressively. Each phase will be self sufficient structurally and functionally and will anticipate and allow future additions.

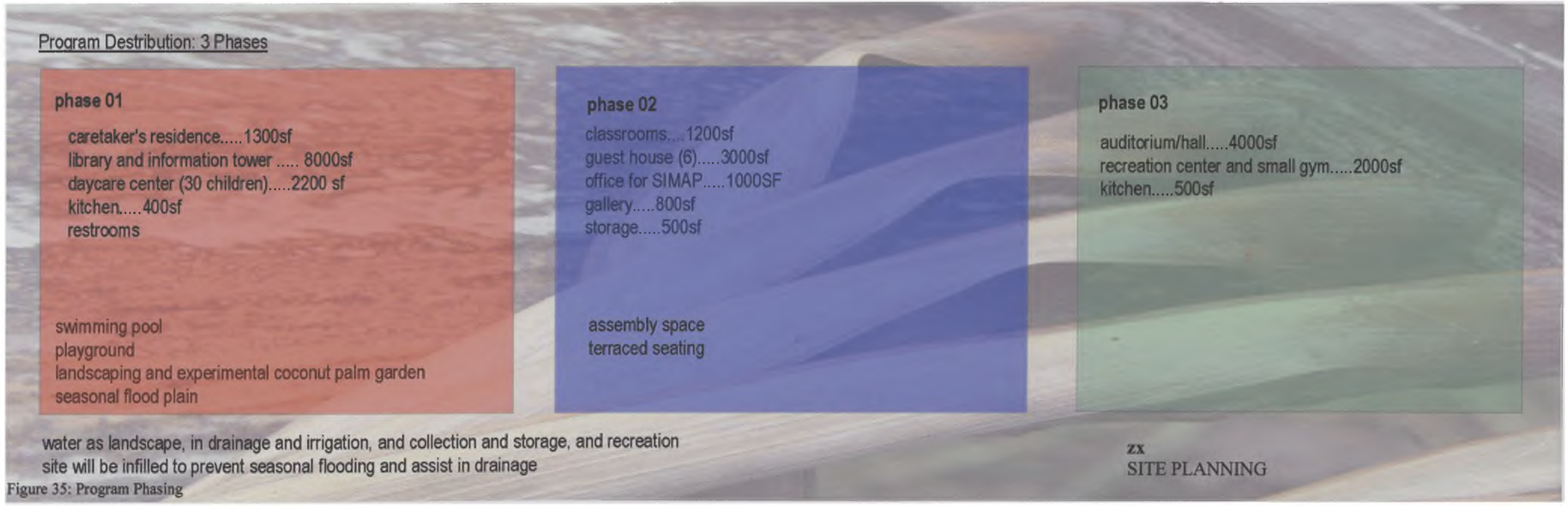


Figure 35: Program Phasing

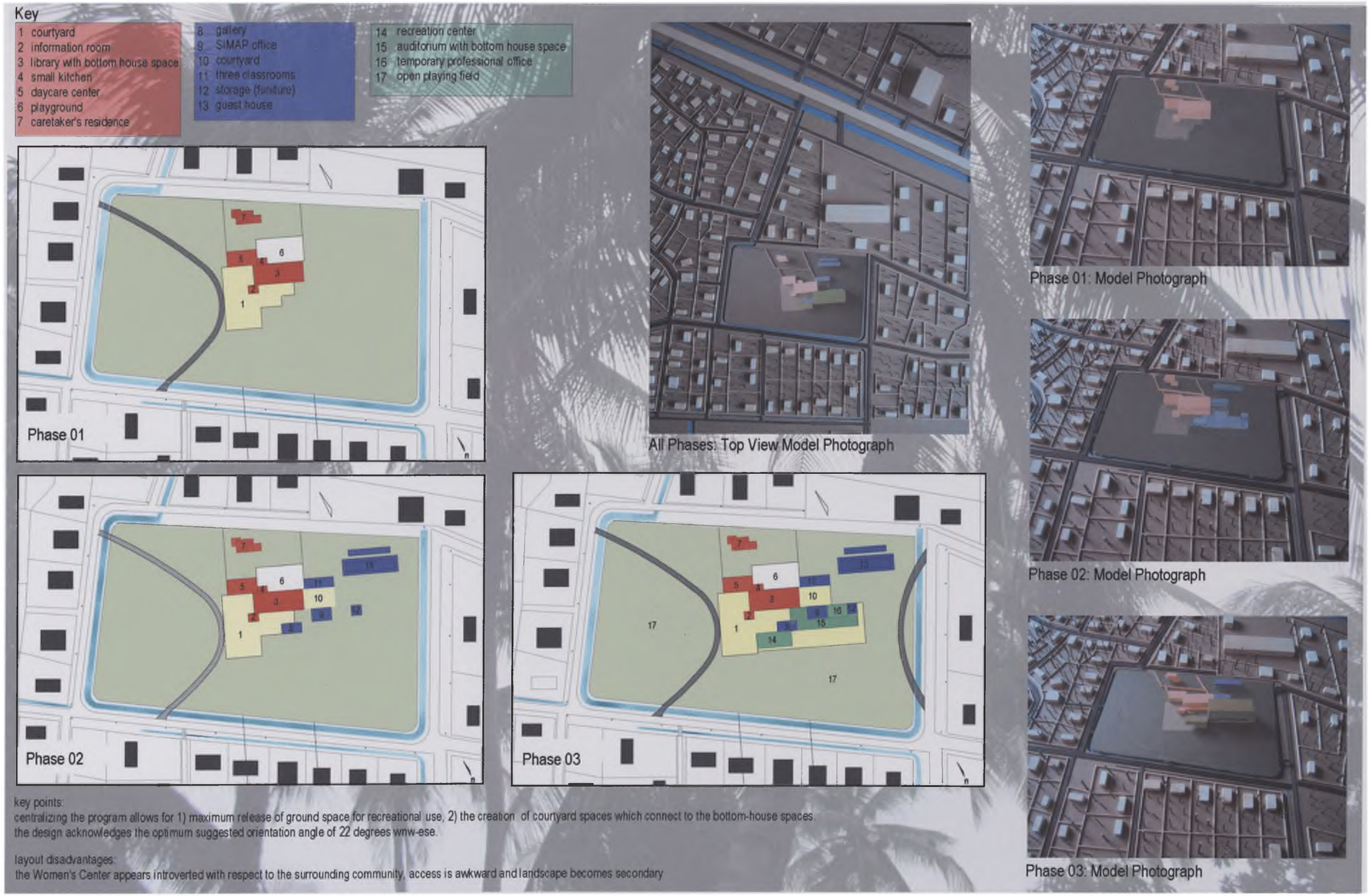


Figure 36: Layout Scheme 01

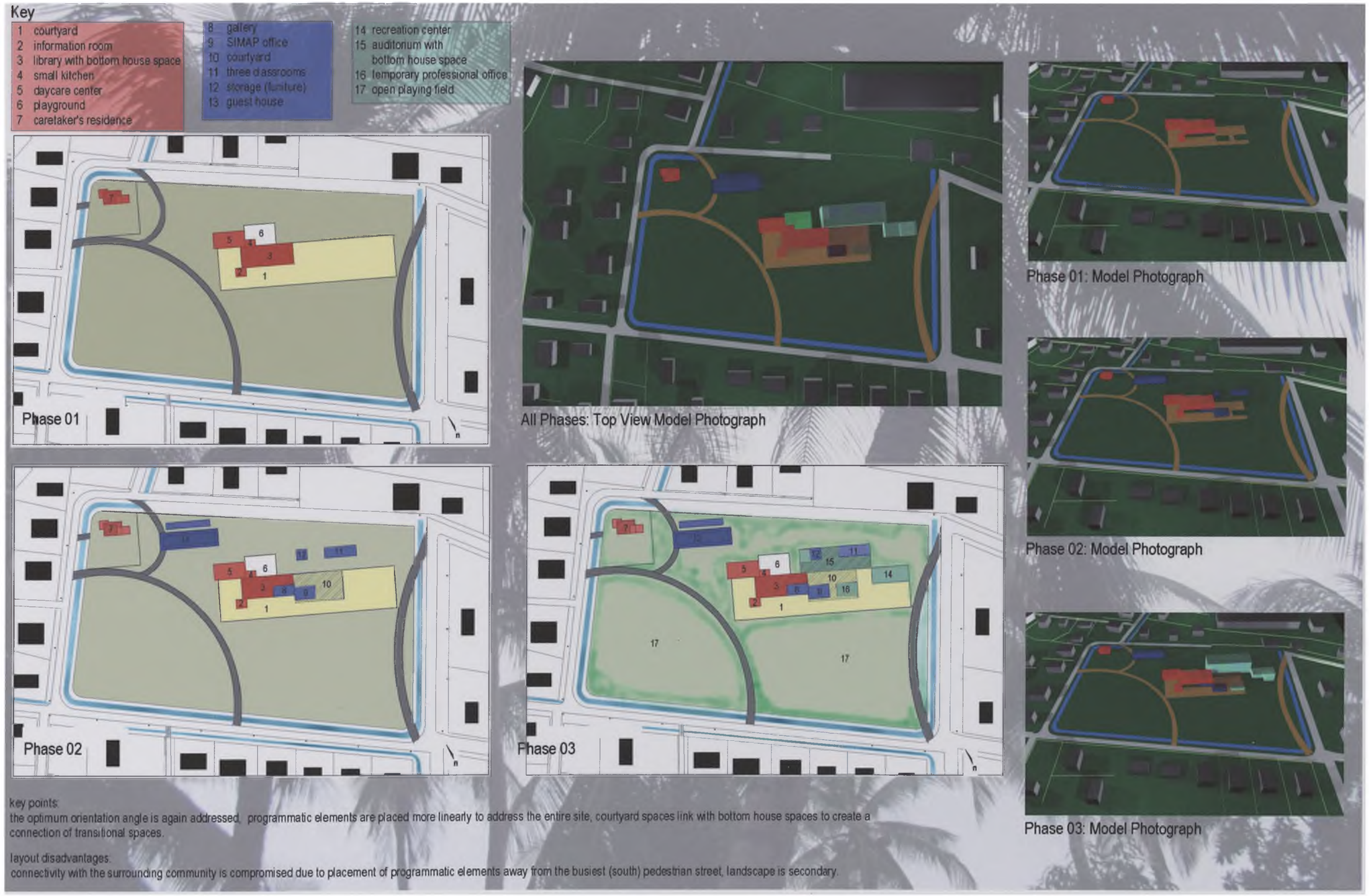


Figure 37: Layout Scheme 02

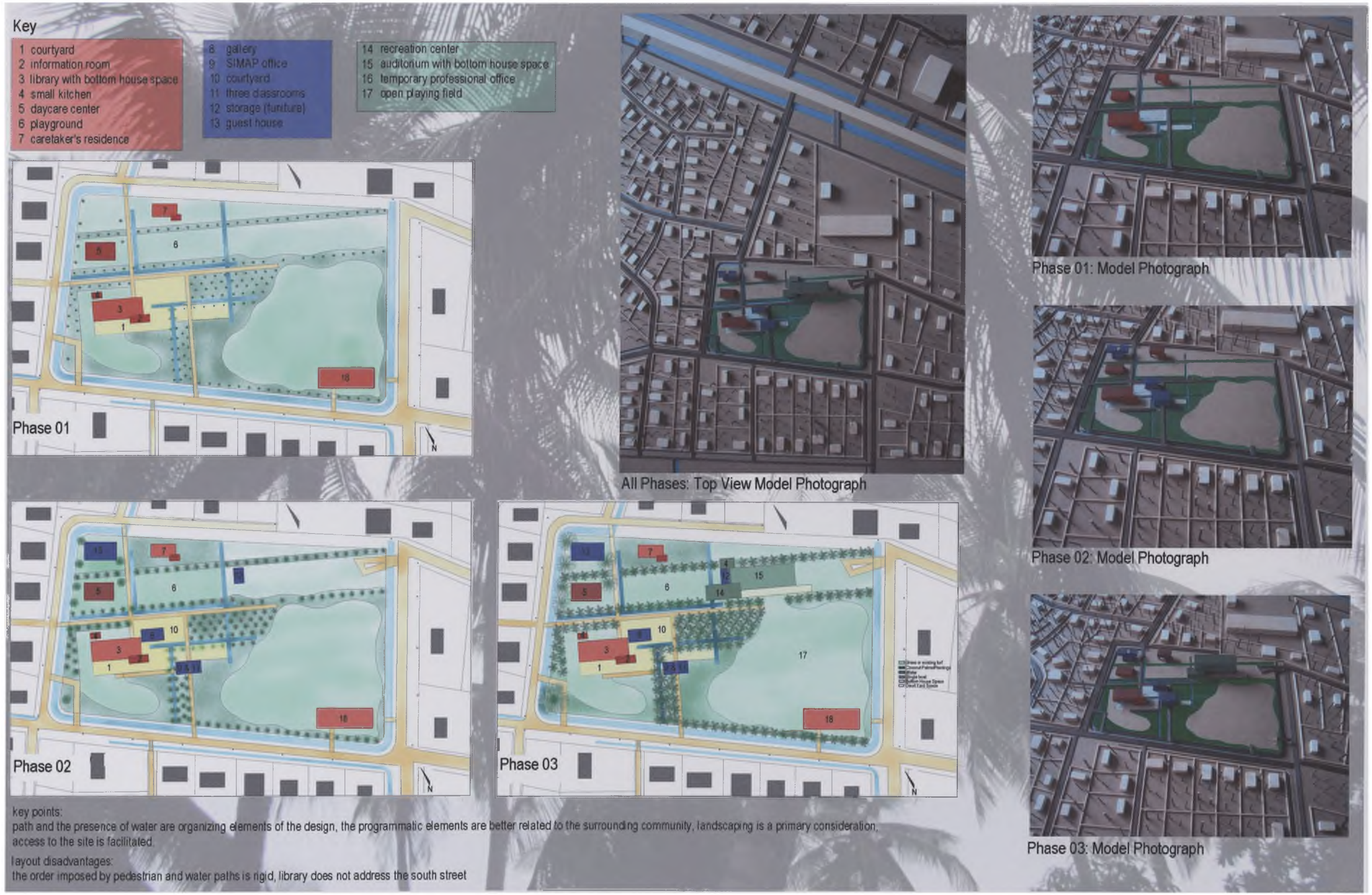


Figure 38: Layout Scheme 03

IX. SITE DESIGN

SITE PLAN

The final site plan layout readdresses the issue of connectivity of the Women's Center to the surrounding community. The convergence of the old village grid and the new orthogonal grid is used as a generator for the arrangement of programmatic elements as well as the internal pathways. The presence of water is constant in Port Mourant, the drainage system established by the former sugar plantations are evident throughout the village. Issues