

The Redesigning of Saiban City, Lahore

(First Draft, 07 September 2011)



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Abbreviations

HBFC	House Building Finance Corporation
IIED	International Institute for Environment and Development
KBCA	Karachi Building Control Authority
KKB	Khuda-ki-Basti
SM	Square Metres
SY	Square Yards

Preface

Saiban, a well-known Pakistan NGO, working for providing land and supporting incremental housing, has prepared a plan for its new project, Saiban City Lahore. I offered to redesign this plan on the basis of the guidelines developed by me and my colleagues (Architects Asiya Sadiq and Suneela Ahmed) through an IIED supported research project in 2009-2010. However, this simple objective turned into an exploration of looking at various planning alternatives for Saiban City. This exploration has raised a number of issues related to designing housing for low income settlements. These issues are discussed in Section 4 of the Study.

I would like to thank the IIED for its support in making this study possible. I would also like to acknowledge the three months' hard work and the dedication that Architect Durreshahwar Alvi has put into the design, drafting and various calculations for this study, without which it could not have been completed.

Arif Hasan

05 September 2011

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1. BACKGROUND

In 2008-09, the author and his colleagues were involved in a study to understand density related issues in low and lower middle income settlements in Karachi. This study was supported by the International Institute for Environment and Development (IIED), UK. For the study three settlements and one apartment complex were chosen. The settlements and the complex that were chosen were very different from each other both in physical and sociological terms. A brief description of them is given below.¹

1. **Khuda-ki-Basti-3 (KKB-3)** is a recently developed suburban settlement with a population density of 501 persons per hectare. It is estimated that in another ten years, it will have a density of at least 1300.
2. **Nawalane** is one of Karachi's oldest settlements. It has densified overtime and has a density of 3376 persons per hectare. Due to this high and unplanned density, it has many social problems in certain parts of it.
3. **Paposh Nagar** was a government scheme of single storey core housing. It was planned for a density of 240 persons per hectare. Today it has a density of 1181 persons per hectare and has houses of two to five storeys high.
4. **Fahad Square** is a 10-year old apartment complex in a planned government sector and as such, unlike the other examples, makes use of the sectors' social and commercial planned facilities. Its current density is 942 persons per hectare.

The number of persons per family and per housing unit also varies from 5.7 (Fahad Square) persons per family to 13.56 persons (Nawalane). In the same manner, the number of persons per housing unit varies from 6.7 (KKB-3) to 36.8 (Nawalane) persons. In addition, a study was also made of Labour Square, a 35 year old apartment complex so as to analyse the difference between it and Fahad Square.

These settlements were hypothetically remodelled to: i) see if the densities and land-use prescribed by the Karachi Building Control Authority (KBCA) for apartment blocks for low income groups could be achieved by developing individual houses on small plots in these settlements and on the Fahad Square plot; ii) understand the preferences of the residents regarding the type of accommodation they prefer and the reasons for it; and iii) to see what extent could the existing densities in these settlements and apartment blocks be achieved by catering to the preferences of the residents and by replacing apartments and ad-hoc densification by planned densification on small plots. The results of this remodelling and its comparisons with the existing situation are given in **Appendix – 1: Physical Comparisons between the Existing Situation and the Remodeling of KKB-3, Nawalane, Paposh Nagar and Fahad Square.**

The high densities achieved in remodelling were due to a number of reasons, the most important being the fact that at an average two families were accommodated on one residential unit, which is normal in Pakistan and is borne out of the case studies and also by the fact that an apartment in Labour Square housed one family 35 years ago but today houses two or more. The high density for

¹. Arif Hasan, Asiya Sadiq and Suneela Ahmed; *Planning for High Density in Low Income settlements, Four Case Studies from Karachi*: Urbanization and Emerging Population Issues Series Working Paper – 3, IIED, UK, March 2010.

Nawalane has been achieved due to the fact that the family size is 13.5 persons which means 27 persons on one plot. The other reasons are obvious from a study of the matrix in Appendix – 1.

The study also resulted in the following conclusions.

1. Higher densities could be achieved by planning clusters rather than developing a plan on a grid iron concept.
2. If the width to depth ratio of the plot or the housing unit could be increased, say from 1:2 to 1:3, the number of units could be substantially increased and costs of infrastructure reduced.
3. Through cluster planning, road space could be reduced and as a result, public space for social activities can be increased.

The residents' preferences were for houses on small plots rather than apartments for the following reasons.

1. They can begin small and then expand their house incrementally over time. This makes construction affordable.
2. They can carry out any kind of economic activity in their homes as long as it does not create pollution in the neighbourhood. This is not possible in apartments.
3. By building upwards on their plot they can provide accommodation to at least one of their sons after he gets married. This saves money either as rent or investment in a new housing unit.
4. In plot settlements one lives in a neighbourhood, in apartment blocks one lives in isolation.

For the March 2010 Study IIED Study, the authors also designed housing units for the remodelled settlements. In redesigning them it was understood that there is a limit to the density that can be reached without compromising on residents' needs. Houses higher than ground plus three floors are uncomfortable, and their living spaces on lower floors lack light and ventilation; decreasing spaces for amenities and social facilities adversely affects social and environmental conditions. In the replanning exercises, the authors avoided increasing house heights above ground plus three floors or cutting back on amenities and social facilities. In the designs the authors always kept a courtyard in the centre for providing light, air and an open family get together space.

2. SAIBAN CITY, LAHORE

Saiban is a Karachi based NGO that develops initially unserviced plot settlements. The residents make shacks and pay for the land in instalments over a five year period. They get together to develop their own neighbourhood water and sewage infrastructure and build their homes incrementally. Meanwhile, Saiban with payment received from the plot owners develops the trunk infrastructure and gets NGOs to develop the social infrastructure such as schools, health clinics, parks and community centres. With its links with government organisations and transporters, it helps in establishing transport facilities for the settlement.

Saiban is planning to develop a site in Lahore on these principles. The site area is 17.18 acres (6.87 hectares). Saiban has already developed a concept plan for its project called "Saiban City Lahore". The author offered to replan the settlement on the principles developed for the March 2010 Study IIED. Saiban agreed but it had certain definite requirements. These are given below:

1. Minimum plot size of 75 square yards (SY) (62.6 square metres) whereas the plot size worked out for the March 2010 Study IIED study was 47 square metres (SM).
2. A mix of populations. For this, Saiban wishes to have 40 plots of 240 SY (209 SM). The rest will be small plots. There are two reasons for this decision: i) Different income groups will live

together; and ii) that by increasing per square yard cost of the larger plots, the small plots can be subsidised.

3. About 50 percent of the site area should be residential as per the zoning regulations in Lahore.
4. Space for a graveyard should be provided and commercial facilities of about 4 percent of the area.

When the site was developed as per Saiban's requirements, very low densities were arrived at. So it was decided to look at various options to understand the density issues related to Saiban's requirements. Plans of this exercise have been developed and delivered to Saiban.

3. THE OPTIONS

The following options have been developed and the issues that surface and the lessons learnt from them are discussed in the subsequent sections.

A. As per Saiban's requirements: All plot dimensions are 75 SY (62.7 SM) and 240 SY (209 SM)

1. Plot width to depth ratio: 1:3 for 62.7 SM
Plot width to depth ratio: 1:2 for 209 SM
Cluster plan
2. Plot width to depth ratio: 1:2 for 62.7 SM
Plot width to depth ratio: 1:2 for 209 SM
Cluster plan
3. Plot width to depth ratio: 1:2 for 62.7 SM
Plot width to depth ratio: 1:3 for 209 SM
Grid iron plan
4. Plot width to depth ratio: 1:2 for 62.7 SM
Plot width to depth ratio: 1:2 for 209 SM
Grid iron plan

B. Options tested for having all plots for 75 and 72 SY (62.7 and 60.5 SM)

5. Plot width to depth ratio: 1:3 for both sizes
Cluster plan
6. Plot width to depth ratio: 1:3 for both sizes
Grid iron plan
7. Plot width to depth ratio: 1:2 for both sizes
Cluster plan

C. Options tested for plot sizes 56.3 and 56.9 SY (47.1 and 47.6 SM)

8. Plot width to depth ratio: 1:3 for both sizes
Cluster plan
9. Plot width to depth ratio: 1:3 for both sizes
Grid iron plan
10. Plot width to depth ratio: 1:2 for both sizes
Cluster plan

The subsequent discussion on issues in this study is further derived from the following appendices.

Appendix – 2: Density and Land-use Matrix. This compares the different proposals developed (with regard to density and land-use) with each other and with Saiban's original proposals. The comparison also includes the results of the IIED supported Bangkok Density Study 2011.²

Appendix – 3: Planning Options. This appendix consists of the layout plans from which the matrix in Appendix – 2 has been developed, along with detail land-use and cost calculations for each option and separate land-use colour coding layouts. In redesigning the Saiban City options, the author has respected the desire of the Saiban and byelaws to use only 50 percent of the site area for residential purposes. The commercial area, however, was reduced from the Saiban proposal of 4 percent of the site area to between 1.8 and 2 percent. This is because in the experience of the author, these commercial areas are subject to speculation and the remain unoccupied for a long period of time while commercial activity that serves the needs of the residents develops in the homes of the settlements.

Appendix – 4: House Plans. This consists of house plans on different sizes of plots giving the possible stages of incremental development, their surface areas and costs.

Appendix – 5: Construction and Land Costs for Different House Plan Options.

Appendix – 6: What the Poorer Poor Can Afford as Housing Loans.

Appendix – 7: The Impact of Saiban Proposed Cross Subsidy on Land Costs

Appendix – 8: Finding of the Bangkok Density Study 2011. These are derived from the Bangkok Density Study.

Appendix – 9: Bill of Quantities and Costs for House Plans.

4. PLANNING RELATED ISSUES

4.1 Research Questions

The redesign options for Saiban City raise a number of research questions. Some of them can be answered intuitively with considerable accuracy. Others need a better understanding of the issues that are raised below. Such an understanding would lead to a more appropriate redesign for Saiban City and/or for other settlements and complexes as well.

4.2 Population mix

Saiban wants 40 large 240 SY (209 SM) plots so that a mixed population should stay together. The rest of the plots should be a minimum of 75 SY (62.7 SM). It also wishes to subsidise the smaller plots by increasing the cost of the larger plots by 20 percent more than the smaller plots. Comments on this are given below:

1. 40 larger plots reduces density:

- High density with larger plot mix is in Scheme – 1: 859 persons per hectare
- High density without large plots but with 62.7 SM (Saiban's minimum) is in Scheme – 5: 1018 persons per hectare
- Highest density with plot size 41.7 SM (as per IIED March 2010 study) is in Scheme 8 1,277 persons per hectare
- The result is a substantial decrease of 418 persons per hectare

² Nattawut Usavagovitwong et. al.; *Housing Density Preference Study for Low and Lower Middle Income Settlements in Thailand*; Asian Coalition for Housing Rights, Bangkok, April 2011

2. Subsidy:

The effect of subsidy on plot costs is given in table below and its detail calculations are given in **Appendix – 7**.

Impact of Subsidy on Land Costs: Cost in Rupees per Plot

	Scheme – 4 Saiban Requirements	Scheme – 5 As per Saiban's Minimum Plot Size	Scheme – 8 As per IIED (2009-10) Study
	40 209 SM plots and 466 60.5 SM plots	590 60.5 and 62.7 SM plots	740 47.1 SM plots
Land cost without subsidy	Rs 58,608 (for the 60.5 SM plot)	Rs 56,497	Rs 44,449
Land cost with 20 percent subsidy from commercial areas	Rs 58,021	Rs 56,452	Rs 44,051
Land costs with subsidy from large plots	Rs 54,786	-	
Subsidised from both	Rs 54,198	-	

(Rupees 138 = 1 Pound Sterling)

From the above table the following can be derived. i) In Scheme – 4 by having 40 large plots, the small plots can be subsidised by 6.2 percent; ii) By not having the large plots but having all 62.7 SM plots (as per Saiban's minimum requirements for plots), the cost of the plot is 6.25 percent more than the cost of the subsidised plots in Scheme – 4. And iii) By reducing the plot size to 47.1 SM and increasing their number (as in Scheme 8) the plot cost becomes 18.86 percent lower than the small plot cost in Scheme – 4.

