# TOWARDS AN APPROPRIATE DESIGN FOR THE NATIONAL HOUSE OF CHIEFS (GHANA); AN ECLECTIC APPROACH.

By

Balaara Allan Stephen (BSc. Architecture)



**A Thesis submitted to the Department of Architecture,**

**Kwame Nkrumah University of Science and Technology**

In partial fulfilment of the requirements for the degree of

**MASTER OF ARCHITECTURE (M.Arch)**

College of Architecture and Planning

June, 2011.

## DECLARATION

I hereby declare that this submission is my own work towards the award of a Master of Architecture degree and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

Balaara Allan Stephen ..... 09/10/12

(PG3254009) Signature Date

*Certified by:*

Prof George W.K. Intsiful ..... 26/11/12

(Supervisor) Signature Date

*Certified by:*

Prof George W.K. Intsiful .....

(Head, Department of Architecture) Signature Date

## DEDICATION

To the ever merciful God, I dedicate this piece of work for his love, guidance, protection, and grace in these times of trials and tribulations. He has really shown me, with him, all is possible.

**ACKNOWLEDGEMENTS**

My greatest thanks go to the Almighty God for my life and for being my strength each day.

I wholly express my sincere gratitude to my supervisor, Prof. Dr. G.W.K Intsiful for his constructive criticism, direction and selfless contributions throughout the entire project.

I am indebted to my parents, Mr. and Mrs. Balaara, and all who encouraged me to greater heights in education.

I also acknowledge the immerse assistance of all whose contributions helped in the successful compilation and completion of this work especially Mr. Tackie (Registrar-NHC), Arc. Darko (PWD-Kumasi).

My sincere gratitude also goes to architects Sylvestre Dery (NWCL-Wa) and Arc Kofi Owusu. You have all contributed immensely not only towards this project, but also my entire academic and professional life.

A special dedication also goes to my siblings, Augustine and Tina for your love, words of encouragement and motivation.

**ABSTRACT**

Ghana is a culturally diverse society with rich history just like all other countries on the African continent and provides any historian, especially the one who enjoys the art, culture and architecture, an opportunity to study a history that celebrates every facet of sociological, economical, environmental and infrastructural livelihood of the African (Mckissack, 2000).

The Chieftaincy Institution in Ghana in like manner, is characterised by varied architectural developments. A survey of traditional palaces in Ghana reflects this diversity in great deal. The Wa Naa's Palace is the Nakore mosque (which was the first to be built) reproduced on a bigger and larger scale and reflecting Islamic Architecture. The Yaa Naa's Palace reflects indigenous Ghanaian Architecture and the Manhyia Palace especially with the new developments reflects a combination of contemporary and classical architecture (eclectic).

The challenge therefore in designing the proposed National House of Chiefs (for all Chiefs in Ghana) is to integrate our diverse architectural experiences and hence the adoption of eclecticism as the design approach. Eclecticism has been regarded as a true reflection of African Architecture and it is in this vein that Elleh (1996) defines African Architecture as a 'Triple Heritage of Indigenous, Western and Islamic architectural Influences.

The proposed scheme sets out to achieve the following aims. A state of the art facility that exhibits our diverse culture and Architecture. A sustainable community employing adequate natural ventilation system thereby reducing the thermal load and consequently the energy needs of the facility.

It would be carried out by reviewing some traditional buildings to determine the design considerations and lessons to incorporate in the design of the proposed scheme. The scope includes an Administration, arbitration centre and an art and craft centre.

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# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 OVERVIEW OF THE NATIONAL HOUSE OF CHIEFS.

The institution of chieftaincy dates back to pre colonial times and has been the main channel through which colonial governments sought to govern in what came to be known as the 'indirect rule'. Chiefs were duly represented at national levels. Particularly the Fourth Republican Constitution (article 271, clause 1) said 'There shall be a National House of Chiefs' to handle all issues regarding chieftaincy. 'The House of Chiefs of each region shall elect as members of the National House of Chiefs, five paramount chiefs from the region' (article 271, clause 2). 'Where in a region there are fewer than five paramount chiefs, the House of Chiefs of the region shall elect such number of divisional chiefs as shall make up the required representation of chiefs for the region' (article 271, clause 3). Basically the National House of Chiefs is a traditional parliament or a place where Ghanaian chiefs or traditional rulers meet to review customs and customary practices.

'The National House of Chiefs shall advise any person or authority charged with any responsibility under this Constitution or any other law for any matter relating to or affecting chieftaincy. It would also carryout 'the progressive study, interpretation and codification of customary law with a view to evolving, in appropriate cases, a unified system of rules of customary law, and compiling the customary laws and lines of succession applicable to each stool or skin'. It further mandated to 'undertake an evaluation of traditional customs and usages with a view to eliminating those customs and usages that are outmoded and socially harmful and

perform such other functions, not being inconsistent with any function assigned to the House of Chiefs of a region, as Parliament may refer to it' (article 272).

The NHC has 'appellate jurisdiction in any cause or matter affecting chieftaincy which have been determined by the Regional House of Chiefs in a region, from which appellate jurisdiction there shall be an appeal to the Supreme Court, with the leave of the National House of Chiefs or the Supreme Court and the appellate jurisdiction of the National House of Chiefs shall be exercised by a Judicial Committee of the National House of Chiefs consisting of five persons appointed by that House from among its members (article 272 clause, 1,2).

The administrative structure consists of the Chamber of Chiefs which is chaired and co-chaired by the President and Vice President of the House respectively. The Registrar and his staff who are civil servants carry out the day to day operations on behalf of the House and a 'Judicial Committee assisted by a lawyer of not less than ten years' standing appointed by the National House of Chiefs on the recommendation of the Attorney-General' (article 273, clause3). Additionally Committees of Chiefs are formed to preside over pressing issues such as education and chieftaincy disputes (Committee of Eminent Chiefs). The administrative structure is as indicated in Figure 1.1 below,

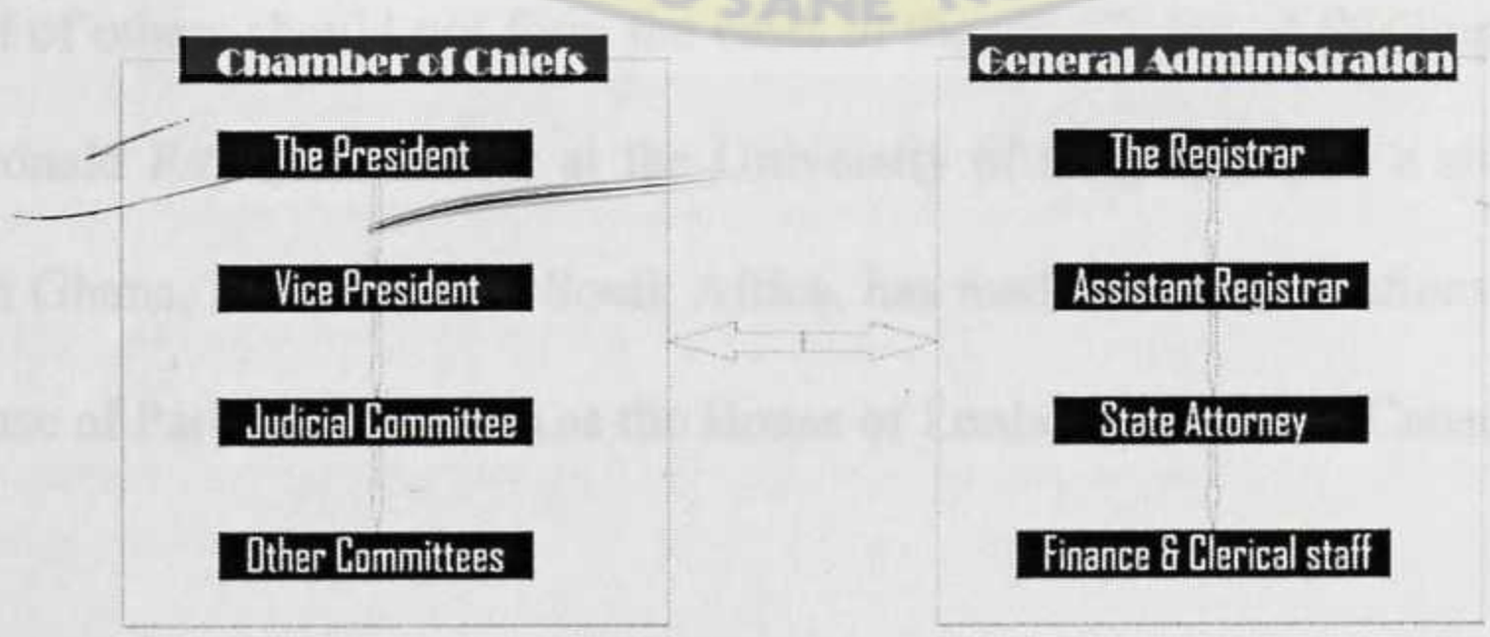



Figure 1.1, *Administrative structure of the National House of Chiefs.*

## 1.1.0 RELEVANCE OF THE CHIEFTAINCY INSTITUTION.

The institution of chieftaincy is still relevant today in governance despite the rise of elected government leaders, bureaucracies and other apparatus of post colonial Ghana. The direct and indirect association of politicians or governments to chieftaincy disputes in Ghana requires a strong traditional authority mandated to resolve all such disputes without direct Government interference.

Similarly, the deliberate attempt by some Chiefs to sabotage governments' development agenda due to a lack of recognition and involvement in the development process requires greater cooperation between Governments and Chiefs. Increasingly, Chiefs are gradually engaged in addressing developmental issues peculiar to the nation and outside of their traditional roles of 'settlement of disputes.' For example, the Educational Fund to support needy but brilliant students initiated by the Asantehene; Otumfuo Osei Tutu II and the campaign on environmental sanitation by the Okyehene; Nana Amoatia Ofori Panin.

It is worth mentioning that contrary to the suggestion by some sections of the Ghanaian society that, the chieftaincy institution is a necessary evil; it is a blessing because of the numerous contributions chiefs are making to national development. The non-performance of some Chiefs and the greed of others should not form the basis of the crucifixion of this important Institution. Indeed Dr Donald Ray (a Professor at the University of Calgary) upon a study conducted on chieftaincy in Ghana, Botswana and South Africa, has made recommendations to the effect that, a second House of Parliament known as the House of Lords be created in Canada.

## 1.2 PROBLEM STATEMENT

The present National House of Chiefs building at Manhyia is not befitting of an important institution such as the national traditional authority. The complex is jointly used by the NHC Secretariat and the Manhyia Fire Service. There is limited office and this is informed by the clients brief. The Judicial Council department only has a single office (for the counselor).

The chamber is just enough for fifty Chiefs and four observers and therefore accreditation is very limited compared to the hundreds who express interest to be accredited as observers. The same may be said of the Judicial Hall (12 sq m) which most times cannot accommodate the appalling numbers that sometimes are present at their sittings.

The complex has no research library, exhibition spaces, arts and craft section and there is little to say, see or experience from within and without, from activities to its operations.

## 1.3 JUSTIFICATION FOR THE PROPOSED NATIONAL HOUSE OF CHIEFS

The following findings support the need for proposed National House of Chiefs,

- It has been in the pipeline for quite some time but has not been realized due to lack of funding. However with Government's promise of an expanded budgetary allocation and financial commitment the project is bound to kick off in 2011. The Accra Daily Mail in its 29/11/10 edition reports that the Ghana Government has allocated three (3) billion Ghana cedi to the Secretariat for the construction of an office block.
- Despite the steady growth of democracy on African soil, Chiefs still wield a lot of power among their people. The provision of such a facility to celebrate the many centuries of this important institution that defines our heritage as people is not a privilege but a right.

- The extreme politicization of chieftaincy disputes requires such a facility to handle all such disputes devoid of political interference. The essence is to create Chieftaincy Courts outside of normal Court proceedings to try cases when mediation fails.
- The provision of such a complex would help promote and project our culture locally and internationally. The benefits are enormous; a lot of revenue would be generated in the process from tourists who visit the complex to experience Ghanaian culture.
- The role of chiefs in the decentralization policy of the Government cannot be underestimated. With such a facility the contributions of chiefs to the process would further be elevated.

## 1.4 LOCATION AND JUSTIFICATION

The proposed National House of Chiefs would be located in Kumasi which currently houses the Secretariat. Specifically it would be located at Asenua; along the Kumasi Mamponteng road. It is within twenty minute drive from the Kumasi Central Market. This site was allocated to the NHC by the late Asantehene Otumfuo Opoku Ware II for development in 1983. An amount of ¢60,000 was paid as compensation.

The choice of Kumasi is for various reasons namely, Kumasi abounds in rich history and culture throughout its large Kingdom. It is also central to both the Northern and Southern sectors of Ghana. Besides its traditional political stability is one worthy of emulation.

## 1.5 OBJECTIVES

The primary objective of the scheme is two namely,

a) To establish the relationship between eclectic architecture on one hand and the design of the National House of Chiefs and

b) Based on the above design a state-of-the-art facility:

- that exhibits our diverse culture, art and craft by adopting an eclectic design approach;
- for deliberations by chiefs on issues of national relevance;
- that serves as research grounds providing documentary evidence of our culture and architectural growth;
- to be used as a centre of conflict resolutions on issues relating to chieftaincy;
- to embody in the complex in abstract representations, our cultural diversity, thereby enhancing the bond of unity, understanding and ethnic coherence amongst all the tribes of Ghana;
- that is sustainable, achieves adequate natural ventilation systems thereby reducing the thermal/ energy requirements of the facility and;
- to investigate the development trends of Chieftaincy Institution and its impact on the design.

## 1.6 METHODOLOGY

The mixed methods employing both qualitative and quantitative research strategy would be employed. The qualitative research methods of Case Studies and historical reviews would be used. The Case study strategy would lead me to evaluating the rational for the choice of particular design style or styles, material selection and functional relationship, which can be

incorporated in the proposed scheme. This would be carried out through interviews, photographic recordings, and personal observations. Historic review would involve documentation of the diverse architecture growth and development in Ghana in general and the Chieftaincy Institution in particular to further reinforce the eclectic dimension of our Architecture. It would involve review of journals, photographic recordings and Interviews. It would also engage quantitative methods in measuring the percentage of respondents in support of the adoption of either, vernacular architecture, Western architecture, Islamic or a combination of all or some in the design of the proposed National House of Chiefs.

## 1.7 RESEARCH LIMITATIONS

A major setback in this research is the non-availability of architectural drawings for facilities to be reviewed. This implies all pictorial evidence would be documented by me. Secondly do the scope of the scheme a limited cases but reflective of the whole would be evaluated and would form the basis for the design. Hopefully further research on eclecticism in architectural design in Ghana would enhance this research direction.

## 1.8 SCOPE

The overall design would have the following,

- Administration (offices, seminar rooms, the chamber etc)
- Arbitration centre (court rooms, offices)
- Art and craft centre (cafeteria, exhibitions, sales outlet)
- Mini durbar grounds
- Car park (Visitors, Staff and chiefs).

## 1.9 FUNDING

The project would be financed jointly by the Government of Ghana and international collaborators such the World Bank and UNESCO (Accra Daily Mail, 29/11/10).

## 1.10 CLIENT'S BRIEF

The National House of Chiefs Secretariat intended to have a state of the art complex with the following facilities,



- Arbitration centre
- Offices for stakeholders
- Art and Craft
- Exhibition halls
- Chamber
- Cafeteria
- Seminar rooms

# CHAPTER TWO

## 2.0 LITERATURE REVIEW

### 2.1 INTRODUCTION

The previous section provided some useful information on the subject by outlining the background, significance, purpose and research methods. The literature that follows outlines eclecticism as a design method or approach. It would also seek to establish the diversity in Ghanaian architecture by documenting the transmutation from indigenous, Islamic and to western architecture. It would consider African architecture in a broader sense and narrow down to Ghanaian architecture.

### 2.2 ECLECTICISM AS A DESIGN METHODOLOGY.

The term "eclectic" as applied to design indicates the use or combination of a variety of styles from different eras or perhaps origins. It describes the combination in a single work of elements from different historical styles, chiefly in architecture and, by implication, in the fine and decorative arts (Eaton, 1975).

It was first recorded to have been practiced by a group of ancient Greek and Roman philosophers who attached themselves to no real system, but selected from existing philosophical beliefs and doctrines that seemed ~~most~~ reasonable to them. Out of this collected material they constructed their new system of philosophy. The term comes from the Greek "ἐκλεκτικός" (*eklektikos*), literally "choosing the best" and that from "ἐκλεκτός" (*eklektos*), "picked out, select"(Liddell & Scott, Perseus digital library).

The term is sometimes also loosely applied to the general stylistic variety of 19th century architecture after Neo-classicism in 1820, although the revivals of styles in that period have, since the 1970s, generally been referred to as aspects of historicism. The lack of guidelines on past styles created a general sense of architectural freedom, which enabled architects to toy with fanciful ideas outside of strict historical interpretation to create completely unique buildings. Often this involved re-interpreting a historical style and adding a completely new spin. As a result, many Eclectic buildings have become important landmarks (Eaton, 1975).



It was during the 19th century that the eclectic took shape in architecture, one that manifested out of the emergence of revival or historicist movements in Britain. Eclecticism simultaneously forwarded the Gothic revival headed by Welby N. Pugin, the Neo-Greco, French Second Empire, Romanesque and Renaissance Revivals, Jacobethean, Queen Anne, and Italianate among others. It was even more extensively and enthusiastically embraced in the United States during the latter half of the 19th century and early 20th century when Victorian variations on these historic styles included Carpenter Gothic, Richardsonian Romanesque, Shingle, Stick-Eastlake, and Mansardic or "General Grant", among others. Eclectic architecture also permeated aesthetics in Australia in the late 1900s and early 20th century (Mignot, 1994).

It was generally applied to exteriors whether it is domestic, commercial or ecclesiastic but could also be applied to interiors. It is today being applied to interiors using elements from a variety of styles or aesthetic groups, i.e., French country, modern, retro styles American Southwest, or several dozen other styles. Such attempts must however strive towards a cohesiveness and balance when incorporating multifarious aesthetics and this can be done in many ways, like for example through color, motif, materials, textures and shapes. It is an instance when a designer

may have more freedom in choosing elements to include in a space yet must pay close attention as to how each element connects to the whole and other pieces and this requires thought, creativity and attention to detail (Mignot, 1994).

## 2.3 MEANING OF ECLECTICISM IN THE MODERN ERA.

The design method of Eclecticism honed during the Victorian Era is in fact a natural reflection of modernism or post modernism (Mignot, 1994). The 19th and 20th centuries in the West, unto an era of the post-modern, were years of profound technological advances, exploration and discovery culminating in globalism, prosperity, and literacy. First, the general public of whom, were part of a growing middle class had for the first time access to products that were previously out of their economic reach. Also with industrialization, the advent of machine processes and cheaper production and innovation – like that of plywood and cast iron - meant that that many people could afford to buy decorative elements. Second, exploration and colonization of far-off places like Asia and Africa meant the importation of exotic architecture and products, many of which could be used in decoration and design. Furthermore, the introduction of the railroad and steamships allowed many to travel across the country or abroad to view the world for themselves, and reading about these distant lands in widely published books, newspapers and magazines whetted their appetite for alien aesthetics. The printed world also familiarized people with the wide variety of historic styles in use – the Beaux Arts style or Louis XIV revival in France could be well understood in Chicago (Mignot, 1994).

Eclecticism was not a definition of a specific aesthetic but a description of a sensibility towards design that borrowed from historic example and chose from them or integrated them *eclectically*. The innovation of Eclecticism is that it allowed for choice based in individual taste, necessity

and inclination. This in itself represented a society freer than before, with more wealth distribution, from the restraint of class and aesthetic exclusion (Mignot, 1994).

## 2.4 ECLECTIC DESIGN; A CASE STUDY OF MILDER'S HOUSE (SANTA FE)

Located in rugged and uninterrupted terrain, Milder House, designed by Signer Harris Architects with Wood, Metal and Concrete Architecture, is nestled into 125 acres of the Galisteo Basin, 15 miles southwest of Santa Fe, NM and with many restrictions.

With a spirit of adventure, they reframed the site's restrictions as opportunities to live in connection with nature, and they found an ally in Signer Harris Architects of Boston, which developed a design environmentally and aesthetically suited to their unique site. "Although we could have found an architect based in Santa Fe, it was important to us to collaborate with someone connected to our lifestyle in Boston," notes J.J. Milder, "and who could help us translate and apply it to life in Santa Fe." Below is the layout of the floor plan.

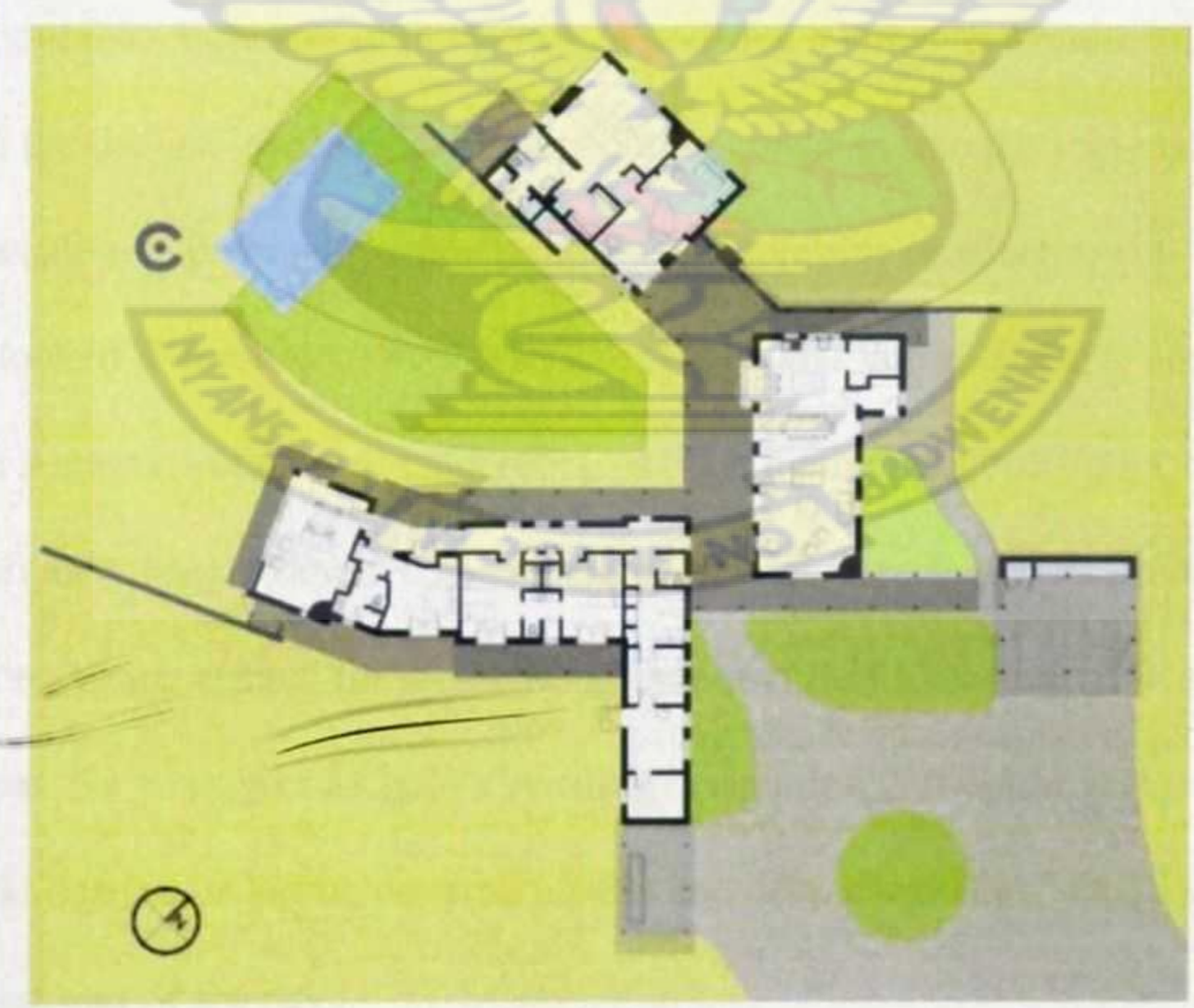


Figure 2.1, *Floor plan of Milder House (Signer Harris Architects, 2007).*

The architectural character of the house draws on local building forms and traditions, while its design cultivates a deep connection with the land. Signer Harris Architects' plan distributes program spaces in three separate volumes. The assemblage of buildings works within the Adobe vocabulary, but each volume becomes progressively more contemporary in its form and detailing. This strategy produces a house that seems to have grown over time and is sympathetic to the historic context and climate. The arrangement of the volumes relative to the site defines a three-sided interior courtyard; the fourth side is the distant Cerrillos Hills, a move that extends the Milder's backyard to the horizon. The volumes are linked by portals, covered walkways borrowed from the Territorial Revival style, which line the courtyard (figure 2.2, page 14). The decision to separate the buildings – requiring the family to walk outside to move from public to private spaces – nods to traditional typologies of the American Indian in the southwest and enables the homeowners to experience physically and regularly the land, climate and views from the partial and mutable enclosure of the portal. WoodMetalConcrete Architecture, collaborators and detailers of the design, were critical in translating concepts into the regional vernacular. Conventional wisdom and contemporary technologies combine on this project.

The architects looked to traditional methods, like Adobe and Rammed Earth construction, as well as modern Aerated Autoclaved Concrete (AAC), a lightweight and easily installed precast material, to craft an energy efficient building envelope. All three materials possess a high thermal insulating value, critical for maintaining indoor comfort year round while conserving energy. Other passive strategies include a building orientation that optimizes natural ventilation and ~~arch~~itectural details, including covered portals and deep overhangs, which shade the building during the hottest part of the day.

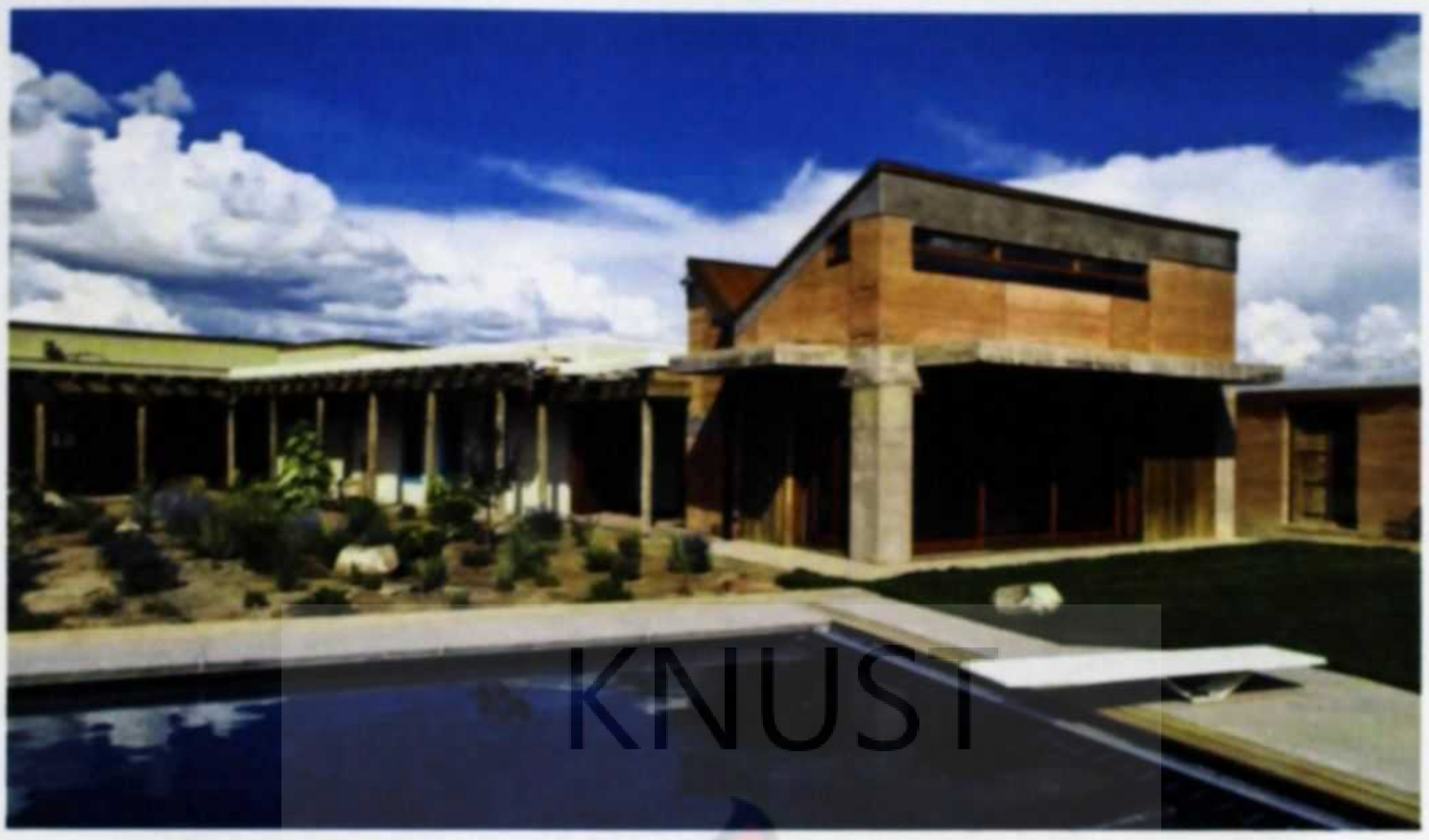



Figure 2.2, *View of Courtyard which is connected with covered walkways (Signer Harris Architects, 2007).*

The Milder's frontier spirit and can-do attitude is evident not only in the design and implementation, but also in original details apparent throughout the finished construction. Acting as their own general contractor, they are responsible for design features that enhance the house's character and deepen its connection to the family, their interests and values. The ornate gates which identify the entrance to the courtyard arrived from India and foreshadow the eclectic mix of southwest style shot with Asian influences found throughout the house (Figure 2.3, page 15). Their eye for the unexpected is also apparent in storage cabinets that line the car park - made from wood palettes salvaged once building materials were unloaded – which further exemplify their commitment to conservation. Galisteo Basin Preserve provided open spaces, striking vistas and the obstacle of life off the grid, opportunities which inspired the homeowners. Signer Harris Architects and WoodMetalConcrete Architecture subscribed to the vision and assisted the

Milders in converting the ideas into beautiful and functional spaces. As craftsman/ builders, the Milder's participation in the construction effort was instrumental in developing a structure reminiscent of local and contemporary traditions tailored precisely to its inhabitants.


Figure 2.3, *Ornate gates which defines entry to courtyard (Signer Harris Architects, 2007).*

## 2.5 BRIEF OVERVIEW OF AFRICAN ARCHITECTURE

An understanding of African architecture as is noted by Prussin requires specific examination of the physical, technological, socio-cultural and politico-economic environment which constitutes the concrete reality (Prussin, 1974). It is within the same framework that, Elleh (1996) describes African architecture in the context of traditional African architecture, Western and Islamic Architecture in Africa since each had specific cultural, technological, economic and political influences.



## 2.6 TRADITIONAL AFRICAN ARCHITECTURE

According to Elleh traditional African architecture is the first in the segment of African architecture. Traditional African architecture has roots that can be traced back thousands of years despite the fact that most of the historical events that shaped African building culture are not documented. African architecture consists of more than huts with grass roofs. It reaches back to the monuments of ancient times to the cities of the middle ages. Human settlements in Africa are as old as the history of the human species so long as the earliest known evidence in the world of human existence has been found in East and Northeast Africa (Elleh, 1996). Permanent settlements of full-time farmers became established in the valley of the Nile with their farming techniques adapted to the rivers annual flooding between 5000 B.C and 400 B.C (Shillington,1989).

Ancient Africans built their first homes after they left the caves of the Sahara and settled along the Nile valley where the fertile grounds allowed them to develop a booming agriculture. This shift to agricultural stability engineered by the desiccation of the Sahara influenced the development of art, architecture, astronomy, irrigation and ancient medicine. The first houses in

the Nile were very simple and impermanent and they supplied all the fundamentals of Egyptian architecture (Elleh, 1996).

According to Smith (1938) the early houses were primitive compared to the monumental architecture that developed later and consisted of the round hut, the hoop-roofed house and the rectangular house with either a Khekher or reed parapet. Smith (1938) further indicates that the need for religious temples and tombs arose after fundamental shelter had been met and that the first temples were shelters for the divinity. Figures 2.4 (page 18) shows the transition in ancient Egyptian built forms. The ancient built forms thus evolved from the tent to the circular and oval huts and rectangular houses before the eternal monuments (pyramids). This transition in built forms also represented a change in technology as is noted by smith (1938) when he writes 'the ancient Egyptians acknowledged this technological transition at Aniba in Nubia between 2250-1650 B.C

Several rural communities in Africa have house forms similar to those in ancient Egypt. It indicates that most of traditional African architecture has roots in Egyptian antiquity. Dubois (1896) gives a detailed description of buildings in Jenne, Mali and states that they are without doubt the works of descendants of ancient Egypt who migrated to a new settlement in the Sudan. Denver (1978) attributes this similarity in building patterns and techniques to ancient migrations around the Sudan and the Nile valley from the 2nd millennium B.C and that similarities have been found between the culture of the Yorubas in southwestern Nigeria and that of the ancient Egyptians as demonstrated figure 2.5 (page 19).

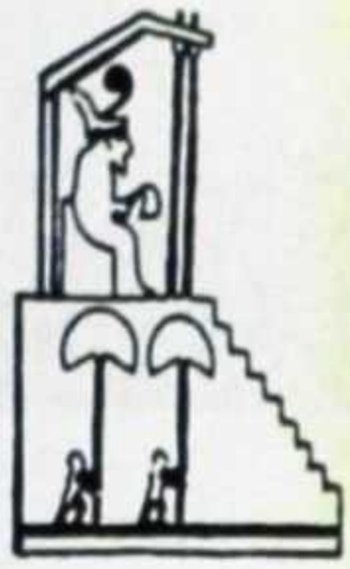
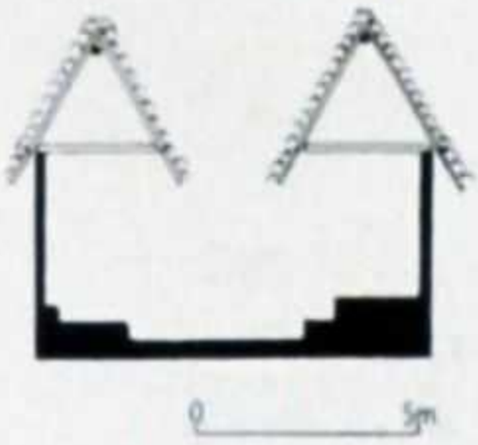


*Fig. 1.3 The tent is one of the earliest houses of Africa. King Menes (Narmer) sits on a royal chair on a raised platform. (D. Appleton Century Company Incorporated .)*



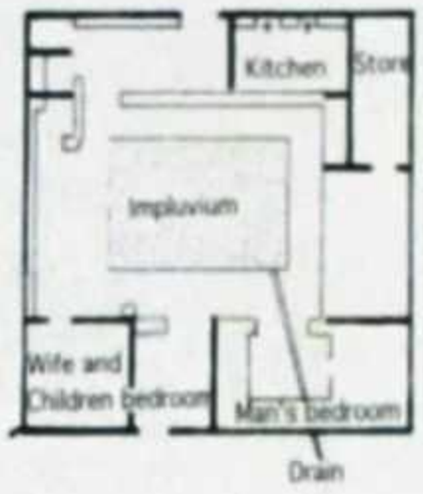




*Fig. 1.4 Impluvium house style in Africa (Igbo, Benin, Ashanti).*





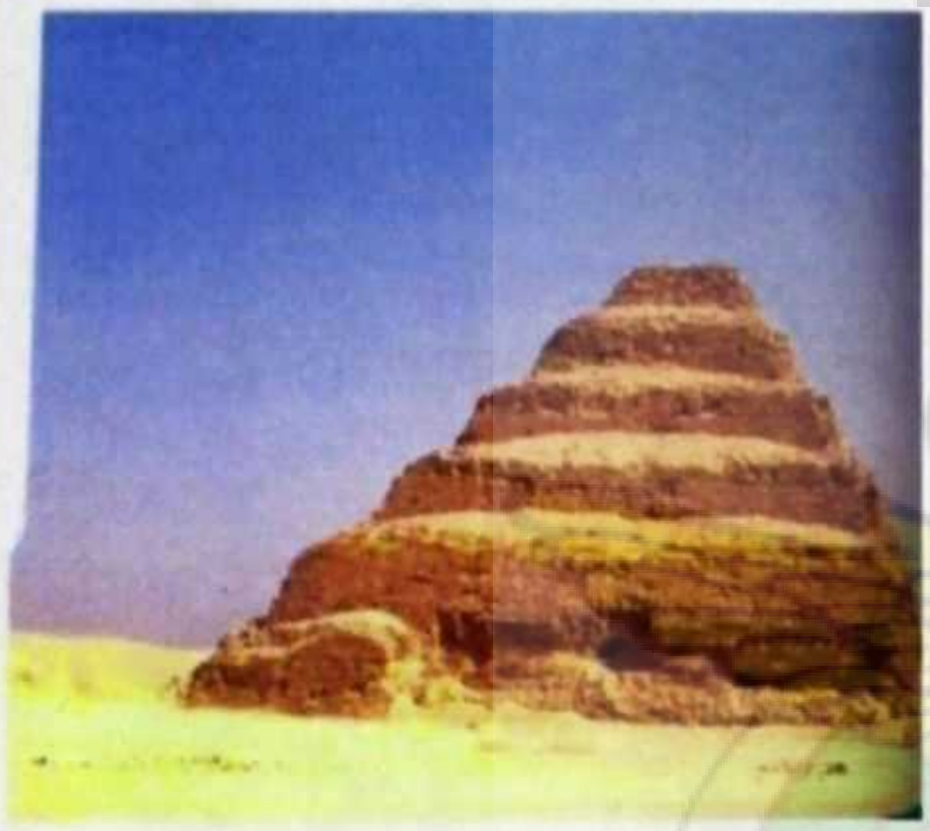


*Fig. 1.5 (Top) A reconstructed shrine of an Abyssinian king, Ethiopia. (Bottom) Shrine of Nabateng, Nabateng in Nilotic Sudan, which resembles but predates pharaonic Egypt.*

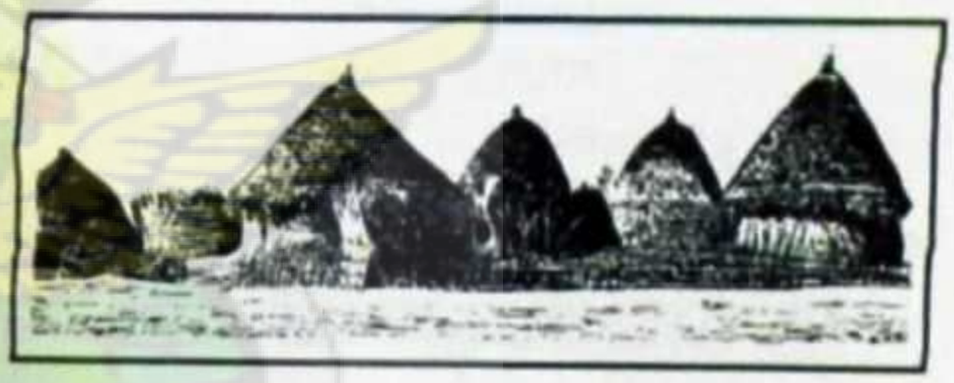
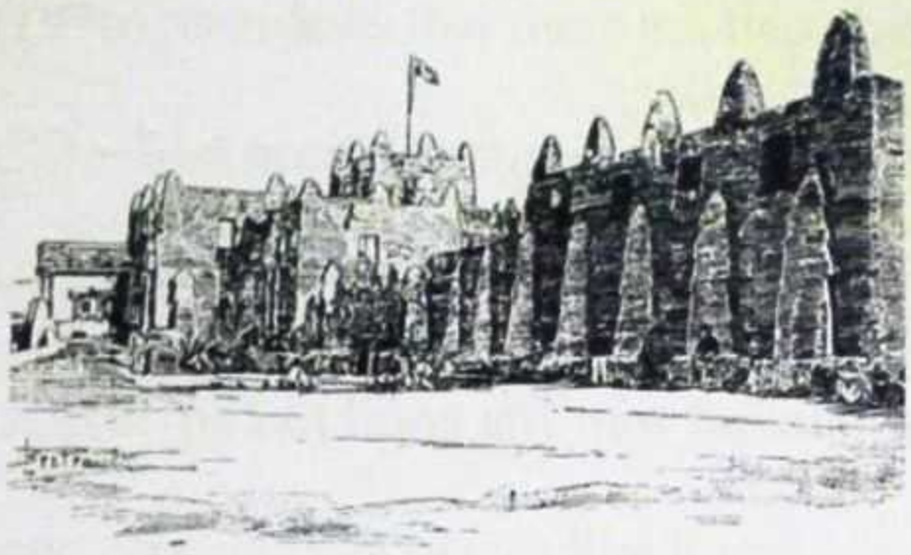


Figure 2.4, *Transition in Egyptian architecture (Elleh, 1996)*

Traditional African architecture does not end with the wonders of the Nile. It also includes the grand wonders in Ethiopia, the ruins of the citadel states of East Africa, the grand castles of Zimbabwe, the architecture of ancient cities of Benin, Timbuktu and medieval cities of empires such as Ghana. These are the realms of traditional African architecture and the first component of the triple heritage of African architecture (Elleh, 1996).



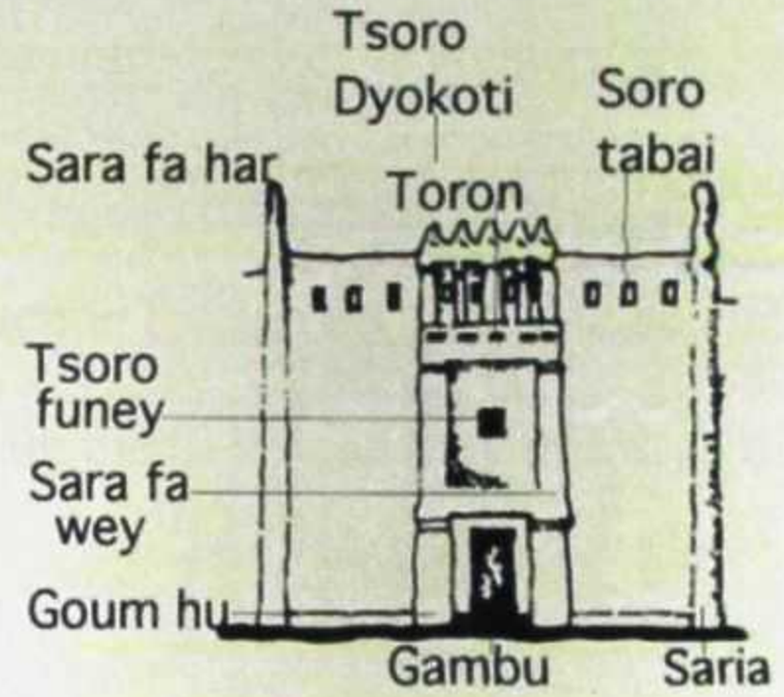



*Fig. 1.9 Mali. The facade of a Songhay house. (Labelle Prussin and University of California Press)*

***Fig. 1.8 Mali buildings similar to those in ancient Egypt. (Top) The ancie palace of Ahmadou at Segu transformed into a fort. (Middle and botto Houses at Jenne.** (Dubois, Greenwood Publishing, and Negro University Press)*


*Fig. 1.10 Zinder, Nigeria. Facade of a Hausa building showing features identical to Songhay buildings and ornamentation derived from other local mediums. (Labelle Prussin and University of California Press)*

Figure 2.5, *Similarities between architectures of different regions on the continent (Elleh, 1996)*

## 2.7 WESTERN ARCHITECTURE IN AFRICA

Elleh (1996) postulates that there are two phases of the introduction of Western architecture into Africa. The first occurred during the Roman conquest of North Africa, which constitutes the beginning of Western architecture in Africa. Subsequently foreign invaders and occupiers of North Africa did not bring any new building styles with them. Instead they followed the existing status quo especially in places like Egypt.