of water collection and storage are also of daily concern. The design of the Women's Center reconsiders the importance of water and addresses it in terms of irrigation, drainage, storage and for recreational purposes. Additionally, the site is in-filled with a slope towards the north-east corner to allow for the creation of a flood plain during the rainy seasons. Water will be collected on this plain and then allowed to slowly drain into the village's existing drainage system. This will prevent overpowering of the current system. The placement of the individual built elements is responsive to the alignment and positioning of the existing village fabric. In addition, the program is arranged in layers of the degree of public use, for example, the more publicly used programs such as the Library, Auditorium, Gallery, and Guest House form the outer layers of the complex. The Daycare Center and Caretaker's Residence, which demand greater privacy are placed in the interior of the site (Figures 44 and 45). Landscape elements play an important role in reinforcing the arrangement of the design as well serving as a connector between the surrounding village fabric and the Women's Center. Trees are used to interpret the vertical layering, porosity and transitional spaces present in the village. The design of the Women's Center uses transitional spaces to communicate programmatically; these are courtyards, verandahs and bottom-house spaces (Figure 41).

SITE PLAN

Figure 39: Site Plan showing the relationship of the Women's Center to the surrounding village fabric.

SITE SECTION

Figure 40: Longitudinal Section 01-showing Women's Center.

ROOF PLAN AND LANDSCAPE DIAGRAM

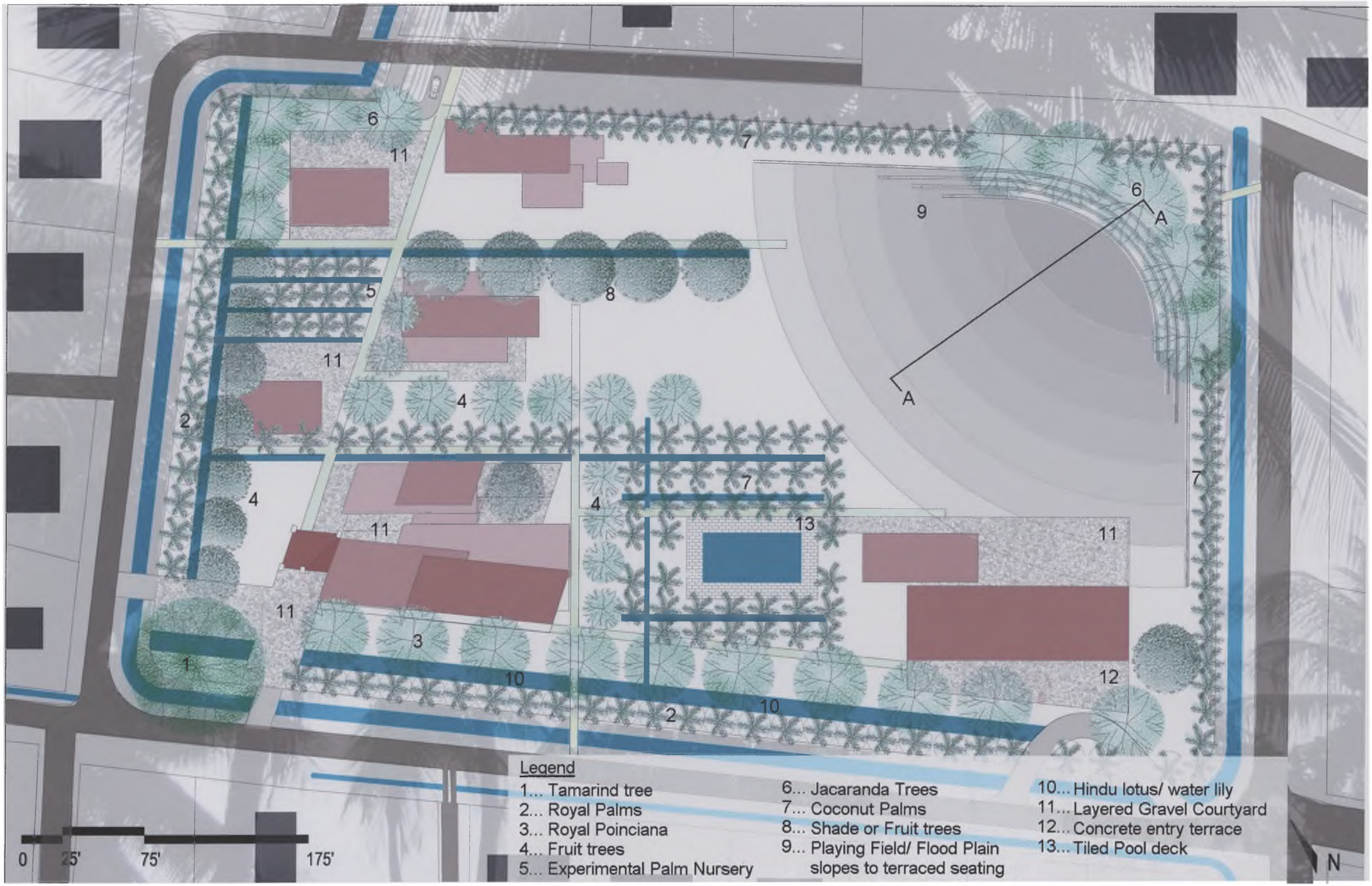
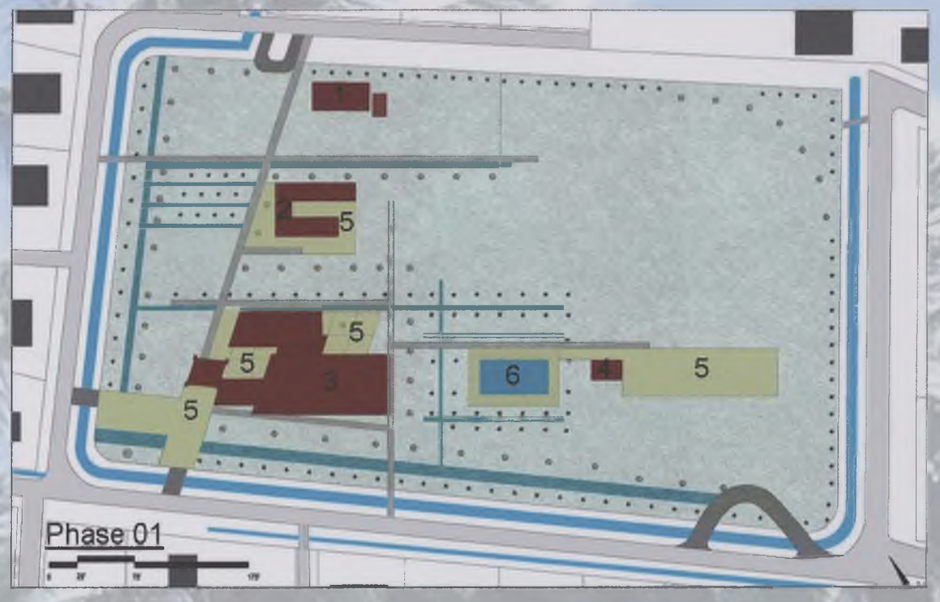