The cross subsidy does not make a substantial difference to reducing the cost of the plot. For the difference to be substantial a much larger area would have to be allocated for the larger plots. It is normal in Malaysia and was normal in Karachi before, that 15 to 30 percent of the plots were for low income groups and hence smaller.³ Thus, costs of smaller plots were substantially reduced. However, this reduces density further. On the other hand, by reducing the size of the plot and increasing their number, as per Scheme – 8, an 18.86 percent reduction in the cost of the plot can be achieved. This percentage will increase substantially after Saiban adds its overheads and development expenditure costs to the plots.

3. Different Groups Living Together

Where a population mix has been created with a majority of housing for the poor, it has been observed that the population purchasing the larger units uses their property for speculation purposes since they do not wish to live in poor neighbourhoods. On the other hand, where regulations force them to build, they build in a manner that can accommodate a number of low income families or for rental purposes. If the majority of the units are for the higher income groups, the smaller units also eventually get purchased by them. A lot also depends on the location of the site. If a site or apartment complex is in an area where real estate properties are high, then both the smaller and larger units/plots are purchased by the middle/higher income groups.⁴ **The population mix and related subsidy issue raises three questions. i) Should population mix be promoted?; ii) if yes, then**

³ For details see E.G. Pryor: *Housing in Hong Kong*; Oxford University Press, Hong Kong, 1993

⁴ Authors' observations. Also see Arif Hasan; *Housing for the Poor*; City Press Karachi, 2000 and *Chapter 1 of Comparing Cities*, edited by Adnan Asdar and Martina Rieker, OUP Karachi, 2009

how can multiclass settlements/apartments be promoted?; and iii) should the mix be determined by subsidy or sustainability?

4.3 Width to Depth Ratio

To make cluster planning possible, it is helpful if the depth of the plot/unit is a multiple of its width. Also, in the remodelling of Karachi settlements for the March 2010 IIED study and the attached proposals, it is seen that higher density and hence lower infrastructure and per plot land costs are achieved by a width to depth ratio of 1:3 as opposed to 1:2. However, it is obvious in the plans developed in **Appendix – 4** that the 1:2 ratio gives more flexibility in planning and also makes the development of an additional independent unit with a separate access on the floor above possible. This can be given out on rent. This observation poses a new research question. The density in 1:3 (Scheme – 9) is 1277 and in 1:2 (Scheme - 10) is 1155. **It is fair to deny this flexibility to low income groups for the sake of increasing the density by 122 persons per hectare?**

4.4 Size of Plot and Related Environmental Conditions

The size of the plot makes a considerable difference in built-density/capita. For plot size of 62.7 SM it works out to between 8.775 and 9.6 SM. For plot sizes of 47.1 it works out to 6.85 SM. If we look at the house plans for the two plot sizes, we find that the 62.7 SM plot has larger rooms, better ventilation, more than one toilet and substantially more roof space which in Lahore is used for various social activities and for sleeping at night in summer. However, there is a substantial difference in the cost of land and also of construction between the two options. (For details see **Appendix – 4 and 5**). The difference is not so high that it cannot be afforded by the better poor. **Should they be denied this option? If no, then there could be a mix of the two plot sizes within the clusters or around the lanes of the grid iron plans.**

4.5 Grid Iron Plan versus Cluster Planning

The March 2010 IIED Study process established that the grid iron plan gives lower densities for large settlements than cluster planning. Cluster planning through appropriate physical plans can also help in decentralising management and infrastructure operation and maintenance to the cluster level. However, for a scheme of 17.18 acres, such as Saiban City Lahore, the same densities can be achieved through cluster and grid iron planning.

In Scheme – 8, seven clusters of approximately 100 houses have been created. They can manage their infrastructure O&M and tax collection independently of a central settlement level management committee. This would force 100 house owners to work together to look after their area.

For the grid iron Scheme – 9, the same densities as clusters Scheme – 8, can be achieved. Here, there are about 18 lanes having an average of 39 units per lane. These 18 lanes would have to be represented in the central settlement management committee. As a result, the central management committee would have to be stronger to coordinate 18 groups than coordinating seven as in the case of Scheme 8. On the other hand, the Orangi Pilot Project experience is that the best coordination and management takes place if the unit of organisation is between 20 to 40 households. This is because there is a greater level of trust between individuals in a smaller unit than in a larger one. The lanes can also be designed in a manner that there is no thorough traffic in them and as such they can be used as public space. **The question here is that after what size of site area does cluster planning become necessary? Should this decision be left to the designer or should the communities decide? If the community is to decide, then it should exist before the design exercise. This is possible for redevelopment projects but now for new real estate development.**

4.6 Built Density Per Capita

The built density/capita is related to family size as this determines the size of the housing unit. For the Saiban City replanning options 12 persons per housing unit has been assumed. This is because the family size in Pakistan is 6.7 and we have assumed that there will be two families on each plot. We have further assumed that there has already been a drop in the family size since the last census in 1998. Working on this assumption the house plans developed have an eventually built-up area of between 82.2 (for plots of 47 SM) and 115.2 SM (for plots of 62.7 SM). At Stage One of the

incremental growth, the built-up area is between 32.5 and 49.7 SM for plot sizes 47 and 62.7 SM respectively. (For details see **Appendix 4 and 5**). This makes the situation very different from Bangkok where the average family size is 4.33 and there is only one family living in one unit. As a result, the average built-up area for the Bangkok housing units works out to 39.32 SM. (See **Appendix – 8 for details of the Bangkok Findings**).

It is interesting to note that for both the Bangkok study and the redesigning options for Saiban City, the built density/capita is not dissimilar. It is 8.79 SM for Bangkok and 8.04 SM for the Saiban options. In the case of Hong Kong, it is 3.20 SM.⁵ For Nawalane (March 2010 IIED Study) remodelling, it worked out to 3.87 SM. Looking at Nawalane plans again the author feels that the area is too small for the number of people living in it, although it is better than the existing conditions in Nawalane. Similarly, there has been a lot of criticism about the inhumane conditions in Hong Kong apartment complexes.⁶

Based on the Bangkok study and the replanning options for Saiban City, the author feels that the built density per capita should not be less than 6.5 SM. Given high land prices and construction costs of developers, such a high built density per capita is unaffordable through the existing financial loan arrangements for the poor (see **Appendix – 6**). **The question is whether affordability alone (which can lead to producing inhuman conditions) or appropriate environmental and social concerns should determine the design and size of housing units and ways discovered to make them affordable?**

4.7 Footprint of Residential Area

There is a difference in planning for a new settlement and for a plot of land in an already formally planned sector of the city. In the case of the planning of a settlement, amenities and commercial areas are required along with a road system and related public spaces. In the case of the development on a plot, these facilities have already been provided in the sector plan.

From the remodelling of Paposh Nagar and Fahad Square (March 2010 IIED Study), the author has come to the conclusion that up to 58 to 60 percent of the site can be used for residential purposes for a settlement plan. On the other hand, 77 to 80 percent of the site can be used for residential purposes in the case of a plot in an officially planned sector. In both cases, the design is for individual houses on 47 and 30.72 SM plot. However, in the case of Bangkok, there are schemes where the open area of the plot is only 8 percent (see **Matrix in Appendix – 2**).

4.8 Density in Relation to Individual Houses versus Apartments

A comparison between the Bangkok, Karachi and the Saiban City Remodelling case studies, it is obvious that much higher densities (between 2275 and 4184 persons per hectare) can be achieved by building small apartments of 32 to 35.75 SM. Individual houses on small plots, on the other hand, can achieve higher densities (of up to 1300 persons per hectare) than the prescribed KBCA regulations of 1225 persons per hectare.⁷ **The question here is to what extent should peoples' preferences be given more importance than higher densities?**

4.9 Social Relations: Individual Houses versus Apartments

The Bangkok Density Study clearly establishes that social relations in low income housing settlements are better than in apartment complexes. They are especially better in relation to security, community activity, entrusting house to neighbour and especially for entrusting children with neighbours. (For details see **Appendix – 8**). The study for three Karachi settlements and one apartment complex (March 2010 IIED Study) also points to the fact that social conditions in the settlements are better than in the apartment complex. This is in spite of the fact that all three surveyed settlements were informally planned and at least one of them had a number of social problems. **Given high land and**

⁵ Nattawut Usavagovitwong et. al.; *Housing Density Preference Study for Low and Lower Middle Income Settlements in Thailand*; Asian Coalition for Housing Rights, Bangkok, August 2010

⁶ **Will put in later**

⁷ See Appendix 8 and March 2010 IIED Study.

construction prices of formally developed housing, to what extent should the issue of social relations determine whether apartments or individual houses should be built on a particular site?

4.10 The Affordability Issue

Detractors to the Saiban concept feel that the houses built by the people themselves are “shabby” and create an unaesthetic environment. They feel that the street facades should be properly built. There have also been proposals that the facades should be completed along with the structure of the house and the internal finishing/completion should be done by the owner at his own cost. This negates the concept of incremental building.

Here the question arises as to what the poor can afford for formal built housing through a loan process in 15 years. This has been worked out in **Appendix – 6**. It is obvious from the figures in the appendix that the poor cannot build the complete house through a loan process although they may manage to build Stage One and repay it in a 15 year period.

This issue can only be solved by; i) providing a subsidy of about 50 percent of construction cost; ii) providing for a 20 year loan which the House Building Finance Corporation (HBFC) is not willing to do for persons over 40 years of age;⁸ and iii) providing small loans for large items such as roofs (which constitutes about 20 percent of the cost of construction⁹) and utilities in a process where the owner builds his own house incrementally over time. In any of these cases, design and technical advice and managerial guidance needs to be provided to the owner so that a pleasant social and physical environment can be created. **The question is who will provide these design and technical services to the owners and through what process?**

5. CONCLUSIONS

5.1 General Conclusion

The issues raised in Section 4 of this Study are important for a number of reasons. In many Asian cities, state subsidised public housing, is no longer being provided, except for redevelopment schemes for “squatter” settlements. Most of the redevelopment schemes consist of apartment blocks. Evidence suggests that the residents are unhappy with these schemes as they make them poorer since they burden them with loans, prevent them from carrying on economic activity in their homes, destroy existing community life and create social problems.¹⁰ It is true that more sensitive alternatives have also been developed but so far they are limited in scale and location as compared to the scale of the problem.¹¹ Meanwhile, the creation of informal settlements, common in the pre-1990 decades, has become difficult if not impossible.

The resulting demand-supply housing gap for low income communities is increasingly being met by real estate developers. In many cases, their work is being supported through market based subsidies and long term housing loans. To make the product affordable, the housing units are becoming increasingly smaller, sometimes as low as 15 to 18 SM.¹² These developments are creating a degraded physical and social environment and this will deteriorate further through densification and maintenance related problems. What will these new developments look like 10 years from today? It seems that self or community built incremental housing is the only affordable option which can produce a better environmental quality, provided it is guided and takes into consideration the issues raised in Section 4.

⁸. HBFC Website:

⁹. See *Appendix 9: Bills of Quantity and Costs for House Plans*

¹⁰. Han Verschure, et.al; *Evaluation and Recommendation for Tan Hoa-Lo Gom Canal Sanitation and Urban Upgrading*; 28 April 2006; and *Mission to Istanbul, Republic of Turkey, June 08 – 11, 2009*; UN Advisory Group on Forced Evictions

¹¹. Examples are SPARC’s work in Bombay and CODI’s work in Thailand

¹². Author’s observations and conversations with residents, agents of developers and/or professionals in Bangkok, Delhi and Karachi

5.2 Saiban City Specific Conclusions

A number of specific conclusions for the future design of Saiban City, which try to relate to the issues raised in Section 4, are given below.