The second arrival of Western architecture began about the mid-14$^{th}$ century when the Arabs were the go betweens for supplying slaves to the southern European countries of Portugal and Spain. It is in this ancient trade links between Africa and Europe that explains the existence of Western colonial cities and building types in Africa. What began as a trading expedition would escalate to colonization centuries later resulting in the diffusion of a new form of architecture (Elleh, 1996).

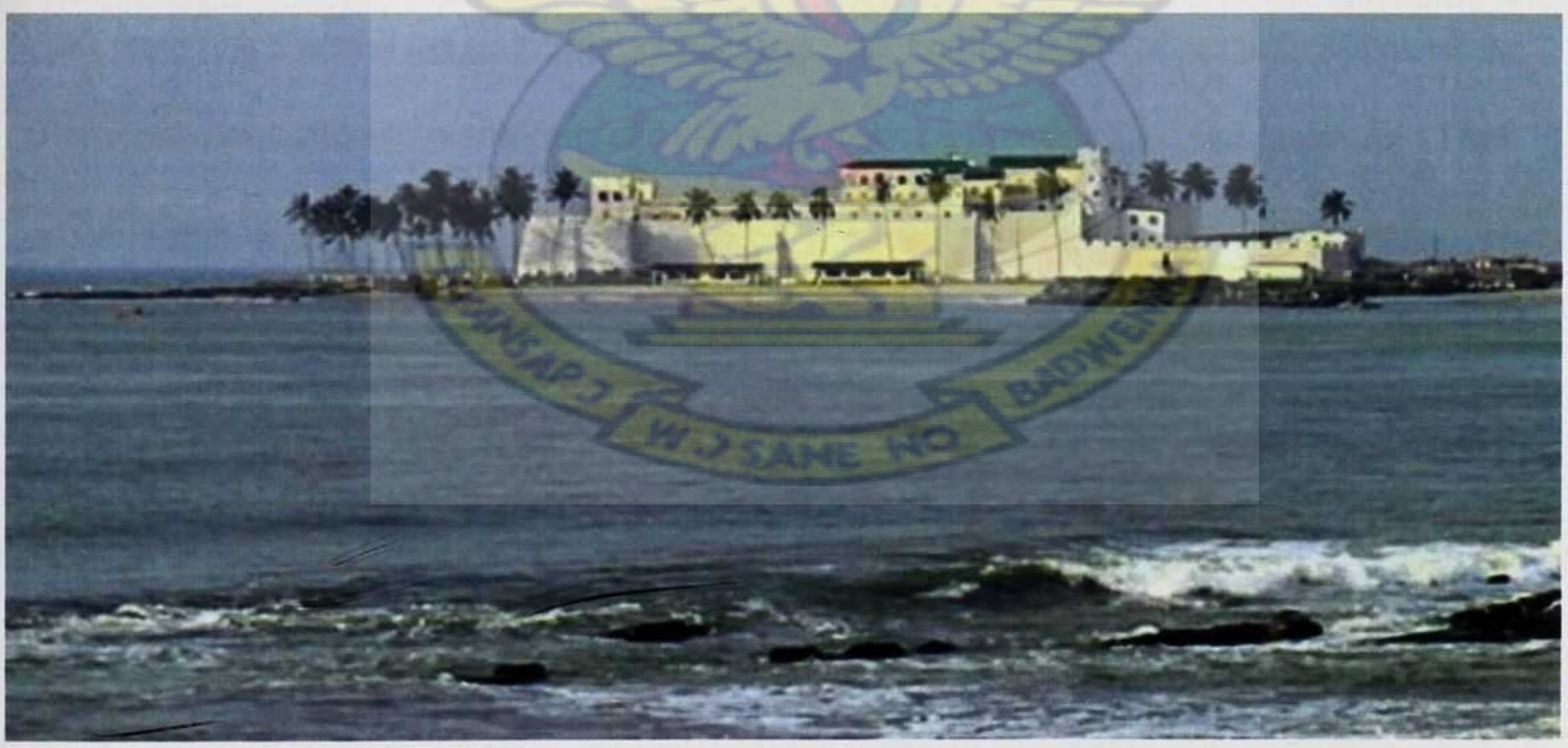


Figure 2.6, *The first fort built on the West African coast (Elmina Castle) (Encarta Encyclopedia, Liba Taylor)*

Colonial urbanization in Africa was the product of economic relations, social relations and cultural exchange (Elleh, 1996). Coquery-Virdrovitch (1991) says 'the earlier forms of colonial urbanization consisted of camps, forts, military settlements' which served as exchange centers and outposts of coercion and domination for larger economic objectives. Trade was opened up with modern Ghana and in 1482; a fort was built on the site of the later castle of Sao Jorge da Mina (Blake 1969) as indicated in the figure 2.3 (page 15). This 15th century fort became a standard for most of the European forts built in Africa afterwards. It had defensive walls, bastions that faced all directions, was armed with several cannons and above all primarily located for easy access to the sea. The Portuguese also built fort Axim in 1516 A.D.

The English imports to Africa cover a wide range that includes Gothic and Victorian styles, and English cottages. Elleh (1996), suggest the English legacy began with the age of exploration and the scramble for gold and continues to the age of colonization and independence (1600-1960), 360 years that changed the continents architecture. The English followed in the footsteps of the Portuguese by building several forts and castles namely, cape coast castle and James fort. Their architectural influences extended beyond castles and forts. They also built residences and schools to train their clerks. The residences were mostly prototype of Victorians designed for temporary accommodation

The influence of French architecture in Africa was felt when the fort of St James Island at the mouth of the Gambia and Senegal rivers was built. The French desired to recreate their home environments in their colonies. This desire was accomplished on a grand scale in major African cities planned by the French: Fez, Casablanca, Dakar, Cairo, and Abidjan. In the city plan they wanted to create an extension of Paris abroad and a greater France with great culture worthy of global emulation. Colonial urban planning became an outlet for the French to express themselves

and cure the ills plaguing major French cities especially Paris. It was in a way, an experiment for curing the problems of overcrowding, industrial pollution, prostitution and other social nuisances by testing them abroad before using them at home. Consequently the boulevards of Paris and their diagonal intersections were exported to the urban centers planned in Africa (Elleh, 1996).

The Dutch began their building program in Ghana with the construction of a lodge in 1642. The lodge was expanded to a fort later and named Ussher fort. It is one of the forts currently used by the Ghanaian government as a prison. The Dutch also built fort Senya Beraku which is used as a guest house today, fort Leydsaanheid which serves as a district police station and fort Amsterdam which was later bombarded by the French during the scramble for Africa. However the dominant influence of Dutch architecture in Africa is seen more in the introduction of the Victorian style houses built along the cape coast of South Africa (Elleh, 1996).

The Germans had only a brief colonial presence in Africa because its territories were taken over by the British and the French after World War II. The Germans built fort Fredrickburg in 1663 in Ghana which was taken by the Dutch and renamed fort Hollandia. They also built the largest of all European castles in Africa, the Christiansburg castle which until 1960 was the seat of colonial government. The Germans also left many monuments that remind everyone of their brief tenure in Cameroon, Togo, Namibia and Tanzania (Elleh, 1996).

Also upon the abolition of the slave trade, some freemen and women moved back to Africa bringing with them technical skills acquired from the west. Sierra Leone and Liberia being the largest recipient. Some of the returnees also settled in Lagos, Ibadan, Abidjan, Banjul, Dakar and all the major West African coastal cities. Those who came from Brazilian plantations built houses with skills and forms reminiscent of those they found in Brazil. Those who came from

Spain and Portugal brought the Spanish style; those who came from the Islands of Jamaica brought Creole styles while those from America brought the Victorian styles from Georgia (Elleh, 1996).

The aftermath of World War II by which time most African countries fought for independence, marked a new era of architecture in Africa. Elleh (1996) notes that the young emerging nations had no infrastructure, and 400 years of underdevelopment caught up with them. They had to build new capitals, new schools, and hospitals, but their traditional architecture had been neglected for those 400 years, and no skilled builders or craftspeople were trained by the colonizers before they left. A group of students from the colonized countries had gone to England and France to study architecture and other trades and later returned to rebuild their countries; however their professional training did not consider their background historically and architecturally significant. These architects were left to seek out their own identities and apply them in their construction efforts. Unfortunately, not only were they uneducated about their own culture, but they were also indoctrinated by the dominant western culture that had swept through the world and set the standard of operation and execution of projects visually, aesthetically, symbolically, and structurally. This explains why the international style is the dominant character of most African cities (Prussin, 1974).

## 2.8 ISLAMIC ARCHITECTURE IN AFRICA

The growth and expansion of what is known as Islamic architecture began with the birth and spread of Islam. Islam and Islamic architecture spread throughout most of Asia Minor and the Mediterranean basin 100 years after the death of the prophet (Elleh, 1996). The arrival of Islam in Africa occurred in North Africa after the demise of Byzantine rule in Qayrawan which later

became the site of one of the major mosques which influenced the architecture of North Africa from the 9th century onward.

The spread of Islamic architecture in East Africa was the result of the booming trade between east Africans and the people living east of the Indian Ocean and the Arabian states. Islamic architecture in east African coast is homogenous in five basic elements: technique of construction, ornamental and decorative detail, the composition of the mosque mihrabs, mosque planning and the planning of domestic buildings (Elleh, 1996). They were a clear blend of African and Arabian cultures together with available construction resources to develop a purely indigenous East African Islamic architecture.

The Trans-Sahara Trade gave Islam a route to West Africa and in return it made towns along the route to prosper due to a larger volume of trade between north and West Africa. This trade route has been a major conduit of gold, Ivory, and food supplies from West Africa to North African empires. The gold seduced the Arabs, who had established forts in Ifriqiyya (now Tunisia), into staging an expedition to the west coast. The success of this expedition inspired the governor of Ifriqiyya to order wells to be dug along the trade route from southern Morocco across the Western Sahara to West Africa. Trade expanded because of the new well resources along the route and the North African merchants sent more slaves, gold and food stuffs in exchange for clothes, horses and salt. Some of the northern African merchants, Arabs and Berbers who traded with West Africans began to settle in the cities of ancient empires of West Africa.

## 2.9 BRIEF OVERVIEW OF GHANAIAN ARCHITECTURE

Ghanaian architecture was predominantly traditional well before their encounter with the Arabians and later Europeans through trade and colonization. The European influence was predominantly limited to coastal towns and the middle belts. Interactions with the Arabians through the Trans- Sahara trade explain the predominance of Islamic architecture in northern Ghana. Through migration the Islamic population of the north gradually transposed Islamic architecture to their new settlements in some areas down south especially the 'Zongo' communities (Figure.2.7, page 26).



## 2.10 TRADITIONAL ARCHITECTURE IN GHANA

Traditional Ghanaian architecture can be grouped into three zones namely, the northern, middle belts and southern zones. In the northern half, traditional building methods in mud are still followed throughout the region, mainly in the rural areas. In the Northeastern half, the buildings are circular and arranged as cells around an inner courtyard. In the western, rectilinear structures of interconnected cellular spaces are built with flat mud roofs. In the Lobi area these roofs are supported by post, beams and rafters. There are also Fulani settlements in places with circular huts constructed from grass-woven mats tied to posts with conical thatched roofs from the same material (Schreckenbach, 1981)..

In the southern area the traditional timber framework can be found with wattle and daub construction, as well as houses with Atakpame method or walls of stones, sun-dried bricks from laterite soils and burnt bricks. Traditional roofing is thatch with isolated cases of flat roofs or roof from split bamboo. The house plan is rectangular (Schreckenbach, 1981).

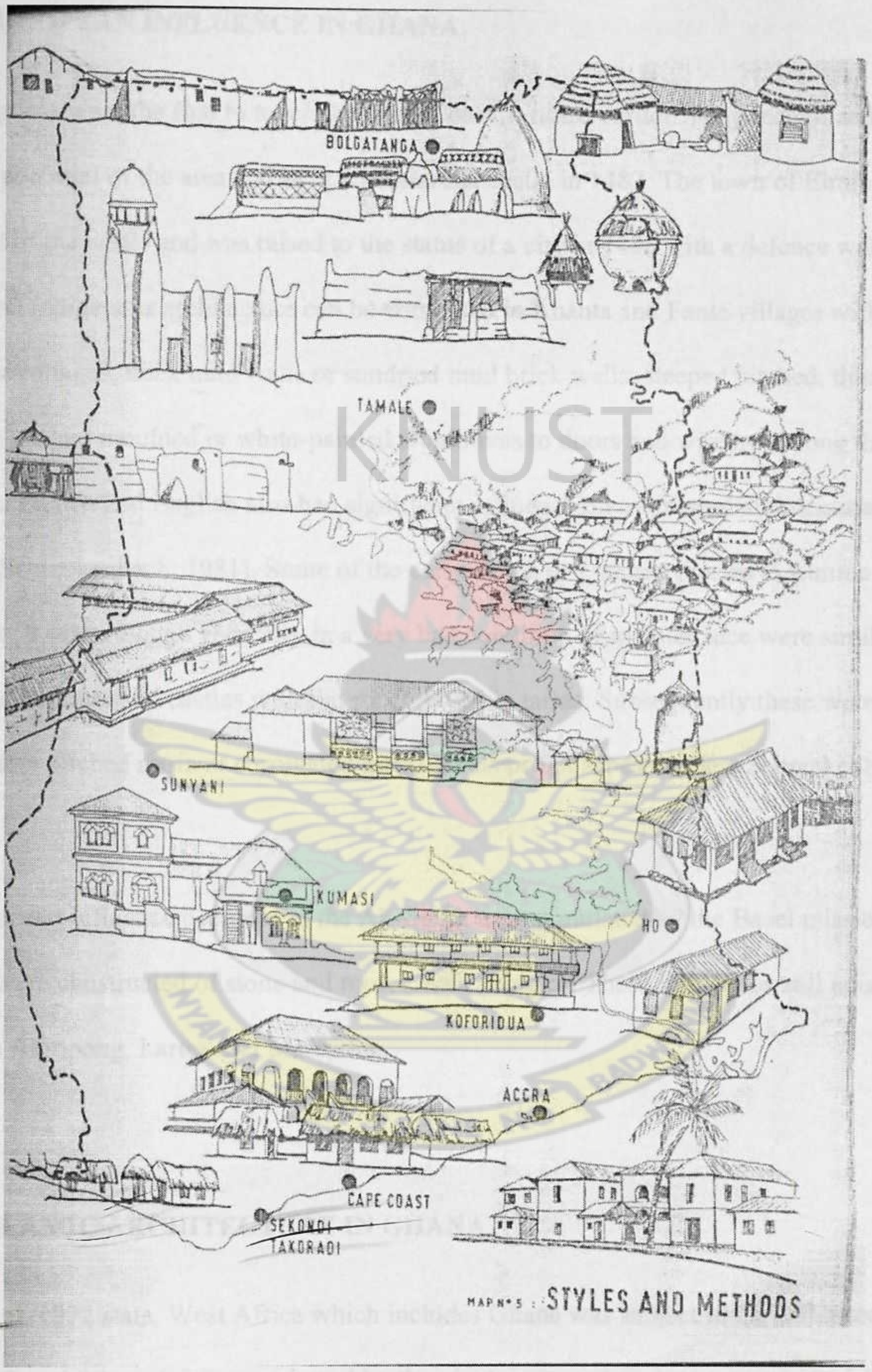



Figure 2.7, *Distribution of styles and methods over Ghana (Schreckenbach, 1981).*

## 2.11 EUROPEAN INFLUENCE IN GHANA

The Portuguese were the first to touch the Gold Coast as noted earlier. They recognized the great economic potential of the area and built a substantial castle in 1482. The town of Elmina grew up to the west of the castle and was raised to the status of a city in 1486 with a defence wall. Their influence on indigenous architecture can be witnessed in Ahanta and Fante villages with their rectangular cottages, thick mud walls or sundried mud brick walls, steeped pitched, thick thatched roofs and moulded or white-painted architraves to doors and windows along the coast. The Dutch, French and English also had significant influence on traditional architecture along the coast (Schreckenbach, 1981). Some of the early single or 2-storey houses in Elmina of which a number still exist, though generally in a very bad condition of maintenance were similar to the structure of the forts and castles with flat roofs paved in tarras. Subsequently these were roofed over with low pitched roofs of corrugated metal sheets or flat asbestos tiles (Schreckenbach, 1981).

Other European influence occurred in the Akwapim area stimulated by the Basel mission. The buildings were constructed of stone and roofed with shingles. These influences still exist in places like Akropong, Lartey and Mampong.

## 2.12 ISLAMIC ARCHITECTURE IN GHANA

Bedaux et al, 1972 state, West Africa which includes Ghana was subject to the influence of Islam from the 8th and 9th century onwards and by the nineteenth century large areas were Islamized'. Which pre-suggest that some parts of Ghana were touched by the influence of Islam.

Leary (1978), also states that 'the diffusion of building of clay mosques to the south and east of the Niger bend occurred through trading and missionary activities of black Mande groups – Dyula, who, from the 14th century, established trade routes from Djenne through the north to the Akan goldfield; and the Wangarawa, who first introduced Islam to the Hausa states in the 14th and 15th centuries'. This suggest that the black Mande groups of traders and missionaries passed through the north from Djenne, and their influence could clearly be seen in the established similarity between the Great Djenne mosque which is Islamic in architectural style and the Larabanga mosque of northern Ghana.

Leary (1978) further suggested that 'this ancient Mande – Dyula trading settlement, an important centre of Islamic diffusion, is located about 350 miles south – east of Djenne. Locals associate the foundation of the Friday Mosque with a Dyula cleric during the reign of one of the Gonja kings, Jakpa (1622 – 1666)'. That monument is the Larabanga mosque which is the foundation upon which Islamic architecture got on to the other parts of the country (Figure 2.8, page 29). The Wa-Naa's palace and the Nakore Mosque have similar architecture as the Larabanga mosque (Figure 2.9, page 29). Leary also mentioned that the locals associate the foundation of the mosque to a Dyula cleric and as established earlier the Dyula spread the ideas of Islamic architecture in Ghana.

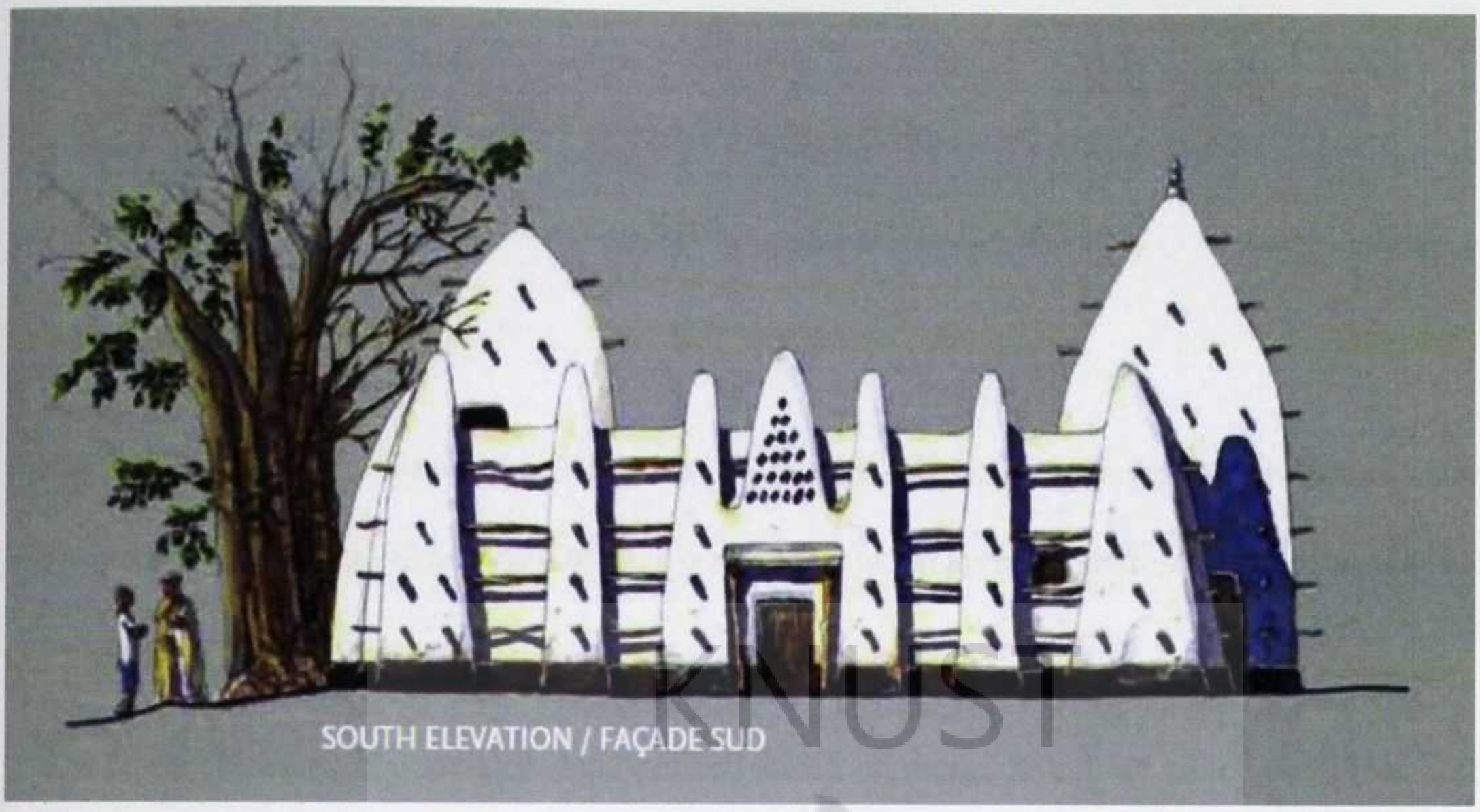



Figure 2.8, *Entrance View of Larabanga Mosque (Ghana Museums and monuments board, 2004).*

Figure 2.9, *Frontal view of Wa Naa's Palace.*

# CHAPTER THREE

## 3.0 RESEARCH METHODOLOGY

### 3.1 INTRODUCTION

The hypothesis of the research is that there is a relationship between eclectic architecture and the design of the National House of Chiefs. To answer this, an appropriate research method should be employed.



The research design is generally characterized as mixed research method which combines both qualitative and quantitative methods. Specifically in the qualitative method, case study approach is employed to determine the diversity in architectural styles in traditional or Chieftaincy related buildings in Ghana. The quantitative method through administering questionnaires was to determine in percentage terms, numbers that favour Vernacular, Western, Islamic or eclectic Architecture as the ideal design method for the National House of Chiefs.

### 3.2 RESEARCH OBJECTIVES

The thesis is aiming to establish eclectic design as an ideal approach in the design of a National House of Chiefs for Ghana and making a case in a proposed design through the application of architectural features drawn from our diverse Architectural experiences.

### 3.3 RESEARCH STRATEGY

A research strategy is a general orientation to conduct research systematically (Bryman and Bell, 2003: 25). In this study, a deductive process in research strategy has been chosen. Testing to ascertain the suitability of eclectic architecture in the design of a National House of Chiefs falls

into a deductive approach. It would however also employ an interpretive analysis of cases in relations to the hypothesis.

## 3.4 RESEARCH DESIGN- QUANTITATIVE ANALYSIS

In the quantitative analysis, a total of 80 respondents would be asked to select the most suitable architectural design method for the National House of Chiefs. It would consist of 30 Chiefs out of the 50 members of The House, as well as well as 25 administrative staff and 25 others from the general public. Random sampling would be used in administering questionnaires.

## 3.5 RESEARCH DESIGN- CASE STUDY

A qualitative case study method based on the analytical approach will be employed as well. The case study would be helpful in gaining a deeper appreciation of the diversity of Ghanaian Architecture especially in the Chieftaincy Institution and the larger Ghanaian society.

The review of case studies would occur at two levels; first it would involve a review of three traditional palaces namely; Waa Naa's Palace (Wa), Manhyia Palace (Kumasi) and the Gbewaa Palace (Yendi). These facilities are selected to reflect both the Northern and Southern sector of Ghana and also because they are Landmarks that represent diversity in our Architectural experiences. It would be looked at in terms of architectural styles or influences as well as, outline the Architectural feature that can be incorporated in the proposed design.

The second set of case studies would understudy the organizational structure of the Chieftaincy Institution from the Traditional Councils to the Regional House of Chiefs through to the National House of Chiefs in structural ascendancy. The essence is to determine the how the administrative organization, Architectural designs and features of the Divisional or Traditional Councils

translates or relates with the Regional and National House of Chiefs. In this light the Wenchi Traditional Council, The Central Regional House of Chiefs and the National House of Chiefs would be reviewed.

## 3.6 DATA COLLECTION

This thesis would employ both secondary and primary data. Yin (2003, p. 97) emphasized that it was encouraged to use multiple sources of evidence to conduct case study research since multiple sources of evidence can maximize data collection.

The secondary data include data from literature, journals and internet. An extensive secondary research was conducted on eclecticism and Ghanaian architecture. The primary data is collected through interviews with Chiefs, Registrar and Staff and the general public. Semi-structured interview was conducted, for collecting primary data in this study (Arbnor & Bjerke, 1997: 226). I also had an opportunity to talk to the president of the House, who inspired me for the research undertaking.

# CHAPTER FOUR

## 4.0 RESEARCH FINDINGS AND DISCUSSIONS

### 4.1 INTRODUCTION

The Chapter is categorized in three parts. The first tabulates and provides an analysis of information gathered from responses from individuals and Chiefs who were interviewed as to the suitability of a particular design method for a National House of Chiefs. The second part consists of case studies of some buildings that are directly related to the design of a National House of Chiefs. The later part indicates how the information gathered and analyzed, are applied in the design of the proposed National House of Chiefs.

### 4.2 DESIGN METHOD RESPONSE ANALYSIS

This section documents the results of the structured interviews conducted during the study. The first part tabulates responses, when stakeholders were asked to answer by selecting one alternative of; Vernacular, Islamic, Western, or Eclectic design methods.

Table 4.1, *Responses on the most suitable design method for the National House of Chiefs.*

| METHOD | CHIEFS | STAFF OF NHC/RHC | PUBLIC | TOTAL |
|---|---|---|---|---|
| VERNACULAR | 10 | 3 | 5 | 18 |
| ISLAMIC | 2 | 0 | 0 | 2 |
| WESTERN | 6 | 7 | 10 | 23 |
| ECLECTIC | 12 | 15 | 10 | 37 |
| TOTAL | 30 | 25 | 25 | 80 |

Following are graphical analysis of each category of respondents culminating in an overall analysis.

### 4.2.1 ANALYSIS OF RESPONSES BY CHIEFS

The graph below shows the results obtained from 30 Chiefs constituting the sample size. It indicates that as many as 40% of Chiefs are in favor of the Eclectic design methodology. The reason being in order not emphasis the Architecture of one region over others, it is ideal to borrow from all. It is followed strongly by Vernacular Architecture as the design methodology with 33%. The reasons advanced here is that, many still believed that in order to preserve our culture, Traditional Architecture should be the dominant design methodology. Those in favour of Western Architecture constituted 20% and Islamic Architecture recorded the lowest of 7%.

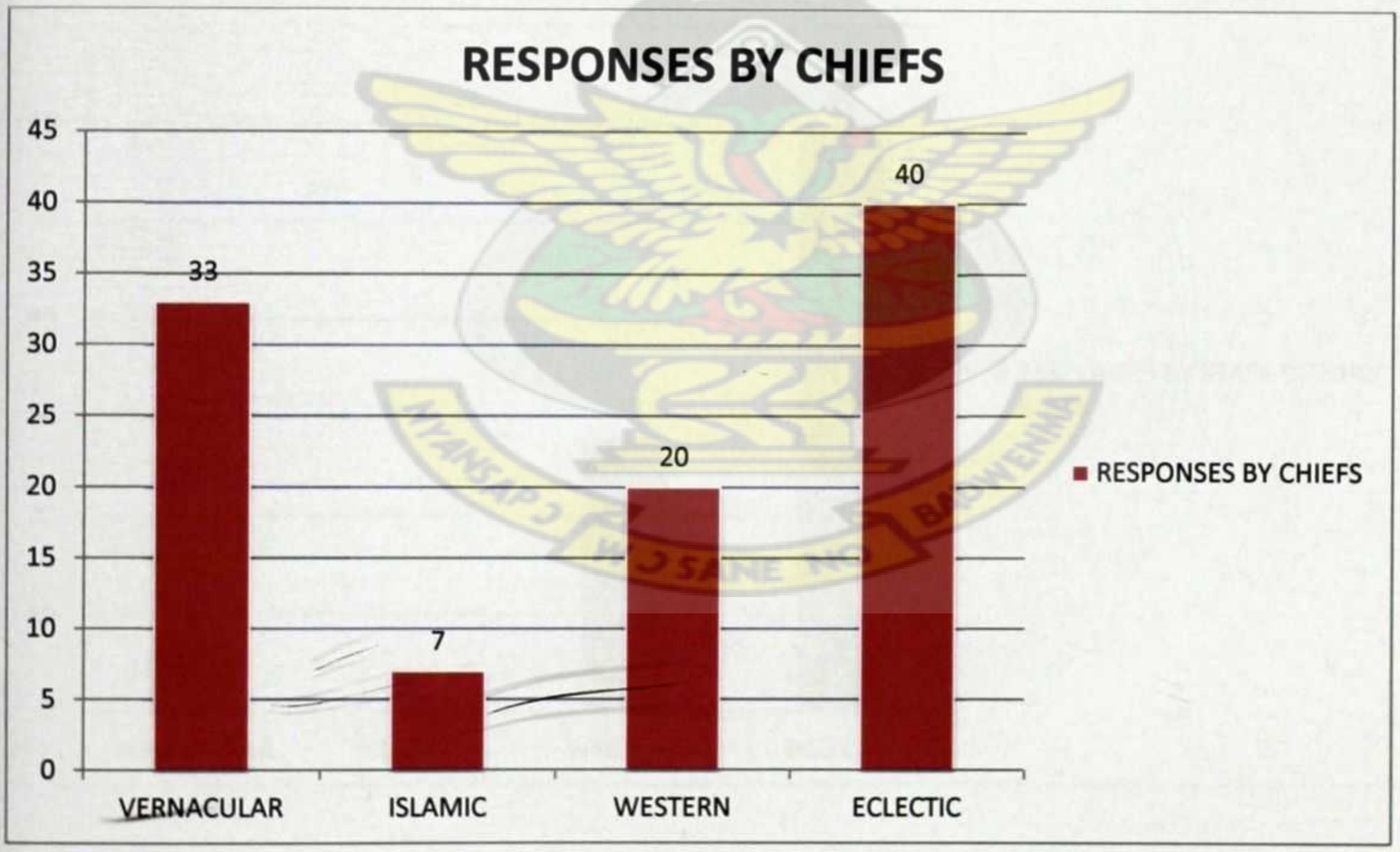



Figure 4.1, *Response by Chiefs in relations to the category of design approaches.*

### 4.2.2 ANALYSIS OF RESPONSES BY STAFF OF NHC/ RHC

The graph below shows the results obtained from 25 staff members of the National House of Chiefs and the various Regional and Traditional Councils constituting the sample size. It indicates that as many as 60% of staff members are in favor of the Eclectic design methodology. The reason also being in order not emphasis the Architecture of one region over others, it is ideal to borrow from some. It is followed strongly by Western Architecture as the design methodology with 28%. The reasons advanced here is that, many are enthused with the use of glass on facades as it signified modernity. Those in favor of Vernacular Architecture constituted 12% and Islamic Architecture recorded 0%.



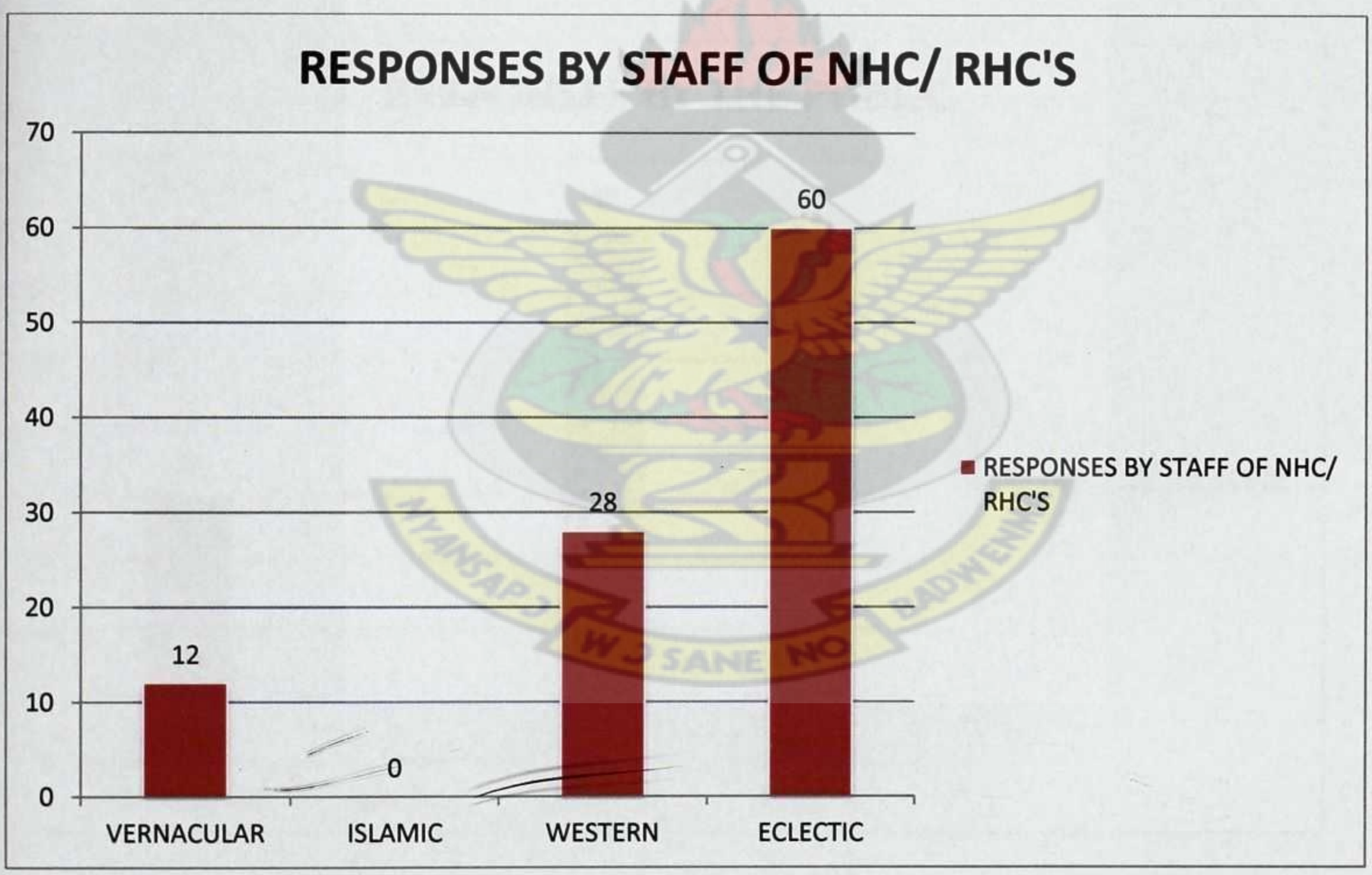



Figure 4.2, *Response by staff of the NHC/ RHC'S, in relations to the category of design approaches.*

### 4.2.3 ANALYSIS OF RESPONSES BY THE PUBLIC.

The graph below shows the results obtained randomly from 25 members of the public constituting the sample size. It indicates that as many as 40% of Chiefs are in favor of both Eclectic and Western Architecture design methodology. Those in favor of Eclectic also emphasized that the Architecture of a National House of Chiefs should be balanced and those in favour of Western Architecture are enthused with the use of glass on facades as it signified modernity. Those in favor of Vernacular Architecture constituted 20% and Islamic Architecture recorded 0% response.



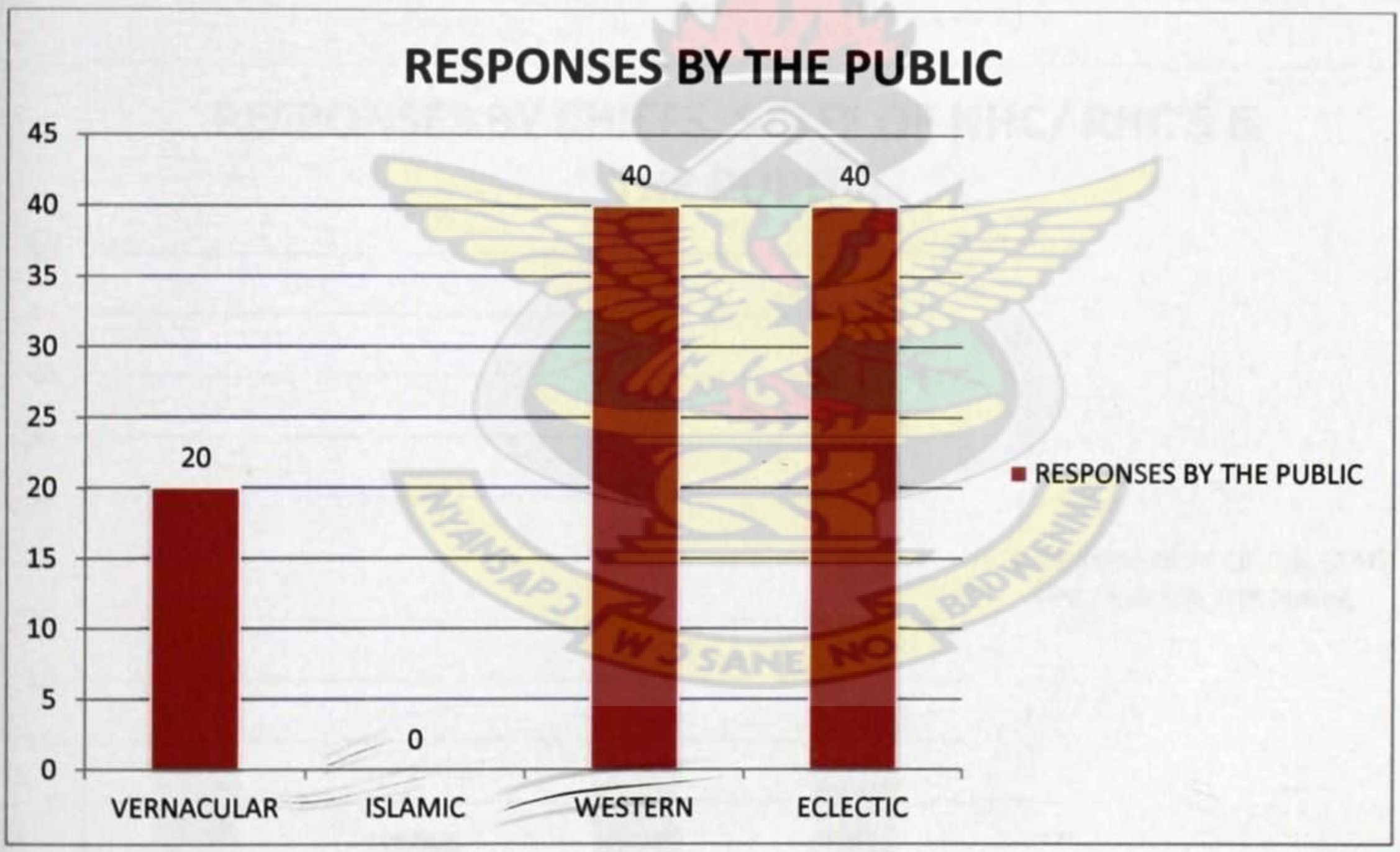



Figure 4.3, *Response by the public in relations to the category of design approaches.*

### 4.2.4 ANALYSIS OF RESPONSES BY CHIEFS, STAFF OF NHC/ RHC'S & THE PUBLIC

The graph below shows the results obtained from 80 Chiefs, staff of the National House of Chiefs and Regional and Traditional Councils as well as members of the public constituting the sample size. It indicates that as many as 46.25% are in favor of the Eclectic design methodology. The reason being in order not emphasis the Architecture of one region over others, it is ideal to borrow from some. It is followed strongly by Western Architecture as the design methodology with 28.75%. The reasons advanced here is that, many are enthused with the use of glass on facades as it signified modernity. Those in favor of Vernacular Architecture constituted 22.5% and Islamic Architecture recorded 2.5% response.