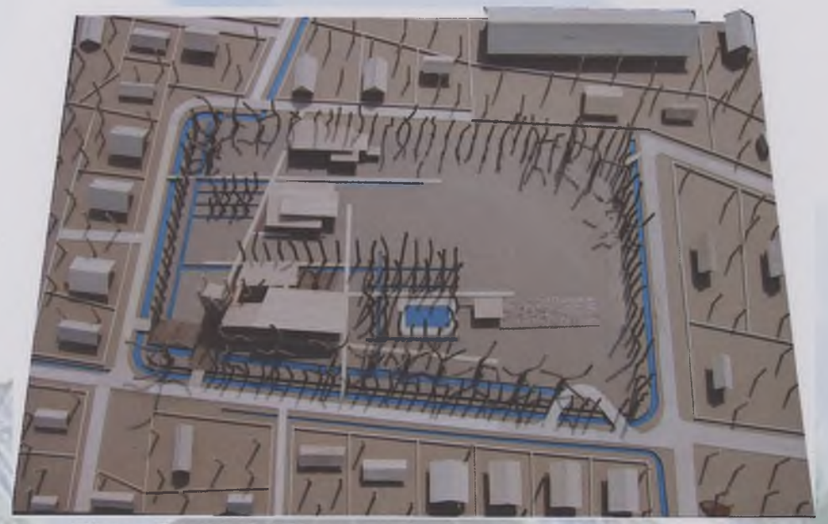
Figure 41: Roof Plan and Landscape Diagram showing landscaping, courtyard spaces, paths and water channels.

Figure 42: Sectional Study AA of Flood Plain-Dry Season. During the dry season, shaded terraced seating can be used to view activities on the playing field or for relaxation.

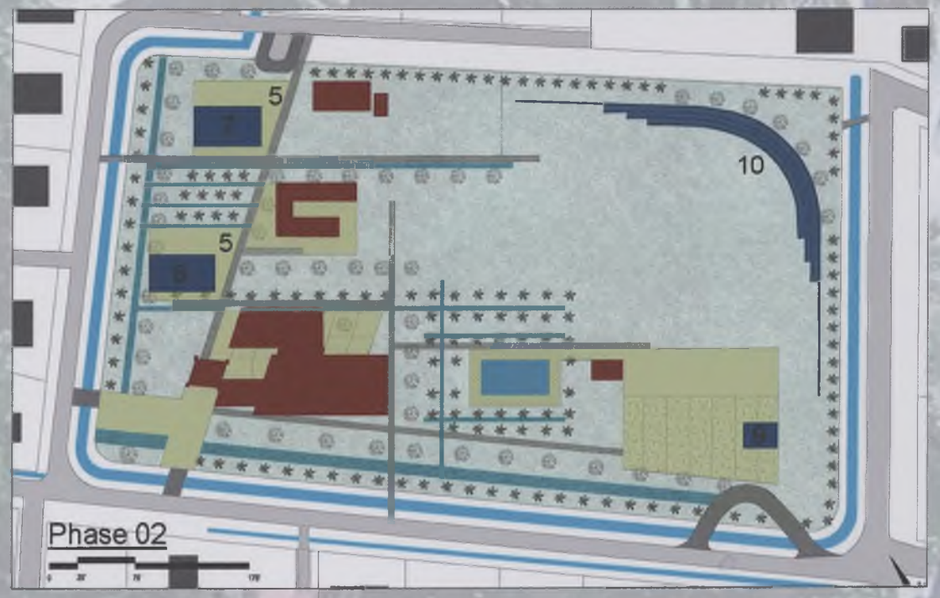
Figure 43: Sectional Study AA of Flood Plain—Rainy Season. The slope in the field will allow water to accumulate and slowly drain into the existing Village irrigation system. This reduces the possibility of flooding.

SITE PLAN IN PHASES





Phase 01: Model Photograph



Phase 02: Model Photograph

Figure 44: Site Layout-Phases 01 and 02

Legend

1 …Caretaker's Residence
2 …Daycare Center
3 …Library and Information Tower
4 …Changing Rooms
5… Courtyard
6 …Pool
7 …Guest House
8 …Gallery and Classrooms
9 …Storage
10…Terraced Seating