1. Plot sizes in the settlement should be a mix. The maximum size should be 62.7 SM and the minimum should be 47 SM. Width to depth ratios of plots should also vary between 1:2 and 1:3. These different sizes and ratios should not be segregated from each other but should be woven together in clusters or along grid iron roads. Per SM cost of the plots should be kept the same. As such, residents will have a choice according to what they can afford or what they prefer.
2. Commercial plots should not cover more than 1.5 percent of the site. Their cost per SM should be 50 percent more than the residential plots. This is because commercial plots are seldom occupied or used for the benefit of the residents of the settlements whose needs are catered to by shops in the houses in the lanes. The possibility of providing small plots for commercial activities within the clusters is a possibility that needs to be explored. In Schemes 5 and 7, this has been attempted.
3. The residential footprint should be increased to 65 – 68 percent of the residential area. This will increase the number of plots and reduce the sale price of the plots considerably. The results of the remodelling for March 2010 IIED Study establish that this increase does not adversely affect the physical and social environment.
4. The partially contractor-built option, as suggested by the Saiban detractors, is unaffordable and cannot be incremental. As such, it should not be considered. People should build their own houses but they should be supported by a design and construction supervision cell. How best such a cell can be organised, financed and sustained and by whom needs to be determined.
5. Separate loan packages should be developed for roof elements, cement purchase, bricks, utility connections and for tiling the wet areas of the house to make them hygienic. The owners can choose the package they prefer. The tiling option should carry a low or no interest rate.
6. The possibility of a loan package for DC fan and light appliances on solar energy should be developed. Companies in Pakistan offer one fan, two lights, dry batteries and a solar panel to fire them for Rs 16,000. The long term benefits of this have been worked out in numerous reports and news items.¹³

¹³. Arif Hasan, Mansoor Raza; *A Study into the Acceptability of Alternative Energy Sources for Urdu Bazaar Karachi*; Unpublished draft report, January 26, 2011

Appendix 1- Physical Comparisons with New Proposal

	Khuda Ki Basti		Nawalane		Paposh Nagar		Fahad Square	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
Total Area	40.8 acres (16.51 hectares)		20.9 acres (8.4 hectares)		15 acres (6.07 hectares)		1.50 acres (0.607 hectares)	
Total no. of plots	1237	2112	769	1000	714	777	248	171
Average Family Size	6.7 persons	6.7 persons	13.56 persons	13.56 persons	6.7 persons	6.7 persons	5.7 persons	5.7 persons
Number of families per plot	01	02	2.72	02	1.5	02	01	01
Average number of people per plot	6.7 persons	13.4	36.8 persons	27.0 persons	10.05 persons	13.4 persons	5.7 persons	5.7 persons
Total Population (Residential)	8287 persons	28300 persons	28299 people	27000 persons	7175 persons	10411 persons	1414 persons	975 persons
Population Density (total population / total area)	203 ppl per acre 501 ppl per hectare	693 ppl per acre 1712 ppl per hectare	1356 ppl per acre 3349 ppl per hectare	1291 ppl per acre 3189 ppl per hectare	478 ppl per acre 1181 ppl per hectare	694 ppl per acre 1715 ppl per hectare	942 ppl per acre 2327 ppl per hectare	650 ppl per acre 1606 ppl per hectare

APPENDIX – 1- PHYSICAL COMPARISONS WITH NEW PROPOSAL

Average residential plot size	80 sq. yards (67 sq. meters)	56 sq. yards (47.0 sq. meters)	120 sq. yards (100 sq. meters)	56 sq. yards (47.0 sq. meters)	81.6 sq. yards (68.2 sq. meters)	56 sq. yards (47.0 sq. meters)	66.6 sq. yards (55.7 sq. meters)	
Cost of Land per sq. yds.	PKR 5000 (\$ 61) per sq. yards for an average 80 sq. yds. (67 sq. meter) house of G+1.	PKR 5000 (\$ 61) per sq. yards for an average 56 sq. yds. (47 sq. meter) house of G+2.	PKR 7352 (\$ 90) per sq. yards for an average 120 sq. yds. (100 sq. meter) house of G+2.	PKR 7352 (\$ 90) per sq. yards for an average 56 sq. yds. (47 sq. meter) house of G+2.	PKR 10,000 (\$ 123) per sq. yards for an average 66.16 sq. yds. (55.73 sq. meter) house of G+2.	PKR 10,000 (\$ 123) per sq. yards for an average 56 sq. yds. (47 sq. meter) house of G+2.	PKR 9752 (\$ 120) per sq. yards for an average 81.6 sq. yds. (68 sq. meter) house of G+2.	
Cost of Unit	Overall covered areas = 160 sq. yds (134 sq. meter). Overall cost = RKR 800,000 (\$ 9,876)	Overall covered areas = 168 sq. yds (141 sq. meter). Overall cost = RKR 840,000 (\$ 10,370)	Overall covered areas = 360 sq. yds (302 sq. meter). Overall cost = RKR 26,46,720 (\$ 32,675)	Overall covered areas = 168 sq. yds (141 sq. meter). Overall cost = RKR 12,35,136 (\$ 15,248)	Overall covered areas = 200 sq. yds (168 sq. meter). Overall cost = RKR 1,998,000 (\$ 24,666)	Overall covered areas = 168 sq. yds (141 sq. meter). Overall cost = RKR 16,80,000 (\$ 20,740)	Overall covered areas = 81.6 sq. yds (68 sq. meter). Overall cost = RKR 7,95,763 (\$ 9,824)	
LANDUSE	%	%	%	%	%	%	%	
Residential	40.27	55	60.5	55	60.5	55	70.6	
Residential cum Commercial	7.14		10.65		6.66		0	
Commercial	1.85	5	0.02	5	4	5	0	
Parks (area level, neighborhood parks)	7.24	8	0.12	10	4	10	0	
Amenities	2.86	4	1.81	4	2.85	4	0	
Educational	3.19	4.5	2.32	4	2.60	4	0	
Empty Plots	1.85	0	4.98	0	3.36	0	0	

APPENDIX – 1- PHYSICAL COMPARISONS WITH NEW PROPOSAL

Total Circulation (Roads & Streets)	35.60	23.5	19.6	22	16.03	22	29.4	
BUILT / OPEN								
Total Builtup Area	55.62	68.5	75.68	68	76.61	68	70.6	
Total Open Area	44.6	31.5	24.32	32	23.39	32	29.4	
Total Road Length (In Rft.)/rm	14000ft/ 4267.2m	12600ft/ 3840.48m	15120ft/ 4608.57m	11278ft/ 3437.53m	12000ft// 36576m	7985ft/ 2433.82m	2747ft/ 837.28m	
Total Sewerage Line Length (In Rft.)/rm	16,200ft/ 4937.76m	13600ft/ 4145.28m	17000ft/ 5181.6m	12,400ft/ 3779.52m	13,400ft/ 5913.12m	8950ft/ 2727.96m	3075ft/ 937.26m	
Total Water Lines Length (In Rft.)/rm	15800ft/ 4815.84m	13000ft/ 3962.4m	16800ft/ 5120.64m	12000ft/ 36576m	13200ft/ 4023.36m	8620ft/ 2627.376m	2900ft/ 883.92m	
Cost of Roads Per Rft.	6790	3575	11790	6766	10100	6166	7491	
Cost of Sewerage and water supply Per plot (Rs) Rft	6500ft/ 1981.2m	3750ft/ 1143m	10988ft/ 3349.14m	7320ft/ 2231.13m	9313ft/ 2838.6m	6783ft/ 2067.45m	6789ft/ 2069.28m	
Cost of roads per plot (Rs)	6790	3575	11790	6766	10100	6166	7491	

DENSITY & LANDUSE MATRIX																					
PROPOSALS FOR IIED DENSITY STUDY (2010)					KKB, LAHORE PROPOSALS (2011)											Thailand Density Study (2011)					
	KKB	NAWALANE	P. NAGAR	F. SQUARE	SCHEME 1	SCHEME 2	SCHEME 3	SCHEME 4	SCHEME 5	SCHEME 6	SCHEME 7	SCHEME 8	SCHEME 9	SCHEME 10	SCHEME 11	BK(NHA)	BMBK (CODI)	BUSP (NHA)	BMSP (CODI)	WP(NS)	BMWP (CODI)
Settlement Area : ha	16.32	8.4	6.07	0.67	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.08	0.8808	1.36	1.0762	1.48	0.24
Total No. of plots	1910	982	749	152	498	447	442	466	590	542	510	740	704	669	412	3272	202	1120	249	56	80
Size of plots : sq.m	47	47	47	30.72	209	209	209	209	62.7	62.7	60.5	47.1	47.1	47.6	NA	32	35	35.75	61.25	32.63	60.995
					62.7	60.5	62.7	60.5													
Number of families per plot	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
Plot width to depth ratio	1:3	1:3	1:3	NA	1:2	1:2	1:2	1:2	1:3	1:3	1:2	1:3	1:3	1:2	NA	NA	NA	NA	NA	NA	NA
					1:3	1:2	1:3	1:2													
Average No. of persons per plot	15	27	13.4	9	12	12	12	12	12	12	12	12	12	12	12	4.19	5	4.31	4.71	4.8	3
Built-up Area per Capita : sq.m	6.96	3.87	7.79	8.26					8.775	8.775	9.6	6.85	6.85	7.42	N.A	7.64	7	8.29	13	6.8	17
Gross Density: ha	1755	3157	1653	2280	859.8	771.8	763	804.6	1018.7	935.8	880.6	1277.7	1215.5	1155	711.4	4184.1	2257.3	3558.7	1089.3	506.1	1000
LANDUSE in percentages of settlements area																					
Residential	55	55	58	77	54	48	48.5	48.9	53.2	48.9	44.2	50.1	47.7	45.7	51.9						
Commercial	5	5	4	0	2	2	3	1.8	1.6	3	2.5	2.2	3.1	2.1	4.17						
Ameneties	4.5	4.5	4	0	5.6	6.1	4.6	4.2	5.2	3.95	5	4.6	3.9	3.8	2.77						
Open Spaces	8	8	8	5.35	17	20	13	13.2	18.8	11.35	17.9	16.3	11.1	19.6	8.64	27	20	32	20	8	18
Educational	4.5	4.5	4	0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.26						
Vehicular circulation	23	23	22	17.65	19	21.5	28.5	29.5	18.8	30.4	27.9	24.4	31.8	26.4	30.67						

No.	Plot Size	width/depth ratio	Type
A	As per Saiban requirements		
scheme 1	33'-6" x 67' (10.21m x 20.42m) & 15' x 45' (4.57m x 13.72m)	1:2 , 1:3	Cluster
scheme 2	33'-6" x 67' (10.21m x 20.42m) & 18' x 36' (5.5m x 11m)	1:2 , 1:2	Cluster
scheme 3	33'-6" x 67' (10.21m x 20.42m) & 15' x 45' (4.57m x 13.72m)	1:2 , 1:3	Grid-iron
scheme 4	33'-6" x 67' (10.21m x 20.42m) & 18' x 36' (5.5m x 11m)	1:2 , 1:2	Grid-iron
B	Options tested - 60.5 sq.m & 62.7 sq.m (72 sq.yds & 75 sq.yds)		
scheme 5	15' x 45' (4.57m x 13.72m)	1:3	Cluster
scheme 6	15' x 45' (4.57m x 13.72m).	1:3	Grid-iron
scheme 7	18' x 36' (5.5m x 11m)	1:2	Cluster
C	Options tested - 47.1 sq.m & 47.6 sq.m (56.3 sq.yds & 56.9 sq.yds)		
scheme 8	13' x 39' (3.96m x 11.89m)	1:3	Cluster
scheme 9	13' x 39' (3.96m x 11.89m)	1:3	Grid-iron
scheme 10	16' x 32' (4.88m x 9.75m)	1:2	Cluster
D	KKB Scheme		
scheme 11	Scheme prepared by KKB team, having plots of many sizes.	NA	NA