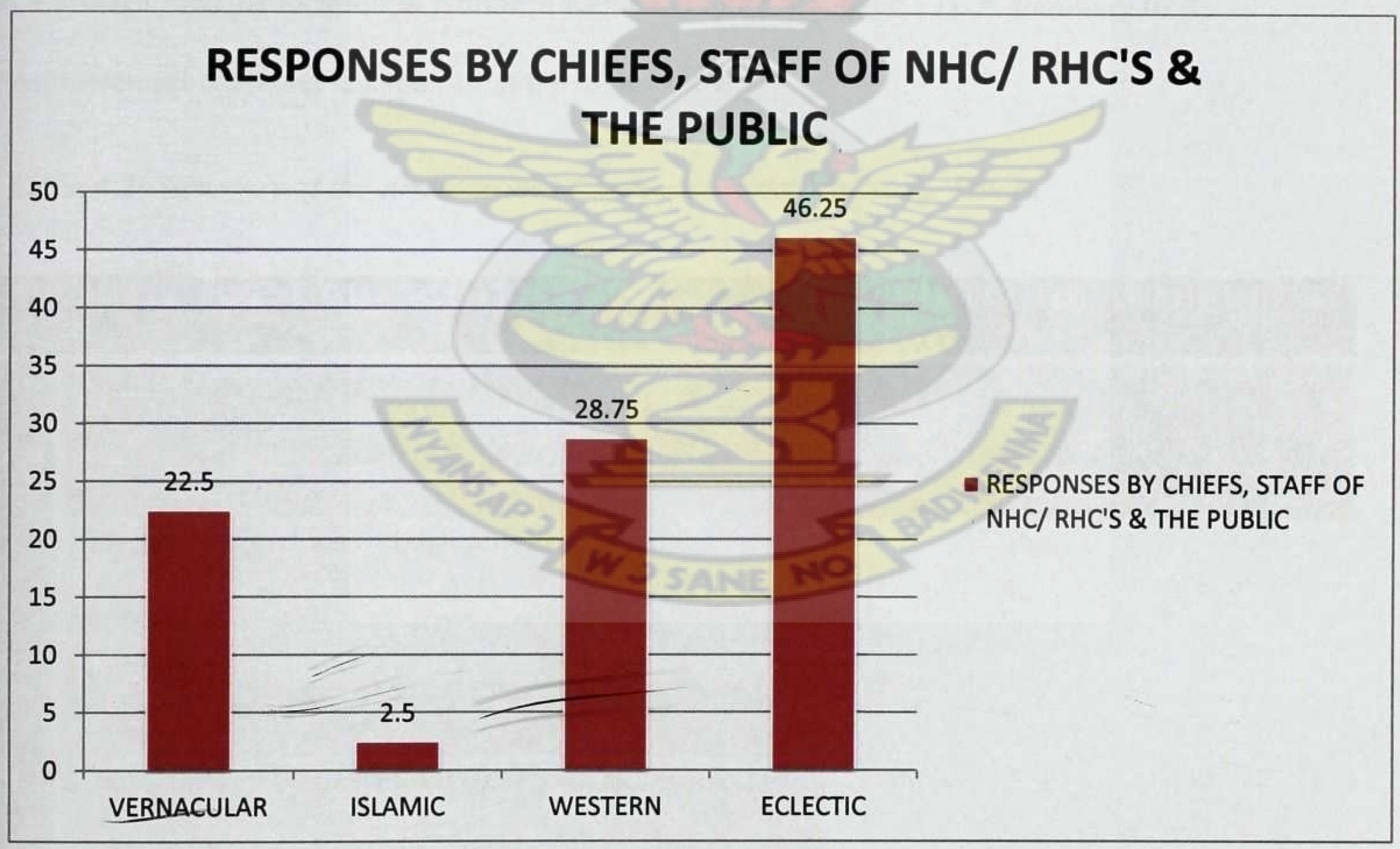



Figure 4.4, *Response by the public in relations to the category of design approaches.*

### 4.3.1 CASE STUDY- WA NAA'S PALACE

The Wa-naa's palace is a 200 years old, magnificent 19th century palace located in Wa, the capital town of the Upper West Region of Ghana. It is the official residence of the Wa Naa, the overlord of the Wala state founded by Naa Pelpuo I (Figure 4.5, page 39). This palace has been marked by the Ghana Tourist Board as a heritage site for tourist because of its rich and traditional architecture. The palace has two main entrances on the south facade. Both entrances are not in use at the same time during the lifetime of a Wa naa. The entrance, which a particular Wa naa uses during his lifetime, is closed after his death and the new Naa opens the other entrance. The Wa Naa's Palace is actually the Nakore mosque which has been produced on a bigger and larger scale as a Palace (Figure 4.6, page 39). It also has similarities with the Larabanga mosque location in Northern Region (Figure 4.7, page 39). A summary of its Architectural character is captured in the table below.



Table 4.2, *Summary of the Architectural Character of the Wa Naa's Palace.*

| | ARCHITECTURAL CHARACTER | ARCHITECTURAL ORIGIN |
|---|---|---|
| 1 | Characterized by piers and buttresses | Ancient model- Sudano –Sahelian model (Islamic Architecture) |
| 2 | Horizon projections of bush poles as structural supports. | |
| 3 | Closed courtyard and constructed of mud. | |
| 4 | Characterized by pyramidal towers called minarets and mihrab to highlight significant spaces | |
| 5 | Public spaces are approached on entry of the palace. | |

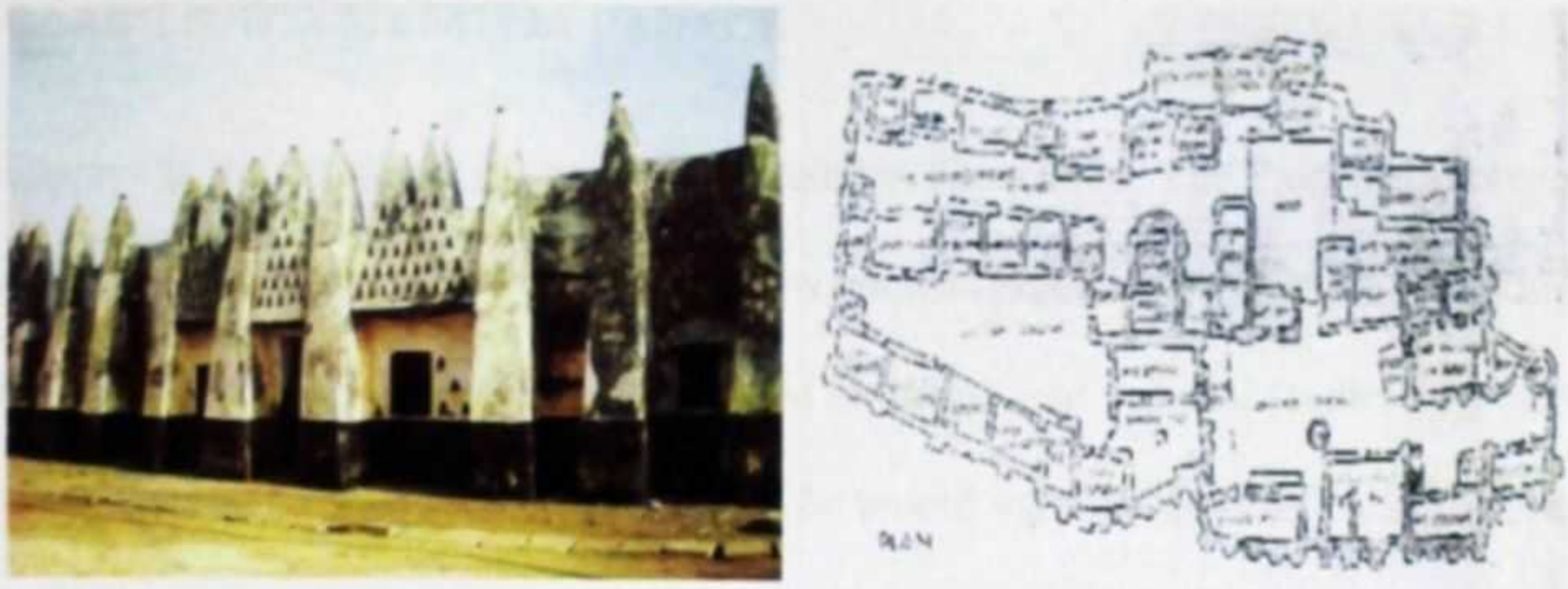


Figure 4.5, *Floor plan and entry view of the Wa Naa's palace (Ghana Museums and monuments board).*



Figure 4.6, *View of the Nakore Mosque (Ghana Museums and monuments board).*


Figure 4.7, *Entrance View and floor plan of Larabanga Mosque (Ghana Museums and monuments board, 2004).*

### 4.3.2 CASE STUDY- MANHYIA PALACE

Manhyia palace is the residence of the kings of Ashanti since 1924. The Palace complex consists of the old palace (traditional architecture), the new palace (Eclectic architecture), the king's courts, the queen mother's palace, secretariats and an institute of Ashanti studies (Figure 4.8, page 41). It is open throughout the week and can be toured with the permission of the public relations officer.

The courtyard system has been applied extensively here. It is traditional and also affords maximum security. The Asantehene from his office walks through the covered linkage to the court to hear cases. It is also characterized by ornate decorations using adinkra symbols (Figure, 4.9, page 41). A summary of its Architectural character are itemized in the table below.

Table 4.3, *Summary of the Architectural Character of Manhyia Palace.*

| | ARCHITECTURAL CHARACTER | ARCHITECTURAL ORIGIN |
|---|---|---|
| 1 | Blocks are separated by courtyards which improves micro climate. | Postmodernism (classical + contemporary + indigenous arch.) |
| 2 | Traditional adinkra symbol are used as ornate decorations. | |
| 3 | Use of symmetry/balance dominate | |
| 4 | Arched windows are typical of recent buildings at the Palace | |
| 5 | The use of materials such as glass for fenestrations and sandcrete for building envelop are common place. | |


Figure 4.8, *Layout of Manhyia Palace (google earth.).*



Figure 4.9, *Adinkra symbols used in the design of the entrance gate and as screen walls.*

Figure 4.10, *Old designs vs. new designs at Manhyia.*

### 4.3.3 CASE STUDY- GBEWAA PALACE

The Gbewaa Palace is the seat of the ruler of the 15th-century kingdom of Dagbon. The Palaces are home to two rival branches of Dagbon royalty, the Abudu and Andani families, whose competing claims to the throne have been resolved for 200 years by a system of alternating succession. After the old Gbewaa palace was burnt down 2002, a new Gbewaa palace has since been constructed but within close proximity to the old Palace (Figure 4.11, page 43).

The courtyard system has been applied extensively here too. It consists of circular forms, forming multiple courtyards in a fractal development. The walls are characterized by ornate decorations of traditional patterns.

Table 4.4, *Summary of the Architectural Character of the Gbewaa Palace.*

| | ARCHITECTURAL CHARACTER | ARCHITECTURAL ORIGIN |
|---|---|---|
| 1 | Circular forms, small openings & thatch roofs create conducive indoor conditions. | Indigenous Architecture. |
| 2 | Ornate decorations characterize the facades | |
| 3 | Fractal development around multiple compounds. | |
| 4 | Constructed with thick mud walls to keep out heat during the day. | |
| 5 | The adoption of courtyards which improve internal conditions. . | |


Figure 4.11, *Layout of the Gbewaa Palace at Yendi (google earth).*

Figure 4.12, *View of the Old Gbewaa Palace at Yendi.*

### 4.4.1 CASE STUDY-NATIONAL HOUSE OF CHIEFS- KUMASI

The National House of Chiefs (Ghana) is located in Kumasi and Manhyia specifically. It is housed in a single storey block directly opposite the Manhyia Palace and jointly occupied by the Secretariat together with the Ghana National Fire Service (Figure 4.13).

Figure 4.13, *External view of the National House of Chiefs.*

It has a Judicial Hall (Court room) with a floor area of 12 $m^2$. This is considered inadequate considering the large number of witnesses who come to hear cases. The main deliberation hall also called The Chamber is barely enough to accommodate the fifty Chiefs and four other observers. The four observers are usually invited guest to the House. The Registrar and his Deputy ~~or two~~ other staff members in their absence, take minutes at all sittings. It has a total floor area of 240 $m^2$ and the seating arrangement is illustrated in Figure 4.14 (page 45).


Figure 4.14, *Layout of The Chamber of the National House of Chiefs.*

The Architectural character of the National House of Chiefs is summarized as indicated in the table below,

Table 4.5, *Summary of the Architectural character of the NHC.*

| | ARCHITECTURAL CHARACTER |
|---|---|
| COMPOSITION | Mainly a linear composition, Symmetry and balance (Chiefs represent firmness and fairness), windows (1.5 m x 1.8 m) are uniformly sized, beautiful landscape. |
| MATERIAL | Concrete construction (it's the dominant material for construction in Ghana), Louvre type windows. |
| CHALLENGES | Limited parking (need up to 75 car parking space), White emulsion paint is flaking off due to exposure of walls , too many leakages, poorly landscaped environs, Limited office spaces, Requires a bigger Judicial Hall as well as a higher capacity Chamber, seating arrangement in the Chamber is less focused. |

The NHC has the following facilities as itemized in the table below,

Table 4.6, *Accommodation schedule of the National House of Chiefs.*

| | SPACE | AREA($m^2$) |
|---|---|---|
| 1 | Presidents Office | 6 x 4 = 24 |
| 2 | Registrar's Office | 6 x 4 = 24 |
| 3 | Deputy Registrar | 4 x 3 = 12 |
| 4 | Registry | 4 x 3 = 12 |
| 5 | Treasurer | 4 x 3 = 12 |
| 6 | Lounge | 6 x 9 = 54 |
| 7 | Reception | 6 x 6 = 36 |
| 8 | The Chamber | 12 x 20 = 240 |
| 9 | Judicial Hall | 4 x 3 = 12 |
| 10 | Counselors office | 6 x 4 = 24 |
| 11 | Computer room | 4 x 3 = 12 |
| | TOTAL | 462 |



### 4.4.2 CASE STUDY CENTRAL REGIONAL HOUSE OF CHIEFS

The central Regional House of Chiefs (CRHC) is located at the 4th Ridge road along the Accra-Cape Coast road (Figure 4.15, page 47). The main Chamber has a circular arrangement with the inner portion for circulation. The arrangement is more focused and segregation of spaces is clearly earmarked (Figure 4.16, page 47).

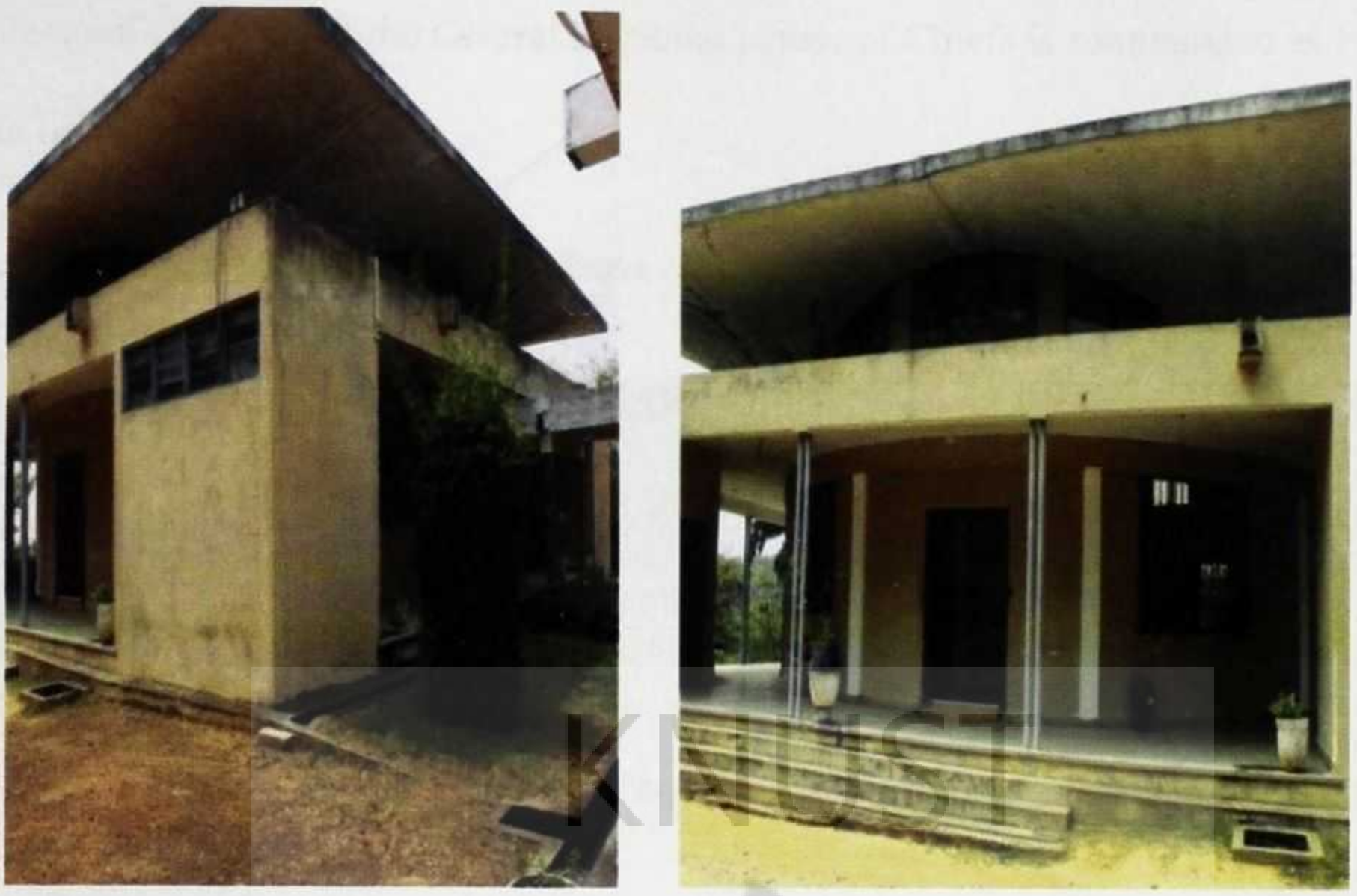


Figure 4.15, *External view of the Central Regional House of Chiefs.*

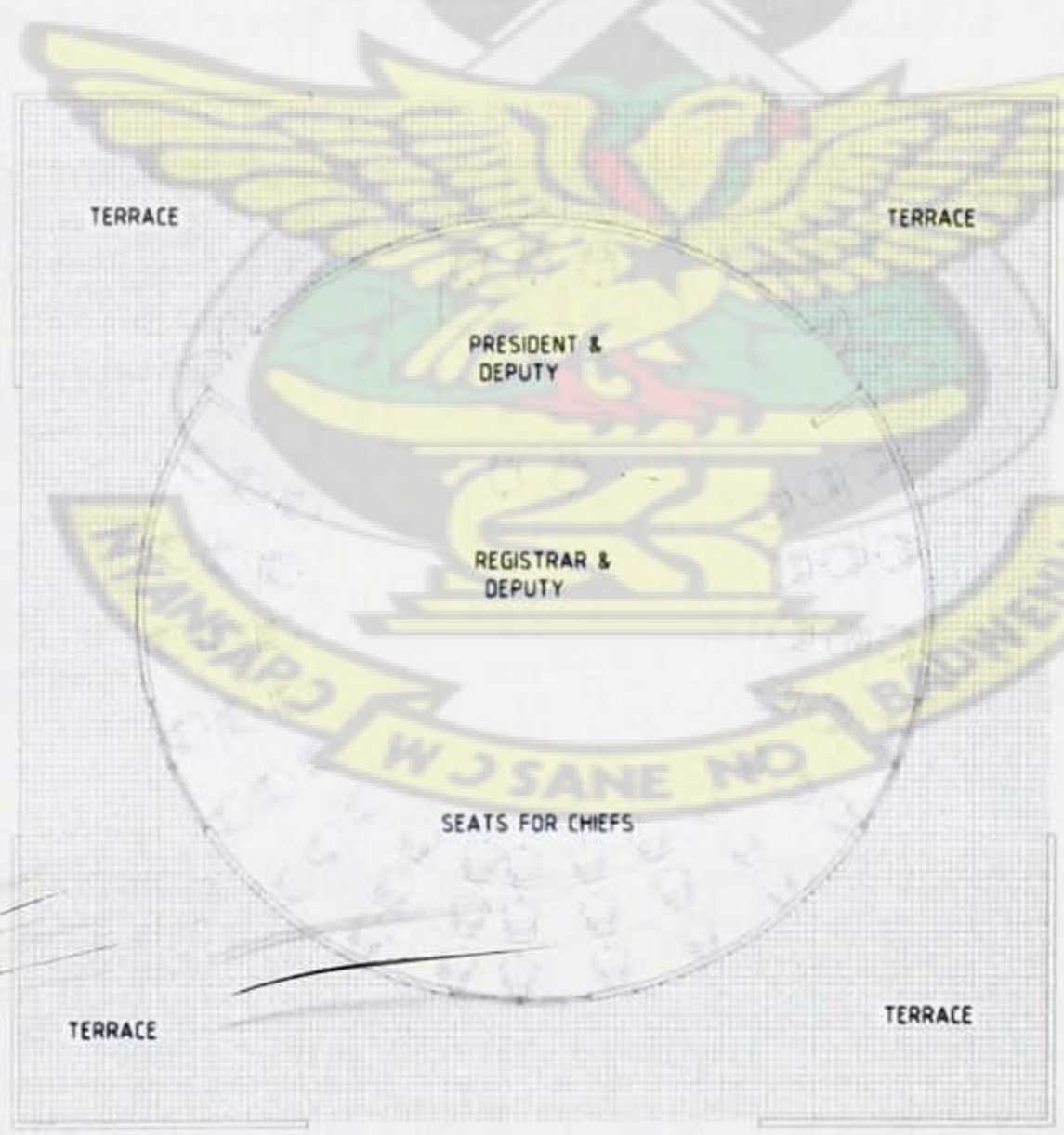



Figure 4.16, *Layout of The Chamber of the Central Regional House of Chiefs.*

The Architectural character of the Central Regional House of Chiefs is summarized as indicated in the table below,

Table 4.7, *Summary of the Architectural character of Central Regional House of Chiefs.*

| ARCHITECTURAL CHARACTER | |
|---|---|
| COMPOSITION | Combined Organic and rectilinear composition. |
| MATERIAL | Concrete construction (it's the dominant material for construction in Ghana), Louvre type windows. |
| CHALLENGES | Concrete roof leaks badly, emulsion paint is flaking off due to exposure of walls. |

The building has the following facilities as itemized in the table below,

Table 4.8, *Accommodation schedule of the Central Regional House of Chiefs.*

| | SPACE | AREA($m^2$) |
|---|---|---|
| 1 | Records/ Filling room | 4 x 5 = 20 |
| 2 | Waiting Lounge | 8 x 5 = 40 |
| 3 | Instrument store | 4 x 5 = 20 |
| 4 | Staff lounge | 4 x 6 = 24 |
| 5 | Landscape court | |
| 6 | Deliberation Hall | |
| 7 | Registrar's office | 4 x 5 = 20 |
| 8 | Deputy Registrar | 4 x 5 = 20 |

### 4.4.3 CASE STUDY WENCHI TRADITIONAL COUNCIL

The Wenchi Traditional Council was commissioned in 2004 to mark the funeral of the late Nana Abrefa VI. It was fully funded by the Wenchi Traditional Council. It is located at the heart of the town along the Kumasi- Wenchi road, 100 m from the transport yard.

Figure 4.17, *External view of the Wenchi Traditional Council.*

The Architectural character of the Traditional Council (Figure 4.18) is summarized as indicated in the table 4.7,

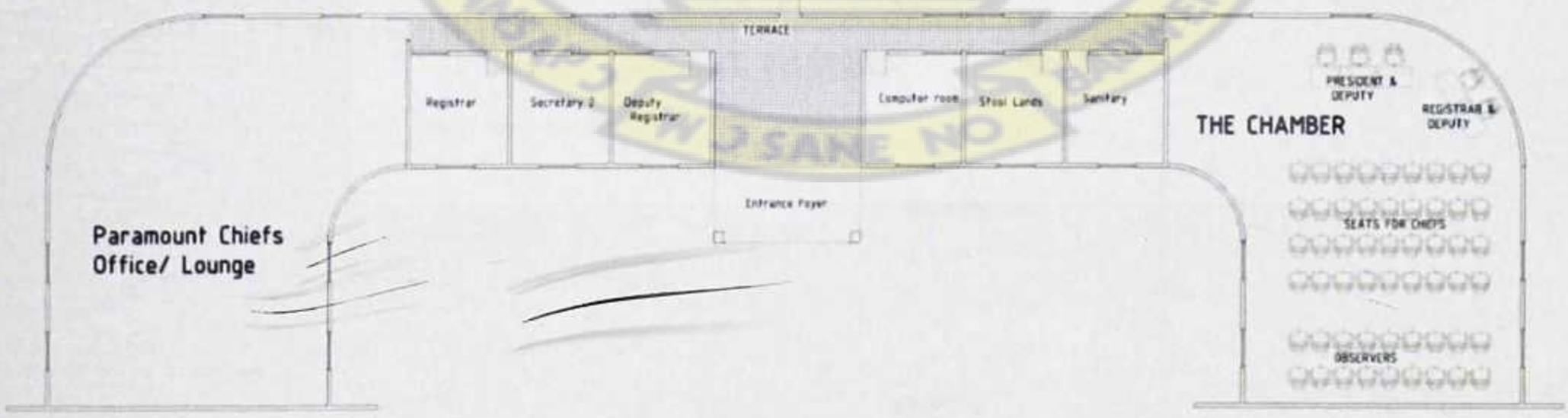



Figure 4.18, *Floor plan of the Wenchi Traditional Council.*

Table 4.7, *Summary of the Architectural character of the Wenchi Traditional Council.*

| | ARCHITECTURAL CHARACTER |
|---|---|
| COMPOSITION | Combined Organic and rectilinear composition, Symmetrical and symbolic of the firmness and fairness Chiefs represent. Crown with a symbolic stool parapet, mural decorations on facades, Uniformly sized windows (1.5 m x 1.2 m), beautiful approach and well landscape environment |
| MATERIAL | Concrete construction (it's the dominant material for construction in Ghana), Louvre type windows. |
| CHALLENGES | Emulsion paint is flaking off due to exposure of walls, Insecure piping. |



The Chamber which is regular at one end and curvilinear at the other, takes up to 60 persons; 36 chiefs, and 18 observers. The observers are at the tail end and the Registrar positioned between the divisional Chiefs and the Presidential dais (Figure 4.19).

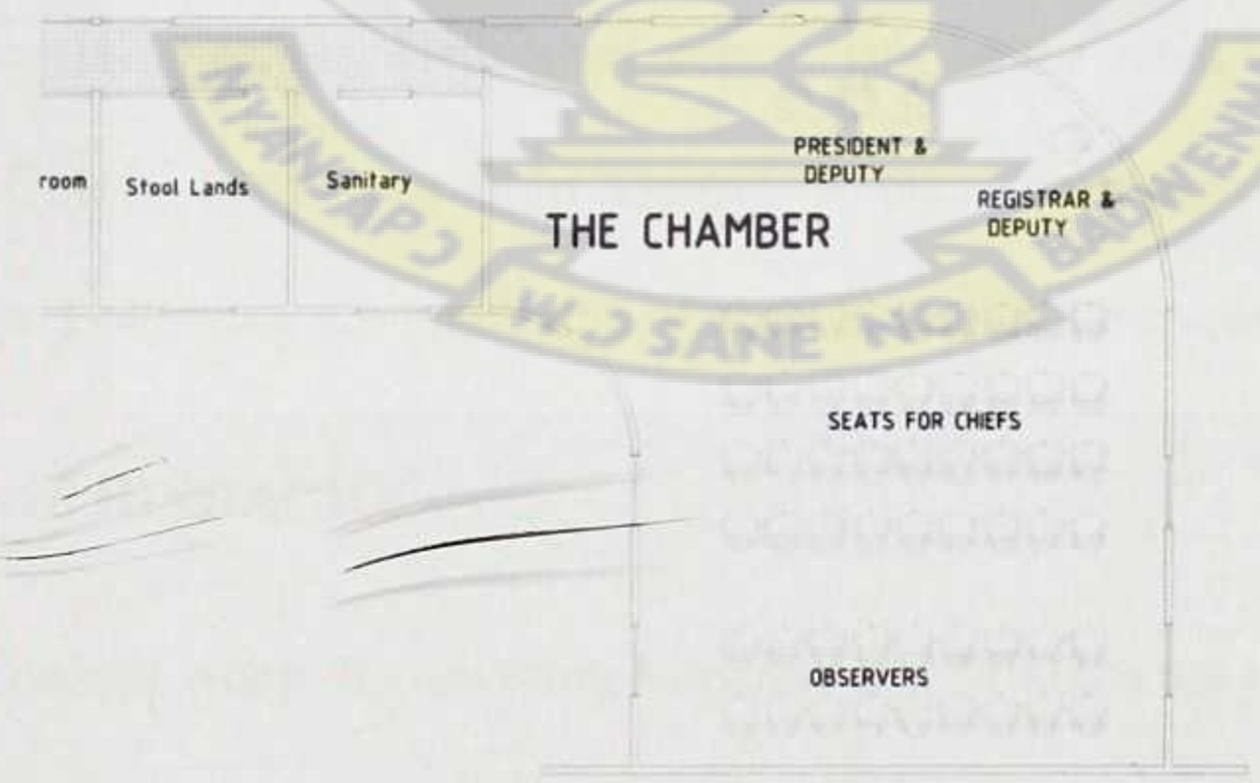



Figure 4.19, *Layout of The Chamber of the Wenchi Traditional Council.*

The facility has the following facilities as itemized in the table below,

Table 4.8, *Accommodation schedule of the Wenchi Traditional Council.*

| | SPACE | AREA($m^2$) |
|---|---|---|
| 1 | Judicial Hall | 180 |
| 2 | Computer room | 3.5 x 4.5 = 15.75 |
| 3 | Registrar | 3.5 x 4.5 = 15.75 |
| 4 | Deputy Registrar | 3.5 x 4.5 = 15.75 |
| 5 | Secretary's Office | 3.5 x 4.5 = 15.75 |
| 6 | Stool Lands | 3.5 x 4.5 = 15.75 |
| 7 | Paramount Chiefs Office/ Lounge | 160 |



## 4.5 SUMMARY OF DESIGN INTERVENTIONS

The expose preceding this section, established eclecticism as the ideal design method for the National House of Chiefs, borrowing from aspects of our Vernacular, Islamic and Western Architectural heritage. Following are highlights of specific design interventions.

### 4.5.1 CONCEPT OF HIERACHY

The Islamic design concept where by towering Minarets and Mihrabs are used to define the very significant spaces was adopted in zoning, spatial planning and in selecting roof types and defining the roofs cape.

The layout is categorized or zoned into public, semi-public and private spaces, with the public facilities the first on approached from the entrance through the royal avenue and down to the more private area; The Chamber (Figure 4.20).

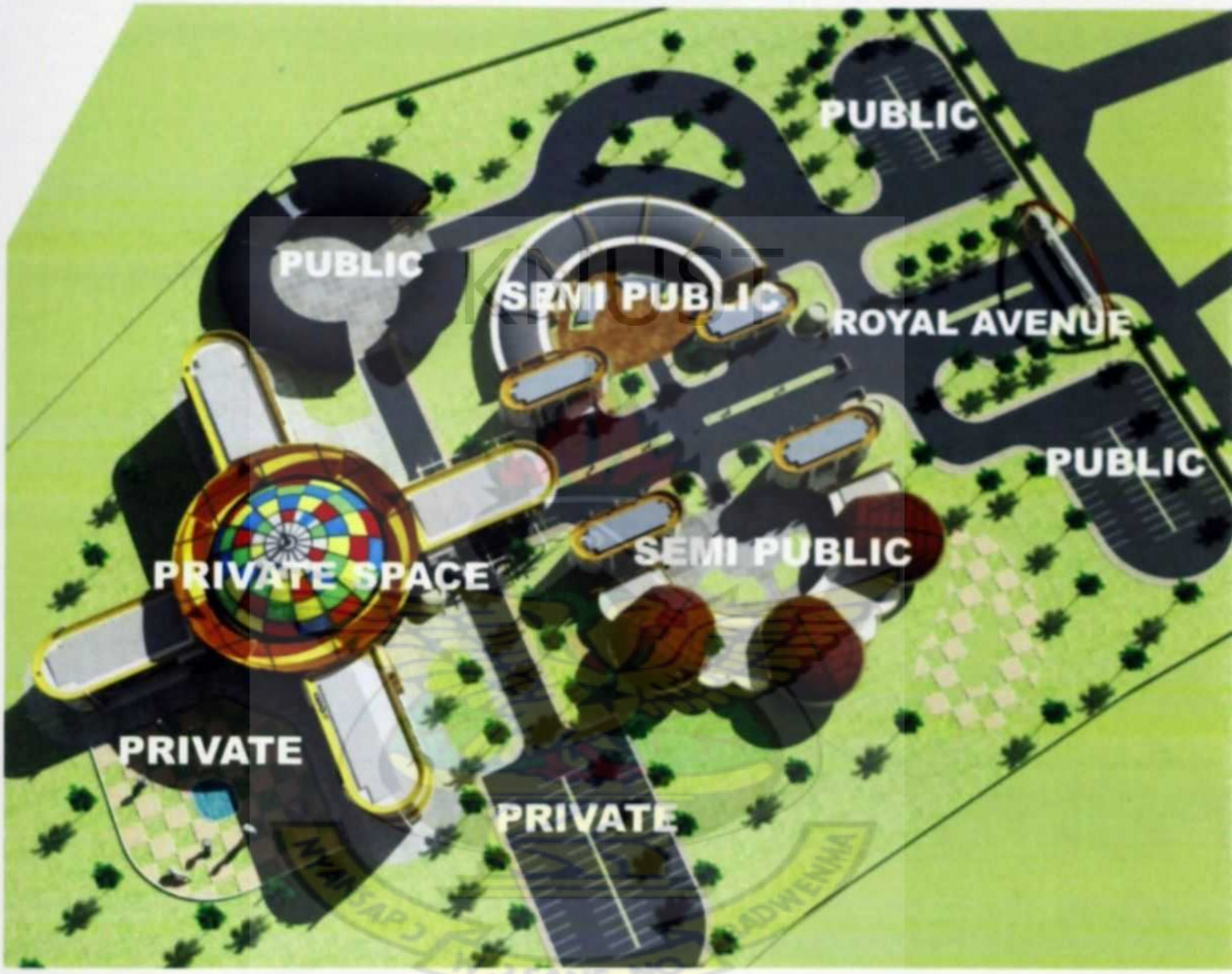



Figure 4.20, Aerial *view indicating the hierarchy in spatial planning.*

In Emphasizing the Chamber which is the most significant space of the Administration area, it is crowned with a Schwedler dome which towers above everything else (Figure 4.21, page 53). The courts rooms which are also the primary space defining the arbitration centre is also highlighted

with a roof layout that breaks from the general roof pattern of the centre as illustrated in figure 4.22

Figure 4.21, *A highlight of the towering dome of the Administration block.*

Figure 4.22, *A highlight of the towering dome of the Arbitration Center.*

### 4.5.2 DESIGN COMPOSITION

The design drew lessons from the composition of the Gbewaa Palace in its spatial composition. It consists of fractal developments around multiple compounds. The design employs both organic

and rectilinear forms. The organic forms consist of spaces that are fractions of others of the same shape and form (Figure 4.23).


Figure 4.23, *Organic development of floor plans inspired by the composition of the Gbewaa Palace.*

The courtyard system which is believed to be the basic generator of the house plan in African and very well used in the design of facilities reviewed is conspicuously utilized in the design (Figure 4.24). The adoption of the courtyard aided in achieving natural ventilation in the

proposed National House of Chiefs. They also served as interactive spaces for Chiefs, visitors and staff of the Secretariat.

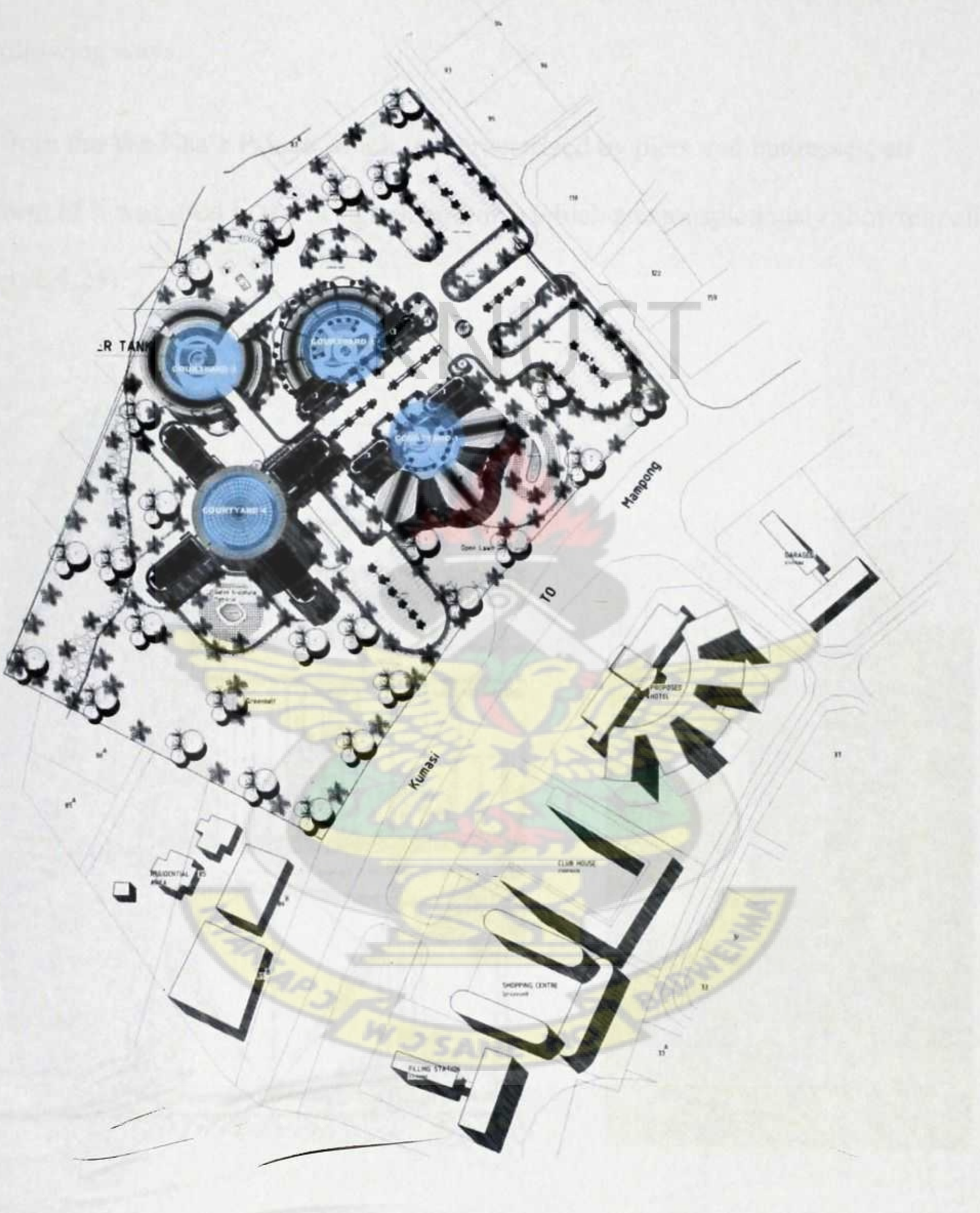



Figure 4.24, *Layout showing the application of courtyards in the design.*

### 4.5.3 SYMBOLISM

The design also employed some direct and abstracted symbolism drawn from the buildings studied. An important aspect of Ghanaian Architecture is imagery and the design responded to this in the following ways.

Borrowing from the Wa Naa's Palace which is characterized by piers and buttresses, an abstracted form of it was used in the design of columns which are conspicuously shown in all facades (Figure 4.25).



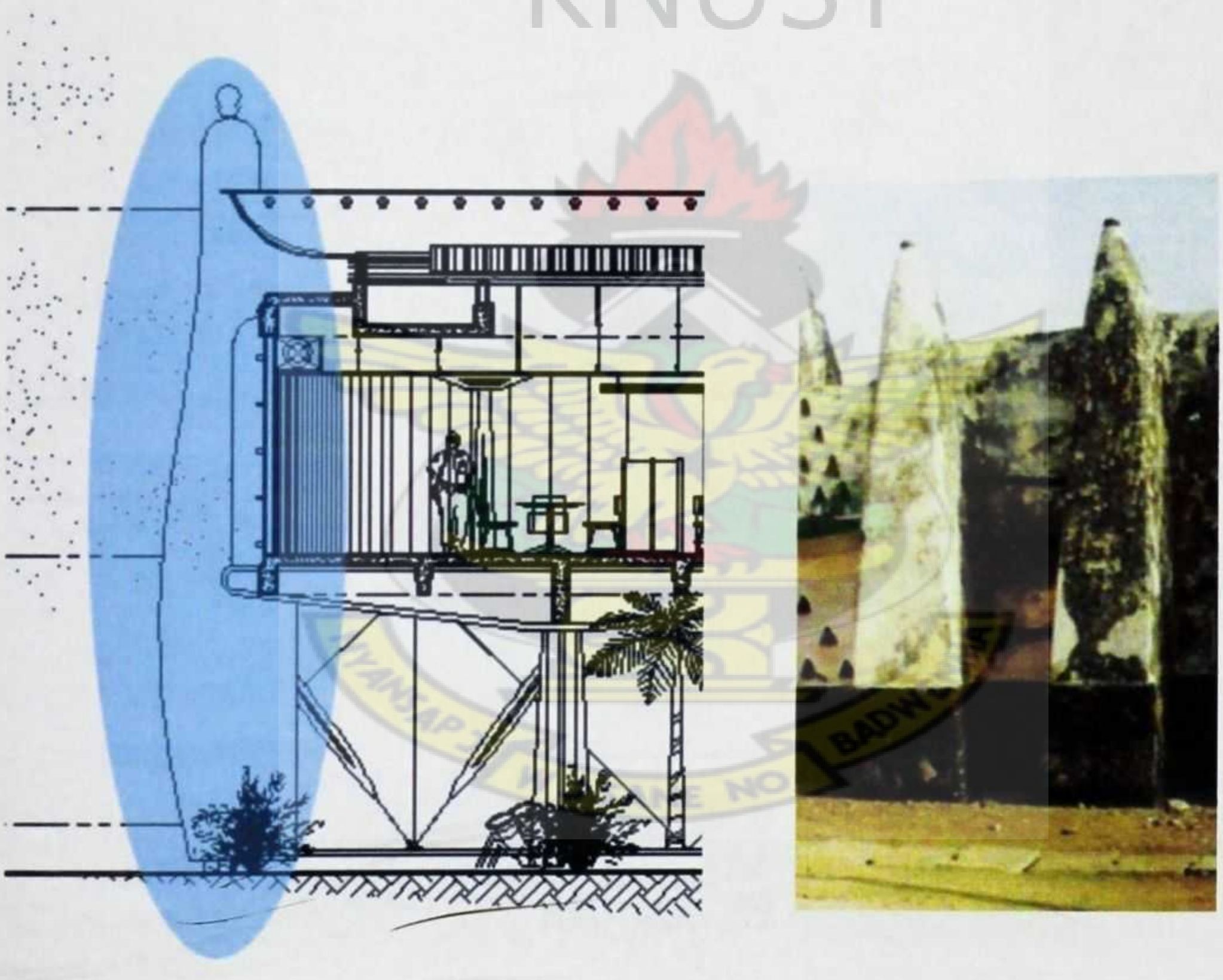


Figure 4.25, *Abstraction of piers and buttresses of Wa Naa's Palace as columns in the proposed design.*

The design principle of symmetry and balance was also adopted in the design and planning of the proposed scheme. Figure 4.26 indicates how symmetry and balance is achieved on plan and in the design of facades.