SITE PLAN IN PHASES

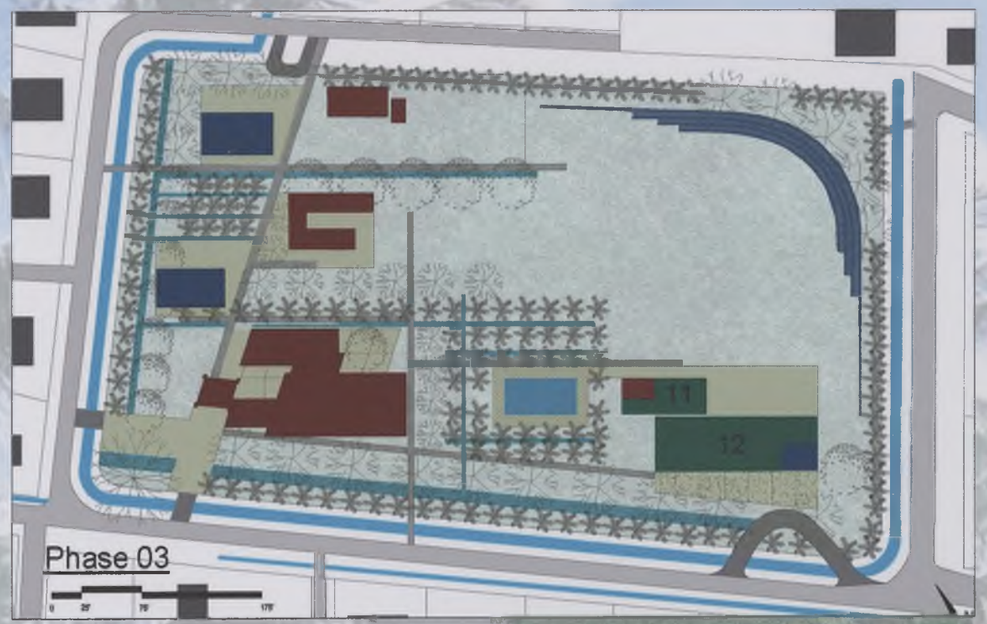
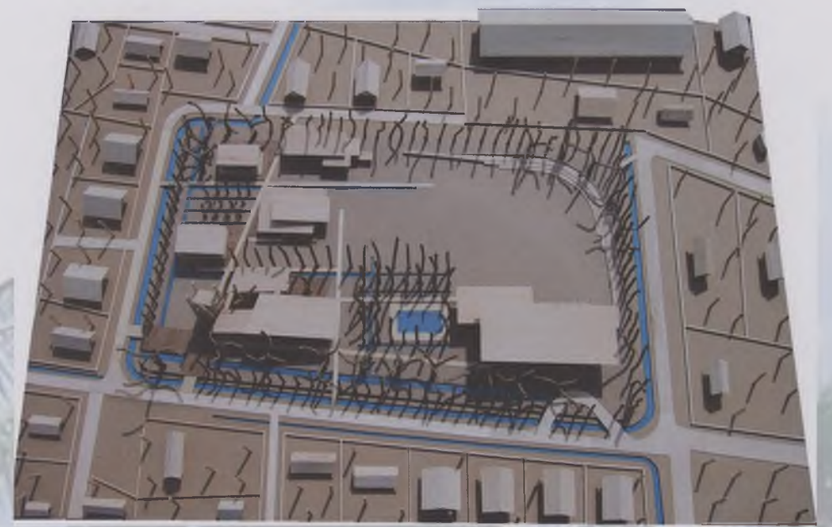


Figure 45: Site Layout-Phase 03

Legend
11 …Recreation Center and small Gym
12 …Auditorium / Hall



Phase 03: Model Photograph

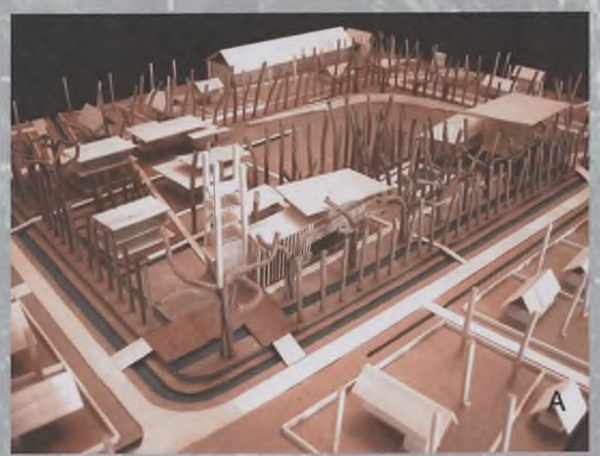
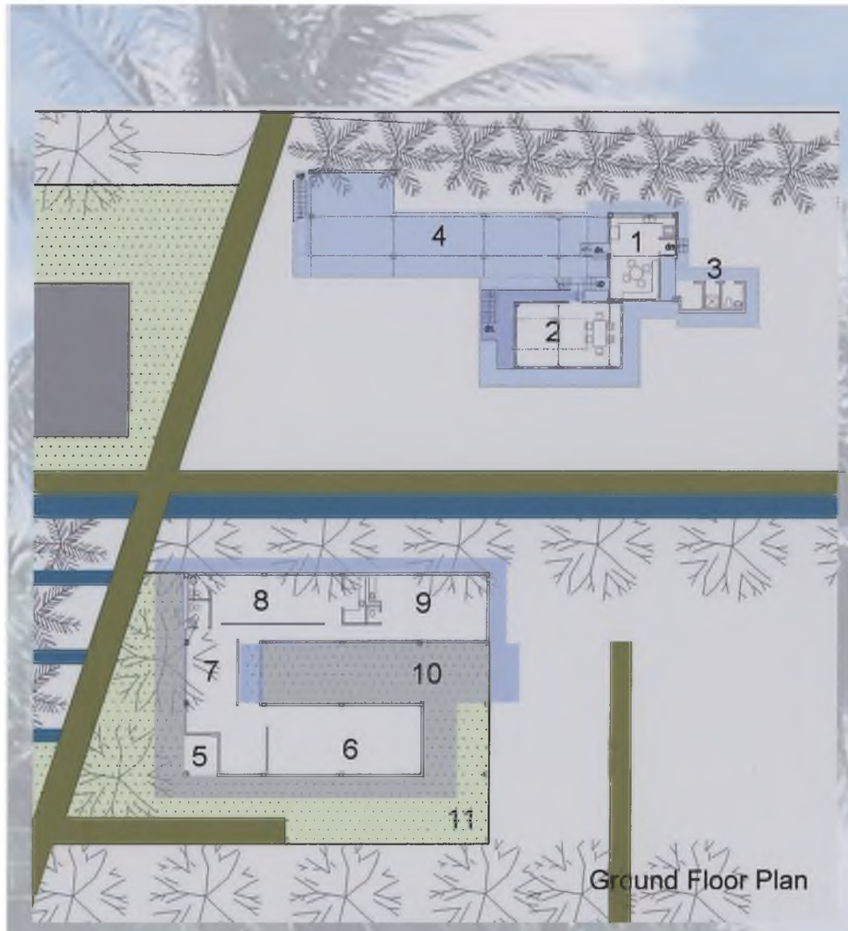
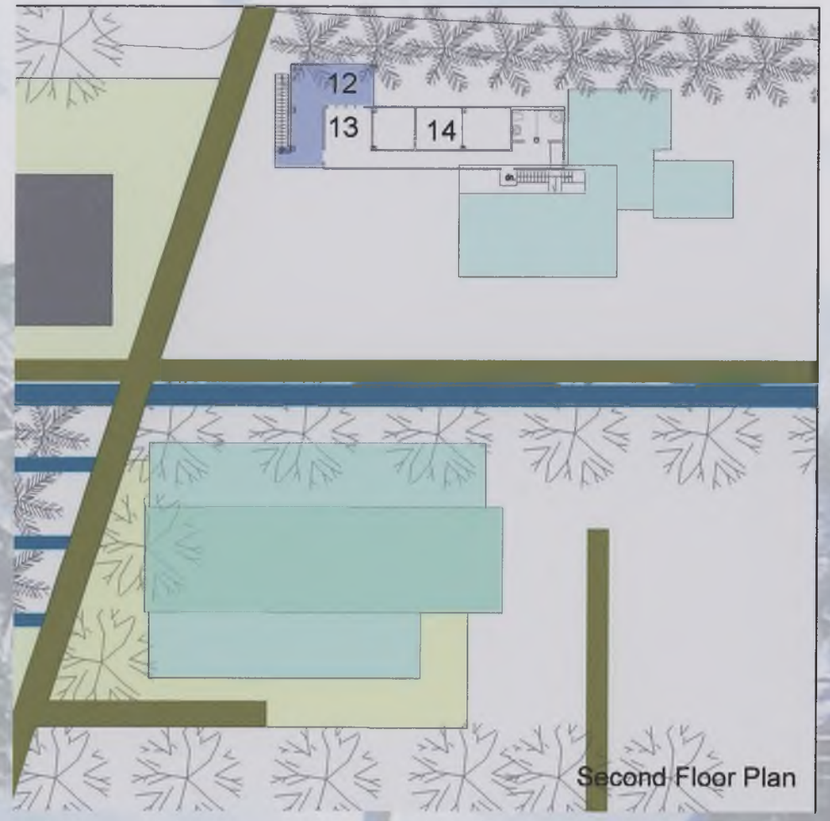