NHA- Bon Kai : 14, 4-8 storey apartment buildings

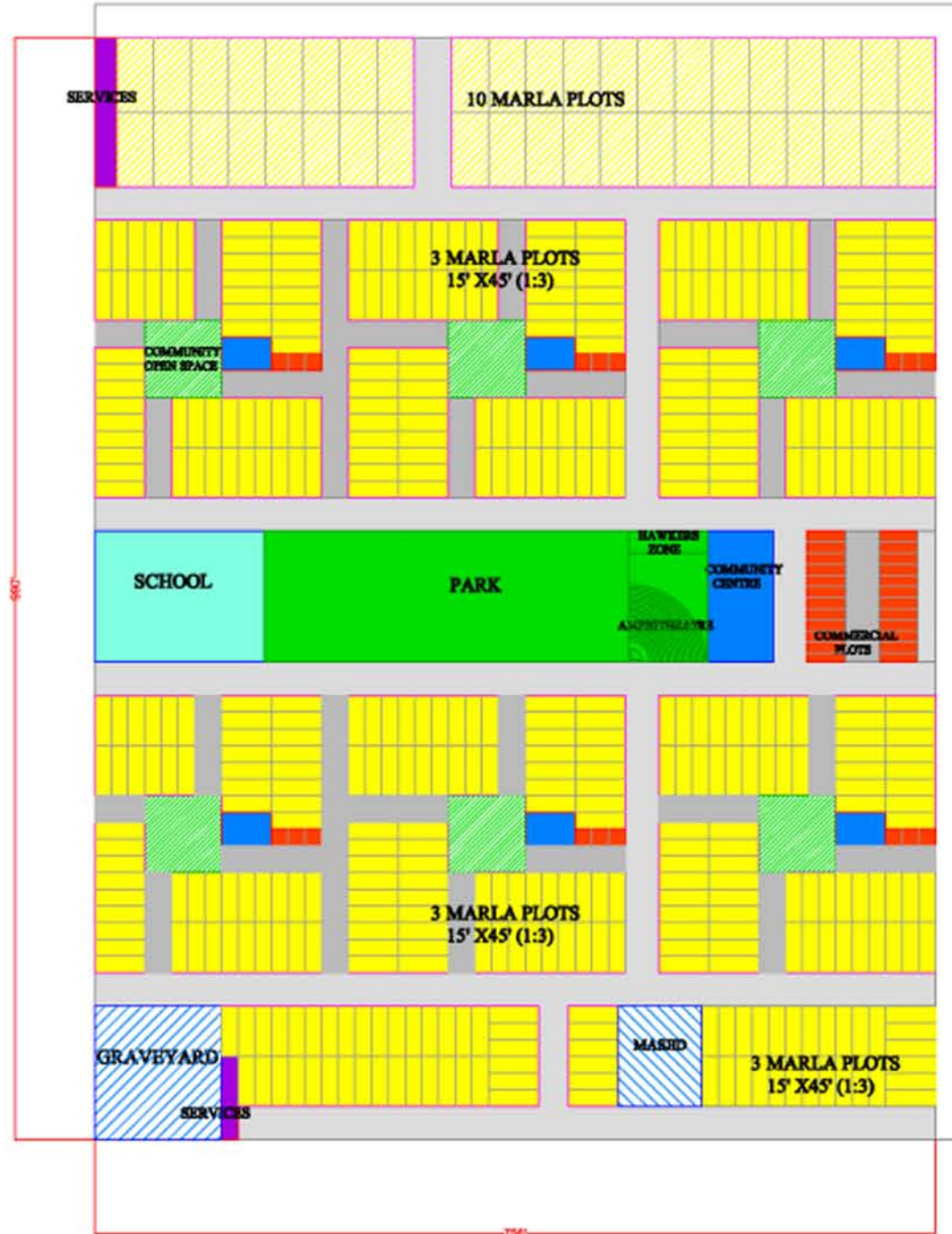
CODI-Baan Mankong Bon Kai : 2 and 2.5 story row houses

NHA- Baan Uea-arhorn Suan Plu: 14 , 5 storey apartment buildings

CODI- Baan Mankong Suan Plu: 2, 2.5, 3 & 4 storey row houses and apartment building

Watphrayakrai Community : 2, four storey ,low-rise condominium scheme

CODI - Baan Mankong Watphrayakrai : 2, four storey, low-rise condominium scheme



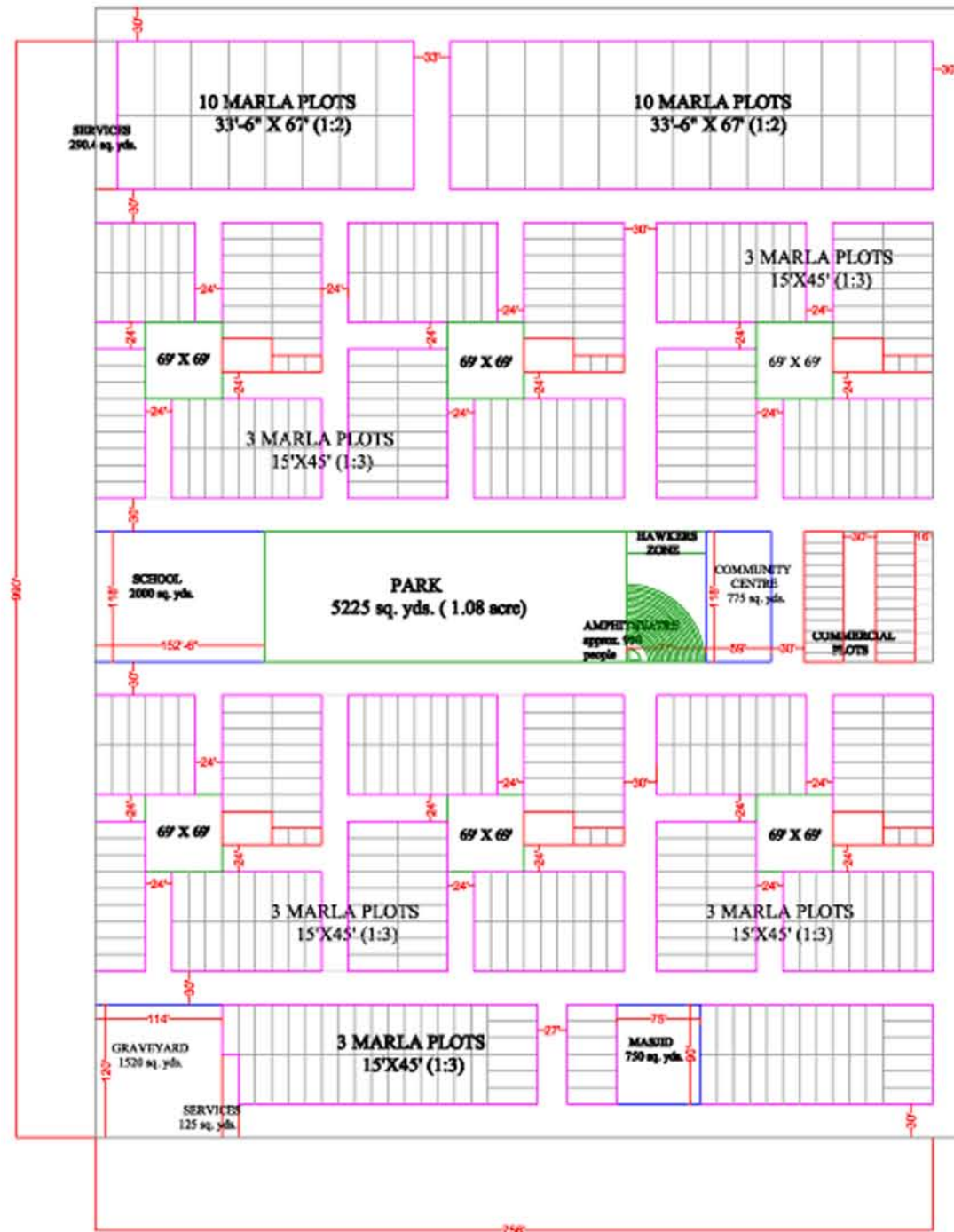
SCHEME 1

APPENDIX 3 - PLANNING OPTIONS

LANDUSE CODING

COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	54.0
	10 marla plots	
	3 marla plots	
	COMMERCIAL	2.0
	AMENITIES	8.0
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	17.0
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	19.0

Project : SAIBAN CITY LAHORE	SCHEME 1	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-01-01
Date : 07-09-2011	Scale : 1/120" = 1'-0"	



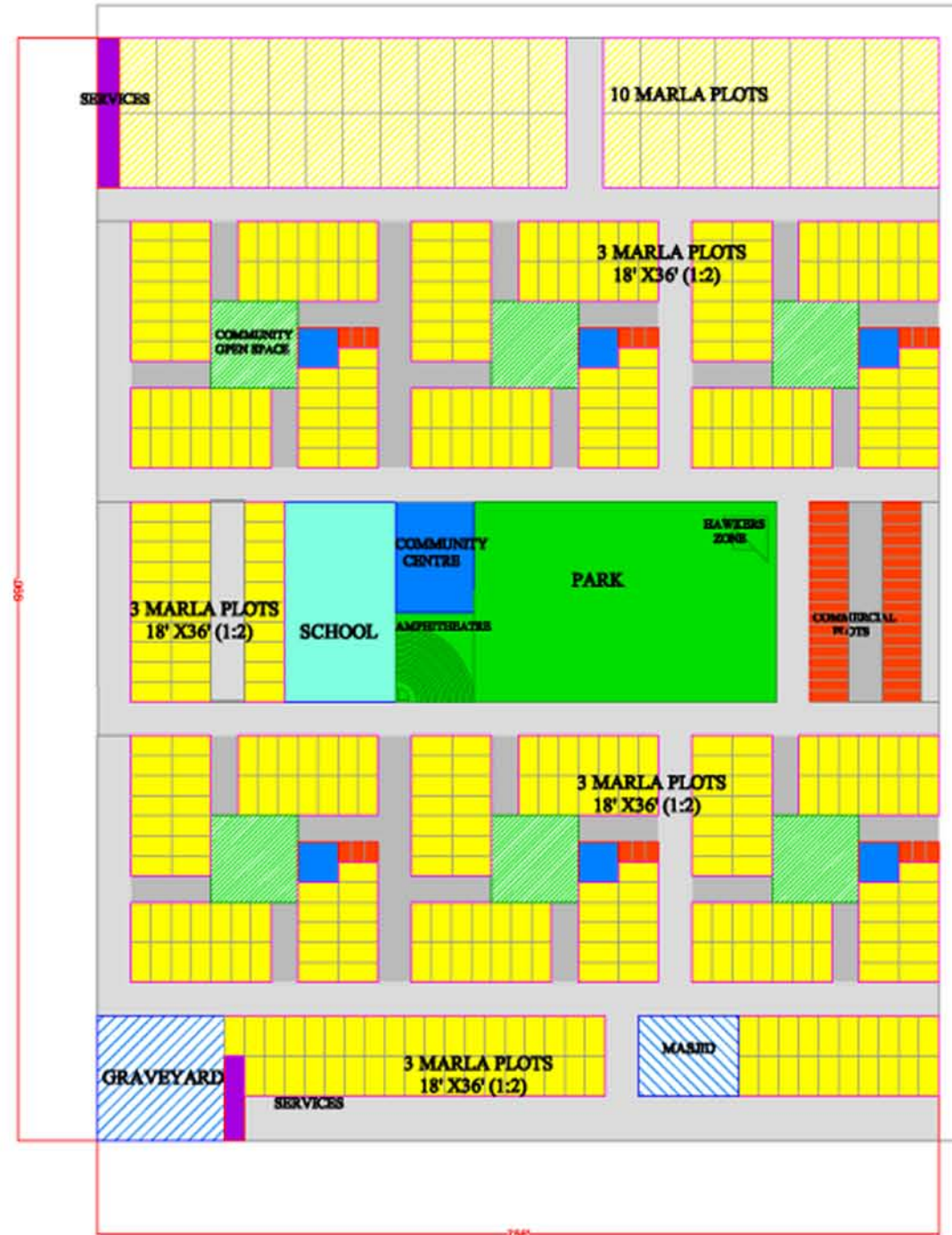
SCHEME 1

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				54
10 marla plots	42	250	10500	
3 marla plots(1:3) = 15' x 45'	456	75	34200	
2. COMMERCIAL PLOTS				2
1.5 marla plots	22	39	858	
1.2 marla plots	2	31	62	
1 marla plots	18	25	450	
3. AMENITIES				8
3.1 Community Centres				
At cluster level	6	150	900	
Main Center	1	775	775	
3.2 School	1	2000	2000	
3.3 Mosque	1	750	750	
3.4 Graveyard	1	1520	1520	
3.5 Services and Utilities	2	varies	415	
4. Public Open Spaces				17
4.1 Park	1	5225	5225	
4.2 Community Open Spaces				
At cluster level	6	529	3174	
Pedestrian Walkways			5441	
5. Roads for Vehicular Traffic				19