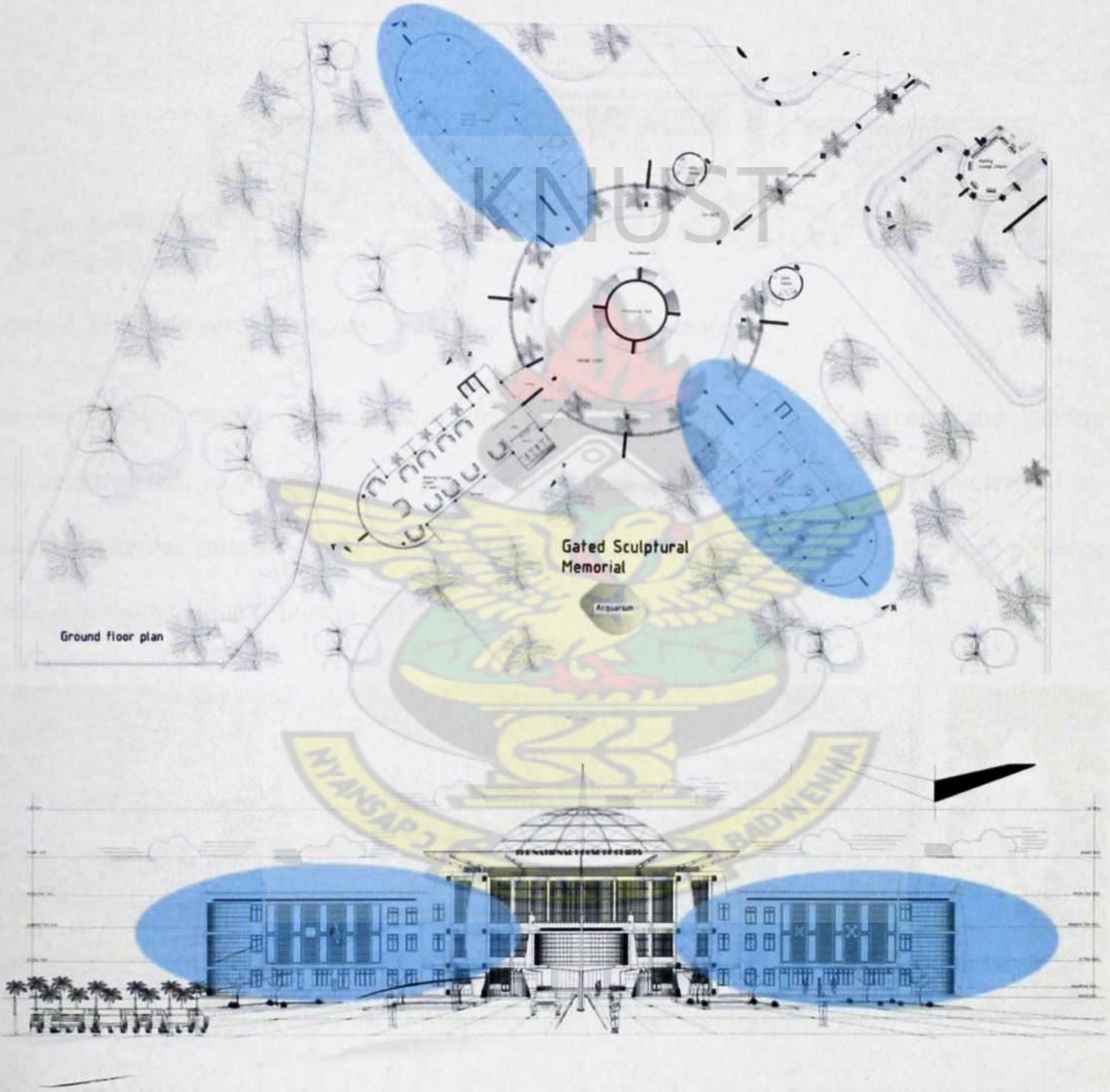



Figure 4.26, *Application of symmetry and balance in the proposed design.*

In responds to display of traditional symbols such as the Adinkra symbols, murals and paintings, facades were designed with emphasis on plain vertical planes on which all such paintings and symbols could be embossed as indicated in figure 4.27,

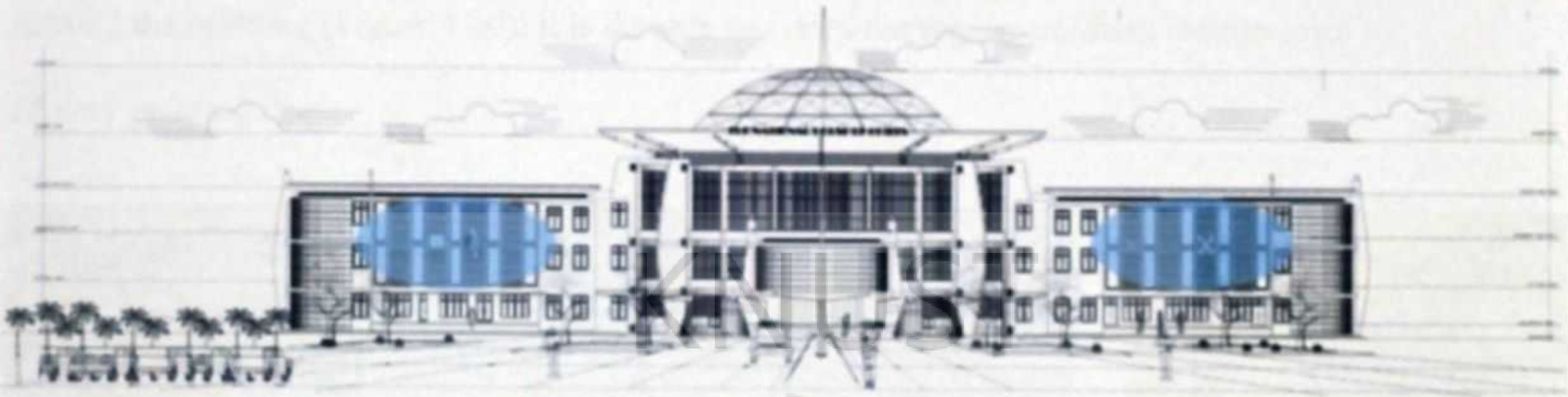


Figure 4.27, *Plain vertical planes for display of cultural symbols.*

The design also employed some abstracted features borrowed from Vernacular and Islamic Architecture such as the horizontal projection of bush poles. The design is characterized by projected circular patterns on the surface of the stool-like parapet symbolic of the push poles of the Larabanga Mosque (Figure 4.28).

Figure 4.28, *Abstraction of horizontal projection of bush poles in the design as exist in many traditional buildings in northern Ghana.*

### 4.5.4 MATERIAL SELECTION.

The choice of materials for the scheme was influenced by the findings obtained from the buildings evaluated. In addressing the issue of poor maintenance of buildings understudied which was so as a result of the use of a non permanent material (paint), marble was used in cladding the building (Figure 4.29). It is durable and does not require constant maintenance as ordinary painting does.

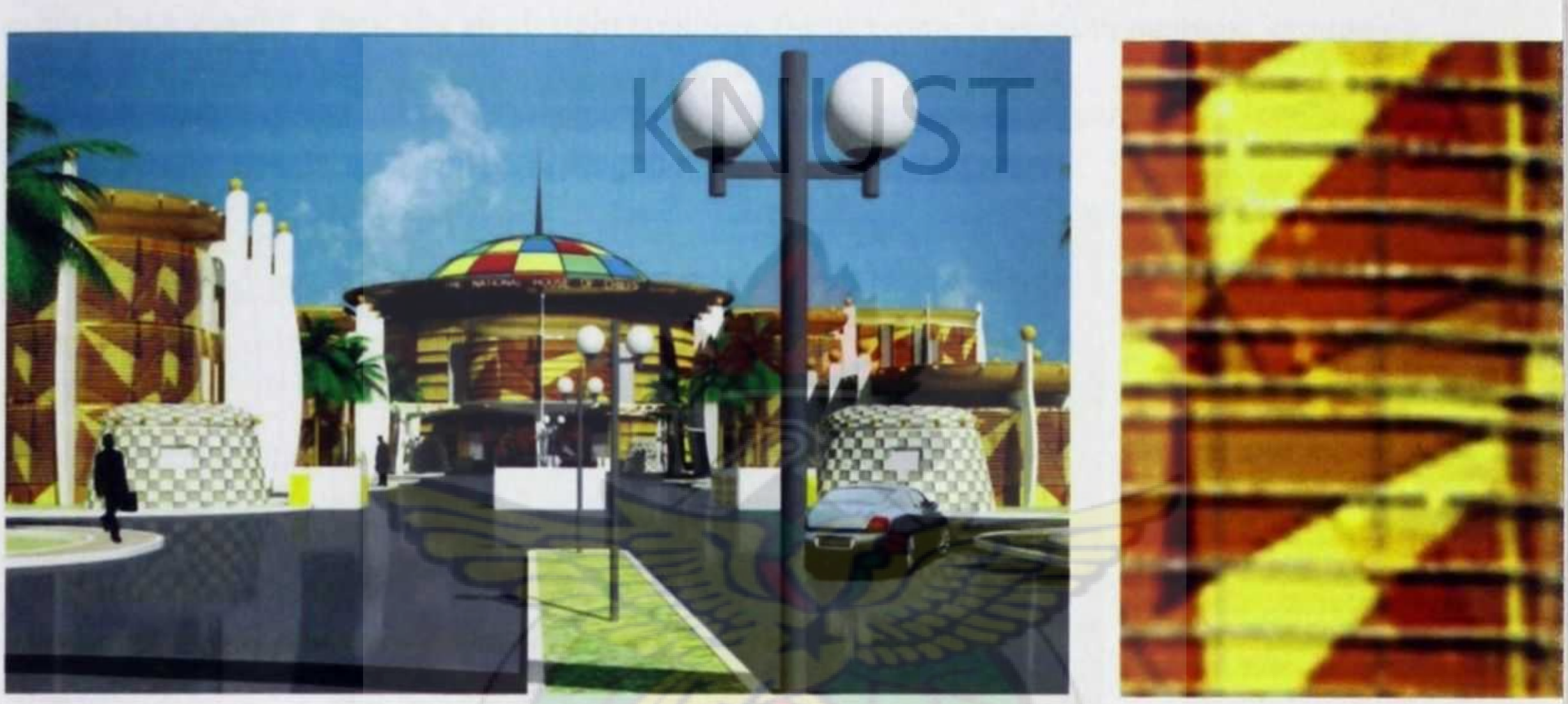


Figure 4.29, *The application of marble in cladding the proposed National House of Chiefs.*

Also in complimenting the use of courtyards in creating conducive internal conditions, the design also resorted to the use of polycarbonate as roof cover because of its inherent climate modifying properties. It has high thermal insulation and can resist temperatures of up to 1400. It is also lighter and would be much easier to fix as roof cover of the domes. It is also flexible and can be formed into different shapes.

As a self sustaining entity it resorted to the use of biogas as an alternative energy source. The fixed dome digester which has all the four components of gas storage, fermentation chamber, hydraulic tank and inlet tanks integrated into one structure was selected. It is a simple concrete construction, hence, durable and less costly. It also has no moving parts and metal components, thus, easy to maintain and capable of generating higher gas pressure.

It is completely constructed underground and saves land space as well as receiving input materials by gravity. Basically an air tight tank transforms biomass waste to methane, producing a renewable energy that is stored and distributed for use as electricity (Figure 4.30).



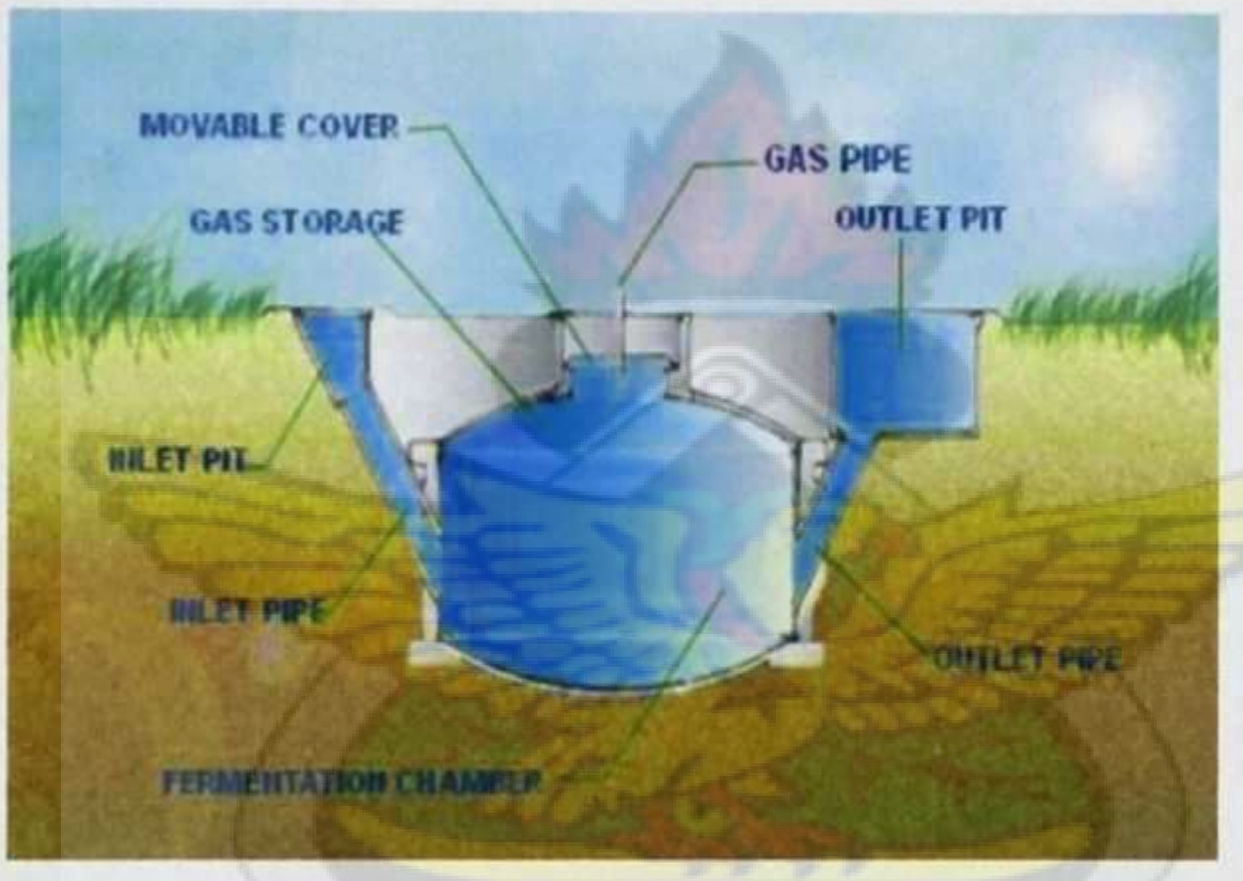



Figure 4.30, Detail of the fixed dome digester (China renewable energy industries association, 2001).

## 4.6 THE DESIGN

The design indicates the specific considerations in the design of the proposed National House of Chiefs such as the brief and accommodation schedule, site selection criteria, inventory and analysis as well as the design philosophy and concept. It further elaborates on the rational behind the various conceptual sites planning leading to the final sketch design.

### 4.6.1 BRIEF AND ACCOMMODATION SCHEDULE

Through evaluation of the clients brief and facilities studied, the following is the brief and accommodation schedule of the proposed National House of Chiefs.

| | SPACE | AREA |
|---|---|---|
| ADMINISTRATION BLOCK | | |
| 1 | OFFICES | 1096 |
| 2 | SEMINAR ROOM | 398 |
| 3 | RESEARCH LIBRARY | 398 |
| 4 | THE CHAMBER | 1368 |
| 5 | ROYAL CAFETERIA | 298 |
| 6 | OBSERVERS SPACE | 345 |
| 7 | PARKING | 3075 |
| 8 | WAITING AREA | 596 |
| 9 | SCULPTURAL MEMORIAL | 1387 |
| 10 | ARCHIVES | 298 |
| 11 | CONFERENCE ROOM | 53 |
| 12 | SANITARY AREAS | 428 |
| SUB-TOTAL | | 9607 |
| ARBITRATION CENTRE | | |
| 1 | COURT ROOMS | 810 |
| 2 | WAITING AREA | 155 |
| 3 | BREAK OUT ROOMS | 229 |

| | SPACE | AREA |
|---|---|---|
| 4 | OFFICES | 637 |
| 5 | SANITARY | 140 |
| **SUB- TOTAL** | | **1971** |
| **ART AND CRAFT CENTRE** | | |
| 1 | EXHIBITION HALLS | 537 |
| 2 | SALES OUTLET | 279 |
| 3 | WORKSHOPS | 385 |
| 4 | FIRST AID ROOM | 55 |
| 5 | CHANGING ROOMS | 55 |
| 6 | CAFETERIA | 179 |
| 7 | SANITARY AREAS | 176 |
| 8 | TOOLS ROOM | 324 |
| 9 | OFFICES | 55 |
| **SUB-TOTAL** | | **2045** |
| **DURBAR GROUNDS** | | |
| 1 | ROYAL DAIS | 455 |
| 2 | CHANGING ROOM | 92 |
| 3 | SEATING AREA | 683 |
| 4 | SANITARY | 134 |
| **SUB-TOTAL** | | **1364** |
| **OVERALL** | | **14987** |

### 4.6.2 SITE SELECTION

The complex is to be located in Kumasi; the capital of the Ashanti Region as has been established in the previous chapters. Following however is the criteria in settling on a specific site in Kumasi for the proposed National House of Chiefs.

### 4.6.3 SITE SELECTION CRITERIA

The criteria for site selection were based on three core principles. The minimum total land size for the project. This was arrived at based on the accommodation schedule. Also, the National House of Chiefs, a symbol of Ghanaian culture should be sited at a place with a historic background. Finally but most importantly the site should be out of the city centre (because of the traffic situation) and at the outskirts but be easily accessible.

With these criteria, two sites came to mind. These are outlined in Figures 4.31 and Figure 4.32.

Site A is located at Manhyia, adjacent the Total filling station and Site B at Asenua along the Kumasi Mamponteng road. However site A was not chosen because locating such a complex close to Manhyia with the intended massing clearly would draw more significance than the Palace. Beside the site is a forested area that enhances the micro-climate of the area, it would be a great disservice to nature and our lives if such an expanse of greenbelt was tempered with significantly.

Site B was chosen because of its historic significance. It is the official site allocated to the secretariat by the late Otumfuo Opoku Ware II in 1983. An amount of sixty thousand cedis was paid to the Oyoko stool as compensation. It is a 10 acre piece of land that lies at the outskirts of Kumasi and very accessible from the city centre.


Figure 4.31, *Site A, pictures of site.*


Figure 4.32, *Site B, pictures of site.*

### 4.6.4 RECONNAISSANCE SURVEY

The site at a glance has a sterling revelation. It has been grossly encroached due to rapid economic and residential development springing up in the area. It has scarce vegetation with isolated plantain and mongo trees. The slope is significant along the north -west direction. The soil is sandy-loam and supports vegetation growth. Some of the issues are indicated in the figure below.

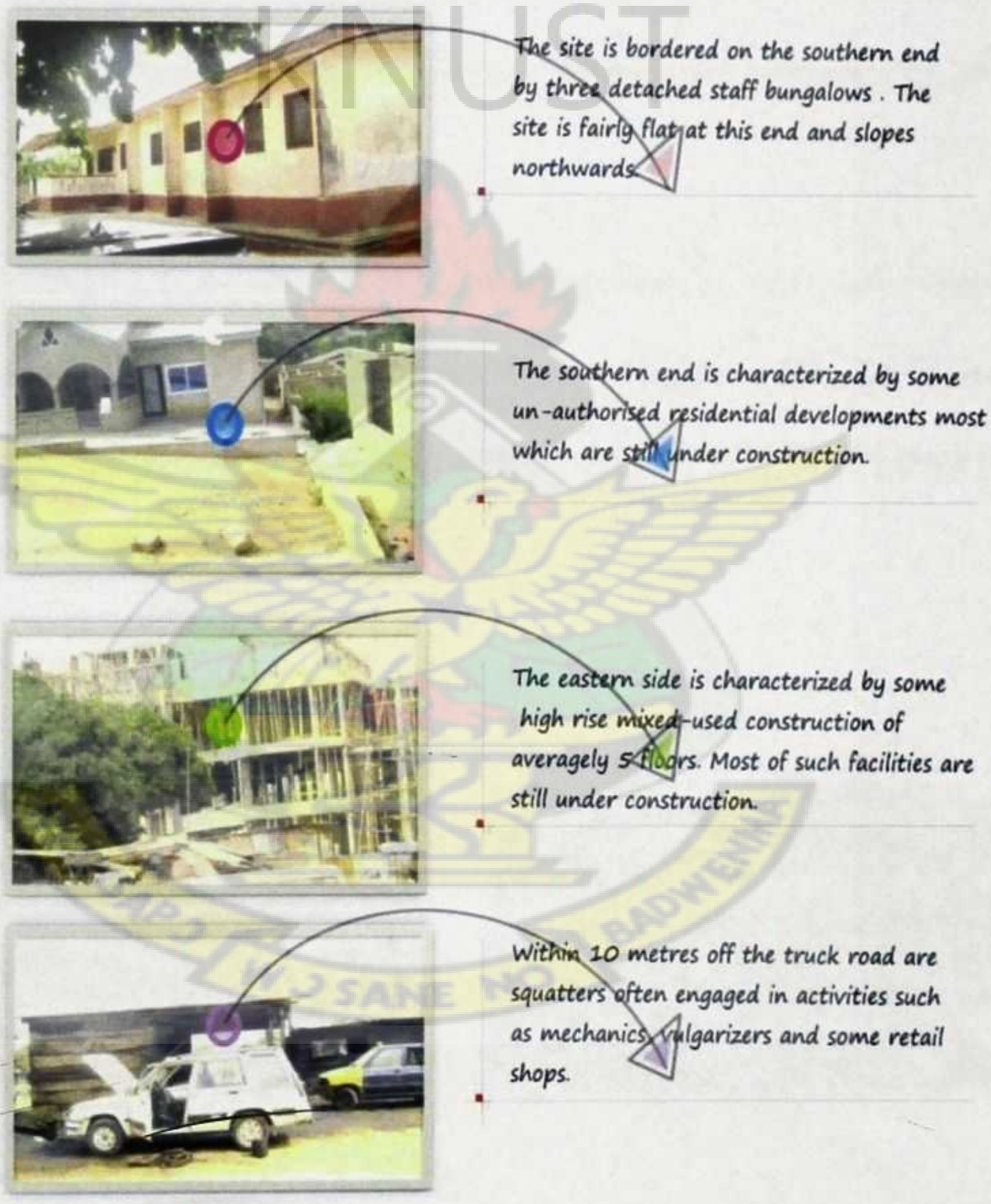



Figure 4.33, *Site reconnaissance survey.*

### 4.6.5 SITE PERIPHERAL STUDY

There are retail shops/ restaurants to augment the pressure on the on-site provisions (Figure 4.34). There are also schools such as the Jesus Power International School (Figure 4.35) in the neighborhood. There is a gas station along the stretch of the road to provide the fuelling needs of vehicles of chiefs and other stakeholders (Figure 4.36). The zoned commercial area in which the garage and gas station have been developed would also accommodate the proposed hotel and club house as indicated on the site plan to meet the accommodation needs of the chiefs. A five level mixed commercial residential building still under construction, indicates the new height targets in the area (Figure 4.37).

The site was also not without challenges. The ever growing presence of unauthorized commercial development poses a serious health/security risk (Figure 4.38). The detached bungalows most of which are uncompleted pose a serious security risk, have a poor layout and at the base of a valley could lead to flooding (Figure 4.39).

Figure 4.34, *Retail shops.*


Figure 4.35, *Jesus International School.*

Figure 4.36, *Mixed-use facility.*

Figure 4.37, *Gas Station.*

Figure 4.38, *Squatters.*

Figure 4.39, *Residential Buildings.*

### 4.6.6 SITE INVENTORY AND ANALYSIS

The site is fairly gentle towards the Northwest from the south east. However just before the periphery of the site along the last but one contour there is a sharp descent (Figure 4.40). There is therefore the need for some land retention to reduce erosion and to collect surface run-offs. The site is has been encroached for all sorts of activities; from residential to commercial, from authorized to unauthorized developments. The site is accessible from the Kumasi Mampong highway and has good views. The soil is sandy loam and can support a large landscape exercise (Figure 4.41).

A major disadvantage of the site is that by virtue of its location it is at risk in terms of security and privacy threats due to the encroachment. The excessive noise levels generated along the trunk road as well as the CO2 emissions from moving traffic poses a serious threat to life and therefore appropriate measures must be taken to reduce the decibel levels.

Climate and weather:

- temperature ranges between 21°C and 32°C
- annual rainfall varies from 1500 mm to 2000 mm
- relative humidity remains high at about 75% for most essential parts of the day
- wind velocities are typically low but strong winds during rainstorms

Infrasttucture and Services:

- existence of electricity from the national grid
- existing telecommunication lines
- water supply from GWCL
- presence of storm drains
- well developed road and railway network.

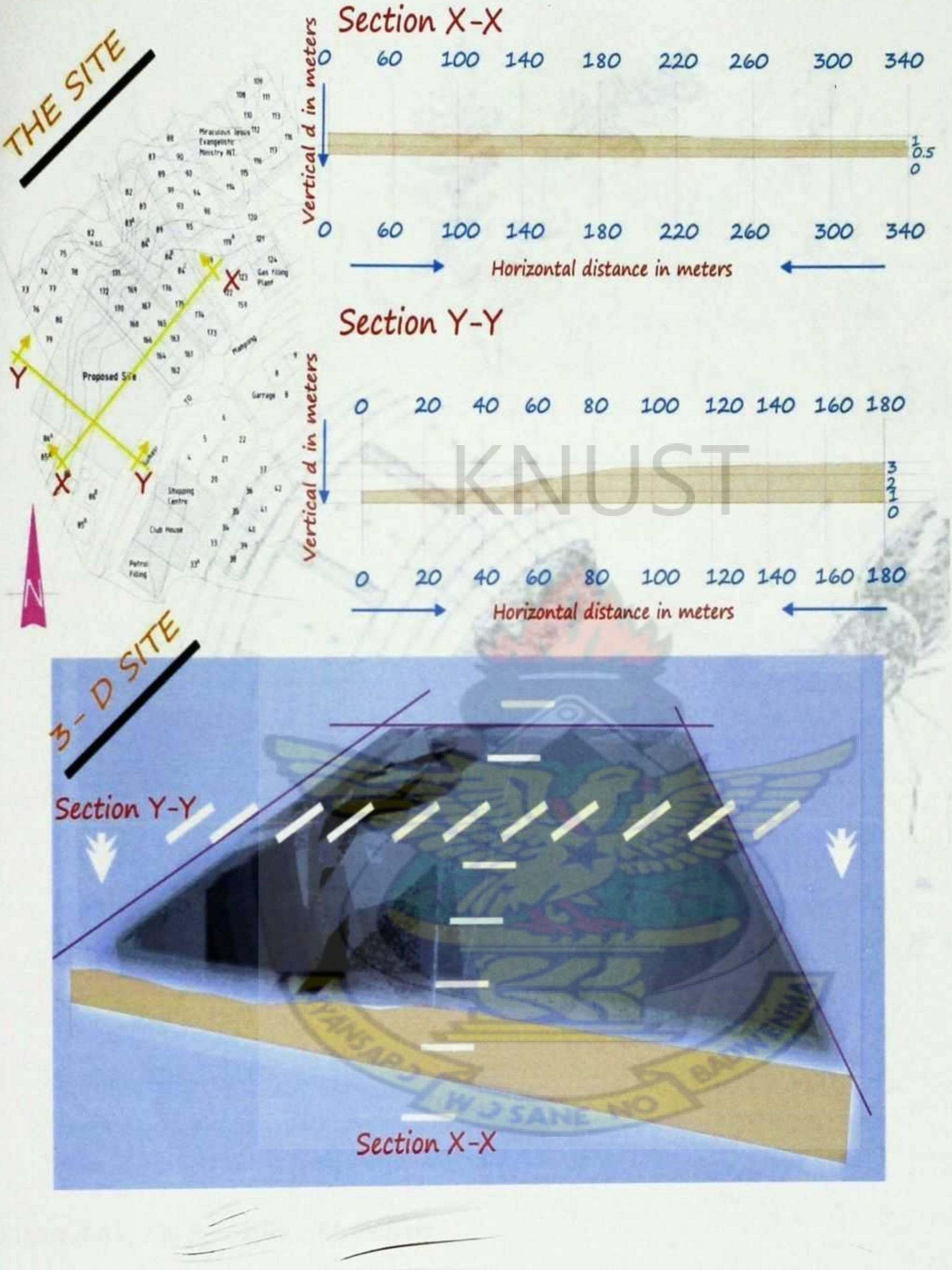



Figure 4.40, *Site Sections showing the sharp descend at the periphery of the site.*

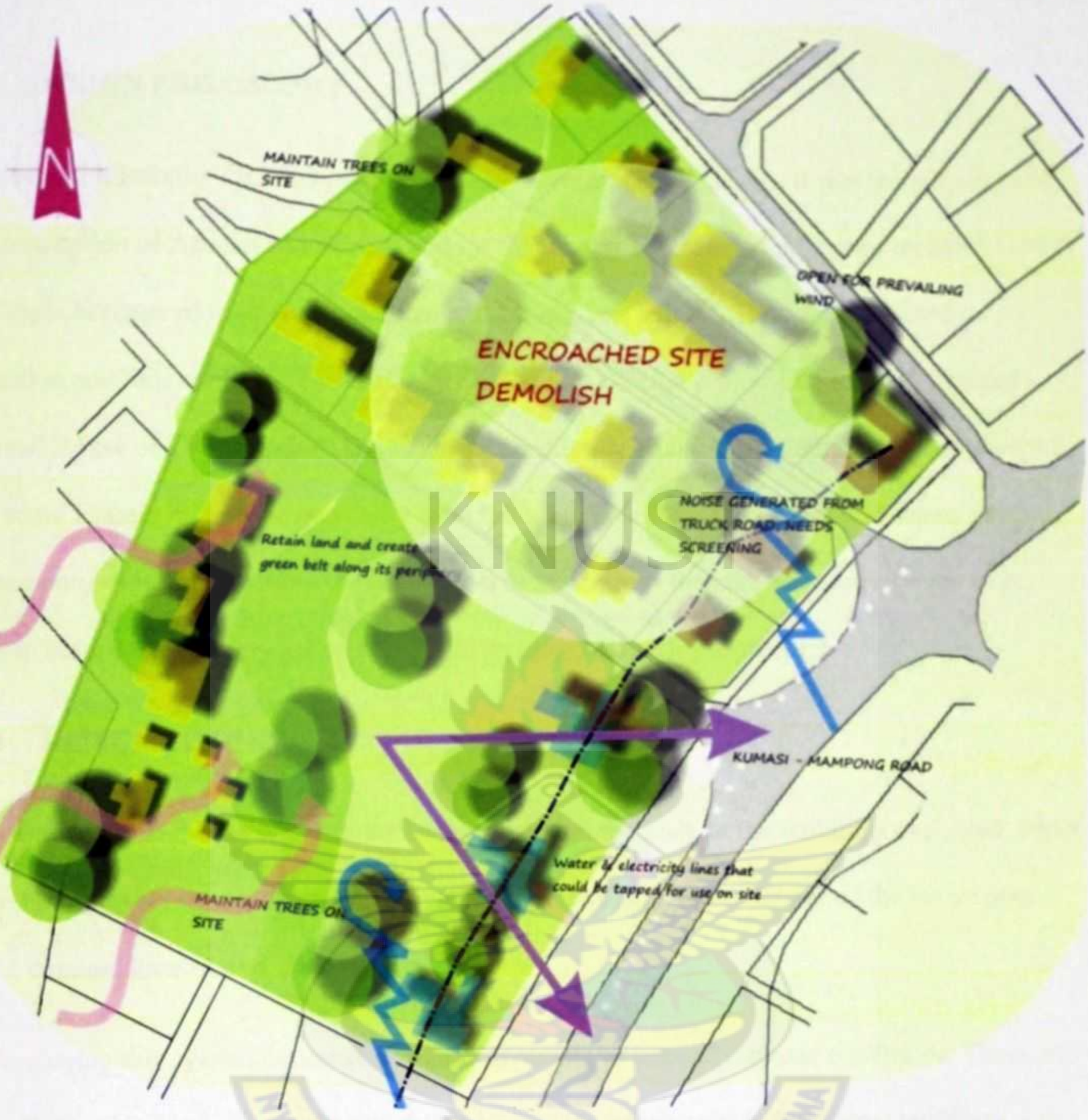



Figure 4.41, *Site Inventory and analysis.*

### 4.6.7 DESIGN PHILOSOPHY

The design Philosophy for the scheme is Post-Modernism (Eclecticism). It was initially inspired by a conception of African architecture and for that matter Ghanaian architecture by Elleh (1997) as a 'triple heritage of indigenous, western and Islamic influences'. This was subjected to evaluation and thus confirming its suitability as the ideal design philosophy for the proposed National House of Chiefs. Indeed Ghanaian architecture is a sum of our Indigenous Architecture with some Islamic influences especially from the north (Wa Naa's palace) and Western (contemporary) influences from the south. Post Modernism is thus the most appropriate as it tends to unite contemporary architecture with architectural styles of the past.

### 4.6.8 DESIGN CONCEPT

The concept of the design was influenced by the design methods of the buildings evaluated. Most of the buildings resorted to the use of a courtyard described as the generator of the house plan across communities around Africa.

By employing this system the entire design is favorable to tropical climatic conditions. There are basically two kinds of courtyards; the closed courtyards which exist in individual buildings and the closed courtyards formed by arranging buildings such that open spaces are created as interactive spaces. This was utilized in planning and designing the entire facility.

The concept of hierarchy with emphasis on fractal developments was adopted in the spatial planning. Thus in the design, along the royal avenue, you meet the public facilities as you approach the chamber which is the most significant in terms of hierarchy and privacy.

### 4.6.9 FUNCTIONAL RELATIONSHIP

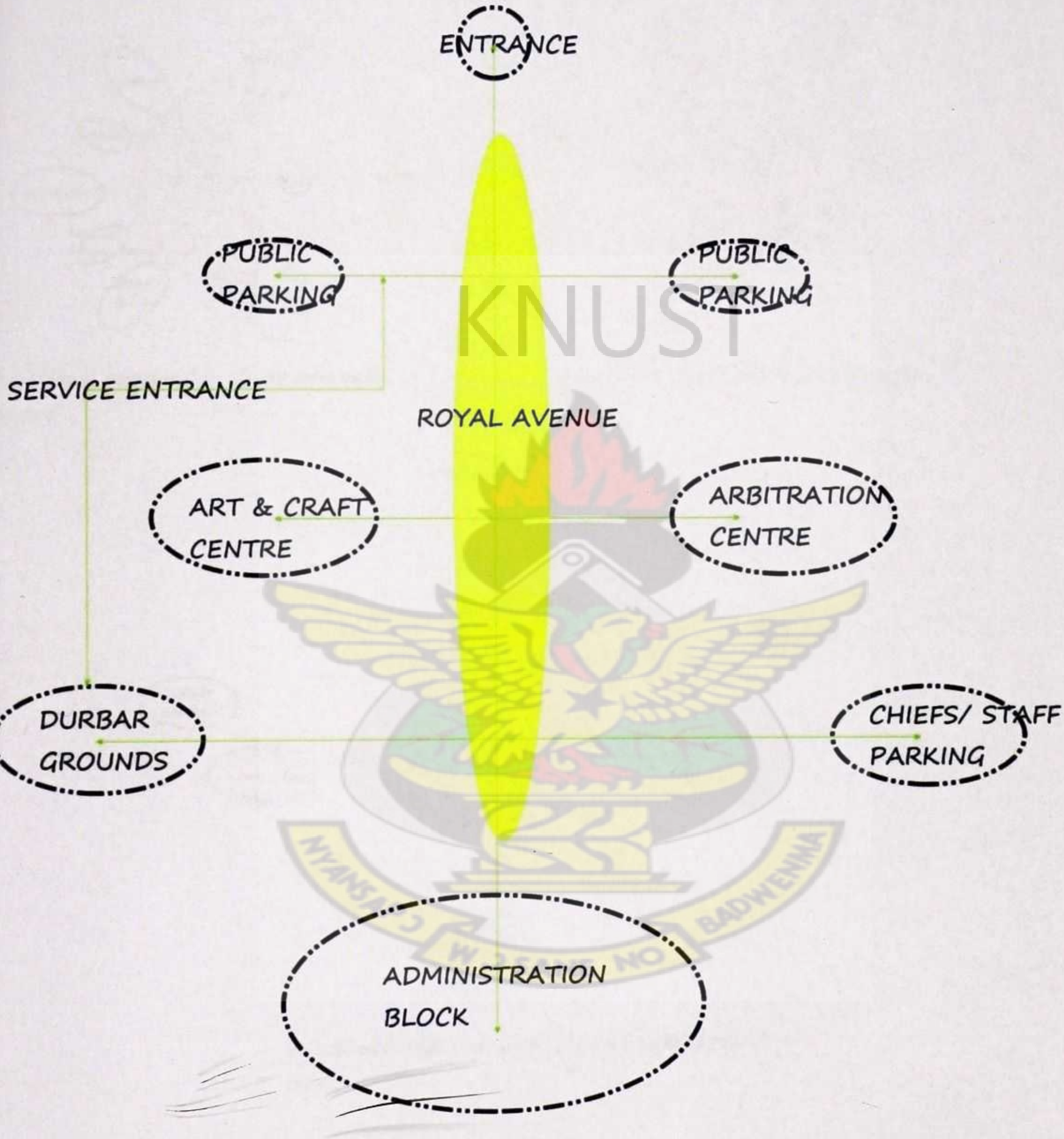
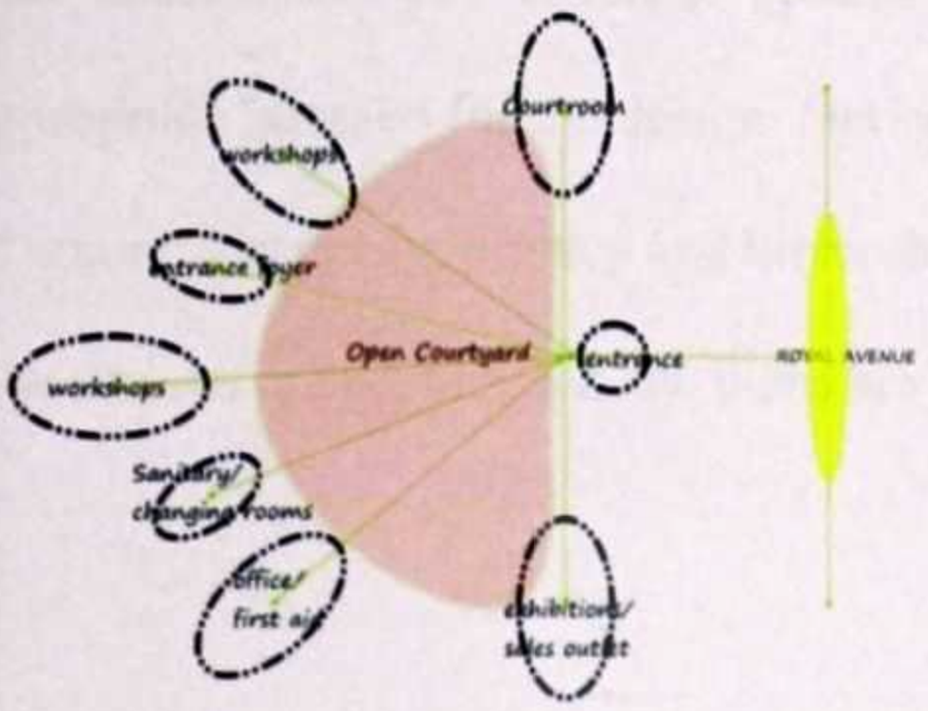
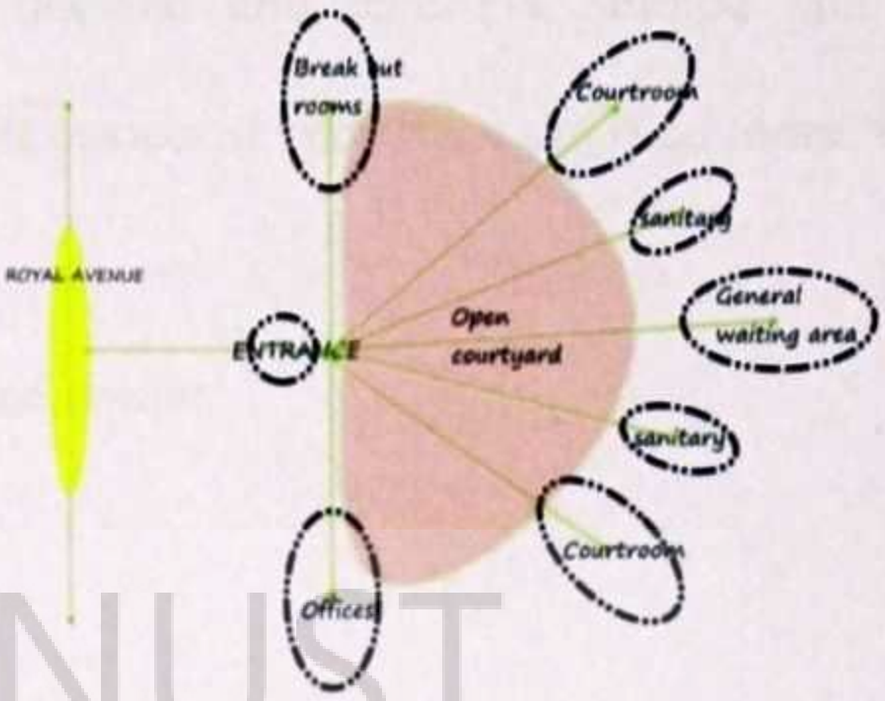


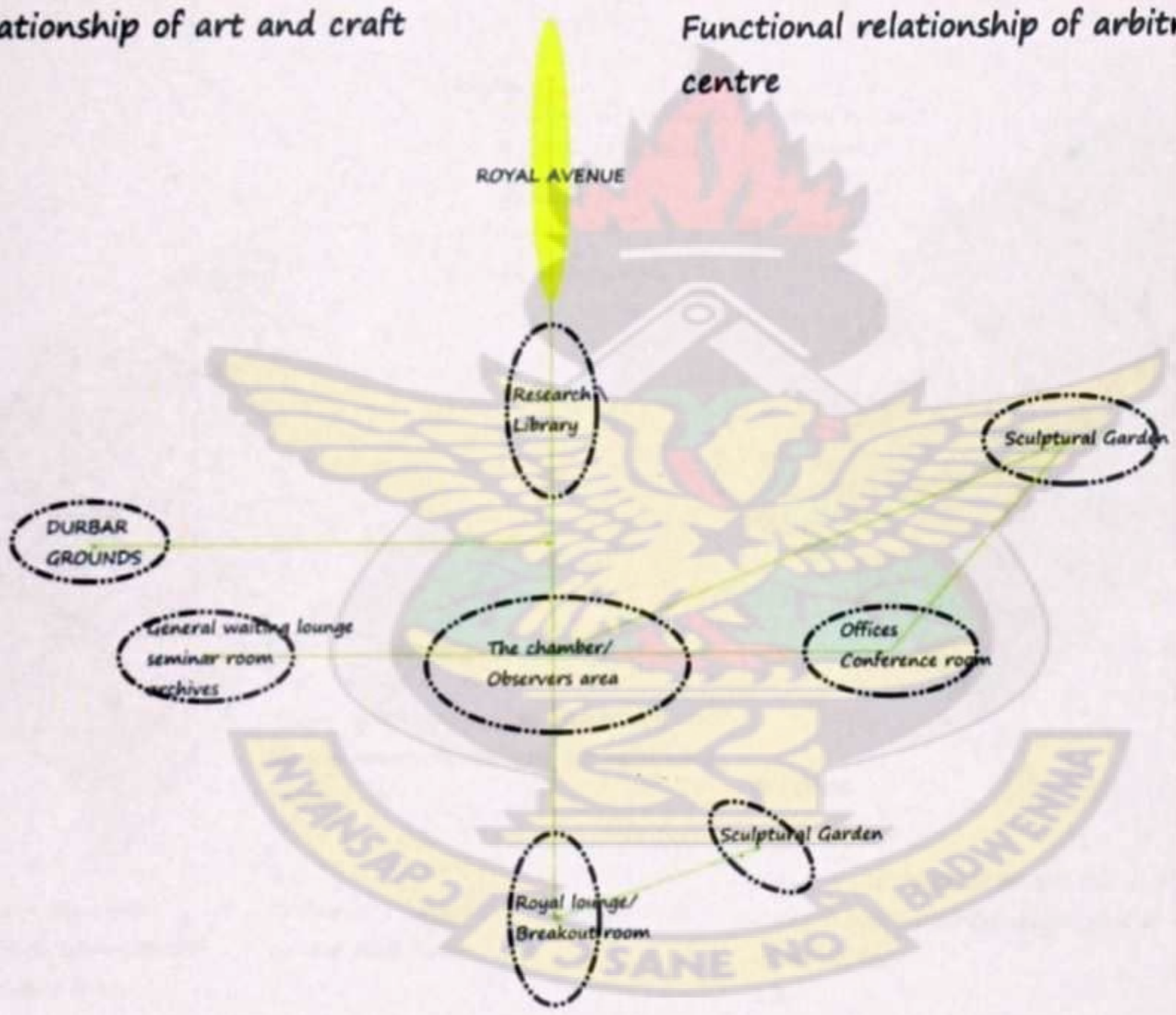

Figure 4.42, *General functional relationship diagram.*




Functional relationship of art and craft centre




Functional relationship of arbitration centre




Functional relationship of main administration block

Figure 4.43, *Functional relationship diagram of the administration, arbitration and the art and craft centre.*

### 4.6.10 CONCEPTUAL SITE PLANNING

Based on information gathered for this study, zoning options of the various spaces to be designed was undertaken. Six different options were decided and carefully studied and the most appropriate adopted for the design. Option six was selected because it satisfied more, the criteria of attaining security, privacy and hierarchy.