Figure 46: Site Model Photographs: A-Southwest Aerial Perspective, B-Northwest Corner and C-North Elevation



Ground Floor Plan



Second Floor Plan

Legend

1…Kitchen and informal dining
2…Formal dining and Living room
3…Washing area and rest room
4…Bottom-House Living Room
5…Main Entry
6…Infant Area
7…Staff Area
8…Toddler Area
9…Pre-schooler Area
10…Covered Courtyard
11…Open Courtyard
12…Verandah/Living Room
13…Family Room
14…Bedrooms

Figure 47: Ground and Second Level Plans of Daycare Center and Caretaker's Residence showing arrangement of spaces.

X. PHASE 01: LIBRARY AND INFORMATION TOWER DESIGN

The Library and Information Tower comprise the core of the program of the Women's Center. They are symbolic of improvement and development through knowledge. The design of the Library/ Information Tower interprets the tropical design strategies derived by research and analysis as well as cultural adaptations--such as the spaces below elevated homes used as living spaces—to create a unique local Guyanese architecture. For example, the villagers exhibit a propensity to spend as much time as possible outdoors in shaded areas; the Library and Information Tower reflects this practice with the use of covered verandahs, bottom-house social and reading spaces and shaded courtyards. Organization and structure of the Library/ Information Tower is accomplished by applying the recurring grid principle discovered in the existing village and used in the site planning (Figure 30). The meeting of these two grids creates social spaces in the form of verandahs and courtyards (Figure 49).