LANDUSE COSTING	
Total Area of PLOT = 83,160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs. 2,000,000/- per acre = Rs. 34,363,600/-	
Sale-able area = 10,500 sq. yds.	10 marla residential
34,200 sq. yds.	3 marla residential
858 sq. yds.	1.5 marla commercial
62 sq. yds.	1.2 marla commercial
450 sq. yds.	1 marla commercial
Total sale-able area = 46,070 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 46,070 = Rs 746/sq.yd	
Percentage of sq. yds. COST of sale-able areas	
10 marla residential =	Rs. 7,833,000 /- for 42 plots
	Rs. 186,500 /- per plot
3 marla residential =	Rs. 25,513,200 /- for 456 plots
	Rs. 55,950 /- per plot
1.5 marla commercial =	Rs. 640,068 /- for 22 plots
	Rs. 29,094 /- per plot
1.2 marla commercial =	Rs. 46,252 /- for 2 plots
	Rs. 23,126 /- per plot
1 marla commercial =	Rs. 335,700 /- for 18 plots
	Rs. 18,650 /- per plot

Note: 1 marla = 25 sq. yards

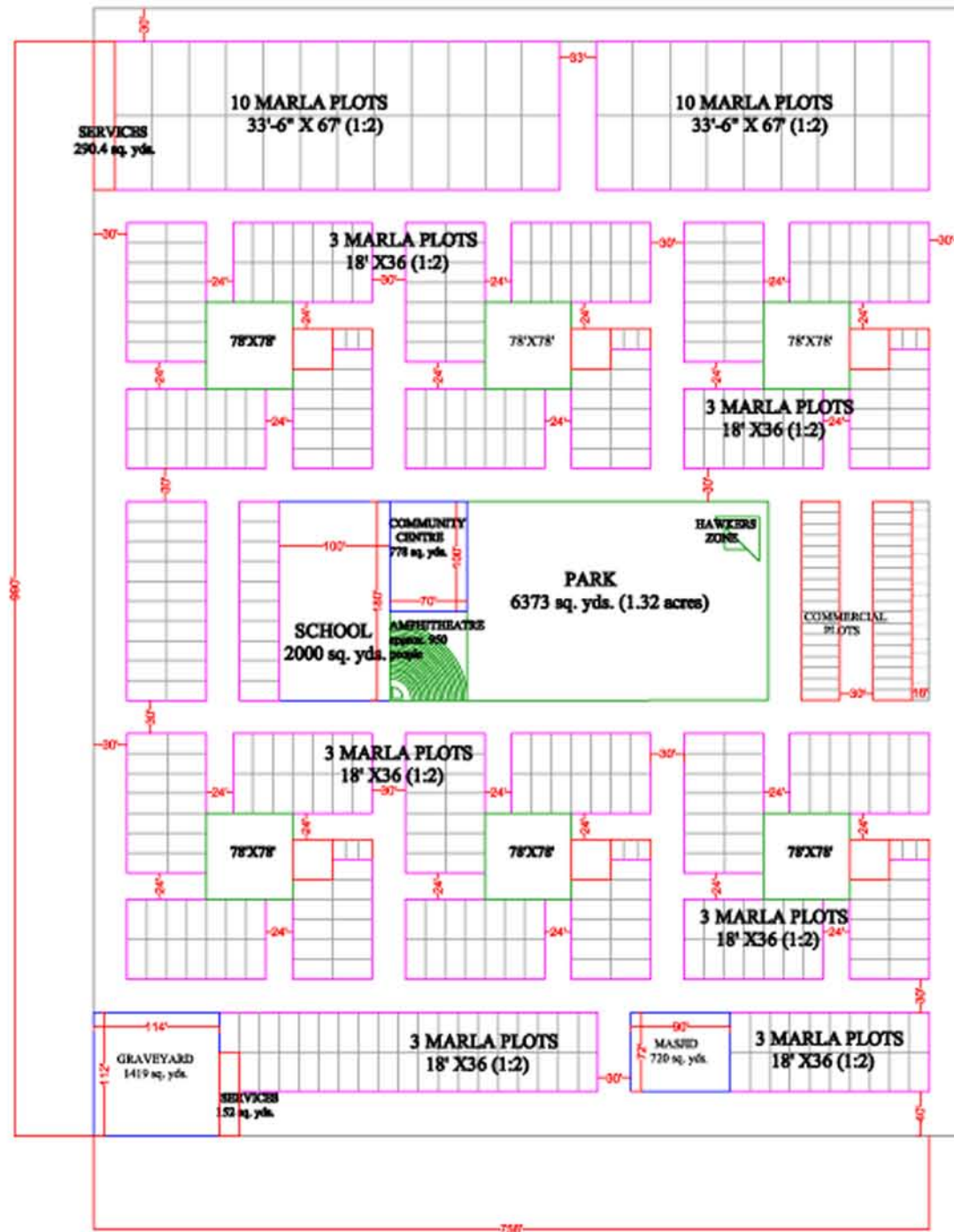
Project : SAIBAN CITY LAHORE	SCHEME 1	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-01-02
Date : 07-09-2011	Scale : 1/128" = 1'-0"	



SCHEME 2

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	48.0
	10 marla plots	
	3 marla plots	
	COMMERCIAL	2.0
	AMENITIES	8.5
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	20.0
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	21.5

Project : SAIBAN CITY LAHORE	SCHEME 2	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-02-01
Date : 07-09-2011	Scale : 1/200" = 1'-0"	



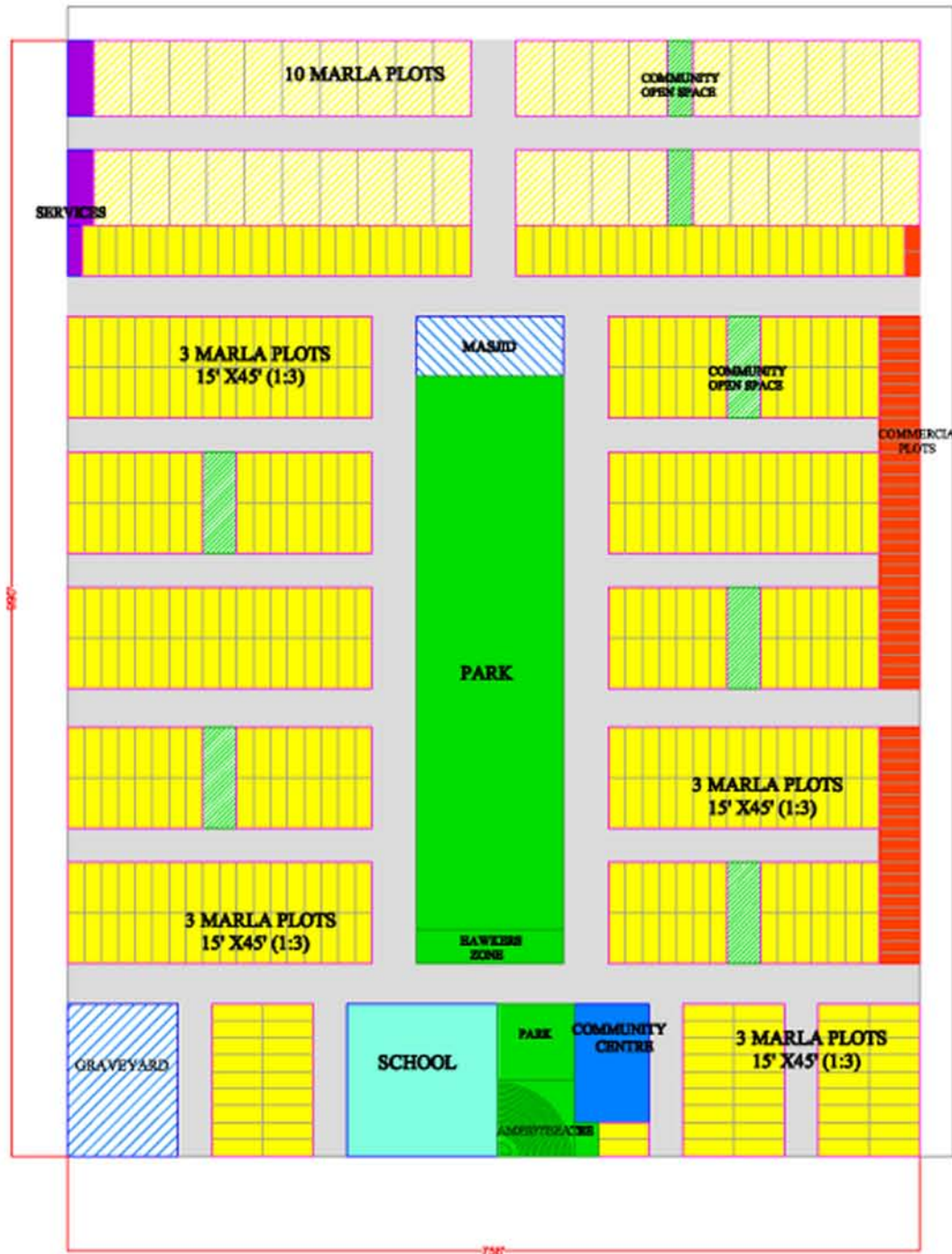
SCHEME 2

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				
10 marla plots	42	250	10500	48
3 marla plots(1:2) = 18' x 36'	405	72	29160	
2. COMMERCIAL PLOTS				
1.5 marla plots	36	39	1404	2.0
1 marla plots	18	24	432	
3. AMENITIES				
3.1 Community Centres				
At cluster level	6	144	864	
Main Center	1	778	778	
3.2 School				
	1	2000	2000	
3.3 Mosque				
	1	720	720	
3.4 Graveyard				
	1	1419	1419	
3.5 Services and Utilities				
	2	varies	442	
4. Public Open Spaces				
4.1 Park				
	1	6062	6062	20.0
4.2 Community Open Spaces				
At cluster level	6	676	4056	
Pedestrian Walkways			6688	
5. Roads for Vehicular Traffic				
			17745	21.5

LANDUSE COSTING	
Total Area of PLOT = 83160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 2,000,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 10,500 sq. yds.	10 marla residential
29,160 sq. yds.	3 marla residential
1404 sq. yds.	1.5 marla commercial
432 sq. yds.	1 marla commercial
Total sale-able area = 41,496 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 41,496 = Rs 828/sq.yd	
Percentage of sq. yds. COST of sale-able areas	
10 marla residential =	Rs. 8,694,000 /- for 42 plots
	Rs. 207,000 /- per plot
3 marla residential =	Rs. 24,144,480 /- for 405 plots
	Rs. 59,616 /- per plot
1.5 marla commercial =	Rs. 1,162,512 /- for 36 plots
	Rs. 32,292 /- per plot
1 marla commercial =	Rs. 357,696 /- for 18 plots
	Rs. 19,872 /- per plot