The various conceptualized site plans are itemized below,



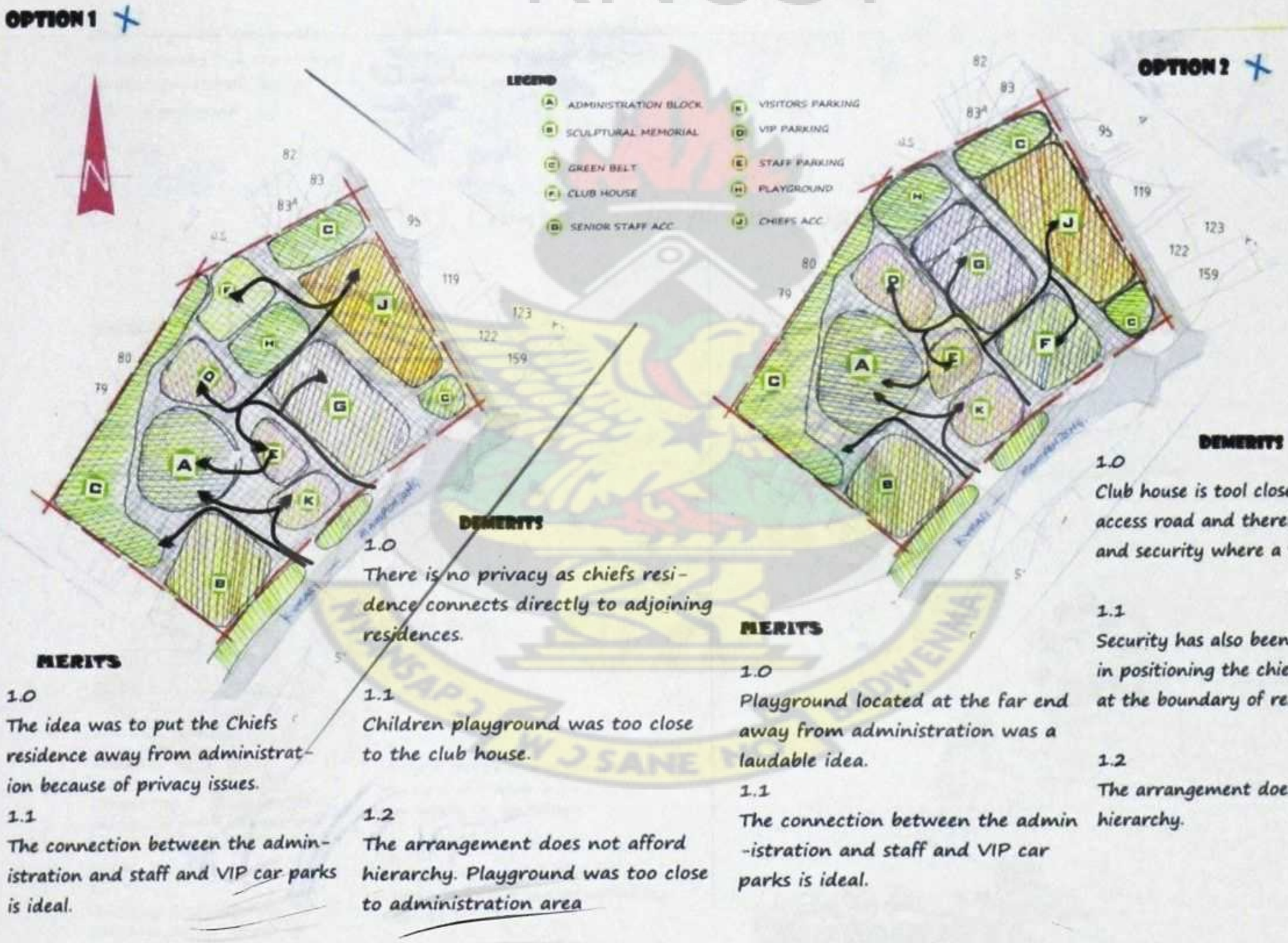



Figure 4.44, *Conceptual site planning options one and two.*

OPTION 3


LEGEND

- A ADMINISTRATION BLOCK
- B SCULPTURAL MEMORIAL
- C GREEN BELT
- F CLUB HOUSE
- G SENIOR STAFF ACC
- K VISITORS PARKING
- D VIP PARKING
- E STAFF PARKING
- H PLAYGROUND
- J CHIEFS ACC

PLAN DEVELOPMENT


MERITS

1.0
The separation of the visitors entrance parking from that of the chiefs, staff and service entrances was very appro-periate.

1.1
The arrangement also permits some hierarchy from the primary facilities down to the least in order of preference.

DEMERITS

1.0
Locating the sculptural memorial away from royal view and close to service entrance was inappropriate

1.1
The linear arrangement of the chiefs accommodation defeats the creation of an open gated court.

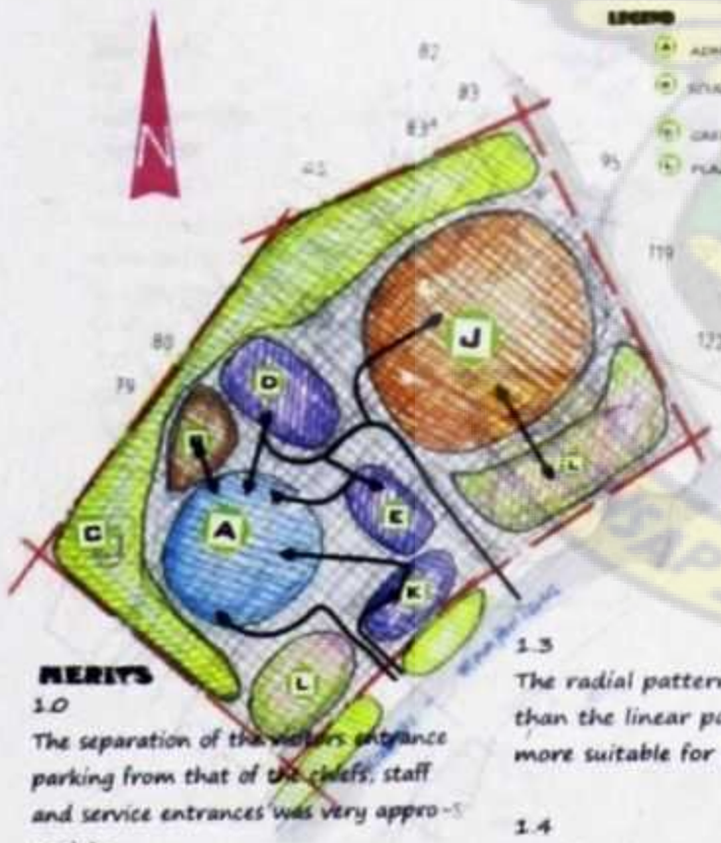
CHALLENGES

1.0
The provision of accommodation for senior staff as well as club house was not considered top priority. It was therefore to be re-zoned to accommodate a plaza in a radial arrangement.



Figure 4.45, *Conceptual site planning option three.*

OPTION 4




LEGEND

- A ADMINISTRATION BLOCK
- B SCULPTURAL MEMORIAL
- C GREEN BELT
- L PLAZA
- K VISITORS PARKING
- D VIP PARKING
- E STAFF PARKING
- J CHIEFS ACC

PLAN DEVELOPMENT


MERITS

1.0
The separation of the visitors entrance parking from that of the chiefs, staff and service entrances was very appro-periate.

1.1
The arrangement also permits some hierarchy from the primary facilities down to the least in order of preference.

1.2
Placing the sculptural memorial within royal view is appropriate

1.3
The radial pattern is more communal than the linear pattern and therefore more suitable for the concept.

1.4
Also by this arrangement the gated system as exist in the palace environment has been captured effectively

Figure 4.46, *Conceptual site planning option four.*

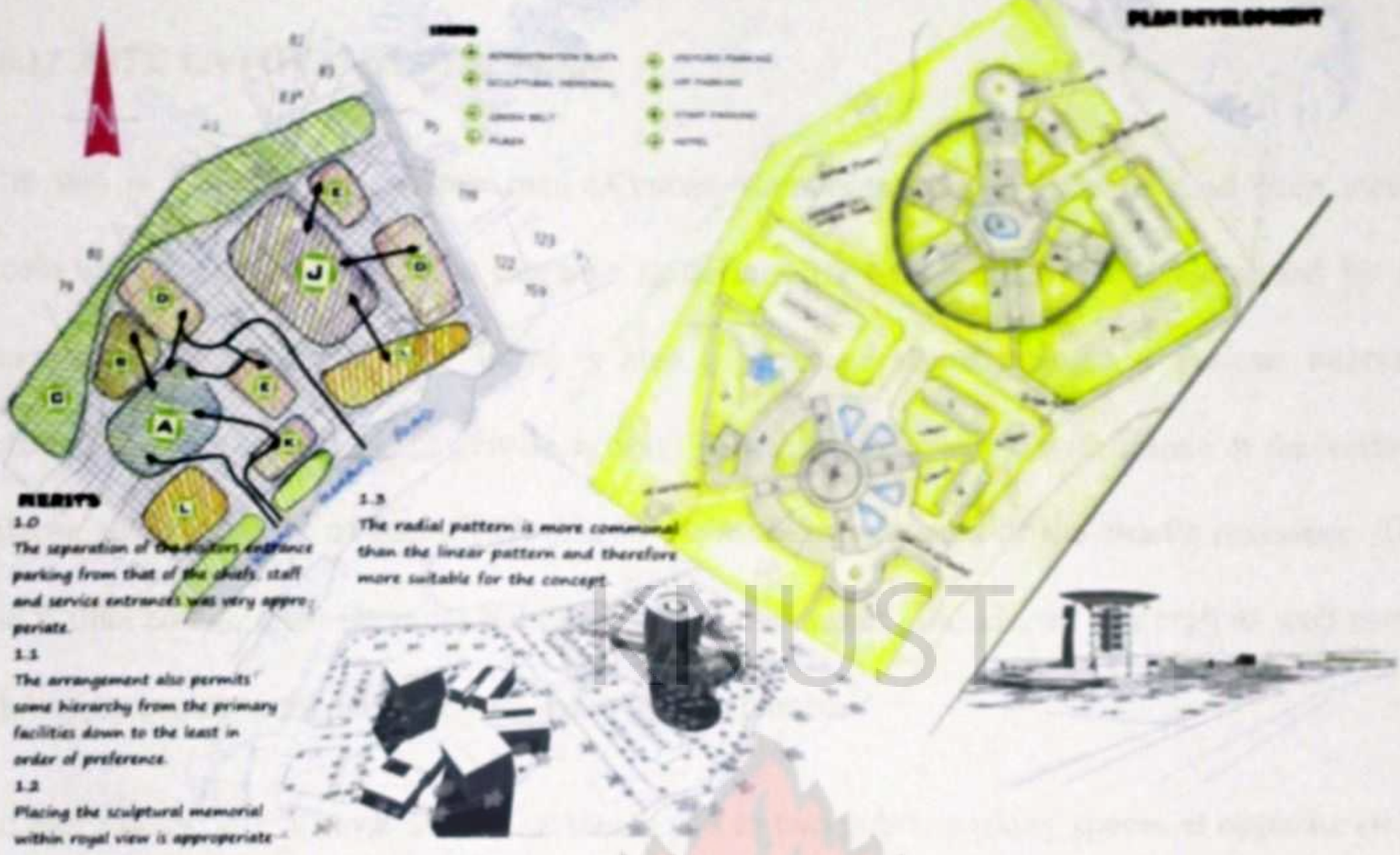



Figure 4.47, *Conceptual site planning option five.*

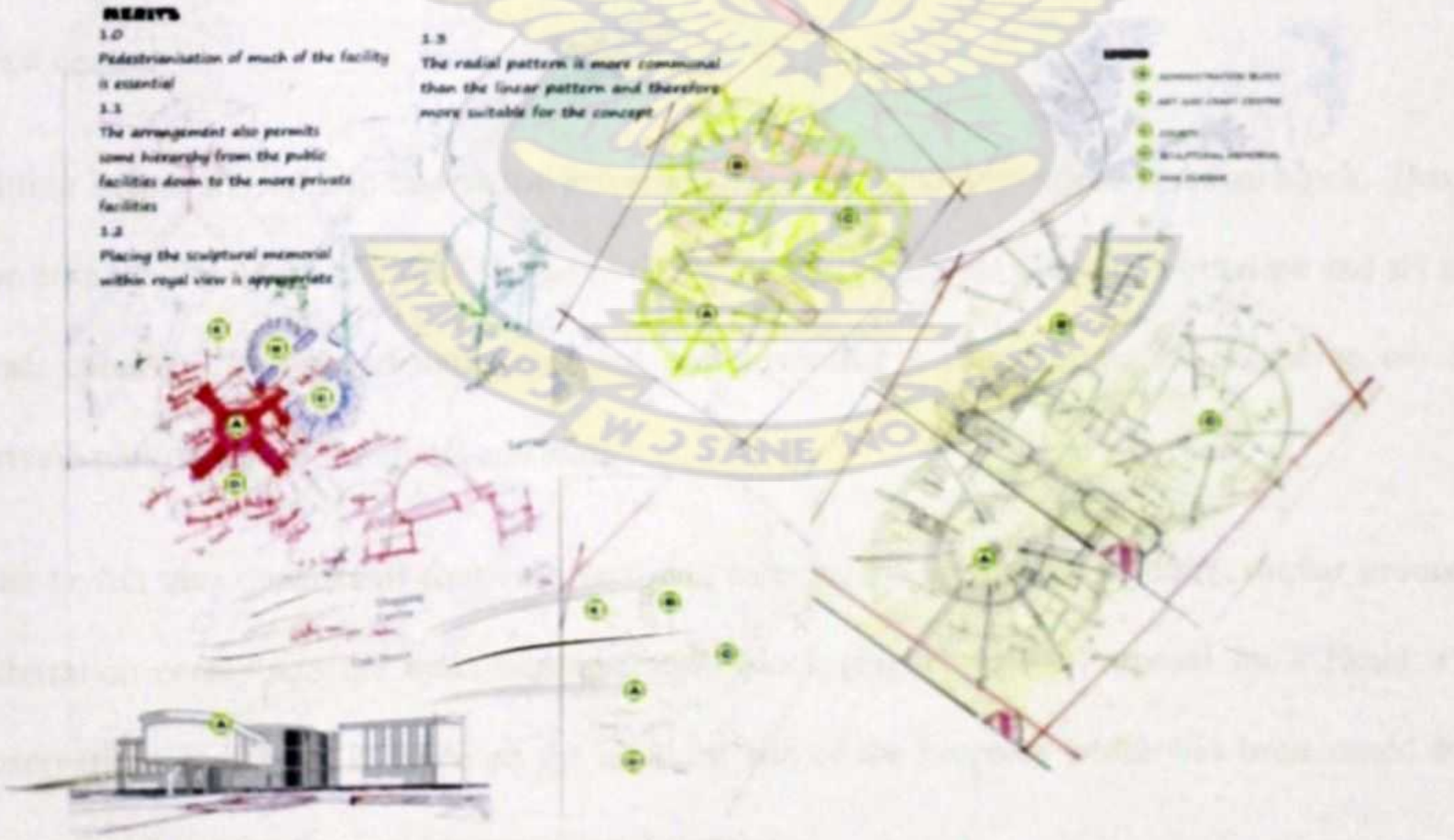



Figure 4.48, *Conceptual site planning option six.*

### 4.6.11 SITE LAYOUT/ BLOCK PLAN

The site is bounded by a major road (Kumasi-Mamponteng) and a minor road from which access to the site is taken. The entrance is defined by two security posts connected by an observatory/suspension bridge. There is also a series of security posts at various intervals defining the level of public or private access. This is in consonance with trends at the various palaces where a series of gates leads you to the more private area of the chief's residence. The site is thus zoned, from the more public spaces of the durbar grounds, art and craft as well as the arbitration centre to the more private space of the chamber.

On entry to the site, a royal avenue connects you to two public parking spaces at opposite ends; from there the site is pedestrianized for the public. On the right side of the avenue upon entry and beyond the public parking spaces are the durbar grounds and the art and craft centre which is serviced by a common services entry point. The arbitration centre is directly opposite the art and craft centre.

Sitting across the avenue and at the extreme end is the Chamber/Administration block. This is the core facility of the National House of Chiefs and more private than the arbitration and art and craft centres. Through an underpass and circumventing a roundabout, one could access the private parking space for chiefs and staff.

The layout thus consists of four core facilities namely; the art and craft centre, durbar grounds, arbitration centre and the main administration block (Figure 4.49). Proposal for a Hotel with reservations for chiefs is made on the adjacent site of the property which has been zoned as a commercial hub by Kumasi Metropolitan Assembly.

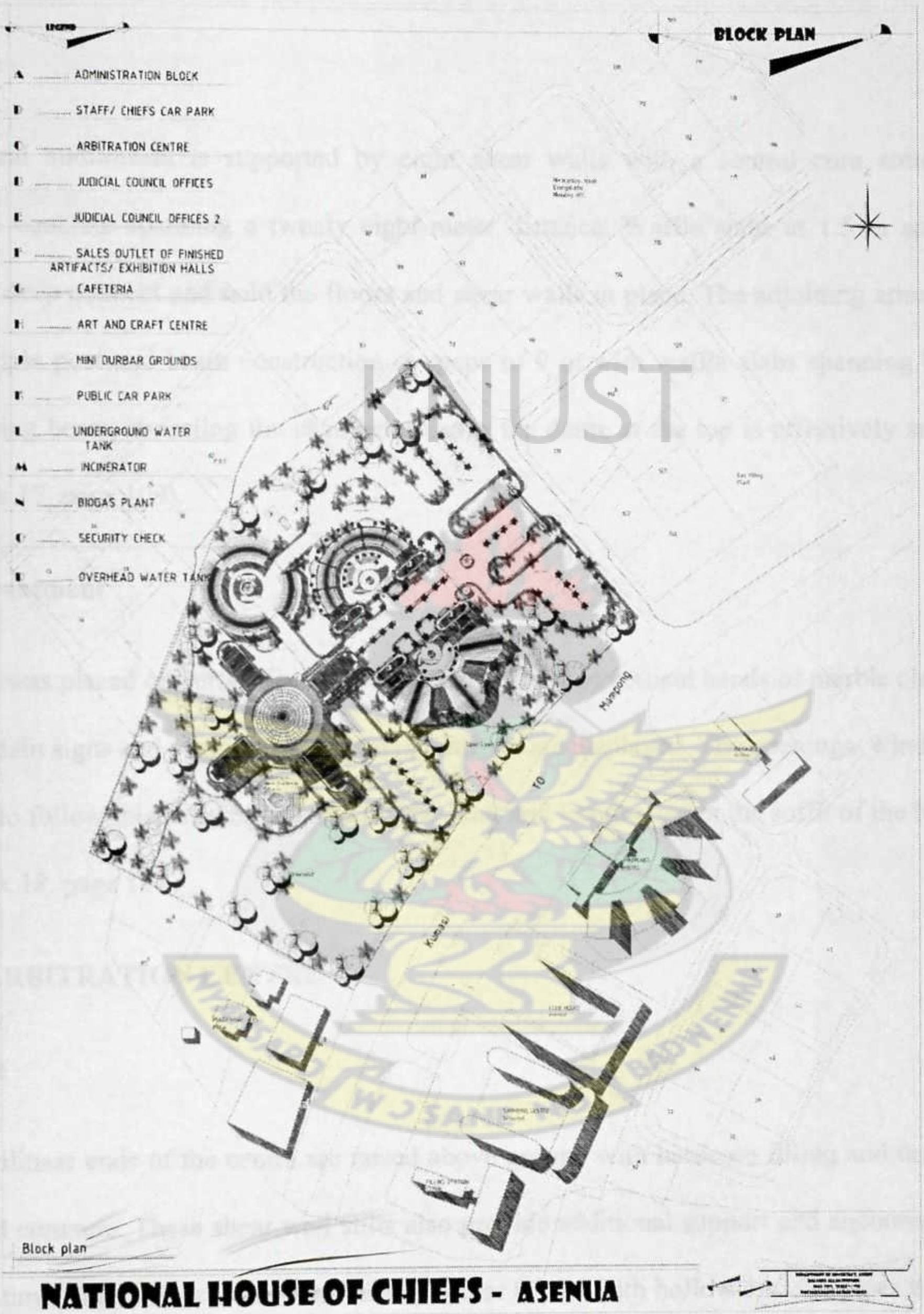





Figure 4.49, *Block plan of the proposed National House of Chiefs.*

### 4.6.12 ADMINISTRATION BLOCK

**Structure**

The central auditorium is supported by eight shear walls with a central core structure of reinforced concrete spanning a twenty eight meter distance. Waffle slabs at 1.5 m spans and 6000 mm deep connect and hold the floors and shear walls in place. The adjoining arms consist of the simple post and beam construction at spans of 9 m with waffle slabs spanning between them. A ring beam encircling the chamber ensures the dome at the top is effectively supported (Appendix 17, page 109).

**Façade treatment**

Emphasis was placed on verticality of the building with large vertical bands of marble cladding where certain signs and symbols of Ghanaian tradition are displayed. The openings/ windows also tend to follow this pattern, 300 mm off the floor and terminating at the soffit of the beam (Appendix 18, page 110).

### 4.6.13 ARBITRATION CENTRE

**Structure**

The curvilinear ends of the centre are raised above ground with hardcore filling and on stilts of reinforced concrete. These shear wall stilts also provide additional support and anchorage to the roof structure. The roof structure consists of cellular beams with hollow circular pipes as purlins to ~~receive~~ the roof covering of polycarbonate origin.

The two rectilinear blocks flanking the entrance to the court of the arbitration centre consist of simple post and beam construction details of which are shown in appendix 24, page 116.

**Façade treatment**

The character of the main auditorium is reflected in the two rectilinear blocks flanking the royal avenue. The curvilinear ends have a monolithic surface treatment of marble cladding with a display of artwork.

### 4.6.14 ART AND CRAFT CENTRE

**Structure**

The structure of the curvilinear ends consists of shear wall supports to the roof and the raised floors. The roof structure consists of hollow circular pipes as rafter-purlin supports with diagonal steel braces. The two rectilinear blocks flanking the entrance to the court of the centre consist of simple post and beam construction and details are shown in appendix 31, page 122.

**Façade treatment**

The character of the main auditorium is reflected in the two rectilinear blocks flanking the royal avenue. The curvilinear ends also have a monolithic surface treatment of marble cladding with a display of artwork.

### 4.6.15 DURBAR GROUNDS

**Structure**

The supports to the galvanized steel plates to which seats are fitted are a network of galvanized steel joists. The roof structure consists of hollow circular pipes as rafter – purlin supports with diagonal steel braces just like the art and craft centre.

**Façade treatment**

Much of the structure is an open air activity centre. With the exception of the royal dais where some artwork is showcased on its façades, there is little to say about the spectator stands aside its structural supports.

### 4.6.16 CIRCULATION

To make circulation in the facility easy, staircases, walkways ramps and lifts have been provided.



## 4.7 SERVICES

### 4.7.1 ARTIFICIAL LIGHTING

Due to the variety in the design brief, various forms of artificial lighting systems were employed for the various spaces.

- **Interior Artificial** Lighting –

These were employed in the various interior spaces such as the chamber, courtrooms cafeteria, offices etc. to supplement natural lighting during the day, provide light during nights and create specific interior effects and feeling.

- **Street Lighting**

These were used predominantly at night to provide good visual aid on the avenue for both pedestrian and drivers. They also increase the security on the avenue and help create more lively streets.

- **Sculptural Memorial and Landscape Lighting**

The development has various parks and green areas of different sizes and effects. Special artificial garden lighting systems were employed to create specific effects and to provide security through visibility.

- **Sculptural lighting**

Artificial lighting was also employed as sculptural elements to add to the artistic effects and create a sense of place for the development.



### 4.7.2 NATURAL LIGHTING

Both active and passive day lighting or natural lighting systems were employed throughout the design process. Due to natural lighting considerations, overall depth of each facility was kept within a 12 m width. However where it exceeds that, skylight through the roof is adapted to supplement the lighting requirements of the space. Also various passive natural lighting systems such as light shelves, reflective walls and ceiling were employed in the various designs

### 4.7.3 VENTILATION

Natural ventilation systems were employed in the various spaces by means of adequate and openable windows. Adequate spaces were left in-between buildings to aid in natural ventilation and lighting. Since natural ventilation alone cannot provide thermal comfort, artificial ventilations systems such as such as extractor fans, ceiling fans, split air-conditioners have been employed to supplement the natural ventilation system.

### 4.7.4 DRAINAGE – WASTE AND SURFACE WATER

Soil waste is taken to the central treatment plant by means of underground pipes. At the treatment plants the waste is separated into solid and liquid. The solid waste is used as manure for the landscaping and the liquid waste is further treated and used to water the lawns of the community.

Surface drainage is generally underground in covered drains with the provision of grills intermittently to take away rain water. The lawns have also been provided with subterranean drain pipes to help drain it more effectively.

### 4.7.5 POWER

In order to reduce dependence on the national grid, power generation systems such as on-site biogas treatment plant would generate power to supplement the electricity from the national grid.

### 4.7.6 FIRE DETECTION AND RESPONSE

The fire alarm system is an automatic 1-24 zone single loop addressable fire detection and alarm system, utilizing conventional detection and alarm sounders. Detection would be by means of optical and heat detectors located throughout the complex.

Small fires would be controlled effected by using portable fire extinguishers located at fire-prone areas within the facility. Compartmentation of certain sensitive areas would ensure hour long containment before eventual evacuation by Fire Service Department.

Fire hydrants are of the sluice valve type to BS 750 comprising a cast iron key operated sluice valve complete with a socket adapter, a duck foot bend and an outlet adaptor or approved equal. The adaptor would have a standard Belfast Pattern Outlet with the female thread protected by a

brass cap and chain. The hydrant fitting would be tee off from the mains. Each hydrant would be provided with a heavy duty cast iron hinged hydrant box to BS 750 with the words fire hydrant cast on the cover. The top of the hydrant box would be painted red.

A 300 by 200 indicator plate of aluminum construction would be provided with an inscription of "fire hydrant". The plate would be supported at 600mm high above ground level by channel steel support. Both plate and support would be painted in red colour and installed about 1,000m from the hydrant.



## 4.8 PHASING

The entire complex is broken down into five distinctive sectors base on activity, character, and function (Figure 4.21). The five sectors that make up the complex are as follows,

- PHASE ONE – consist of the main administration block which includes the Chamber and offices for stakeholders. It would also include construction of the main royal avenue. Due to encroachment of the property, its boundaries would also be secured by fencing.
- PHASE TWO – the arbitration centre is next to the administration in terms of priority.
- PHASE THREE –would include construction of the art and craft centre together with the cafeteria and the exhibition centre.
- PHASE FOUR – the next in order of priority is the durbar grounds which does not necessarily aid direct the functions of the National House of Chiefs.
- PHASE FIVE – the final phase would be the completion of all external hard and soft landscaping.

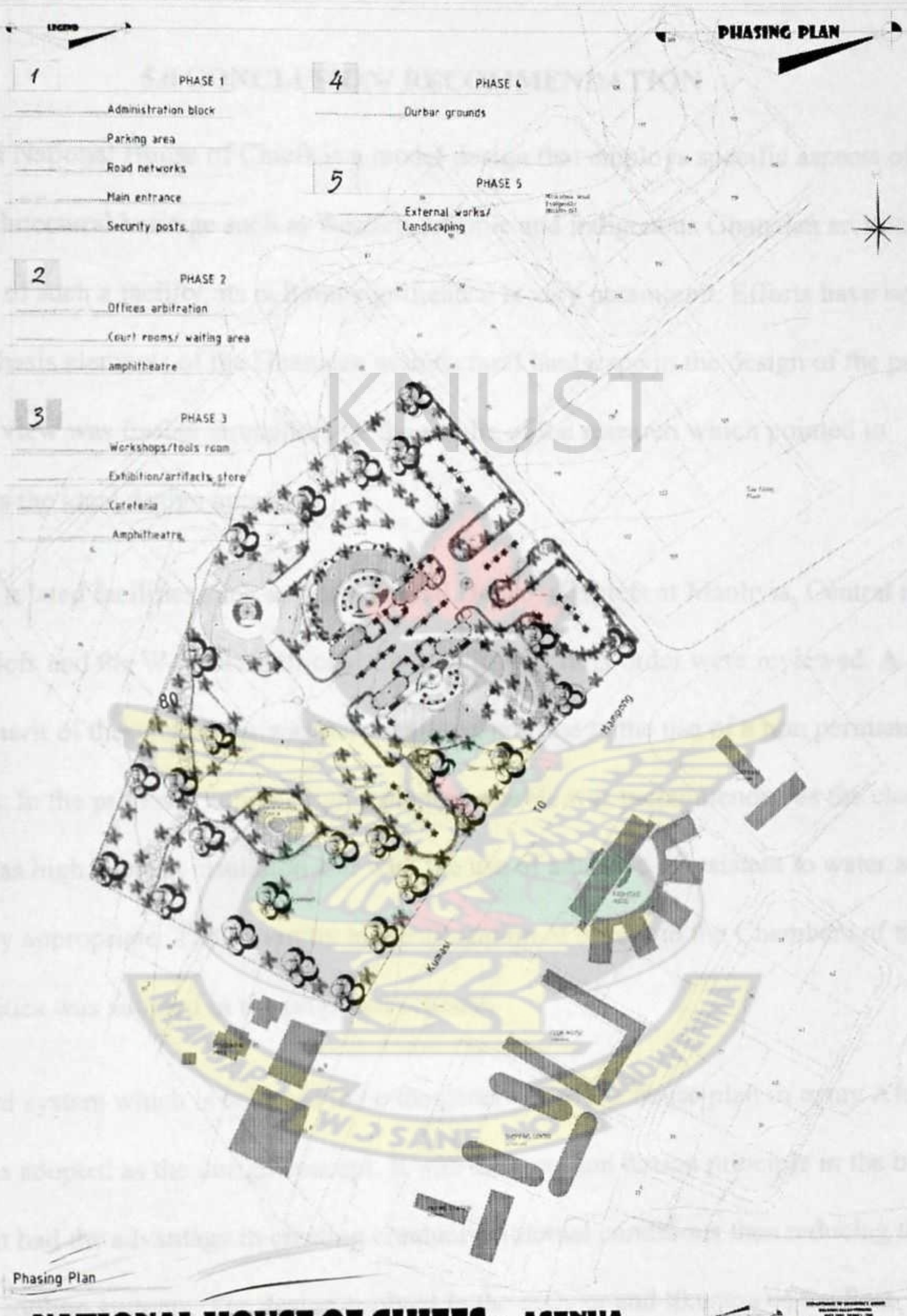



Figure 4.50, *Phasing plan*

# CHAPTER FIVE

## 5.0 CONCLUSION/ RECOMMENDATION

The proposed National House of Chiefs is a model design that employs specific aspects of the Ghanaian architectural heritage such as western, Islamic and indigenous Ghanaian architectures. In the design of such a facility, its cultural significance is very paramount. Efforts have been made to emphasis elements of the Ghanaian architectural landscape in the design of the proposed scheme. The view was further strengthen by the results of the research which pointed to eclecticism as the ideal design approach.

A number of related facilities such as, the National House of Chiefs at Manhyia, Central regional House of Chiefs and the Wenchi traditional Council in structural order were reviewed. A common demerit of these facilities was poor maintenance due to the use of a non permanent finish (paint). In the proposed scheme light coloured marble was recommended as the cladding material. It has high thermal insulation and with the use of adhesive is resistant to water and therefore very appropriate. The hierarchy in the allocation of spaces in the Chambers of the various facilities was adopted in the proposed scheme.

The courtyard system which is believed to be the generator of the house plan in many African countries was adopted as the design concept. It was the common design principle in the buildings studied and it had the advantage in creating conducive internal conditions thus reducing the need for artificial cooling systems. The design evolved in the manner and likeness of the Post Modernist ideals. This was arrived at based on the initial conception of Ghanaian architecture as an eclectic heritage. Post Modernism could be termed the 'unifier' in that it unites the modernist ideals with an architectural style/ styles of the past and therefore fits well in this context.

The design also had the objective of attaining maximum natural ventilation though provisions are made for artificial systems in some places such as the Chamber. This influenced the design and material selection process. The depth of spaces was kept within 12 m separated by courtyards. Additionally the designed resorted to using polycarbonate as the roof covering. Polycarbonate resist temperatures up to 1400 c and high ultra-violet resistances make it suitable for most climates. It also has a high fire performance rating and anti-corrosive. Plasterboard was used as partition for the following advantages. Plasterboard has high fire performance rating, requires less time and labour. It is also very light and therefore suitable for negligible floor loading and generally faster to assemble than ordinary cement.

The facility is also a self sustaining entity. In this regard an alternative but clean energy source (biogas) had to be introduced on site. The fixed dome digester with all four components of; gas storage, fermentation chamber, hydraulic tank and inlet tanks integrated into one structure was selected. It is capable of generating gas at higher pressure, completely constructed using concrete hence it's very durable, easy to maintain and cost effective.

It is recommended that in the design of facilities such as the National House of Chiefs, the cultural significance of the area should be highlighted. In a similar vein to ensure people of all generations identify with the facility, Post Modernism or eclecticism could be the ideal architectural direction.

But above all is the need to create ~~sustain~~able enclaves, energy efficient designs and the selection of more permanent and durable materials for construction of public buildings in Ghana. The design team should be engaged early from inception and tasked to deliver culturally significant and sustainable designs.

It is my hope that the proposed scheme would serve as a model scheme in the development of the various regional houses of chiefs. This would empower chiefs more and put them in a better position to contribute their quotas to national development.



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## 5.2 APPENDIX 1

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF ARCHITECTURE.

Name: .....

Vocation:.....

STRUCTURED QUESTIONS



Following are questions intended to establish the current institutional capacity of the National House of Chiefs, the challenges that the council faces as well as establishing the ideal style in the design of the National house of Chiefs. You are therefore entreated to provide all relevant information that would make the study successful.

1. What architectural direction should a new National House of Chiefs adopt; Traditional, Islamic, Western or eclectic and why.....
2. What is the present composition of the house?.....
3. How often do the house meet?.....
4. Ideally how often should they meet?.....
5. What are the main administrative structures?.....
6. Are the administrative structures expandable and to what degree?.....
7. How often are elections held?.....
8. What are some of the facilities in the present house of chiefs?.....

9. What facilities could be

added?.....

10. What are some of the challenges you face as an

institution?.....

11. In your opinion is the present House of Chiefs functioning as

expected?.....

12. Where are the chiefs accommodated when they visit especially with their

entourage?.....

13. Do the NHC have any plans to build a befitting House of

Chiefs?.....

If yes

14. Where would such an edifice be

built?.....

15. Why the

location?.....

16. What new facilities do you hope to house in the

complex?.....

17. How is it to be

funded?.....

18. What other plans do the house have with respect to physical infrastructure or institutional

capacity building?.....