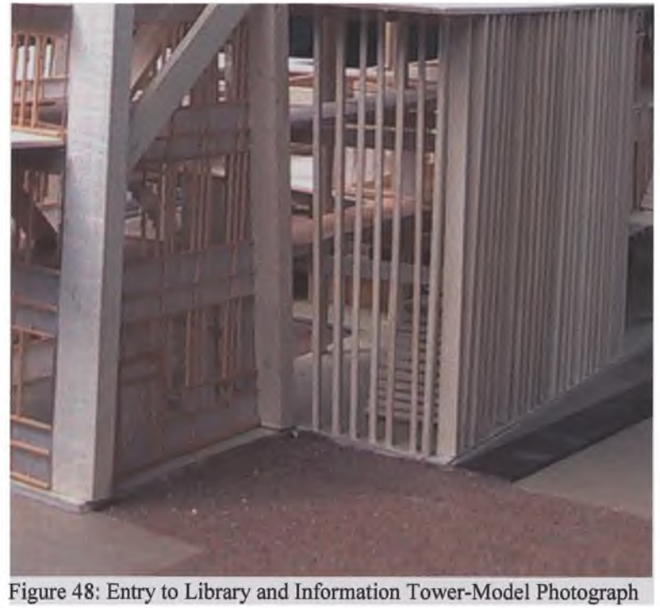


Figure 48: Entry to Library and Information Tower-Model Photograph

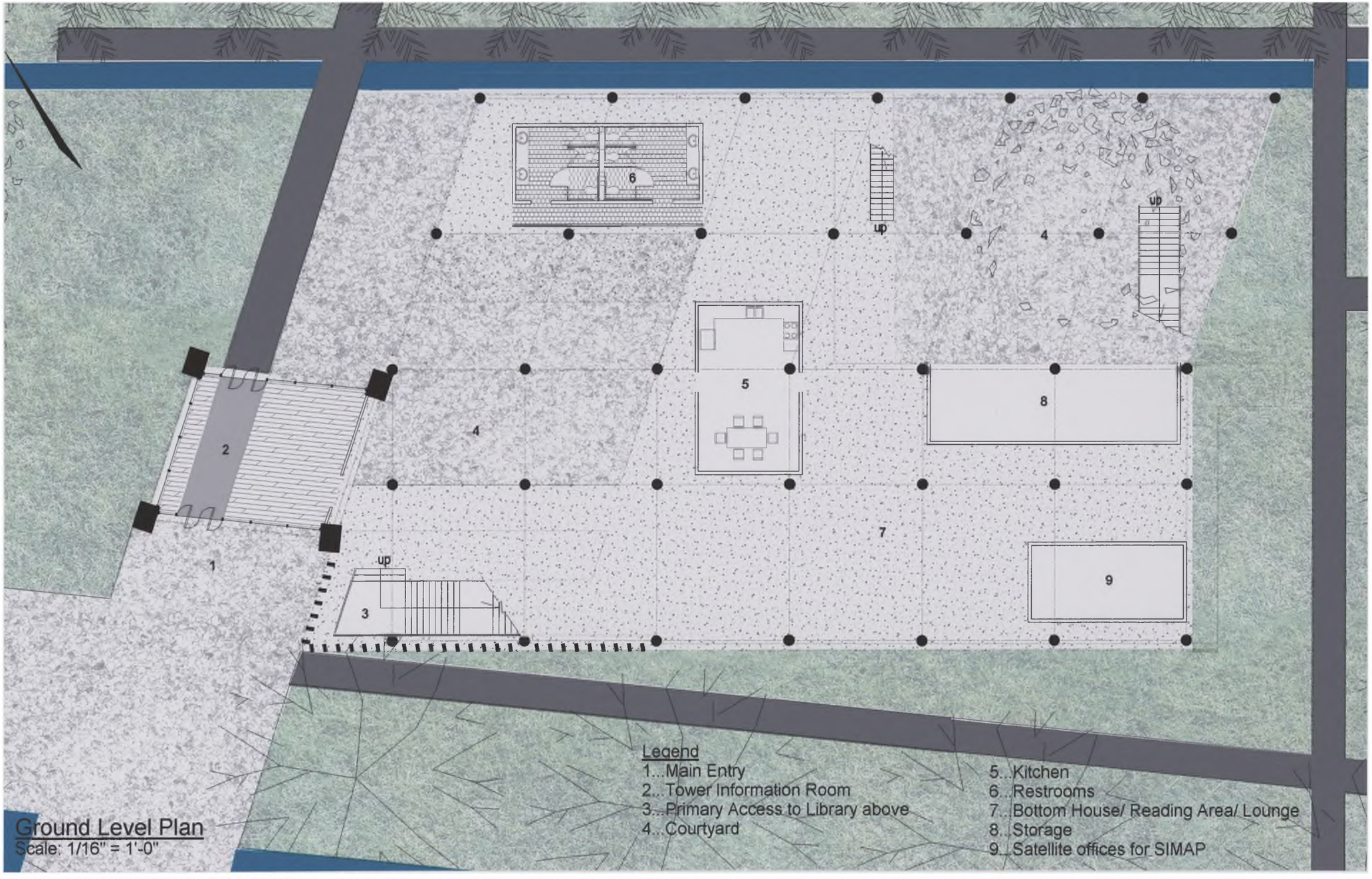


Figure 49: Plan 01 showing entry and main programmatic spaces.

LIBRARY AND INFORMATION TOWER: PERSPECTIVE VIEW

Figure 50: Perspective View of Southwest Courtyard space—Model photograph.

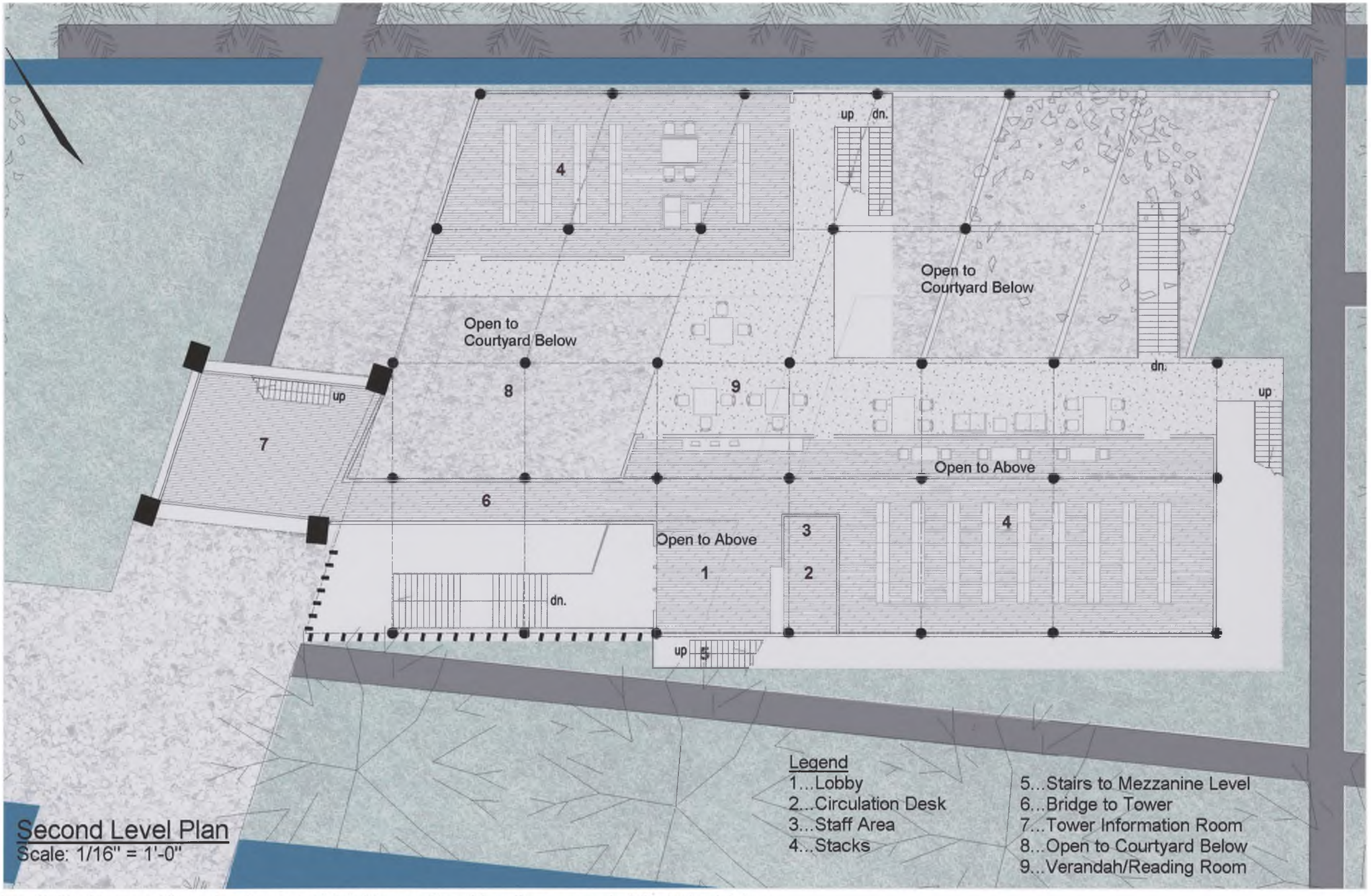


Figure 51: Plan 02-entry to Library via stairs open to triple height space. Verandah reading rooms overlook the courtyards below.