Note: 1 Marla = 25 sq.yards

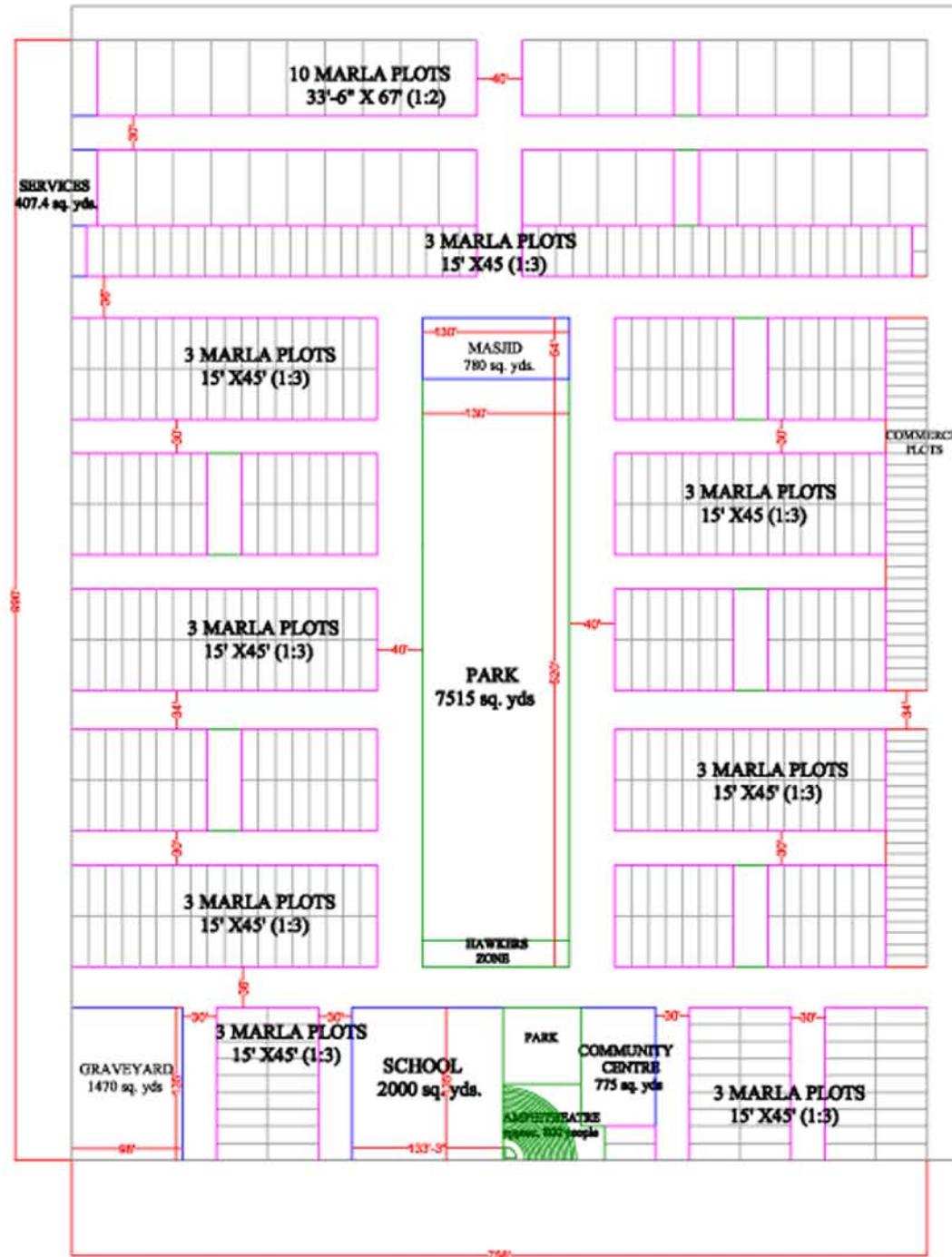
Project : SAIBAN CITY LAHORE	SCHEME 2	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-02-02
Date : 07-09-2011	Scale : 1/250" = 1'-0"	



SCHEME 3

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	48.5
	10 marla plots	
	3 marla plots	
	COMMERCIAL	3.0
	AMENITIES	7.0
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	13.0
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	28.5

Project : SAIBAN CITY LAHORE	SCHEME 3	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-03-01
Date : 07-09-2011	Scale : 1/250" = 1'-0"	



SCHEME 3

LANDUSE DETAILS					
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%	
1. RESIDENTIAL PLOTS					
10 marla plots	40	250	10000	48.5	
3 marla plots(1:3) = 15' x 45'	402	75	30150		
2. COMMERCIAL PLOTS					
1.6 marla plots	54	40	2160	3.0	
1.3 marla plots	2	32.5	65		
3. AMENITIES					
3.1 Community Centres					
1	1	774	774	7.0	
3.2 School					
1	1	2000	2000		
3.3 Mosque					
1	1	780	780	13.0	
3.4 Graveyard					
1	1	1470	1470		
3.5 Services and Utilities					
2	varies		407.4		
4. PUBLIC OPEN SPACE					
4.1 Park					
		8550	8612	13.0	
4.2 Community Open Spaces					
In 10 marla block	2	171.2	342.4	28.5	
In 3 marla block	5	300	1500		
5. ROADS FOR VEHICULAR TRAFFIC					
			23486		

LANDUSE COSTING	
Total Area of PLOT = 83160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 2,000,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 10,000 sq. yds.	10 marla residential
30,150 sq. yds.	3 marla residential
2,160 sq. yds.	1.6 marla commercial
65 sq. yds.	1.3 marla commercial
Total sale-able area = 42,375 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 42,375 = Rs 811/sq.yd	
Percentage of sq. yds. COST of sale-able areas	
10 marla residential =	Rs. 8,110,000 /- for 40 plots
	Rs. 202,750 /- per plot
3 marla residential =	Rs. 24,451,850 /- for 402 plots
	Rs. 60,825 /- per plot
1.6 marla commercial =	Rs. 1,751,760 /- for 54 plots
	Rs. 32,440 /- per plot
1.3 marla commercial =	Rs. 52,715 /- for 2 plots
	Rs. 26,357.5 /- per plot

Note: 1 Marla = 25 sq.yards

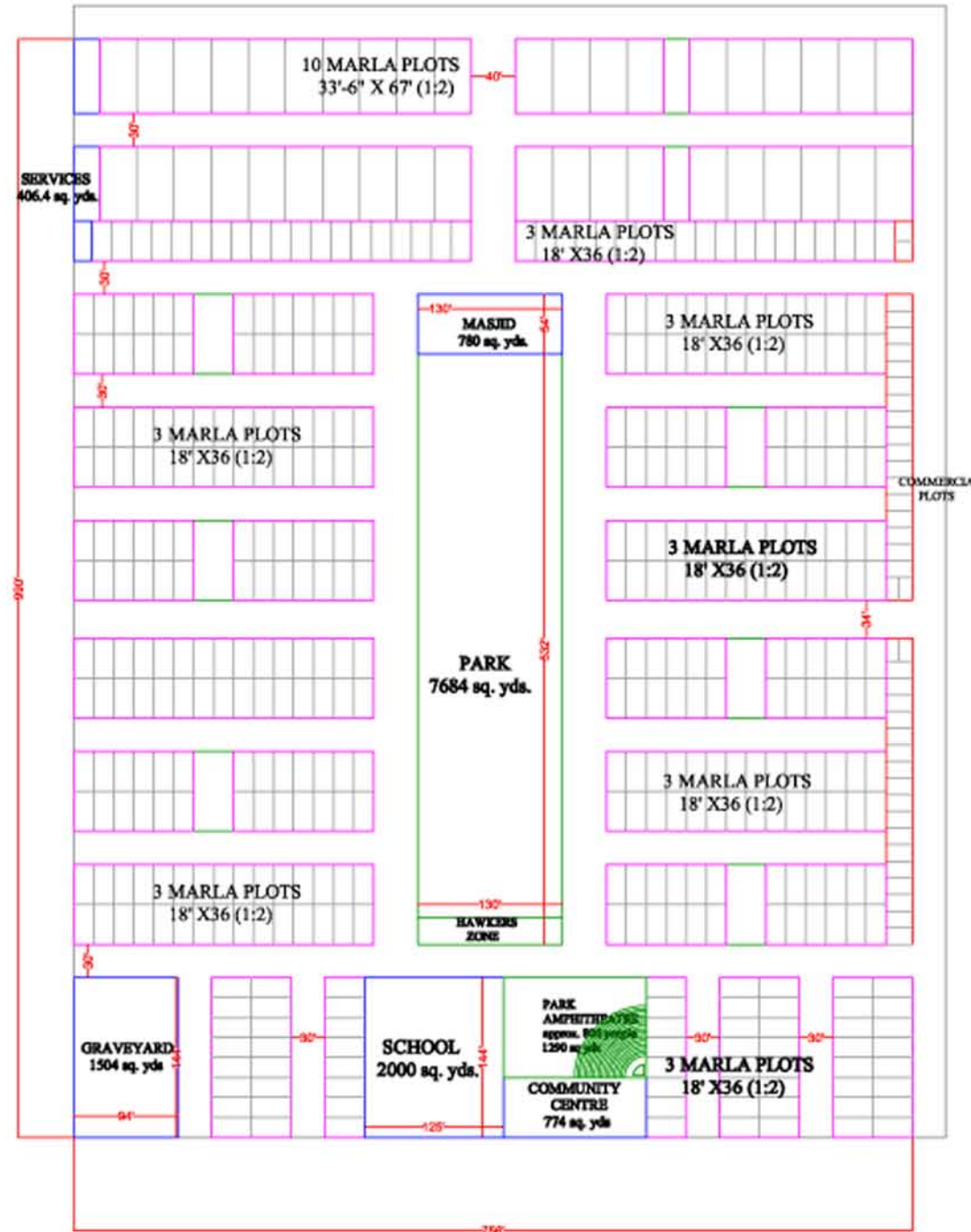
Project : SAIBAN CITY LAHORE	SCHEME 3	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-03-02
Date : 07-09-2011	Scale : 1/200" = 1'-0"	



SCHEME 4

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	48.0
	10 marla plots	
	3 marla plots	
	COMMERCIAL	2.0
	AMENITIES	7.0
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	13.5
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	29.5

Project : SAIBAN CITY LAHORE	SCHEME 4	
Drawing Title: LANDUSE CODING Architect / Planner: ARIF HASAN Date : 07-09-2011 Scale : 1/120" = 1'-0"		
		A-04-01



SCHEME 4

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				
10 marla plots	40	250	10000	48.9
3 marla plots(1:2) = 18' x 36'	426	72	30672	
2. COMMERCIAL PLOTS				
1.6 marla plots	34	40	1380	1.8
1.28 marla plots	2	32	64	
1.12 marla plots	4	28	112	
3. AMENITIES				
3.1 Community Centres	1	774	774	6.6
3.2 School	1	2000	2000	
3.3 Mosque	1	780	780	
3.4 Graveyard	1	1504	1504	
3.5 Services and Utilities	2	varies	406.4	
4. PUBLIC OPEN SPACE				
4.1 Park				
4.2 Community Open Spaces				
In 10 marla block	2	171.2	342.4	13.2
In 3 marla block	6	288	1728	
5. ROADS FOR VEHICULAR TRAFFIC				
			24467	29.5

LANDUSE COSTING	
Total Area of PLOT = 83,160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 2,000,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 10,000 sq. yds.	10 marla residential
30,672 sq. yds.	3 marla residential
1,360 sq. yds.	1.6 marla commercial
64 sq. yds.	1.28 marla commercial
112 sq. yds.	1.12 marla commercial
Total sale-able area = 42,208 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 42,208 = Rs 814 /sq.yd	
Percentage of sq. yds. COST of sale-able areas	
10 marla residential =	Rs. 8,140,000 /- for 40 plots
	Rs. 203,500 /- per plot
3 marla residential =	Rs. 24,967,008 /- for 426 plots
	Rs. 58,608 /- per plot
1.6 marla commercial =	Rs. 1,107,040 /- for 34 plots
	Rs. 32,560 /- per plot
1.28 marla commercial =	Rs. 52,096 /- for 2 plots
	Rs. 26,048 /- per plot
1.12 marla commercial =	Rs. 91,168 /- for 4 plots
	Rs. 22,792 /- per plot