# 5.3 APPENDICES

Appendix 2


Figure 5.1, Site Layout

Appendix 3


Figure 5.2, Block plan

Appendix 4


Figure 5.3, Landscape plan

Appendix 5


Figure 5.4, Service plan

Appendix 6


Figure 5.5, Phasing Plan

Appendix 7


Figure 5.6, General ground floor plan

Appendix 8

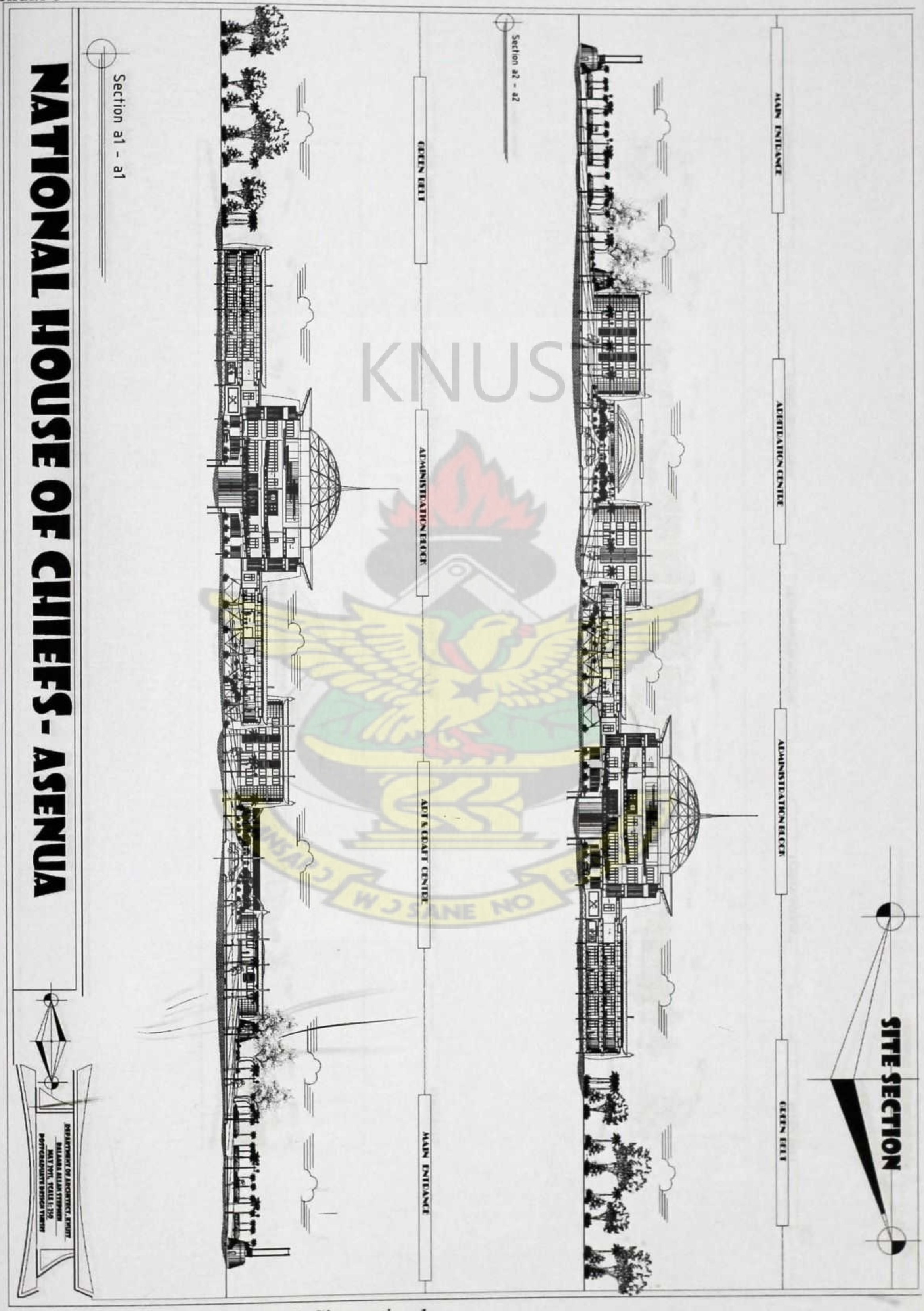



Figure 5.7, Site section 1

Appendix 9

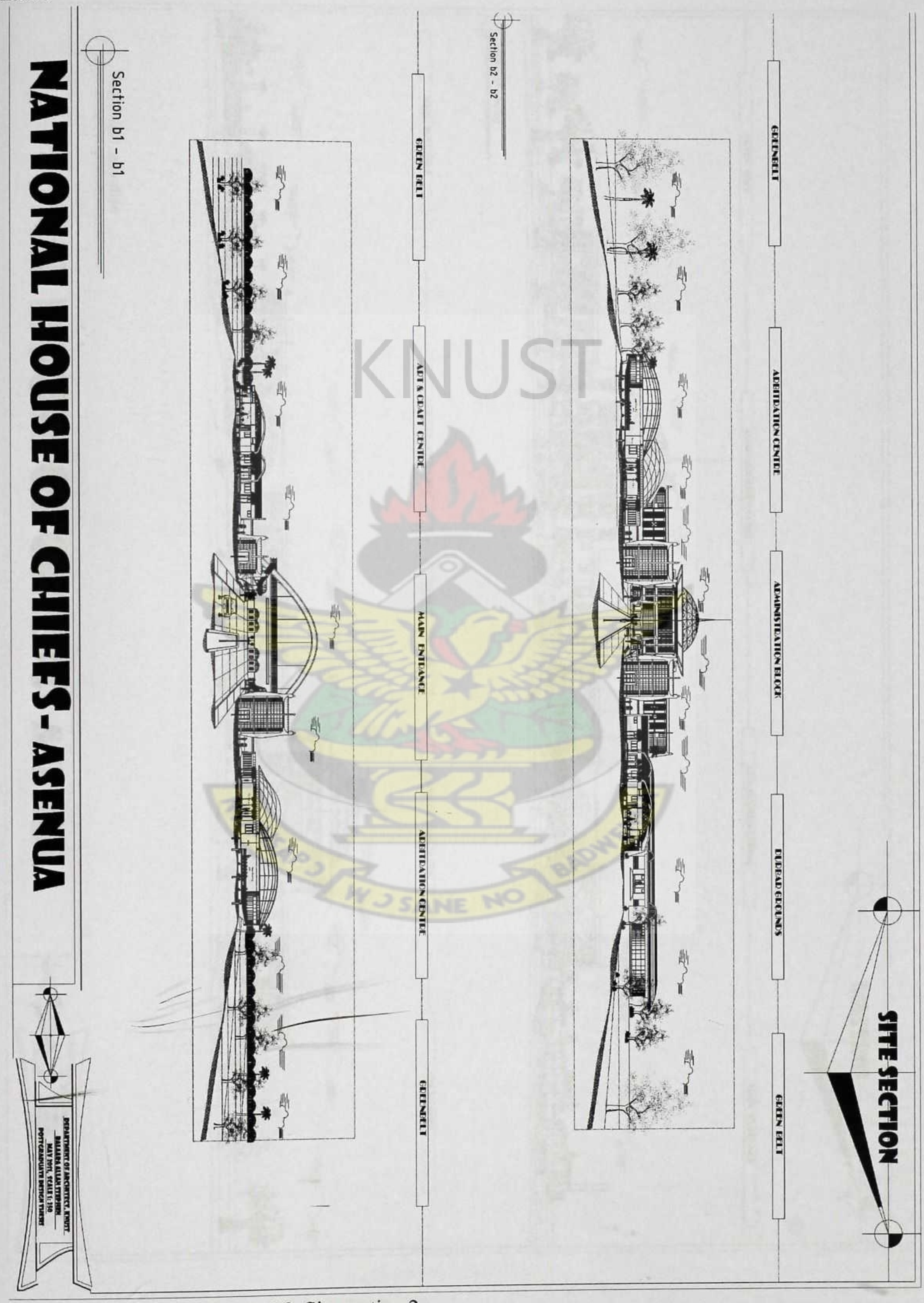



Figure 5.8, Site section 2

Appendix 10

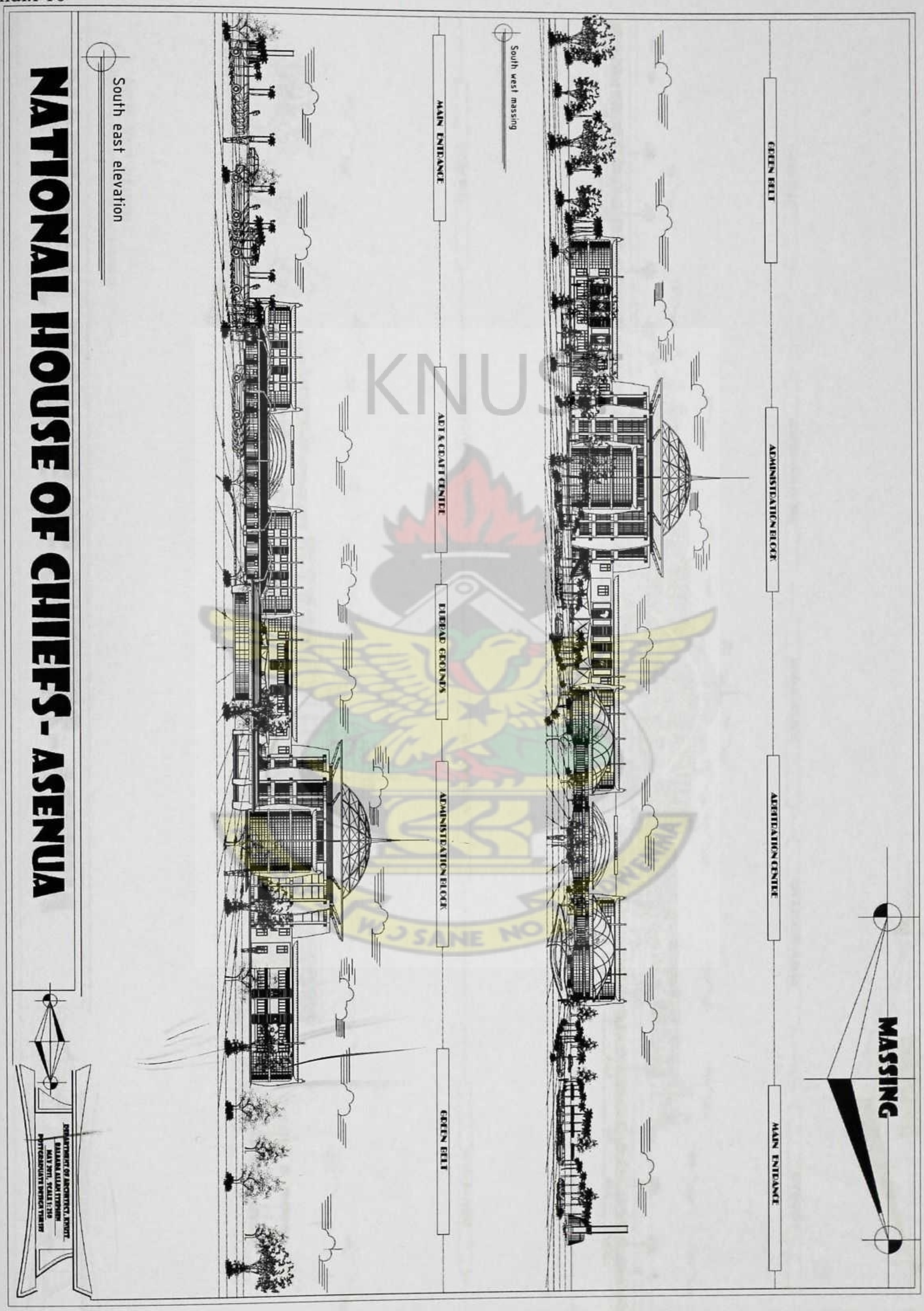



Figure 5.9, Massing 1

Appendix 11

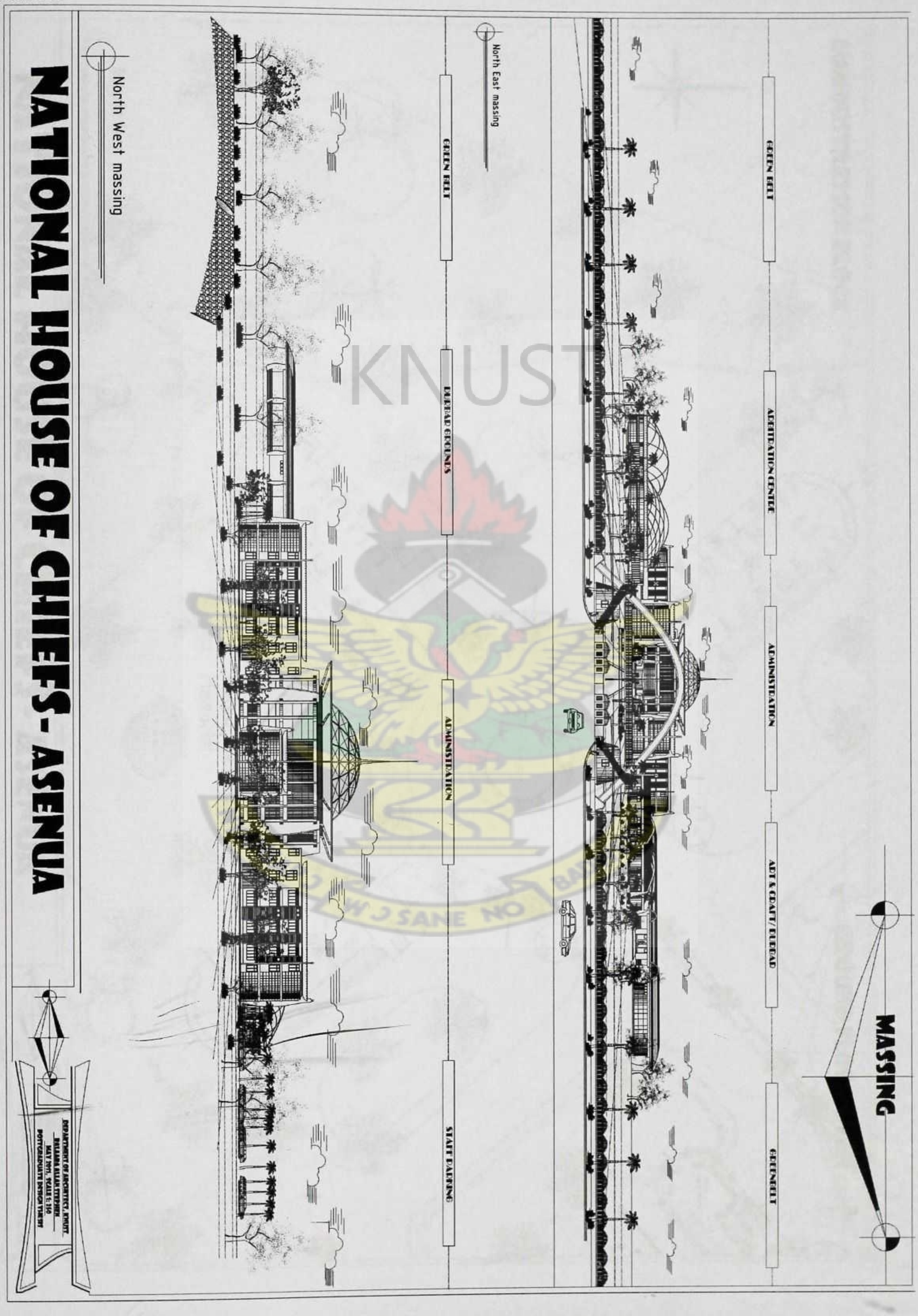



Figure 5.10, Massing 2

Appendix 12

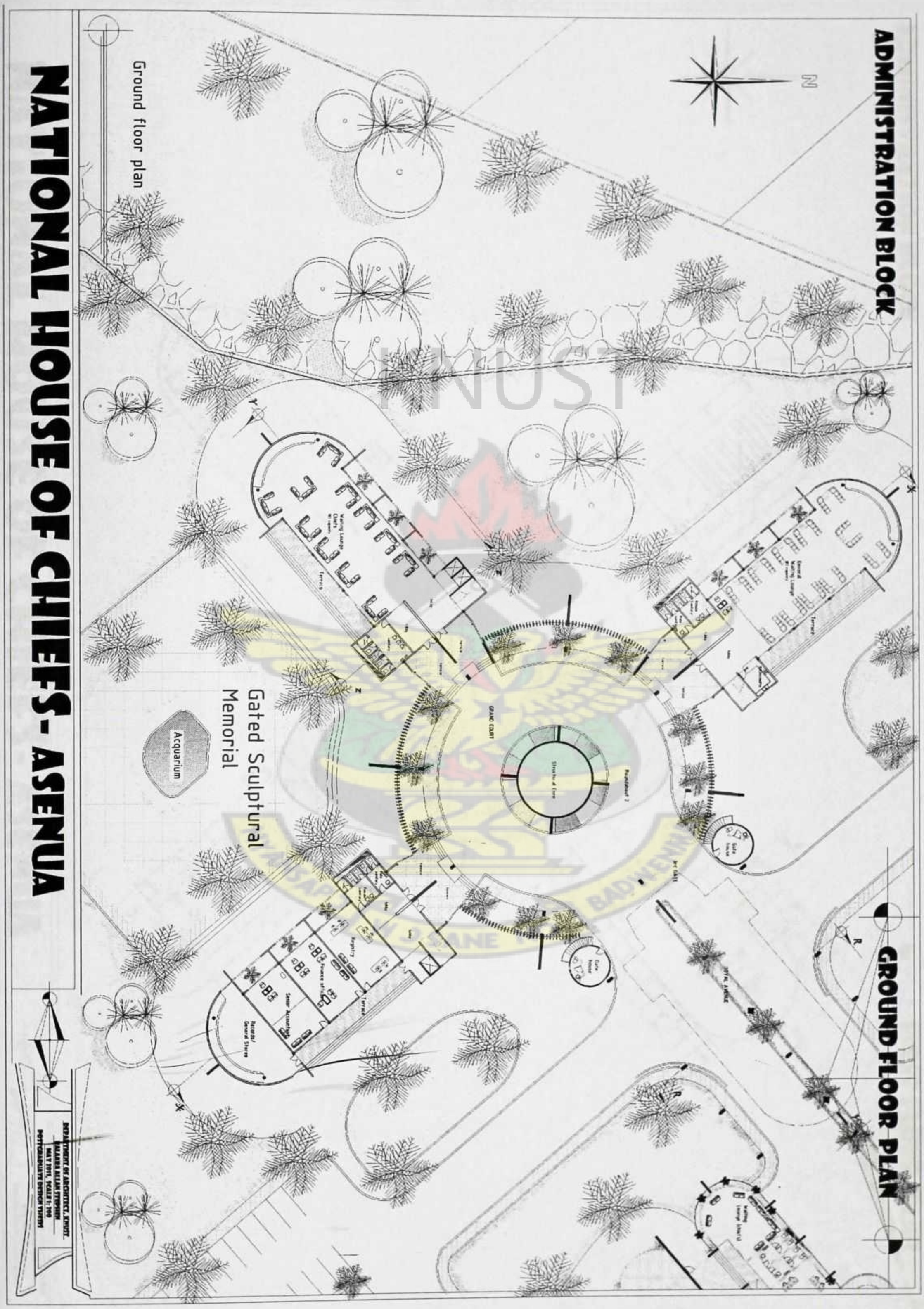



Figure 5.11, Ground floor plan, Administration block

Appendix 13

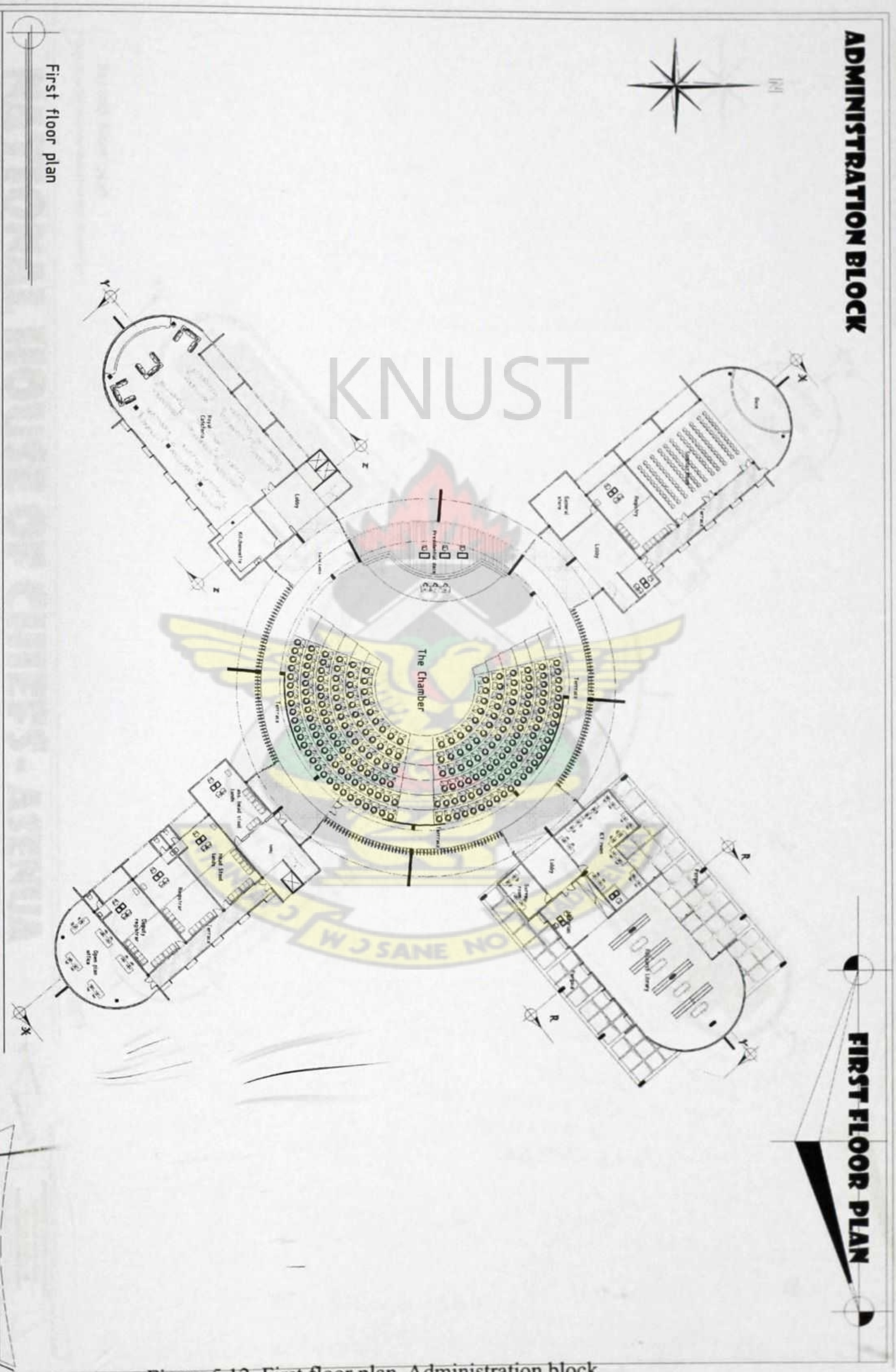



Figure 5.12, First floor plan, Administration block

Appendix 14

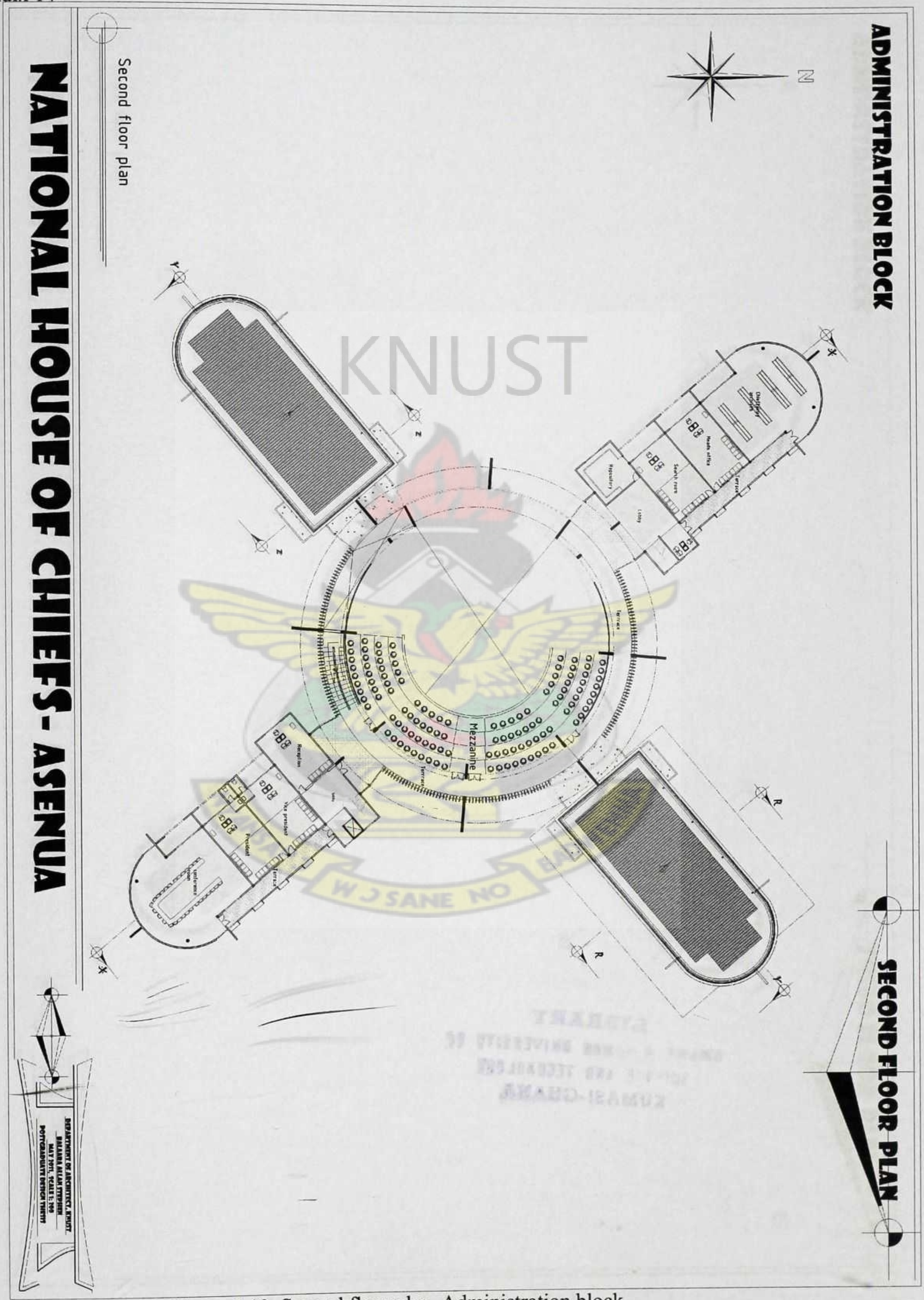



Figure 5.13, Second floor plan, Administration block

Appendix 15


Figure 5.14, Third floor plan, Administration block

Appendix 16


Figure 5.15, Roof plan, Administration block

Appendix 17

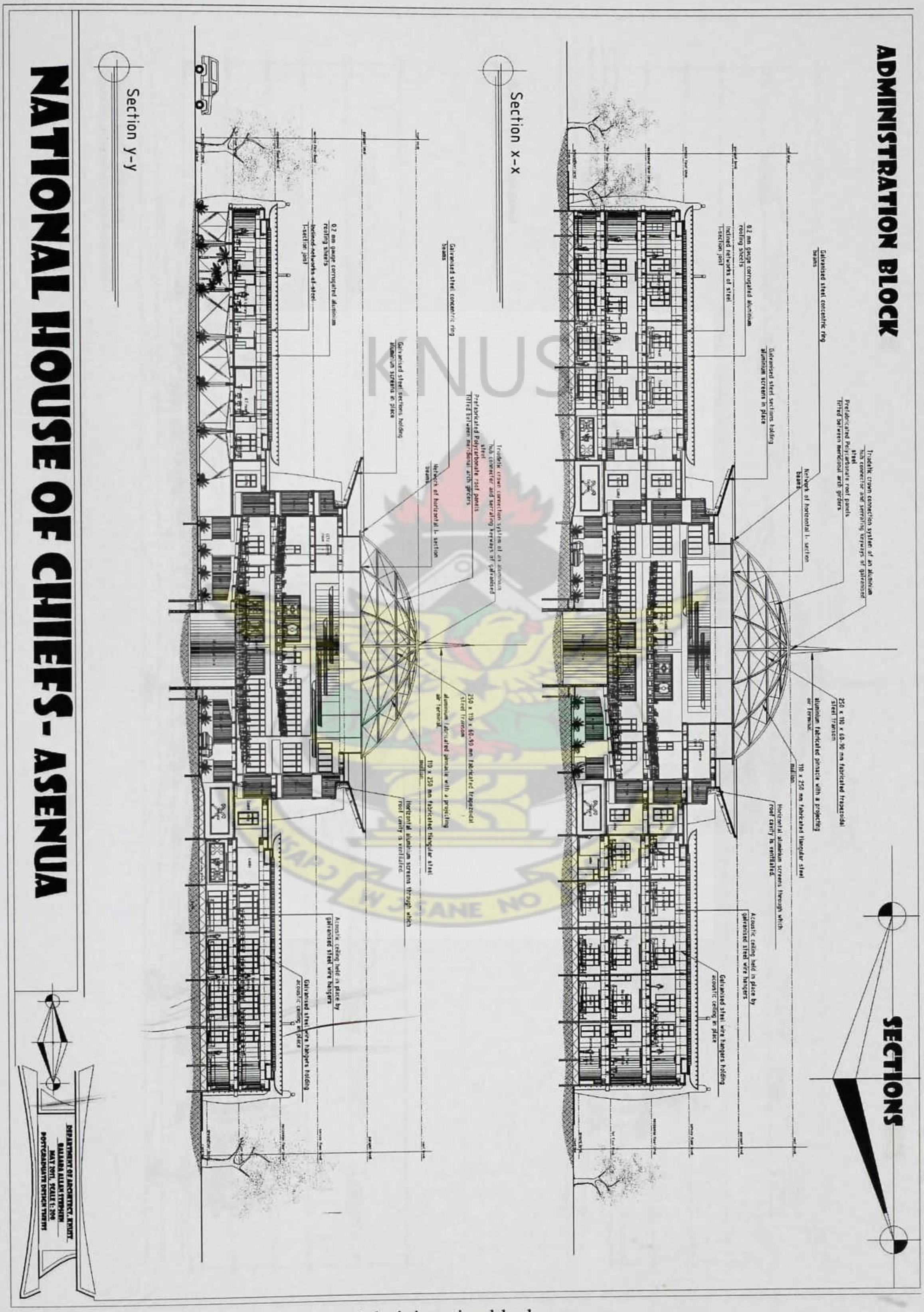



Figure 5.16, Section, Administration block

Appendix 18

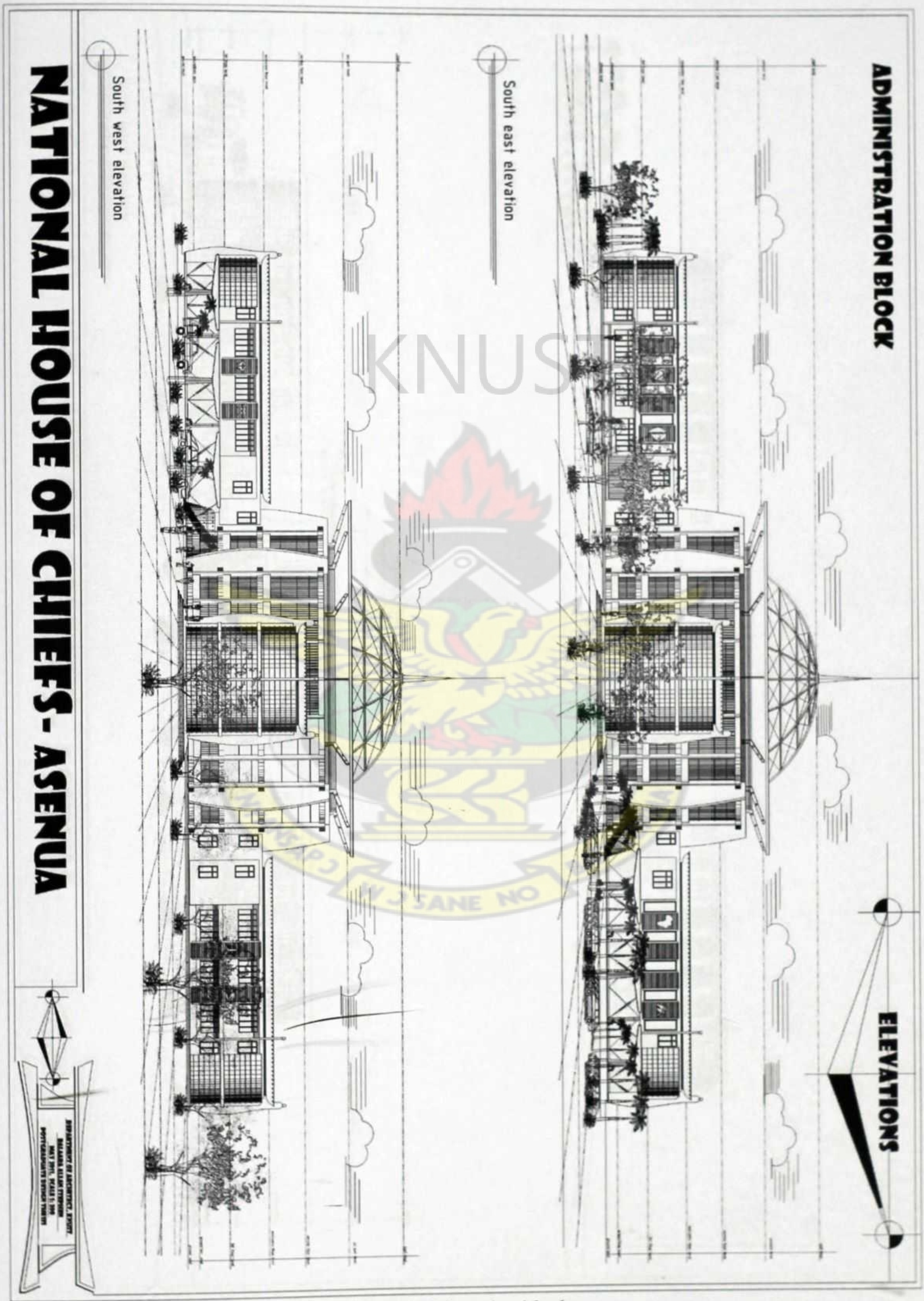



Figure 5.17, Elevation 1, Administration block

Appendix 19

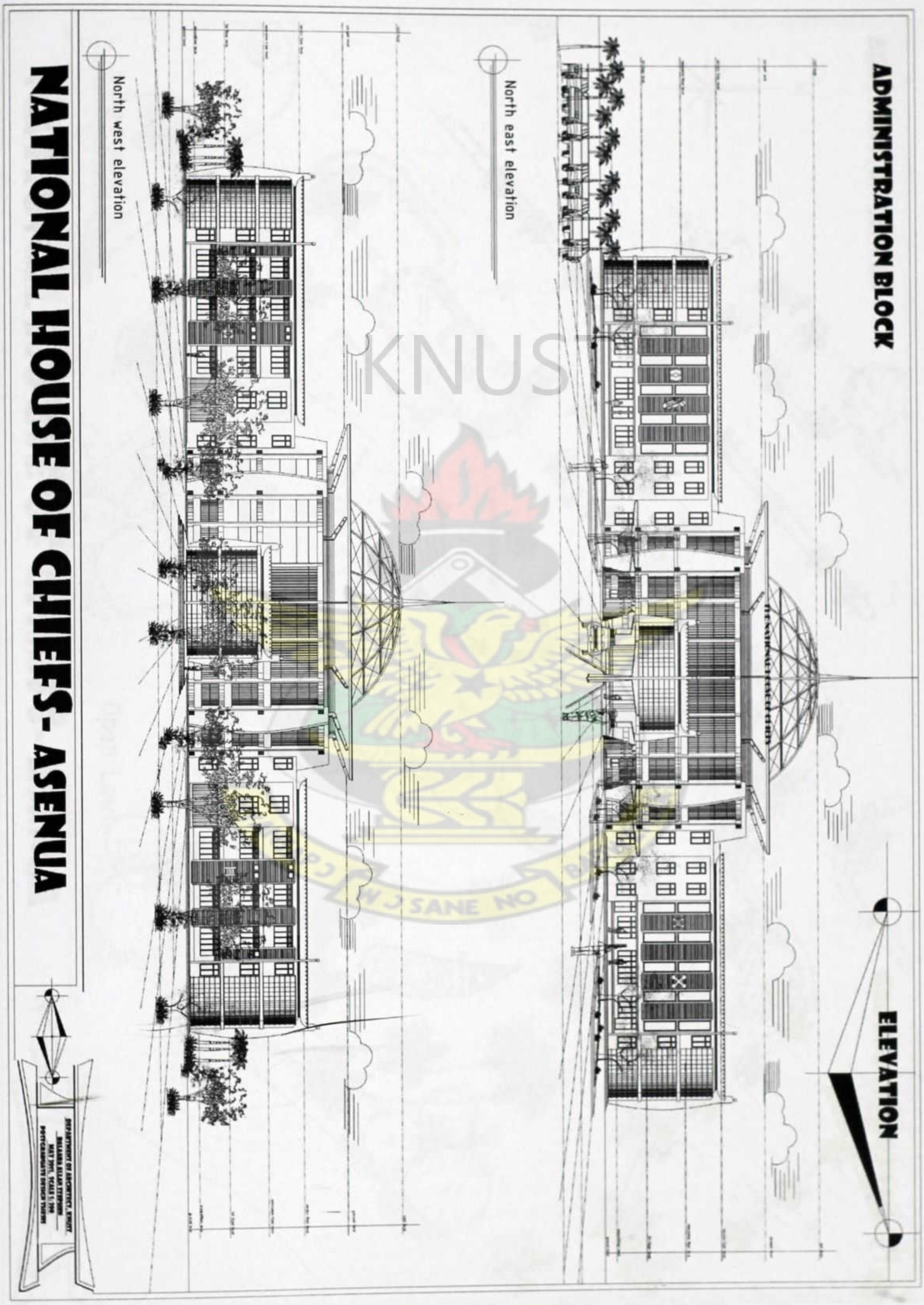



Figure 5.18, Elevation 2, Administration block

Appendix 20