LIBRARY AND INFORMATION TOWER: PERSPECTIVE VIEW

Figure 52: Perspective View of Northeast Courtyard-Model Photograph

LIBRARY AND INFORMATION TOWER: PLAN

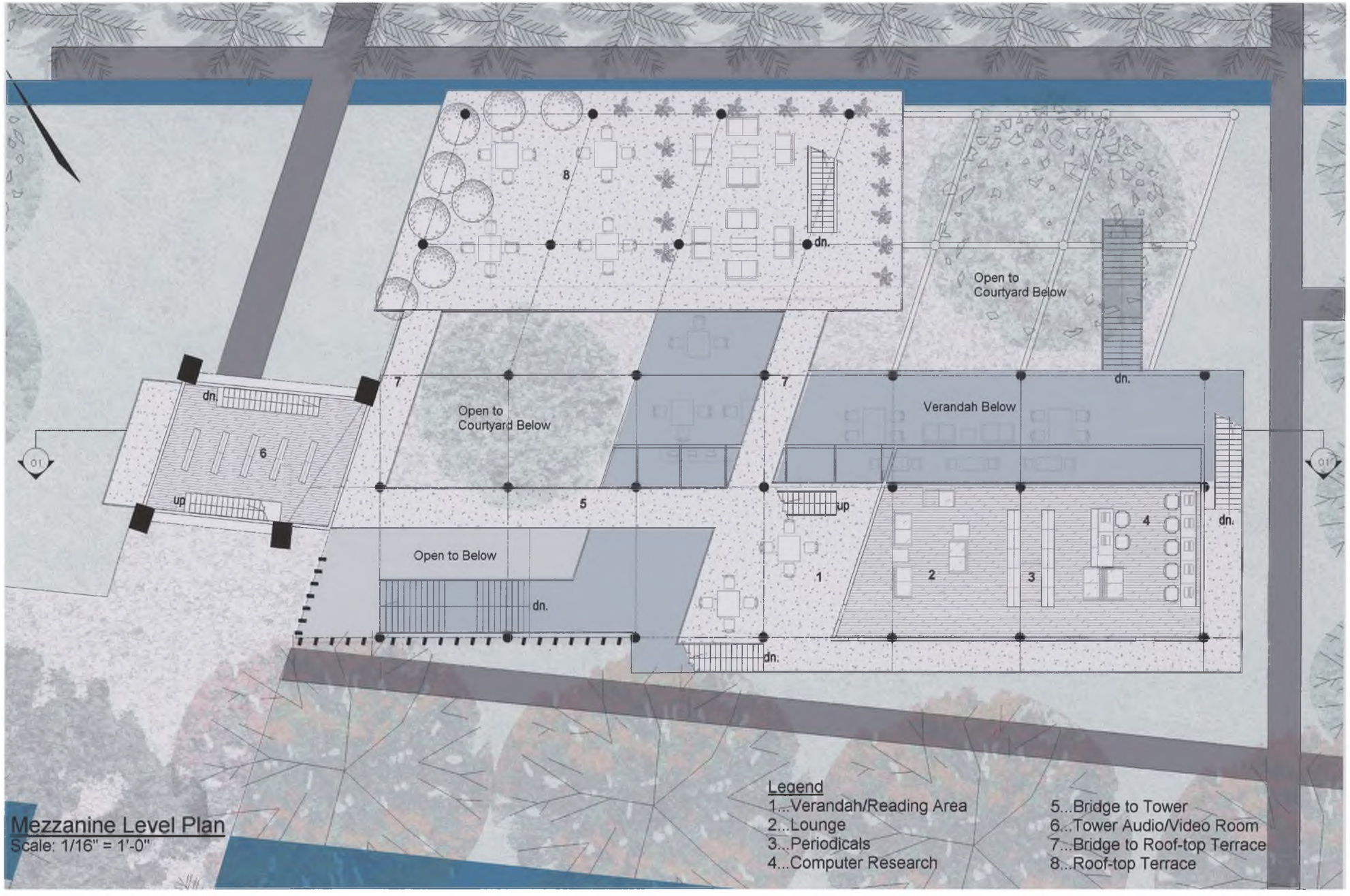


Figure 53: Plan 03 showing computer research area and roof-top terrace and verandah reading space and lounge.

LIBRARY AND INFORMATION TOWER: PERSPECTIVE VIEW

Figure 54: Perspective View of Upper Roof Terrace, Mezzanine Verandah and Tower Bridge from lower Roof Terrace-Model Photograph

LIBRARY AND INFORMATION TOWER: SECTIONAL VIEW

Figure 55: Section 01-east-west section through Library and Tower. Landscaping and structure combine to produce a vertical layering effect.

LIBRARY AND INFORMATION TOWER: SOUTH ELEVATION

Figure 56: South Elevation showing Library and Tower in context with landscaping.

LIBRARY AND INFORMATION TOWER: NORTH ELEVATION

Figure 57: North Elevation—Night View, Model Photograph.

LIBRARY AND INFORMATION TOWER: MODEL PHOTOGRAPHS

Figure 58: A-West Elevation, B-Top Perspective View and C-Approach from the southeast

Figure 59: Diagram of Formal Derivation of Water Cistern. The typical existing water cistern in Ankerville is a metal or plastic cylindrical drum placed on a wooden or concrete structure. The Water Cistern for the Women's Center Tower derives its form based upon an analogy of the coconut fruit being a natural cistern. Coconut Palms play a vital role in the daily economic life of most villagers.

XI. CONCLUSION

Lewis Mumford said "...our task is not to imitate the past, [but] to understand it, so that we may face the opportunity of our own day and deal with it in a creative spirit."[16] The merging of multiple ethnicities into one cohesive, culture is a characteristic of many Caribbean nations. As the study of Guyana shows, their cultural habitus is a synthesis of beliefs and behaviors with the demands of a hot-humid climate. The architectural vernacular, which defines, allows and supports this culture was evolved from Guyanese habitus and has become an element of the identity of the Guyanese people. By understanding ways in which architecture facilitates cultural activities and identity, contemporary interpretations can bridge the space between global influence and regional character, thereby permitting Guyanese to sustain critical aspects of their lifestyle while moving into the world of contemporary design. This thesis demonstrates that the bottom-house and verandah spaces which dominate social behavior and local domestic architecture can be reinterpreted to create larger public spaces. The design of the Women's Center adapts and reinterprets elements of the local cultural "habitus"—behaviors which identify the villagers of Ankerville—to create new and familiar spaces. For instance, the 'bottom-house' classrooms and reading areas, verandah lounges/reading rooms and shaded courtyards. The landscaped paths and water paths serve the multiple functions of irrigation, drainage and aesthetic presentation as well as reinforcement of the two grids found within the village. Contemporary design principles which define roof and structure can be successfully applied to the unique cultural and climatic conditions of a rural Guyanese village. The Library/ Information Tower design reflects this concept in its structural system by using this strategy to create shaded courtyards which have the potential to later serve as the structural base for future expansions to the library. The Women's Center symbolically extends the perpetual awareness of water within the village. Besides the practical applications of drainage, irrigation and storage present throughout the village, water is now used to create a new identity in the form of the water cistern which crowns the Information Tower. Water is also given definite form for the first time in Ankerville, as recreation and for contemplation in the pool and flood plain. These applications of water elevate it from being strictly utilitarian to a new symbolic aesthetic. "Only if we recognize our tradition as a heritage that is continually evolving will we be able to find balance between regional and international identities."[17]

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[16] Tzonis, Tropical Architecture, 24.

[17] Tan Hock Beng, Modernizing Appropriations/Appropriating Modernity, Tropical Architecture: Critical Regionalism in the Age of Globalism, Alexander Tzonis, et al, editors.) Wiley-Academy, Great Britain, 2001) 101.

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