Note: 1 Marla = 25 sq.yards

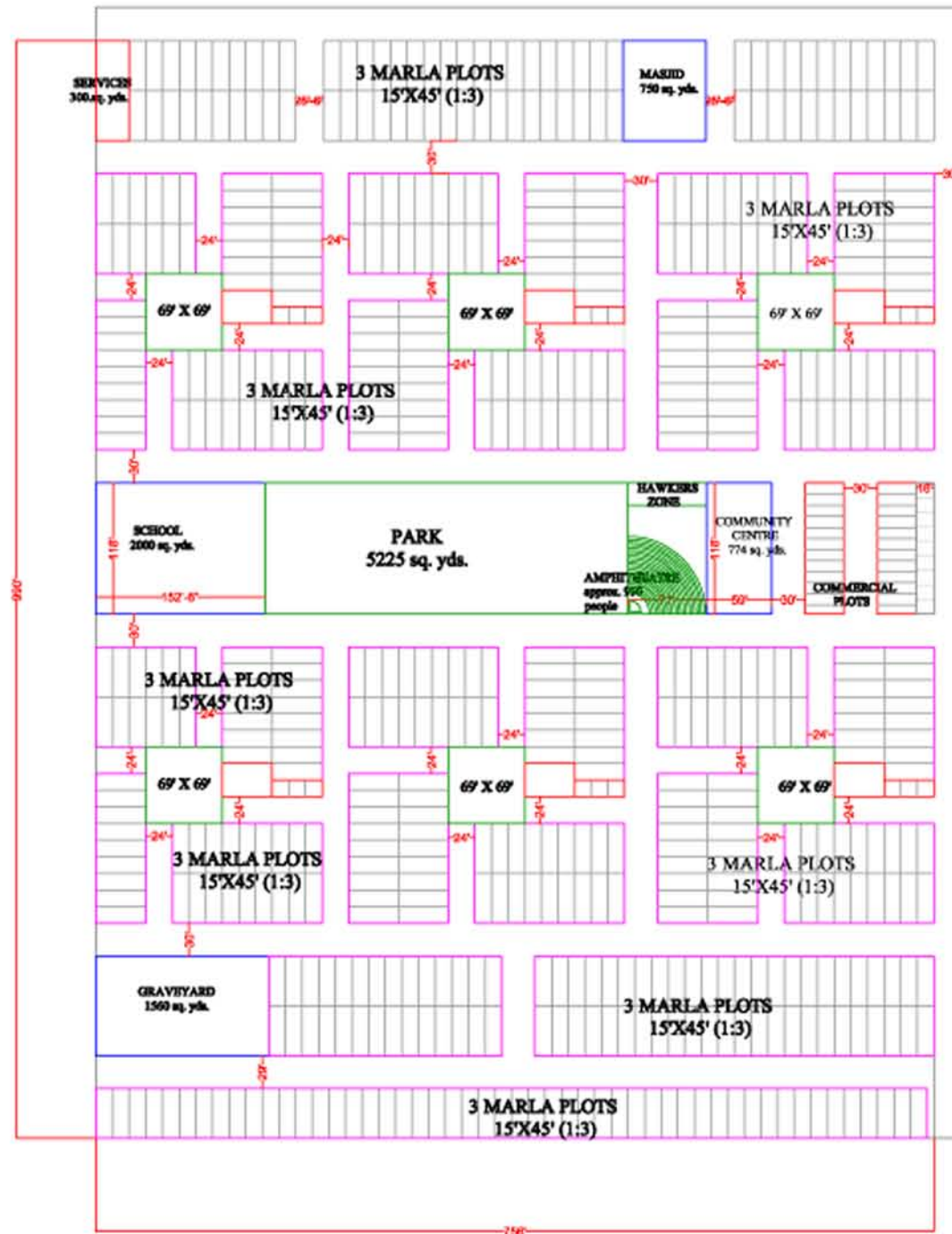
Project : SAIBAN CITY LAHORE	SCHEME 4	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-04-02
Date : 07-09-2011	Scale : 1/28" = 1'-0"	



SCHEME 5

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	53.2
Yellow	3 marla plots	
Orange	COMMERCIAL	1.8
	AMENITIES	7.8
Cyan	Schools	
Blue hatched	Mosque	
Blue	Community centres	
Purple	Services	
Blue hatched	Graveyard	
	PUBLIC OPEN SPACES	18.8
Green	Park	
Green hatched	Community open spaces	
Grey	Pedestrian Circulation	
Light Grey	VEHICULAR CIRCULATION	18.8

Project : SAIBAN CITY LAHORE	SCHEME 5	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-05-01
Date : 07-08 2011	Scale : 1/250" = 1'-0"	



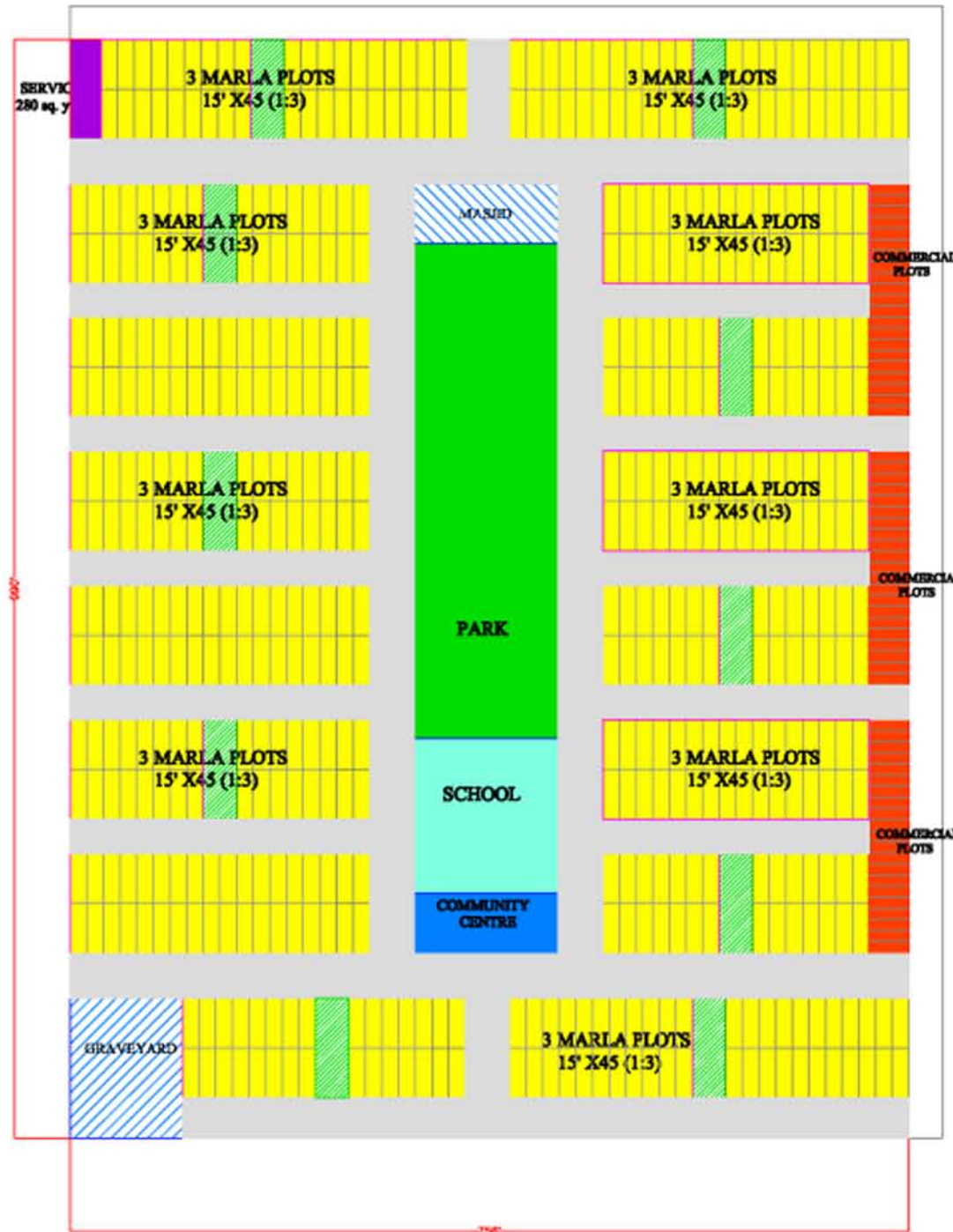
SCHEME 5

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				
3 marla plots(1:3) = 15' x 45'	590	75	44250	63.2
2. COMMERCIAL PLOTS				
1.6 marla plots	22	39	858	1.8
1.2 marla plots	2	31	62	
1 marla plots	18	25	450	
3. AMENITIES				7.8
3.1 Community Centres				
At cluster level	6	150	900	
Main Center	1	775	775	
3.2 School	1	2000	2000	
3.3 Mosque	1	750	750	
3.4 Graveyard	1	1560	1560	
3.5 Services and Utilities			300	
4. PUBLIC OPEN SPACES				18.8
4.1 Park	1	5225	5225	
4.2 Community Open Spaces				
At cluster level	6	529	3174	
Pedestrian Walkways			7241	
5. ROADS FOR VEHICULAR TRAFFIC			15819	18.8

LANDUSE COSTING	
Total Area of PLOT = 83160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 20,00,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 44250 sq. yds.	3 marla residential
858 sq. yds.	1.6 marla commercial
62 sq. yds.	1.2 marla commercial
450 sq. yds.	1 marla commercial
Total sale-able area = 45620 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 45620 = Rs 753.3/sq.yd	
Percentage of sq. yds. COST of sale-able areas	
3 marla residential =	Rs. 33,333,525 /- for 590 plots
	Rs. 56,497.5 /- per plot
1.5 marla commercial =	Rs. 646,331.4 /- for 22 plots
	Rs. 29,378.7 /- per plot
1.2 marla commercial =	Rs. 46,704.6 /- for 2 plots
	Rs. 23,352.3/- per plot
1 marla commercial =	Rs. 338,985 /- for 18 plots
	Rs. 18,832.5 /- per plot