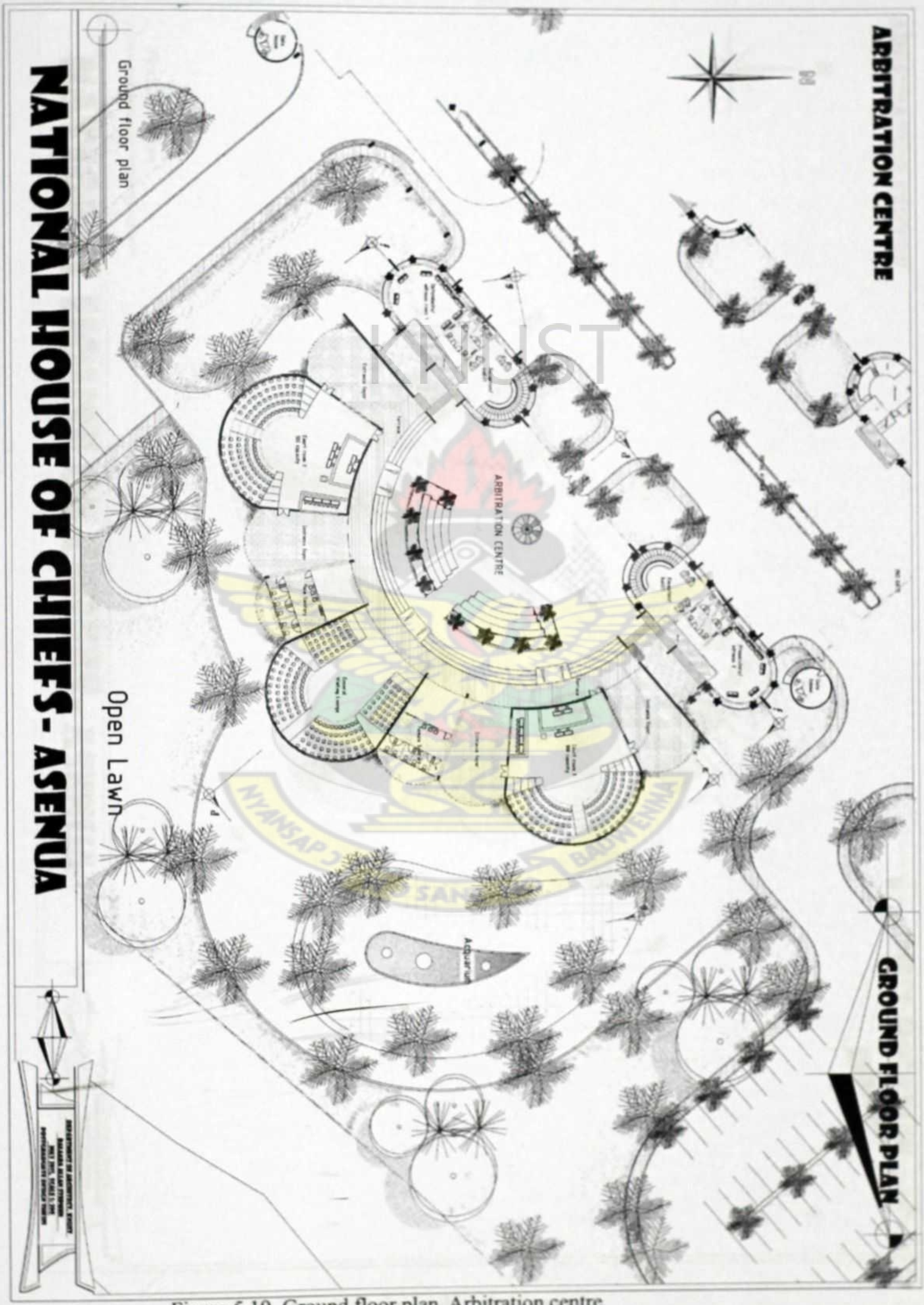



Figure 5.19, Ground floor plan, Arbitration centre

Appendix 21


Figure 5.20, First floor plan, Arbitration centre

Appendix 22

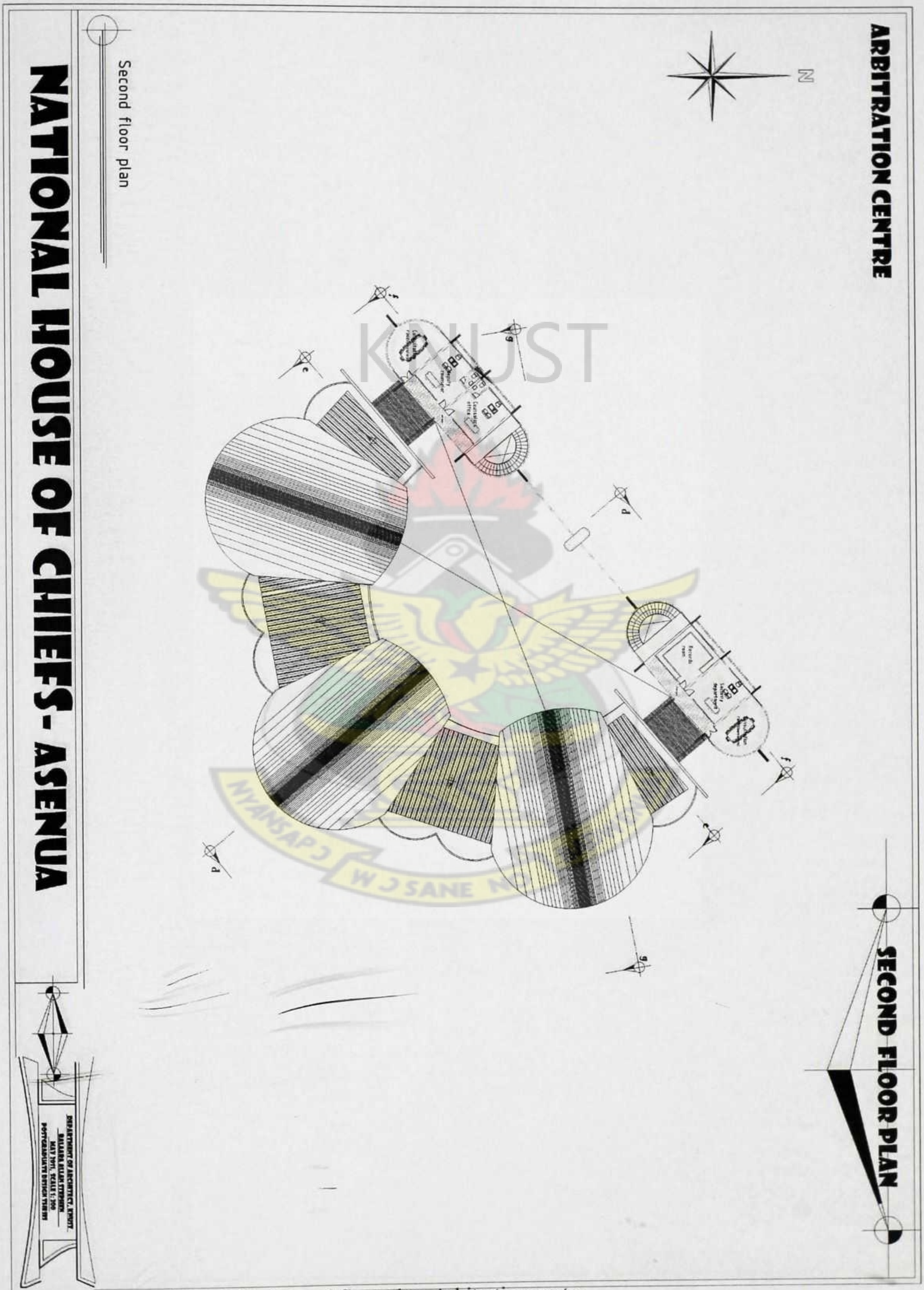



Figure 5.21, Second floor plan, Arbitration centre

Appendix 23


Figure 5.22, Roof plan, Arbitration centre

Appendix 24

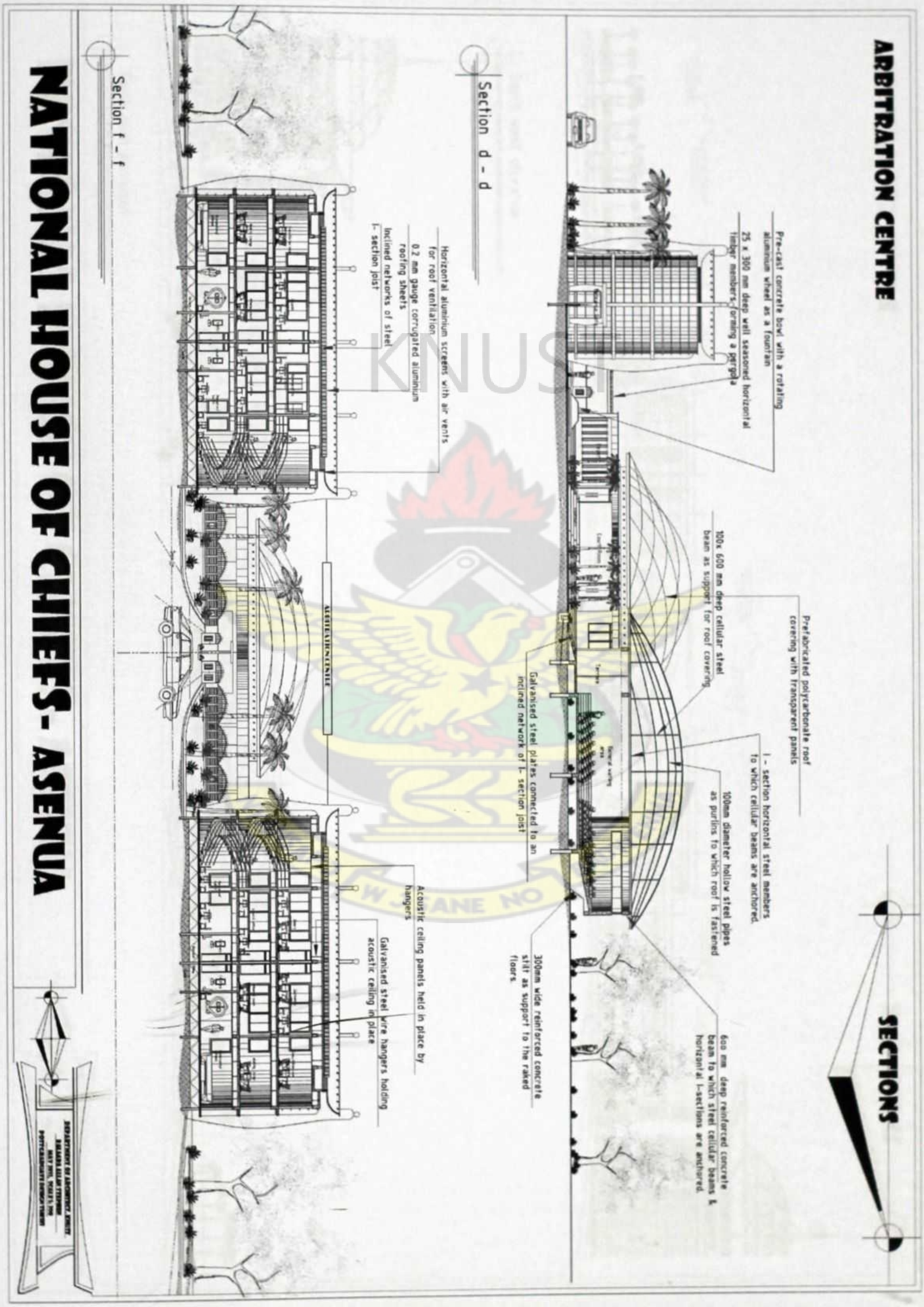



Figure 5.23, Section, Arbitration centre

Appendix 25

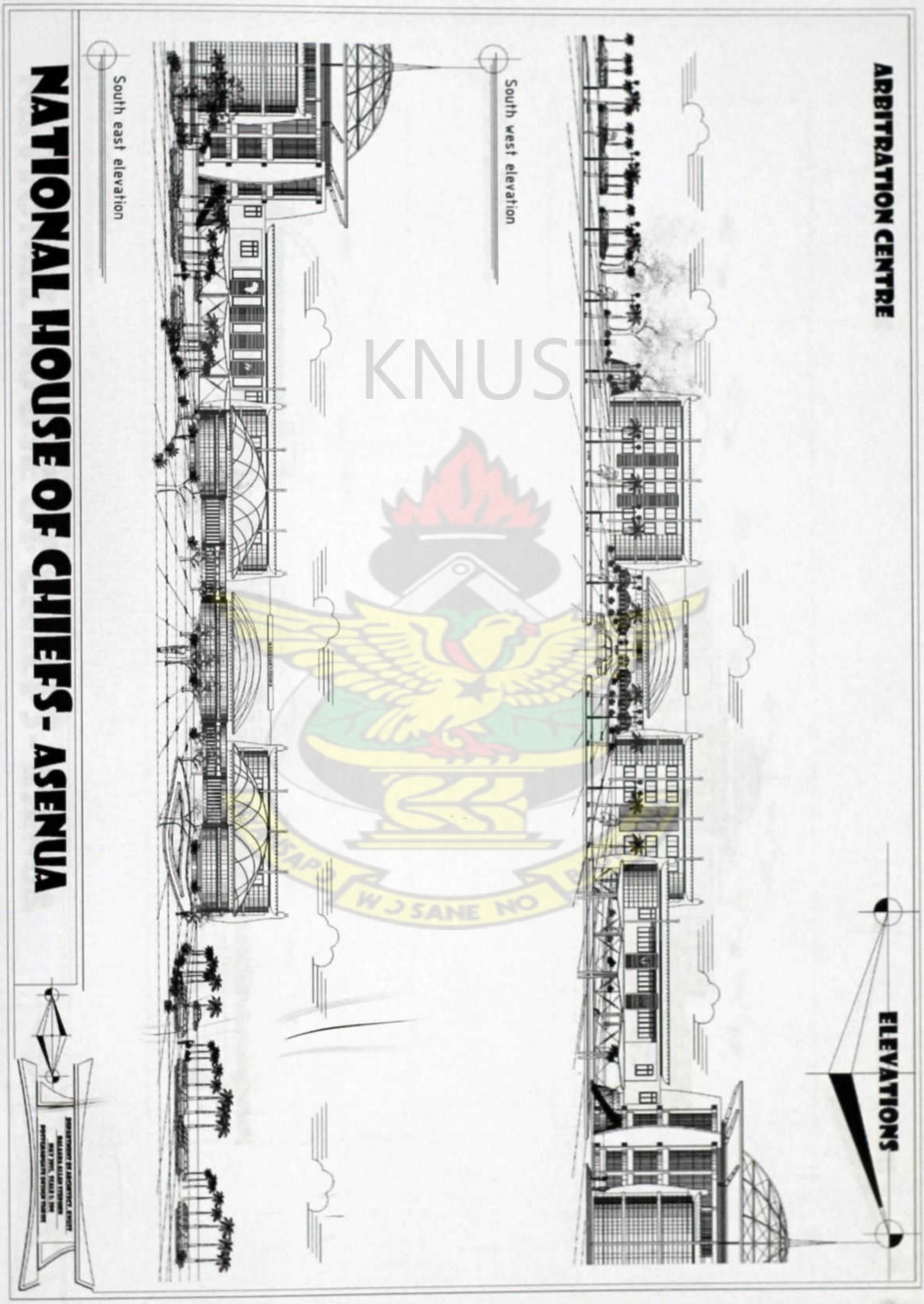



Figure 5.24, Elevation 1, Arbitration centre

Appendix 26


Figure 5.25, Elevation 2, Arbitration centre

Appendix 27

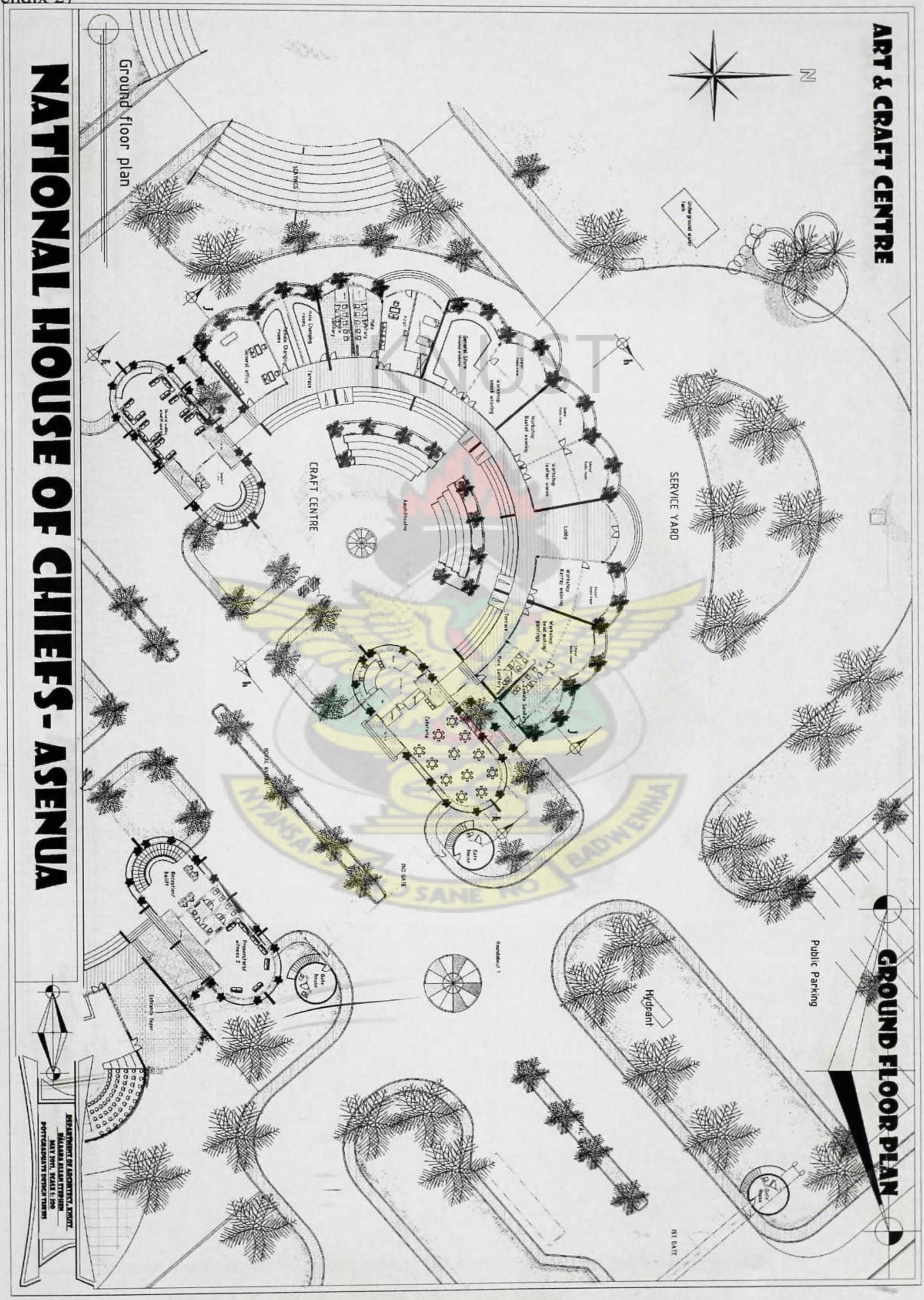



Figure 5.26, Ground floor plan, Art & craft centre

Appendix 28


Figure 5.27, First floor plan, Art & craft centre

Appendix 29

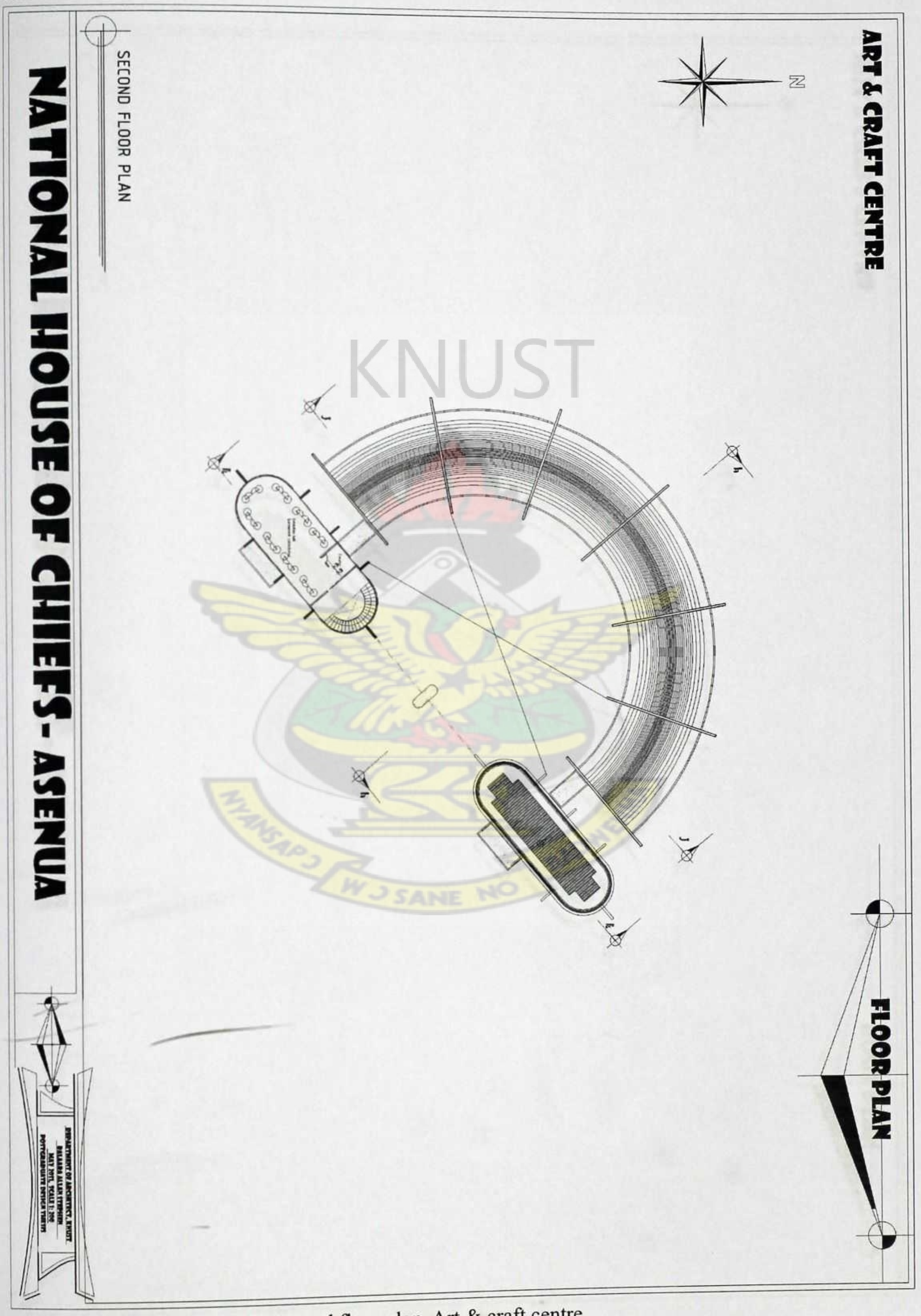



Figure 5.28, Second floor plan, Art & craft centre

Appendix 30

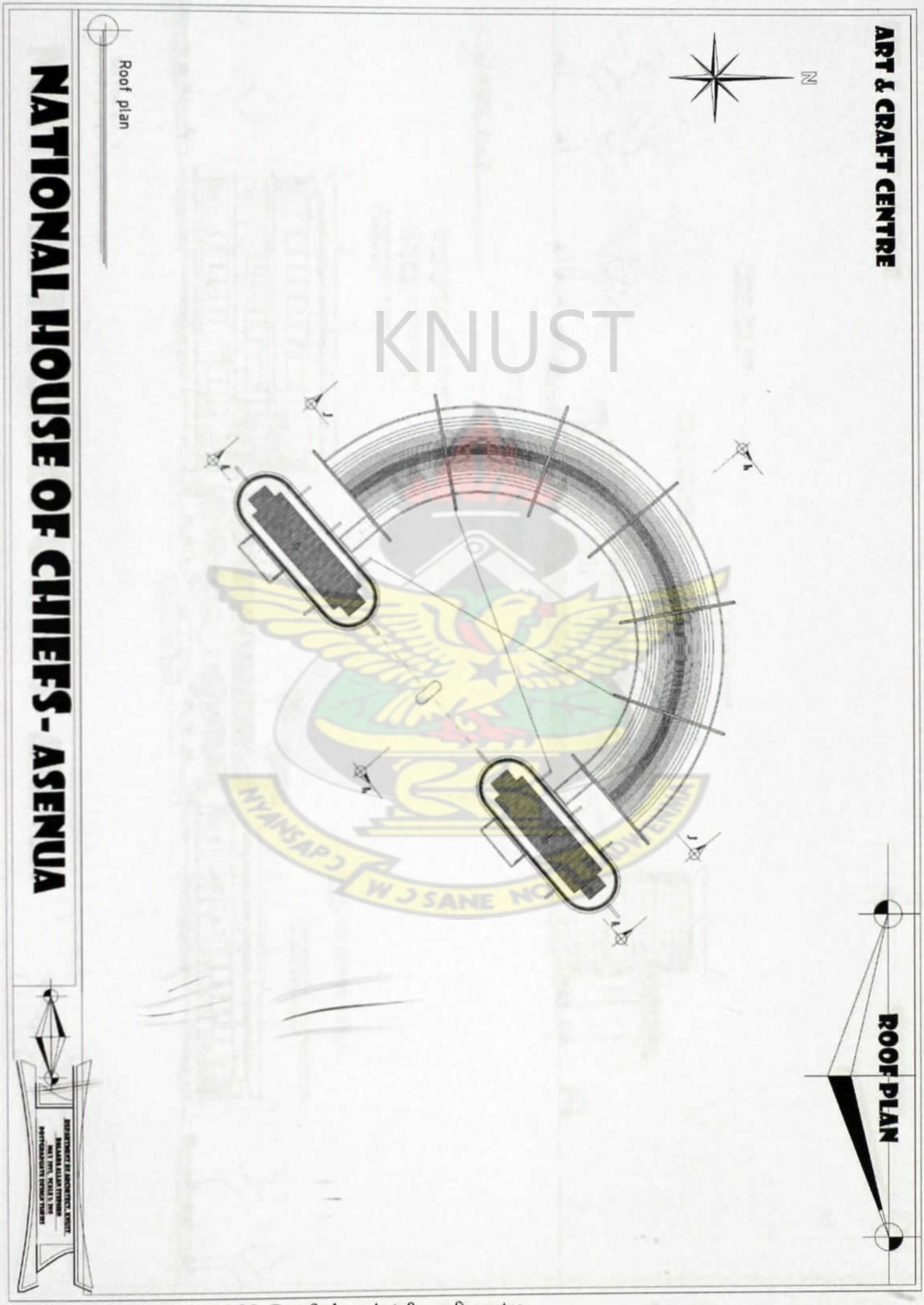



Figure 5.29, Roof plan, Art & craft centre

Appendix 31

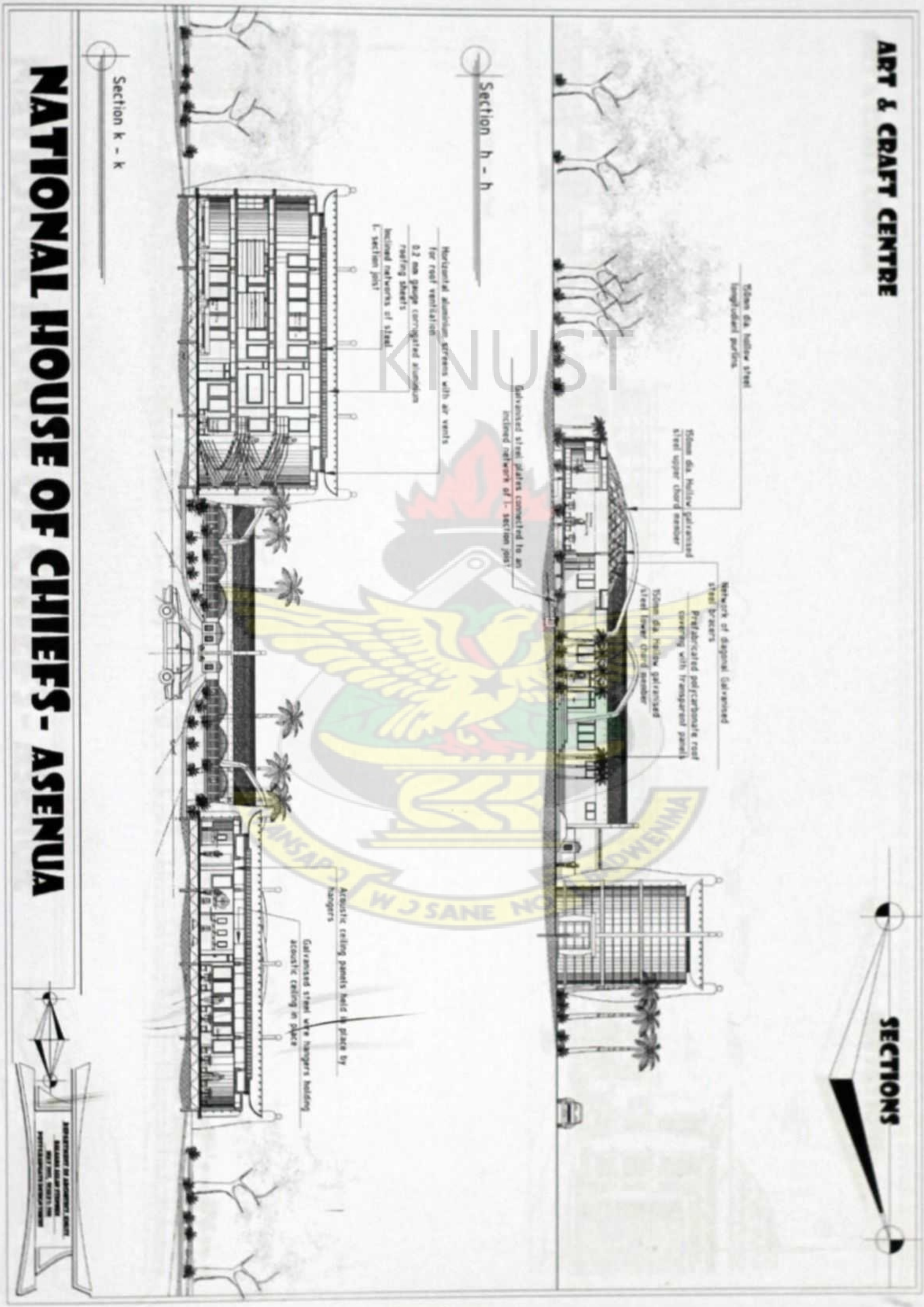



Figure 5.30, Sections, Art & craft centre

Appendix 32

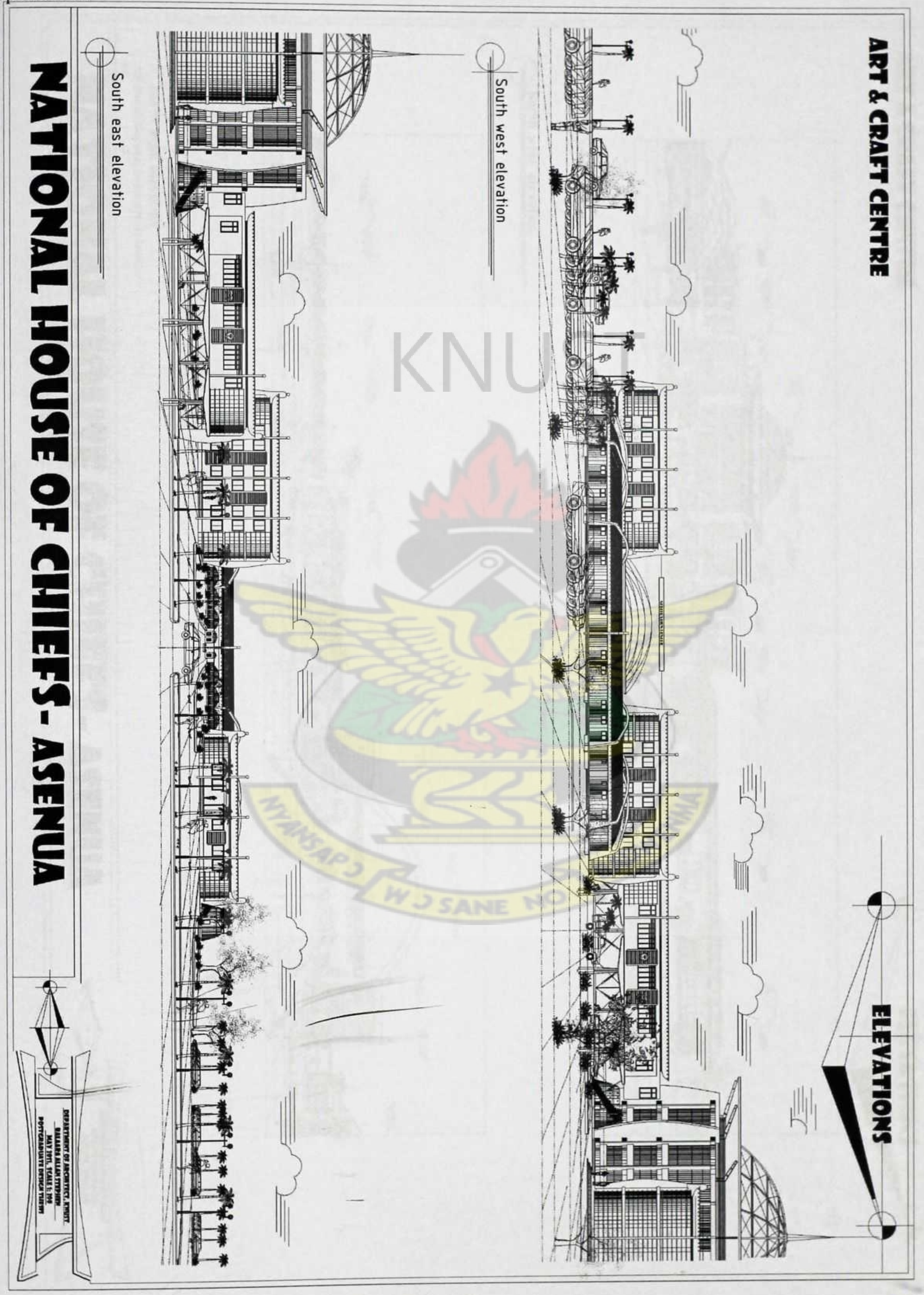



Figure 5.31, Election 1, Art & craft centre

Appendix 33

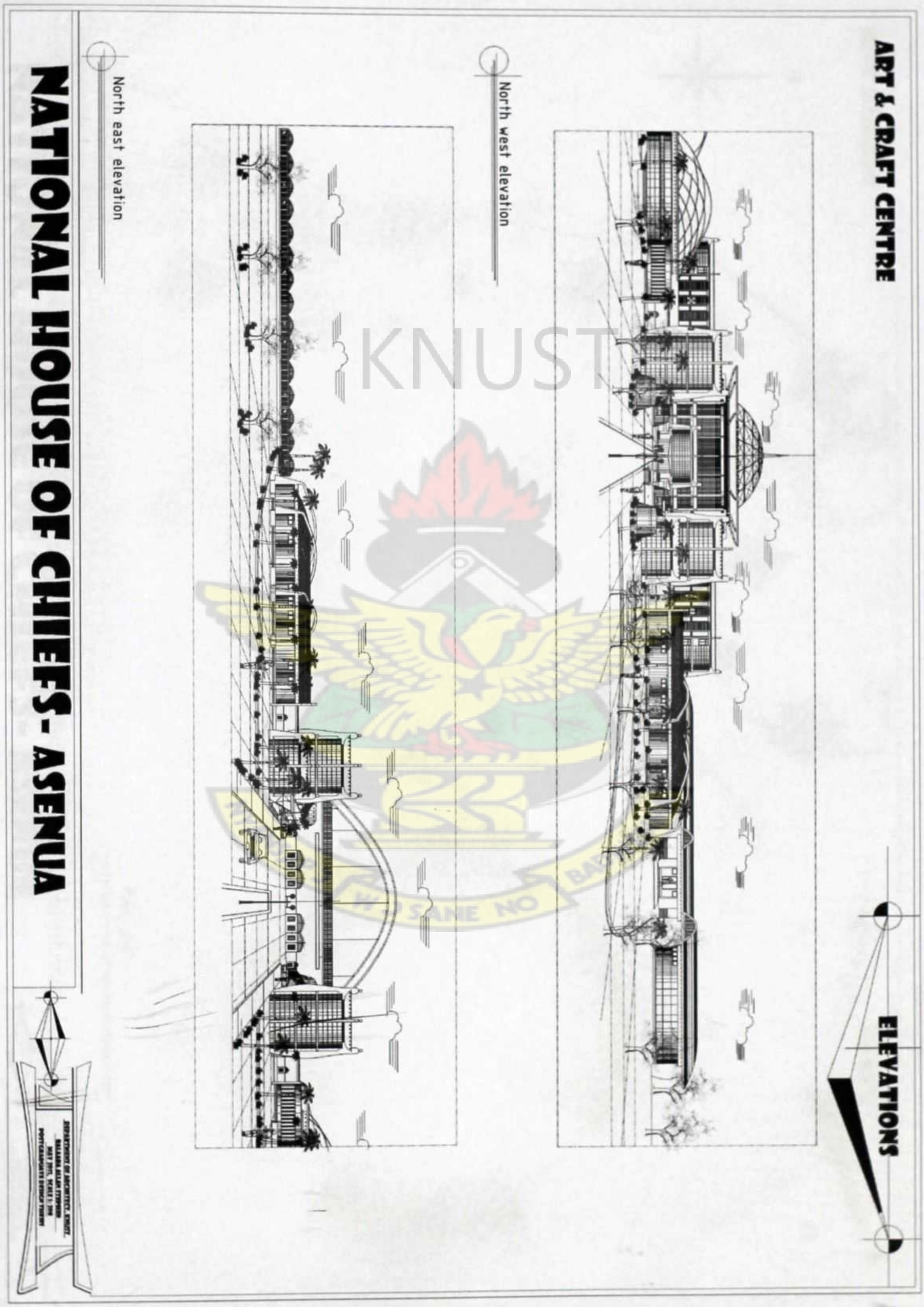



Figure 5.32, Election 2, Art & craft centre

Appendix 34

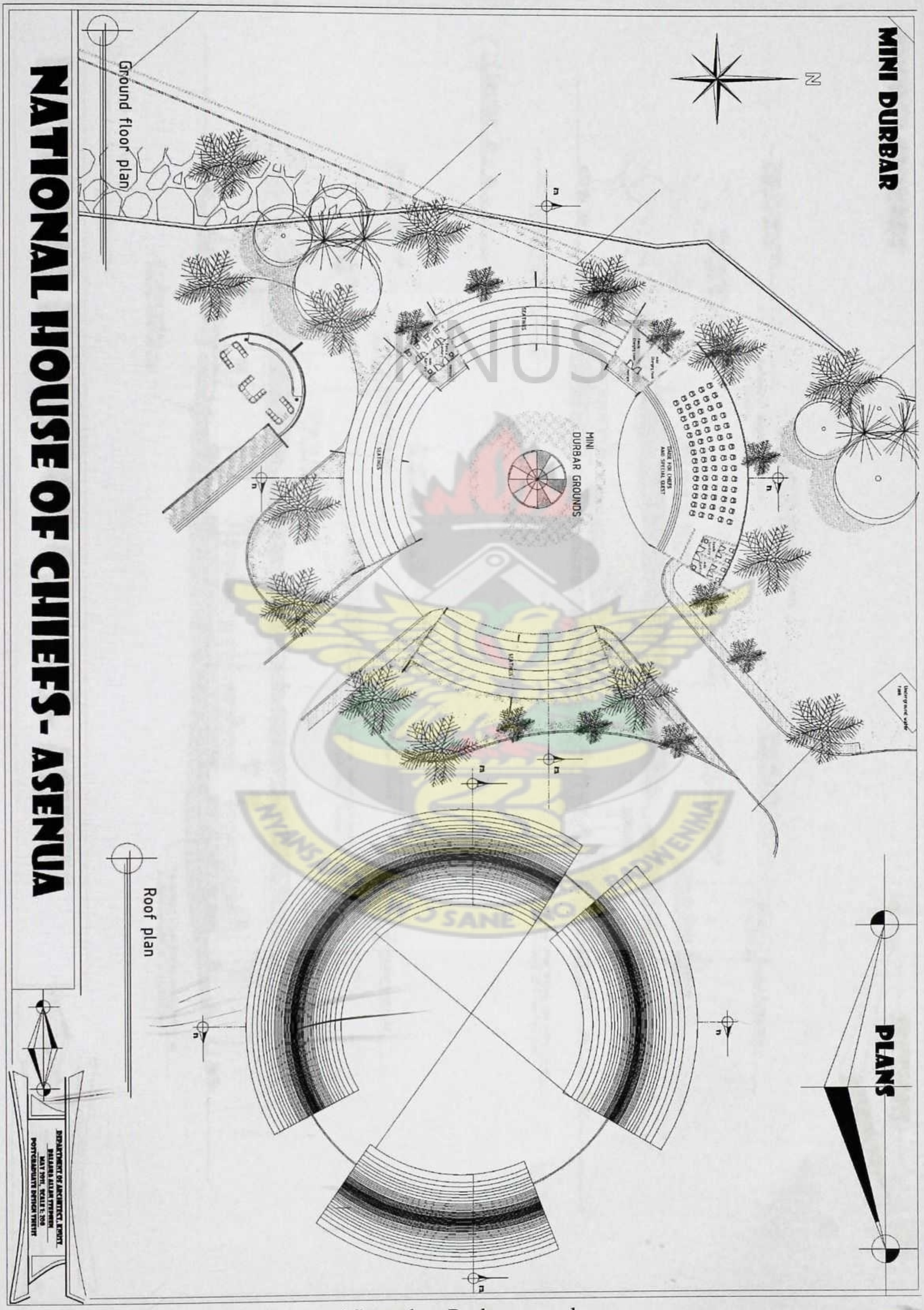
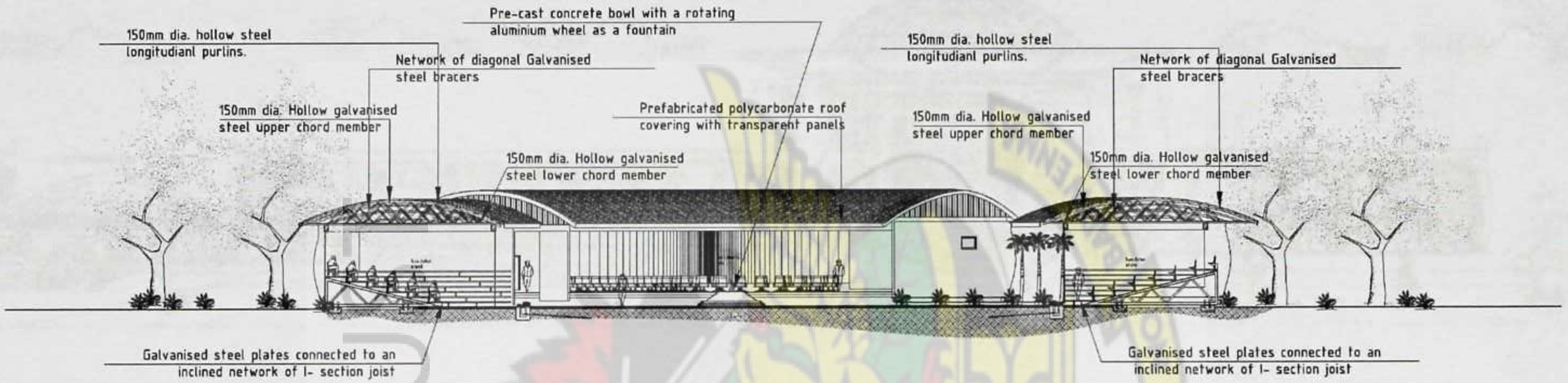


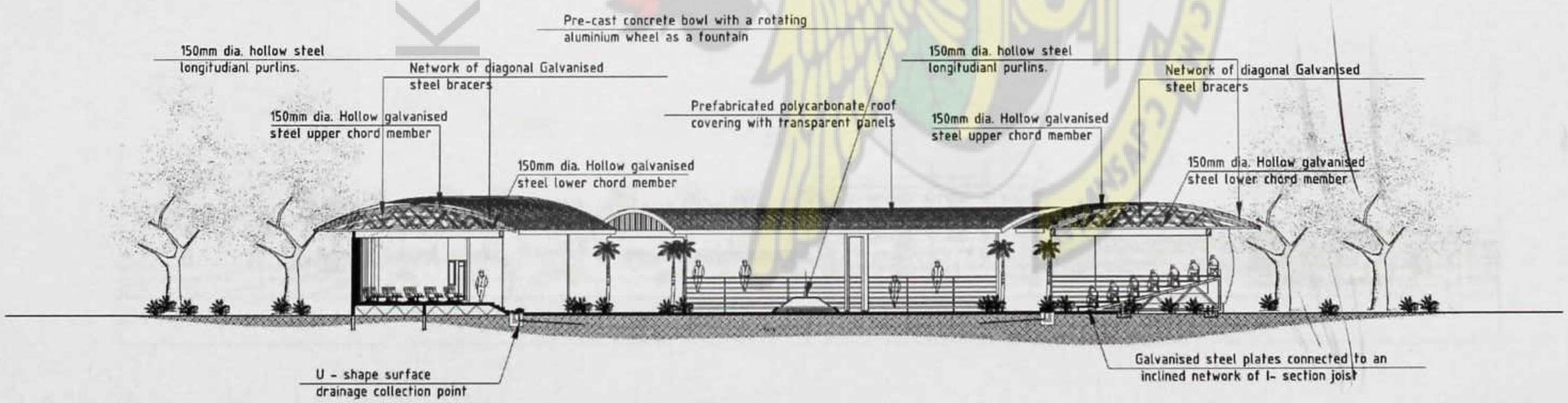

Figure 5.33, Ground floor plan, Durbar grounds

# DURBAR GROUNDS

## SECTIONS




Section m - m




Section n - n

# NATIONAL HOUSE OF CHIEFS- ASENUA

DEPARTMENT OF ARCHITECT, KNUST
BALAARA ALLAH STEPHEN
MAY 2015, SCALE 1: 200
POST GRADUATE DESIGN THESIS

Appendix 35

Figure 5.34, Sections, Durbar grounds

Appendix 36

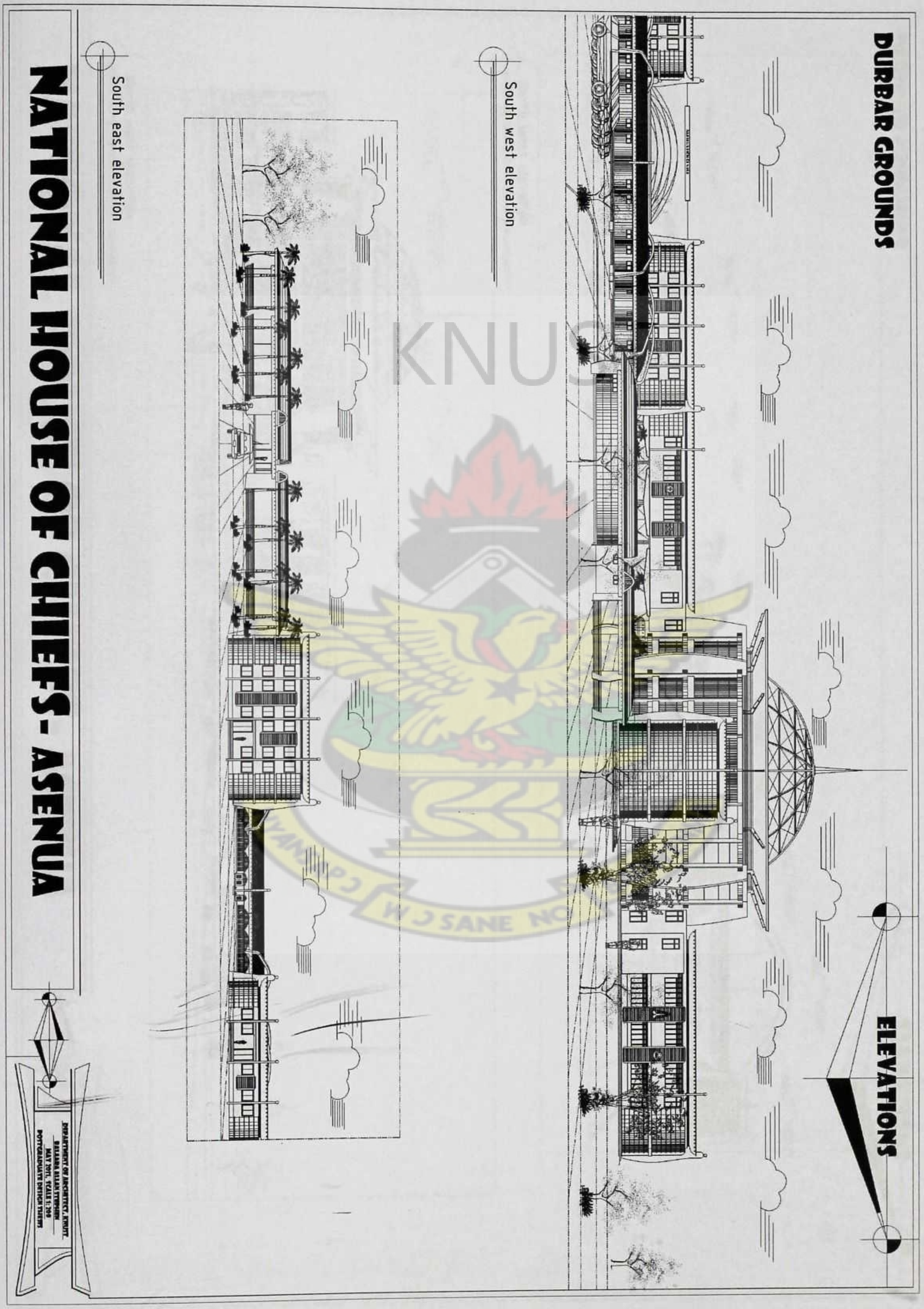



Figure 5.35, Elevation 1, Durbar grounds

Appendix 37

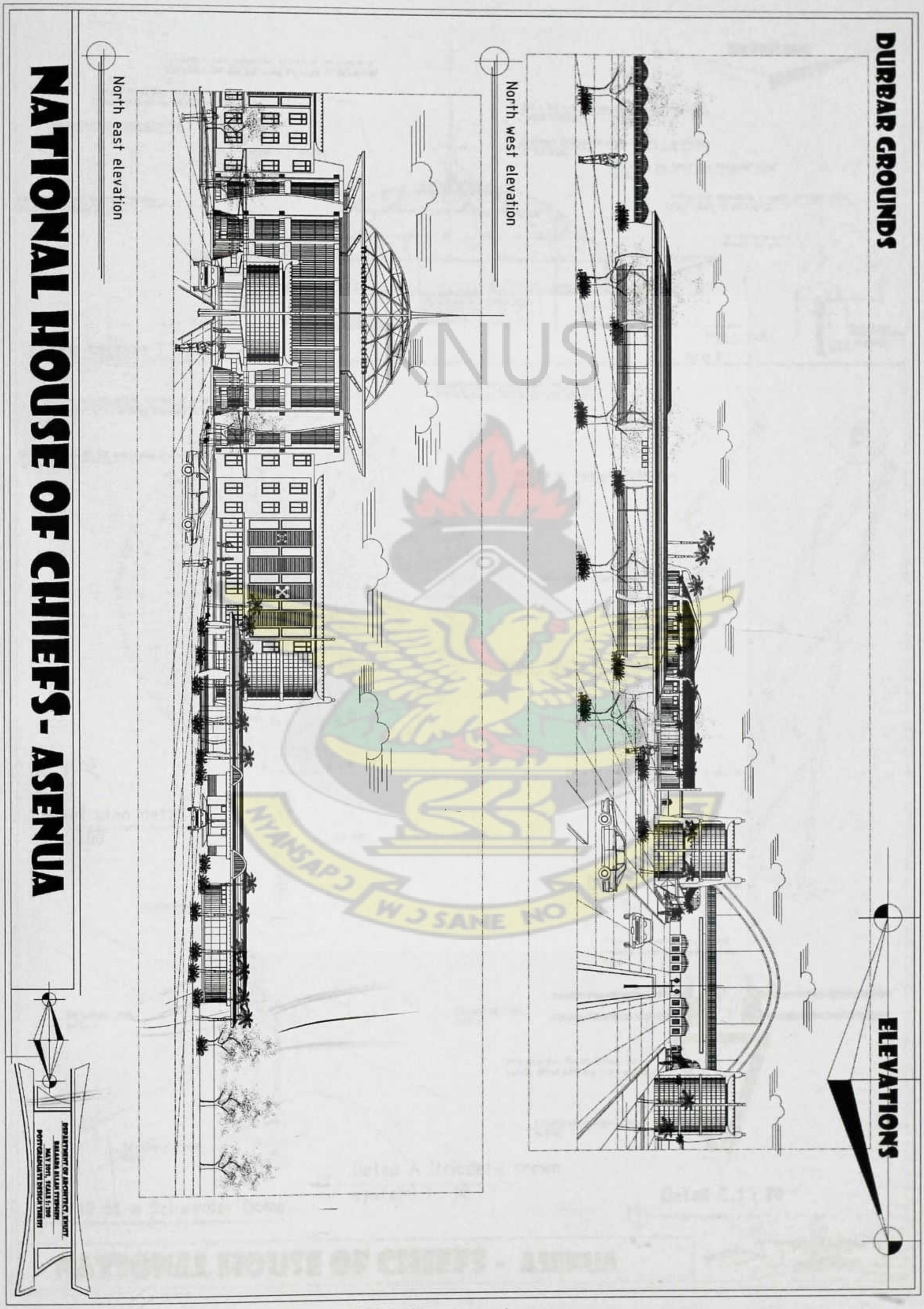



Figure 5.36, Elevation 2, Durbar grounds

Appendix 38

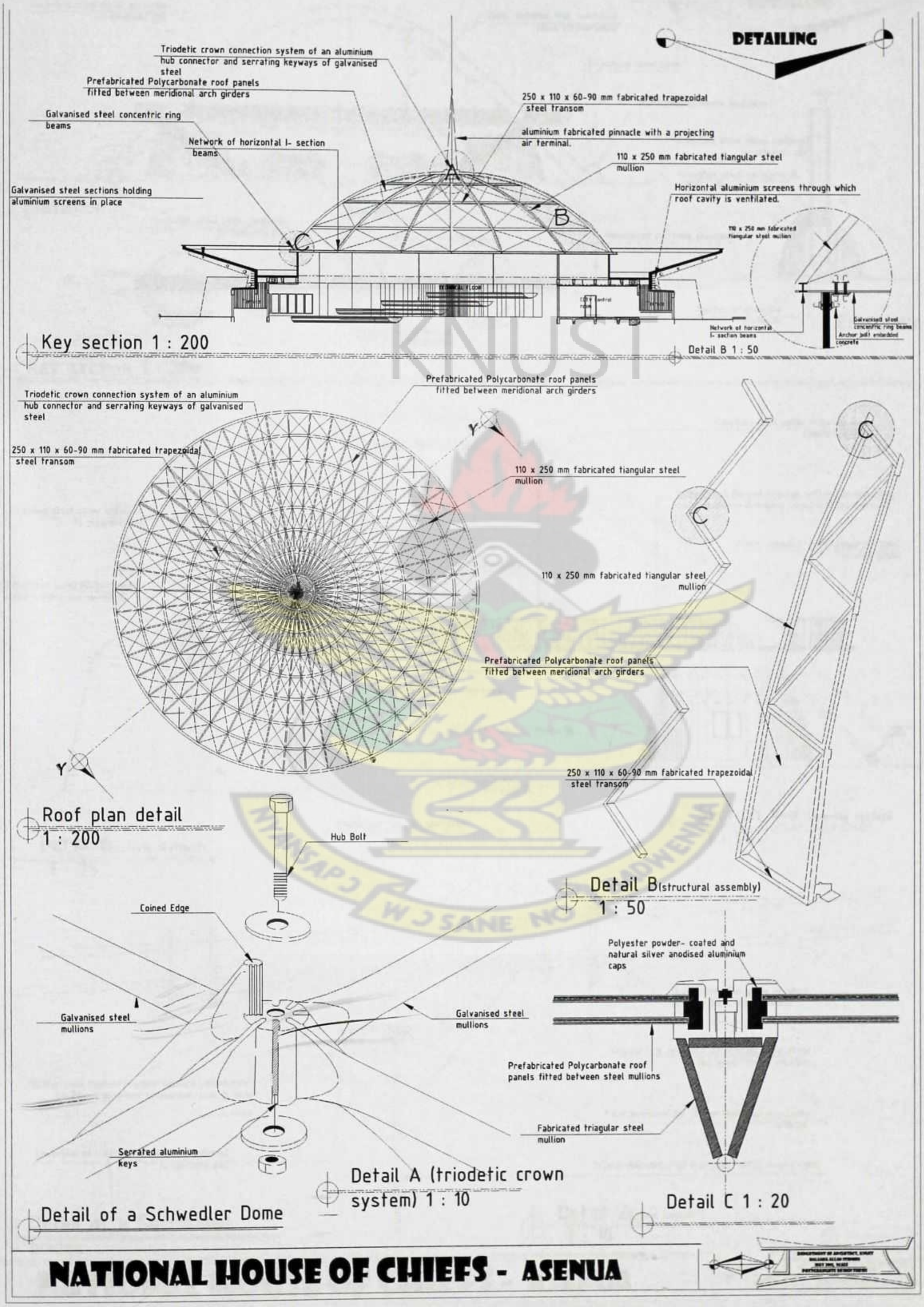



Figure 5.37, Structural Detail 1

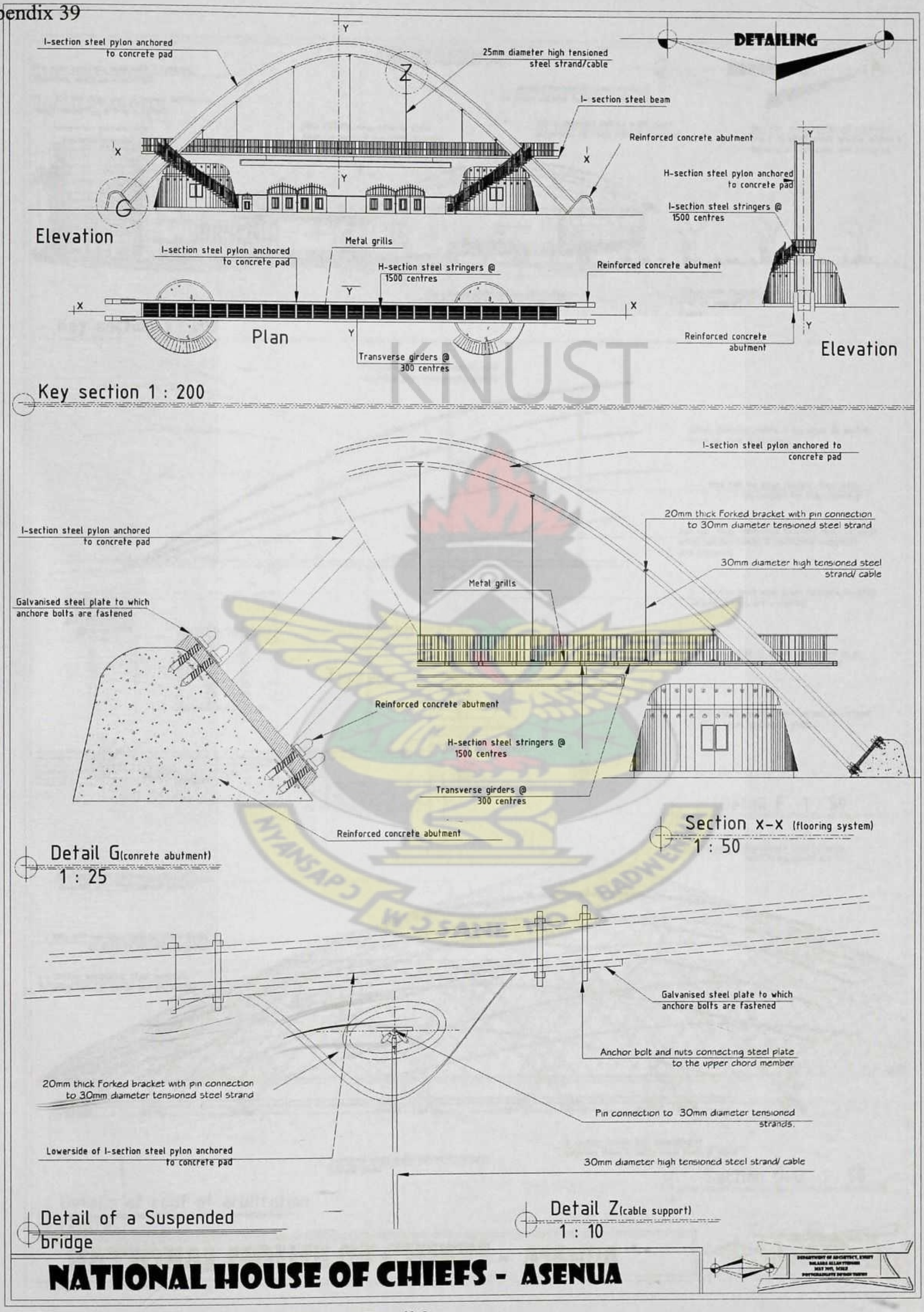



Figure 5.38, Structural Detail 2

Appendix 40

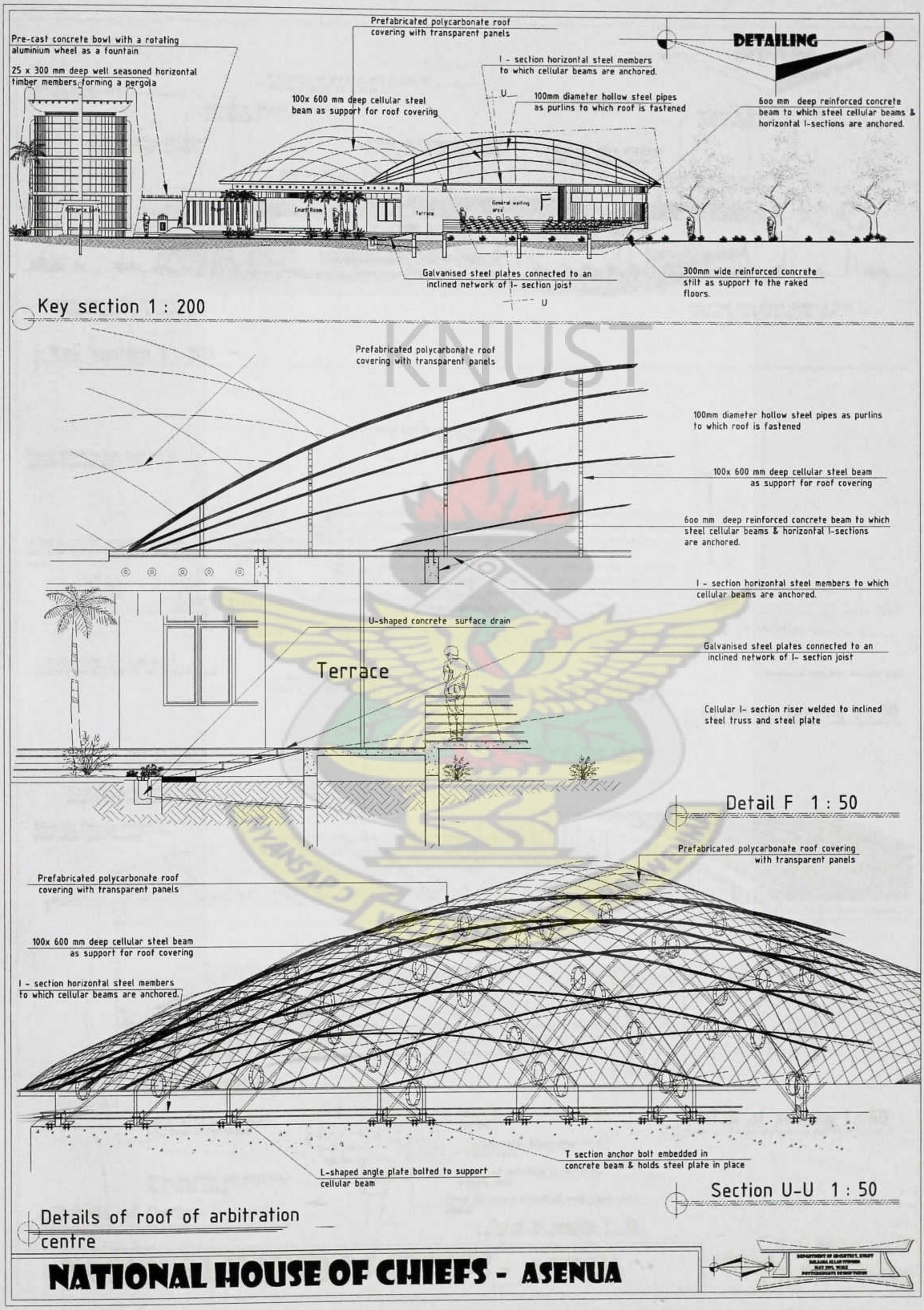



Figure 5.39, Structural Detail 3

Appendix 41

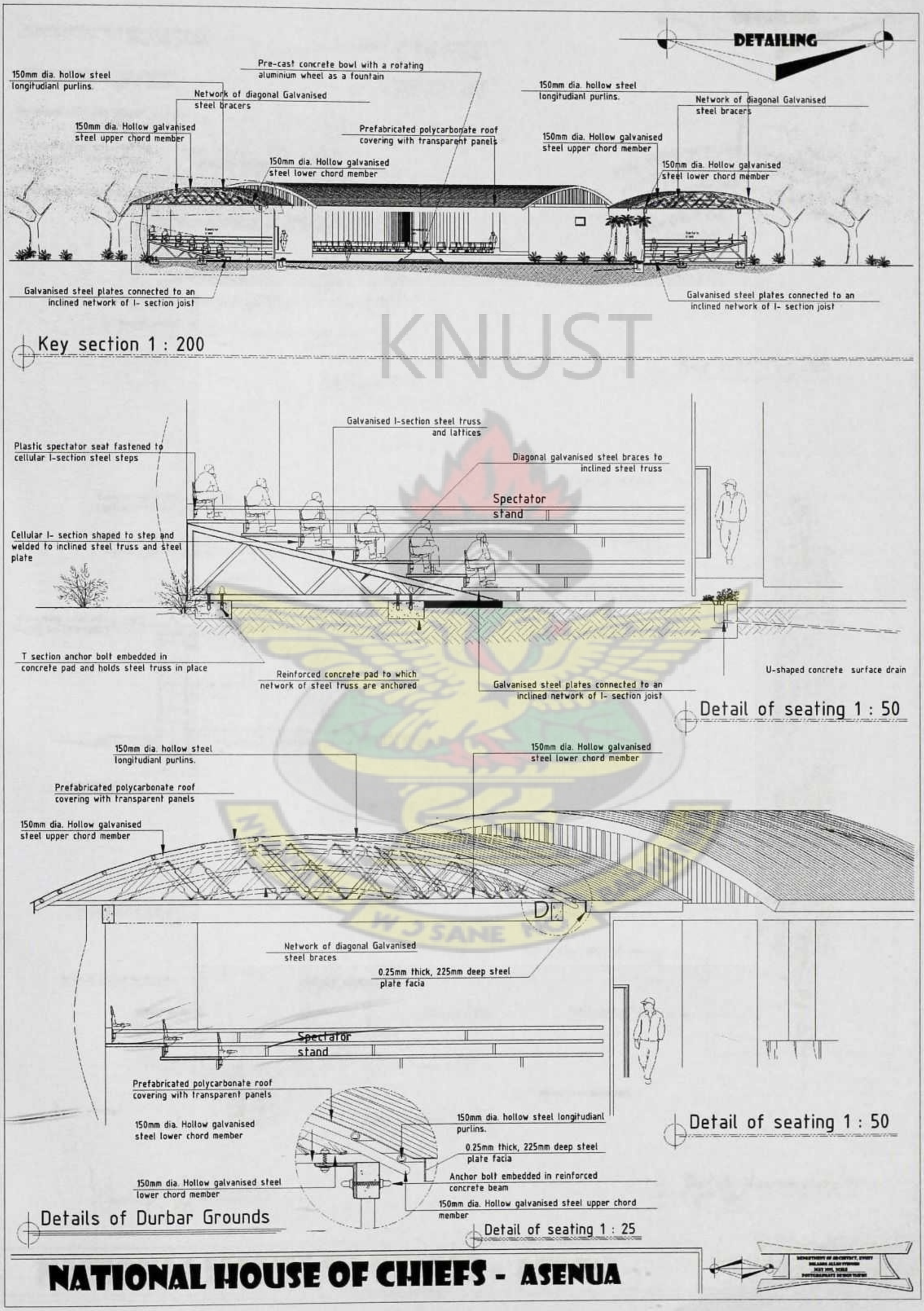
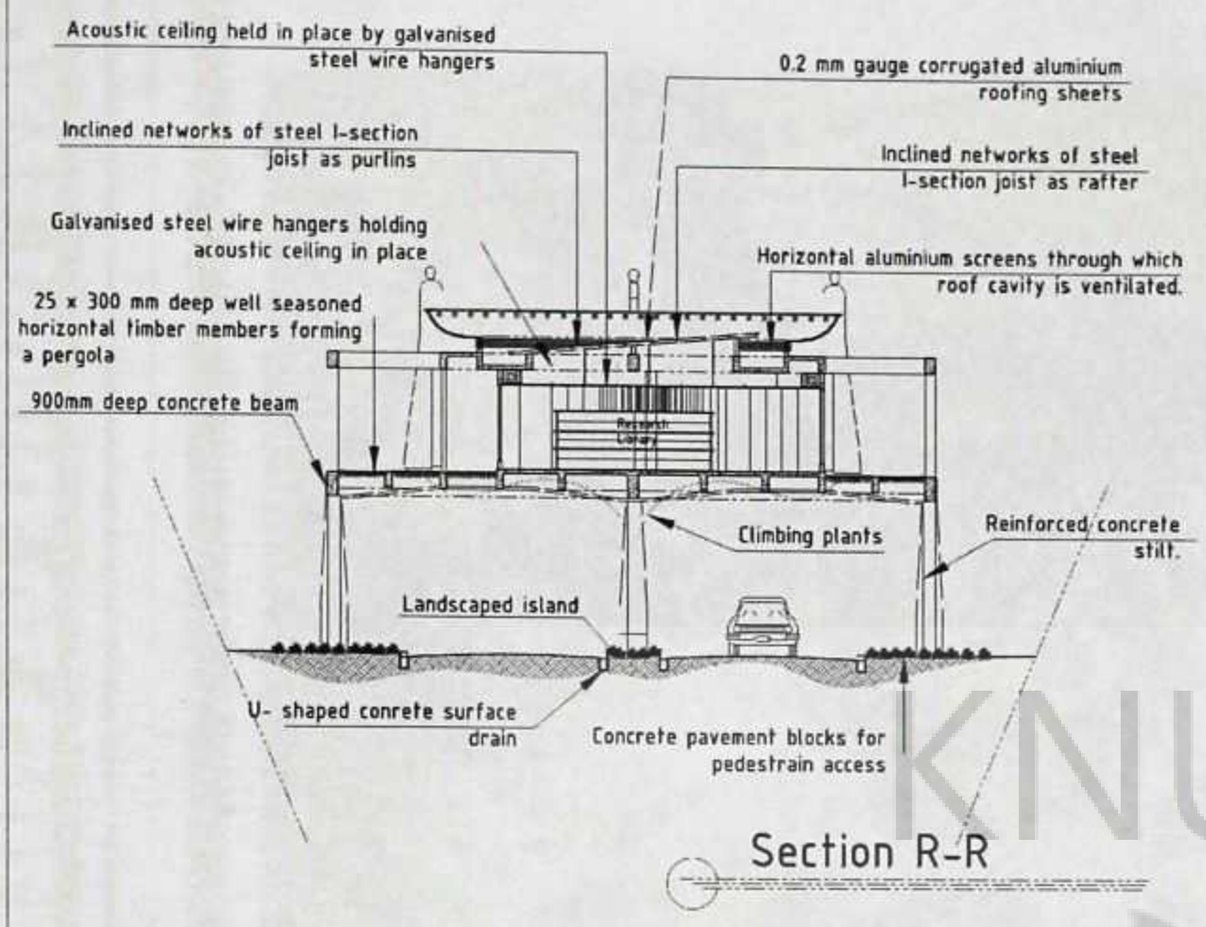



Figure 5.40, Structural Detail 4

Appendix 42

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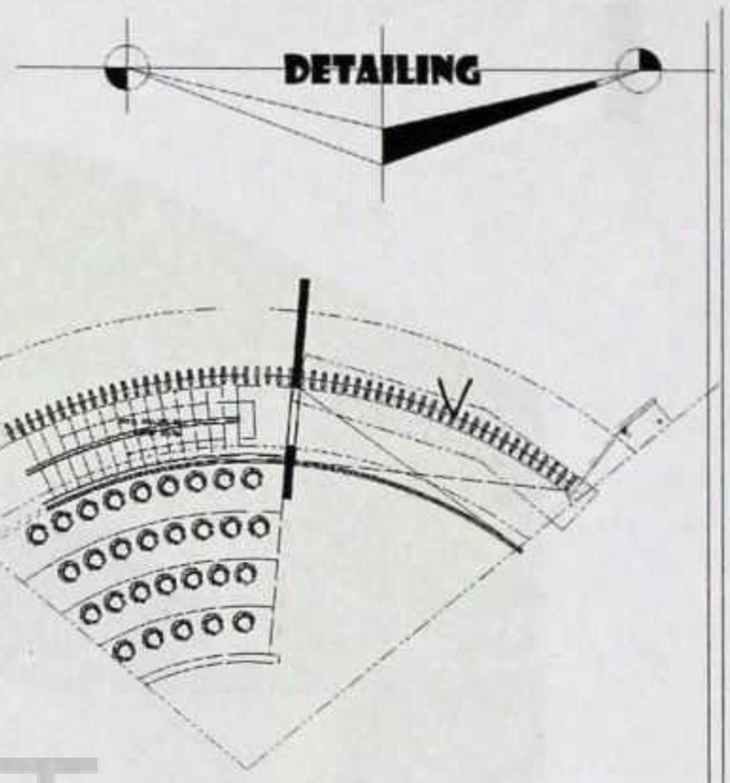
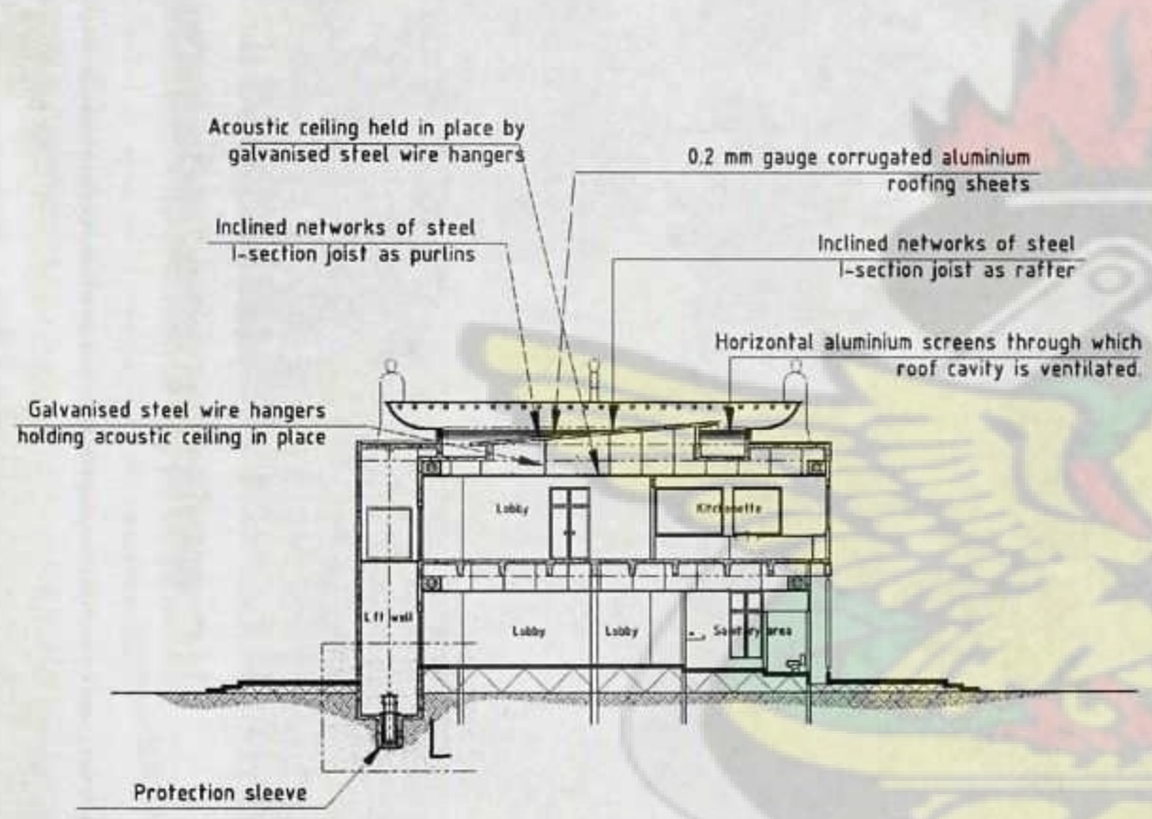



Key plan 1 : 200

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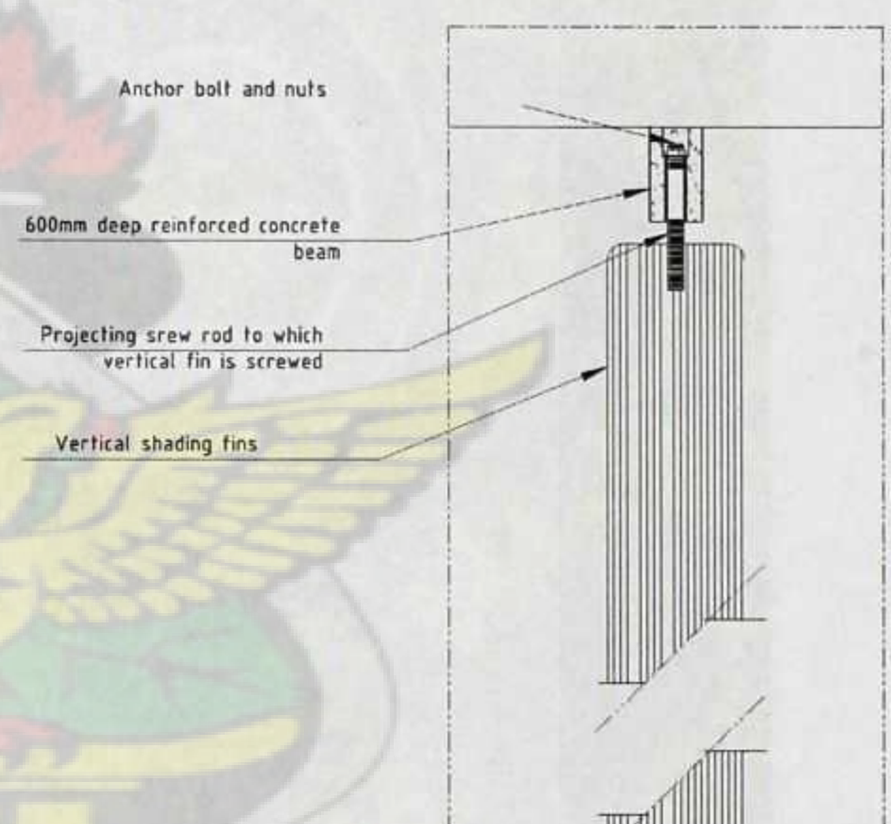


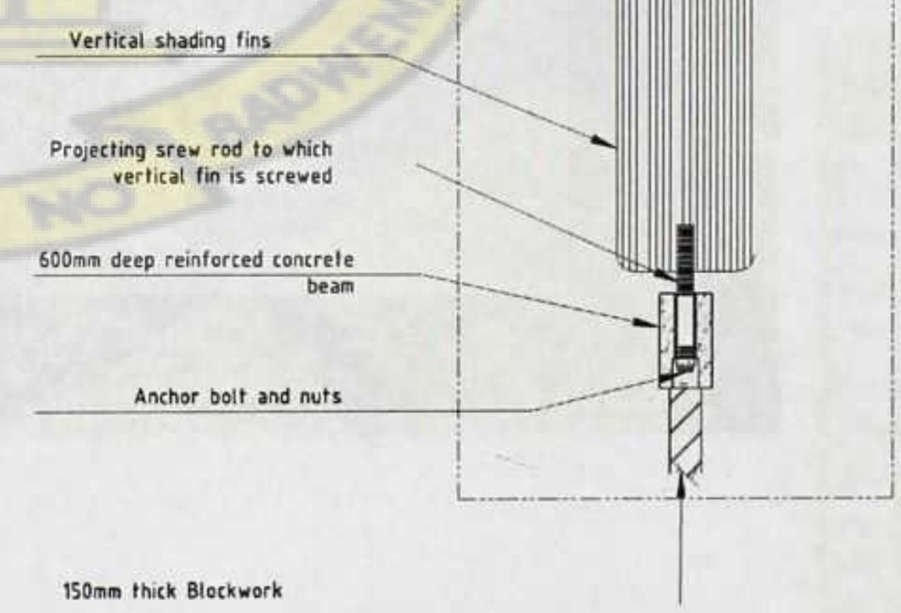


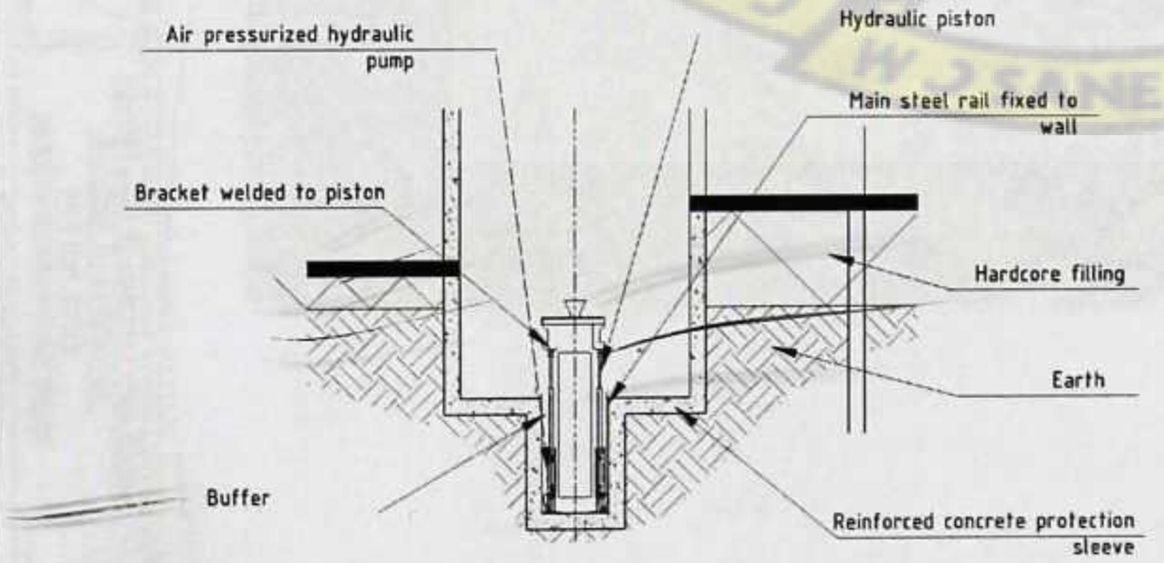


Detail L(Hydraulic Lift)
1 : 50

Detail V(Vertical shading fin)
1 : 25

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Figure 5.41, Structural Detail 5

Appendix 43

AERIAL VIEW

PERSPECTIVES

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Birds eye view of depicting the depth and relationship among facilities

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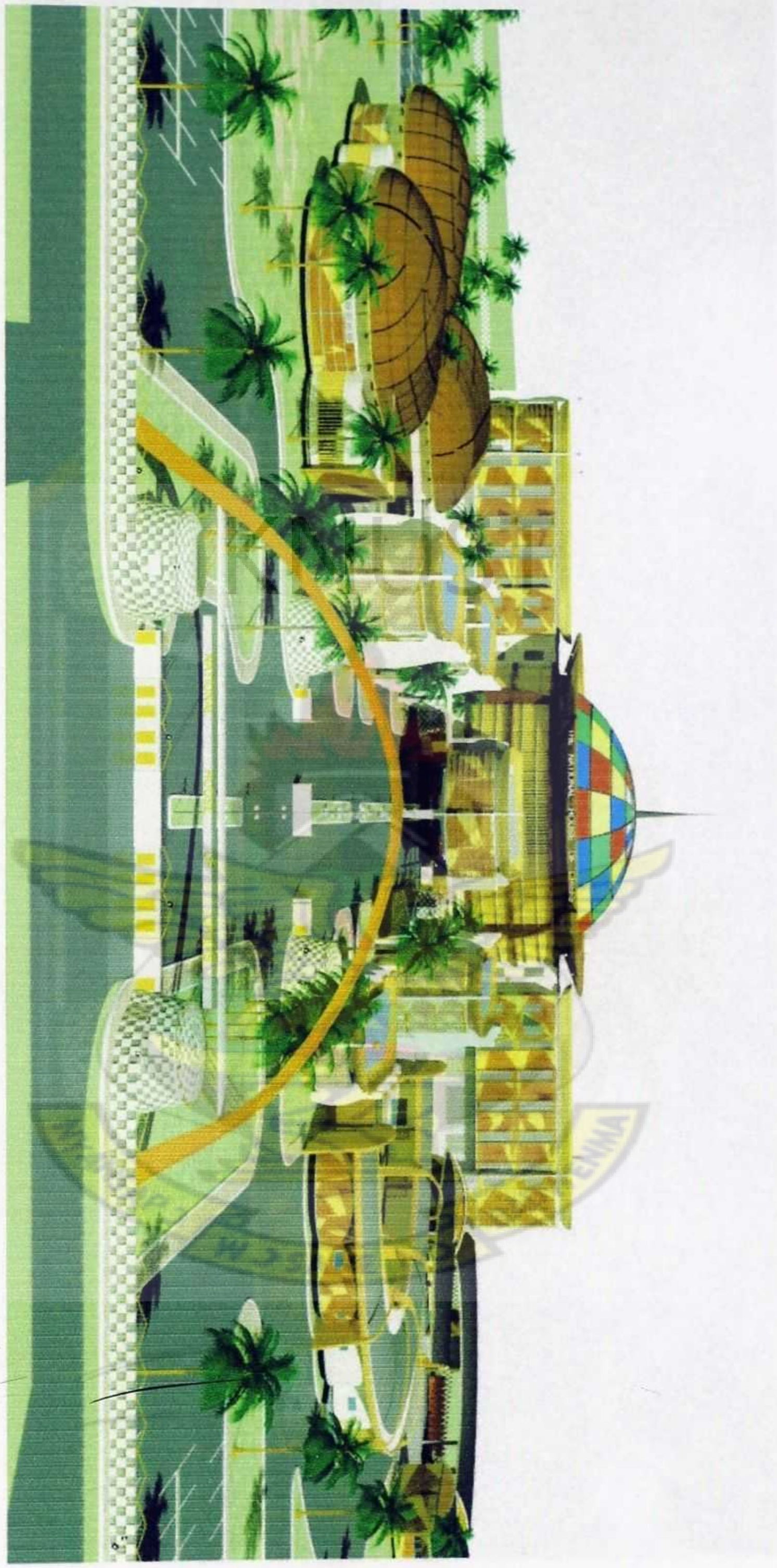
Figure 5.42, 3- Dimensional view 1

EXTERNAL VIEWS



View from the arc defining entrance showing how the architecture of the various facility relate in unison

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PERSPECTIVES

Figure 5.43, 3- Dimensional view 2


View from workshop/ durbar grounds depicting the harmony achieved in roof scape and material composition.

Figure 5.44, 3- Dimensional view 3



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PERSPECTIVES



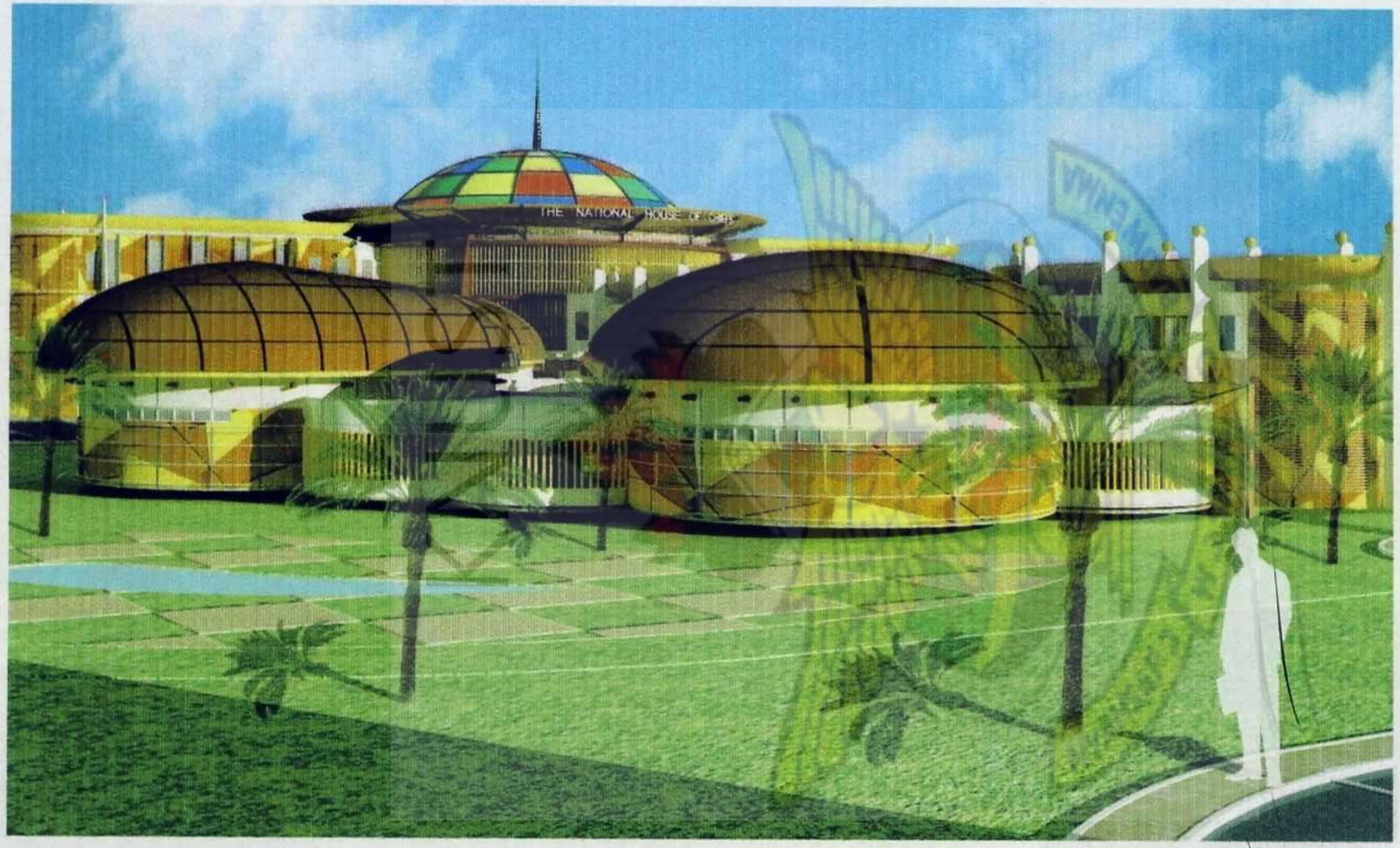


Figure 5.45, 3- Dimensional view 4

View from the arbitration centre showing the correlation between its roof scape and the dome of the Adm.block



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Figure 5.46, 3- Dimensional view 5

EXTERNAL VIEWS

PERSPECTIVES

View of the arbitration centre taken from the royal avenue



View of the art & craft centre taken from the royal avenue

View from the Durbar grounds showing hierarchy in space allocation

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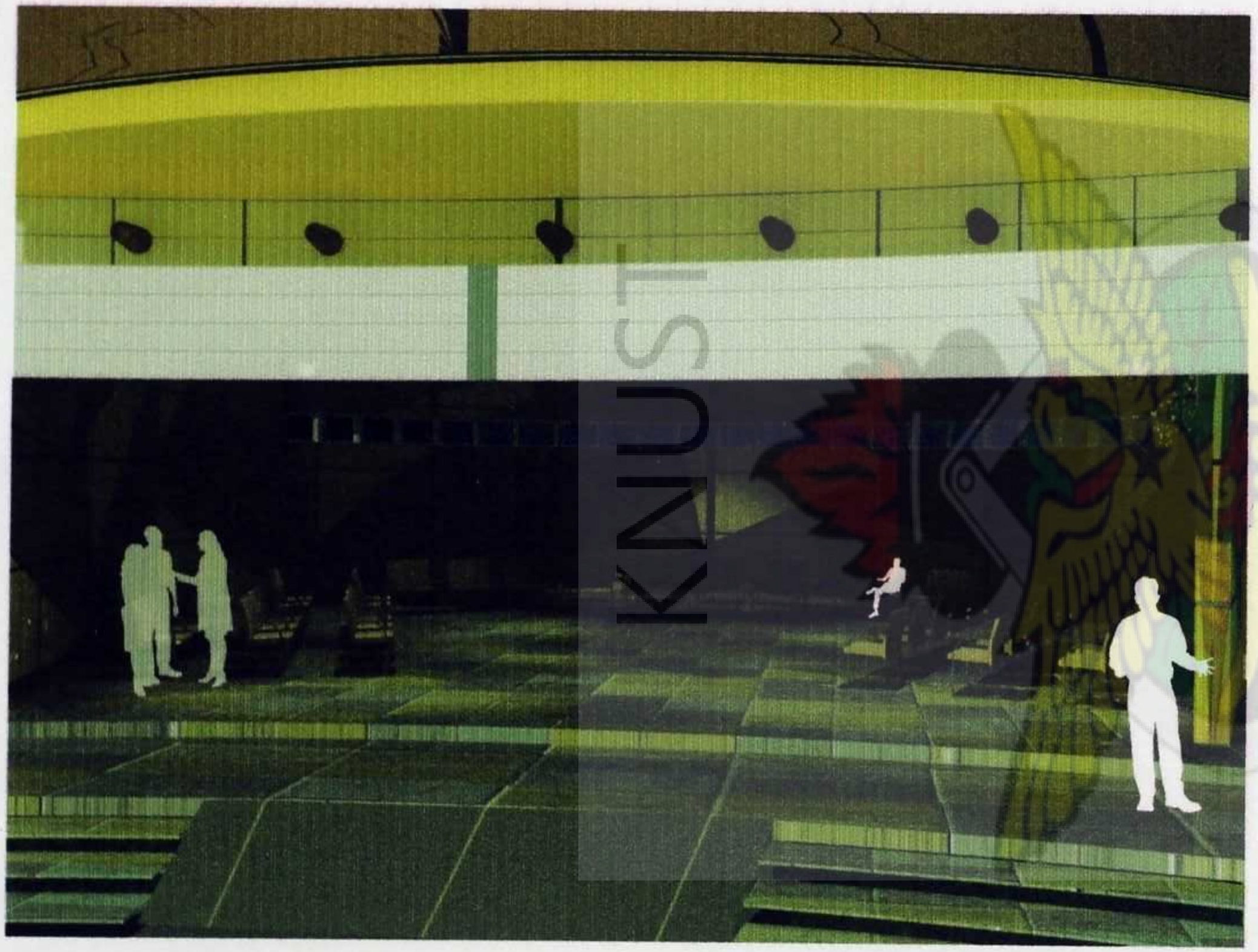
Figure 5.47, 3- Dimensional view 6

## INTERIOR VIEWS



View of the general waiting area, an attempt to create an indoor/outdoor architectural relation

## PERSPECTIVES


Figure 5.48, Interior perspective 6



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