Note: 1 Marla = 25 sq.yards

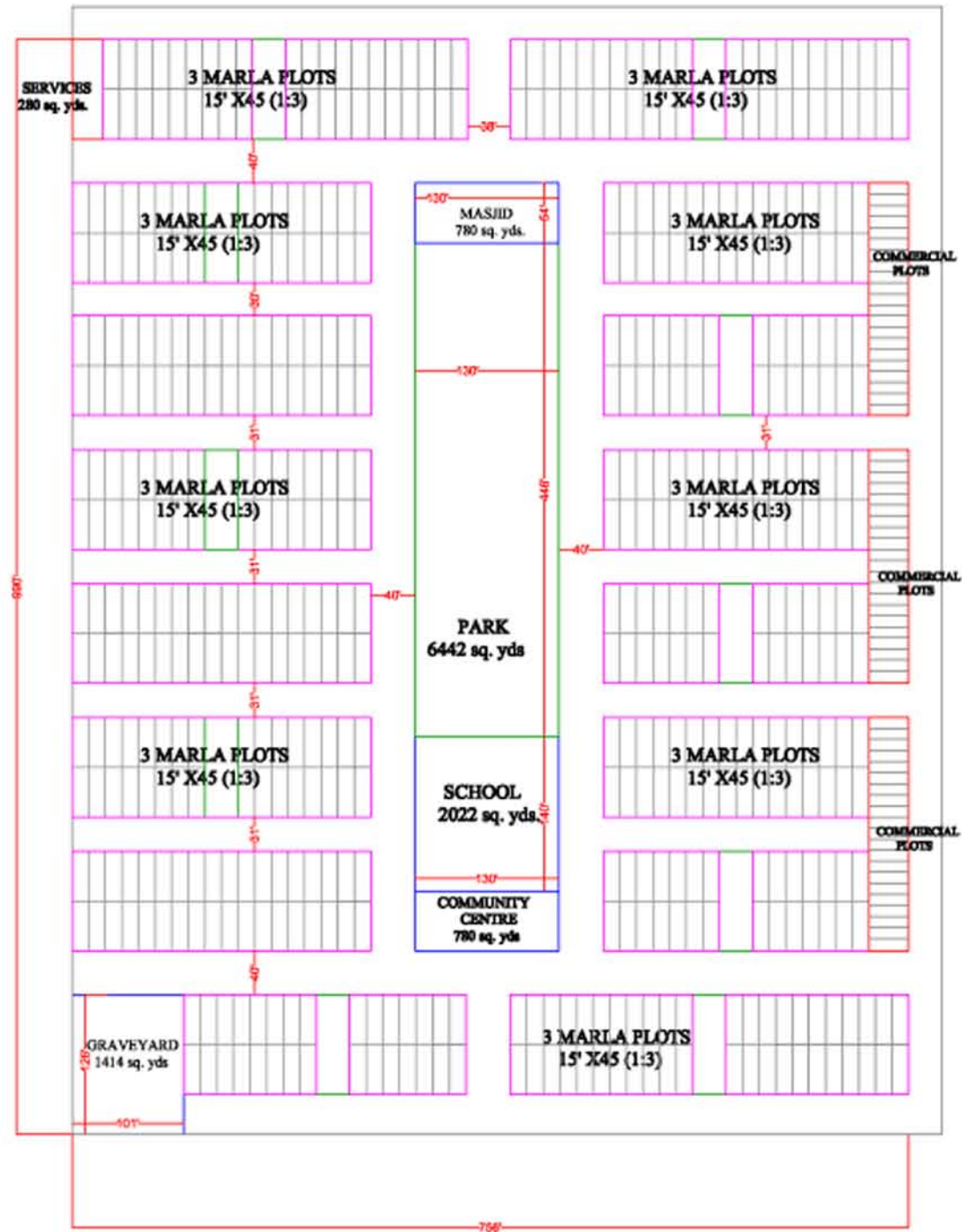
Project : SAIBAN CITY LAHORE	SCHEME 5	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-05-02
Date : 07-09-2011	Scale : 1/200" = 1'-0"	



SCHEME 6

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	48.5
	10 marla plots	
	3 marla plots	
	COMMERCIAL	3.0
	AMENITIES	7.5
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	12.5
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	28.5

Project : SAIBAN CITY LAHORE	SCHEME 6	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-06-01
Date : 07-09-2011	Scale : 1/125" = 1'-0"	



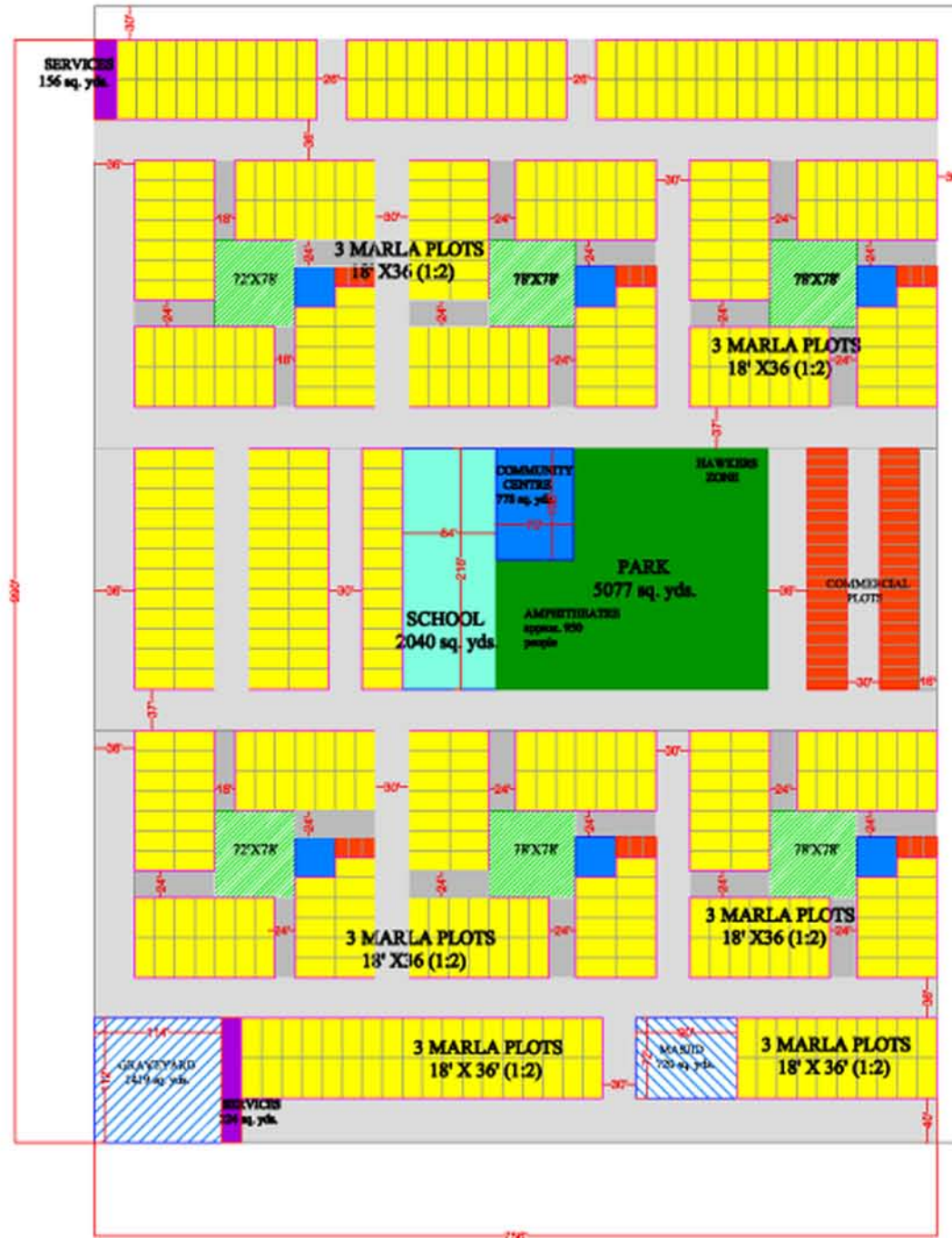
SCHEME 6

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				48.9
3 marla plots(1:3) = 15' x 45'	542	75	40650	
2. COMMERCIAL PLOTS				3.0
1.6 marla plots	63	40	2520	
3. AMENITIES				6.35
3.1 Community Centres	1	780	780	
3.2 School	1	2022	2022	
3.3 Mosque	1	780	780	
3.4 Graveyard	1	1414	1414	
3.5 Services and Utilities	1		280	
4. PUBLIC OPEN SPACE				11.35
4.1 Park			8550	
4.2 Community Open Spaces				
In 3 marla block	10	300	3000	
5. ROADS FOR VEHICULAR TRAFFIC				30.4

LANDUSE COSTING	
Total Area of PLOT = 83,160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 2,000,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 40,650 sq. yds.	3 marla residential
2,520 sq. yds.	1.6 marla commercial
Total sale-able area = 43,170 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 43,170 = Rs796/sq.yd	
Percentage of sq. yds. COST of sale-able areas	
3 marla residential =	Rs. 32,357,400 /- for 542 plots
	Rs. 59,700 /- per plot
1.6 marla commercial =	Rs. 2,005,920 /- for 63 plots
	Rs. 31,840 /- per plot

Note: 1 Marla = 25 sq.yards

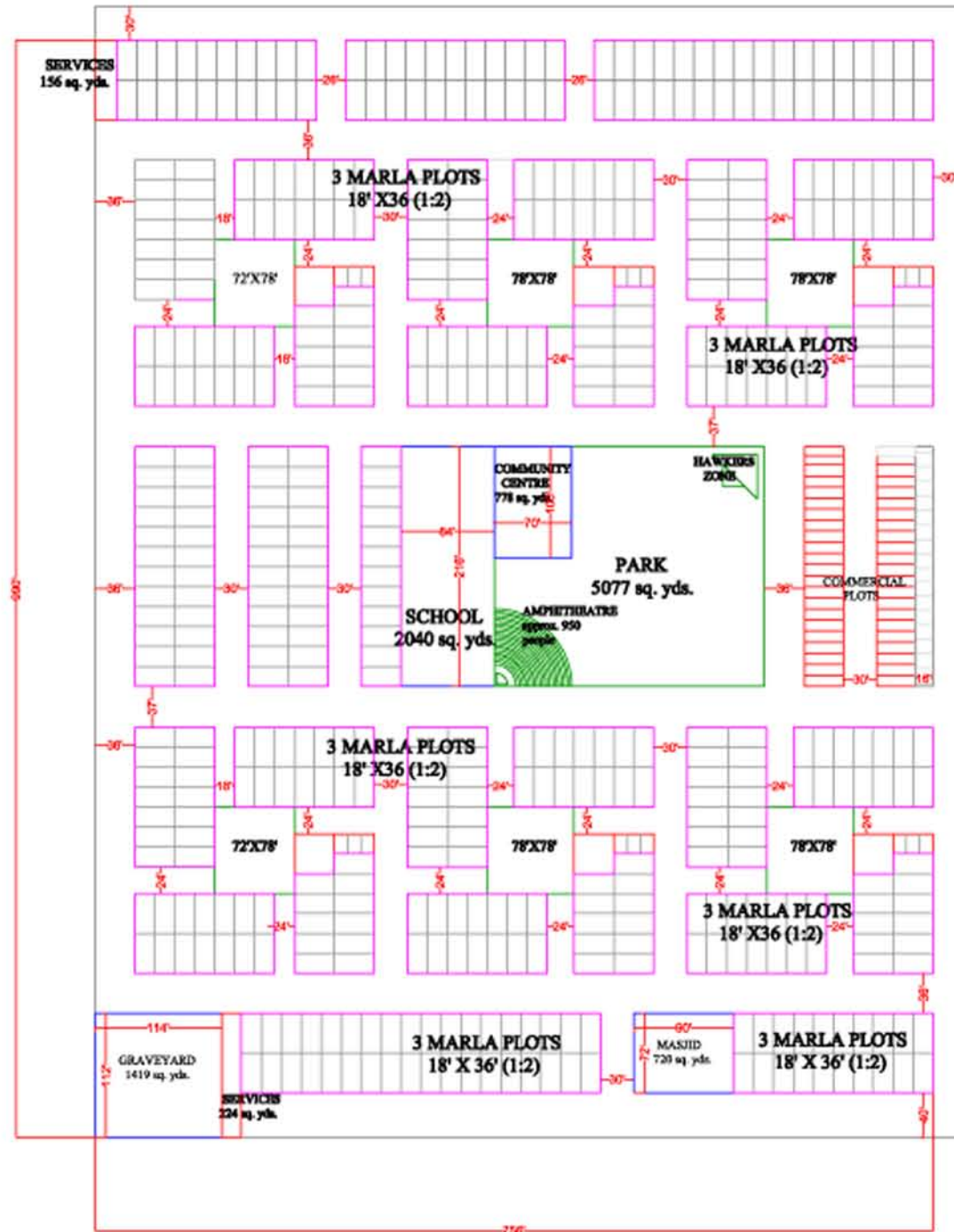
Project : SAIBAN CITY LAHORE	SCHEME 6	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-06-02
Date : 07-09-2011	Scale : 1/128" = 1'-0"	



SCHEME 7

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	44.2
	10 marla plots	
	3 marla plots	
	COMMERCIAL	2.5
	AMENITIES	7.4
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	18.0
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	27.9

Project : SAIBAN CITY LAHORE	SCHEME 7	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-07-01
Date : 07-09-2011	Scale : 1/250" = 1'-0"	



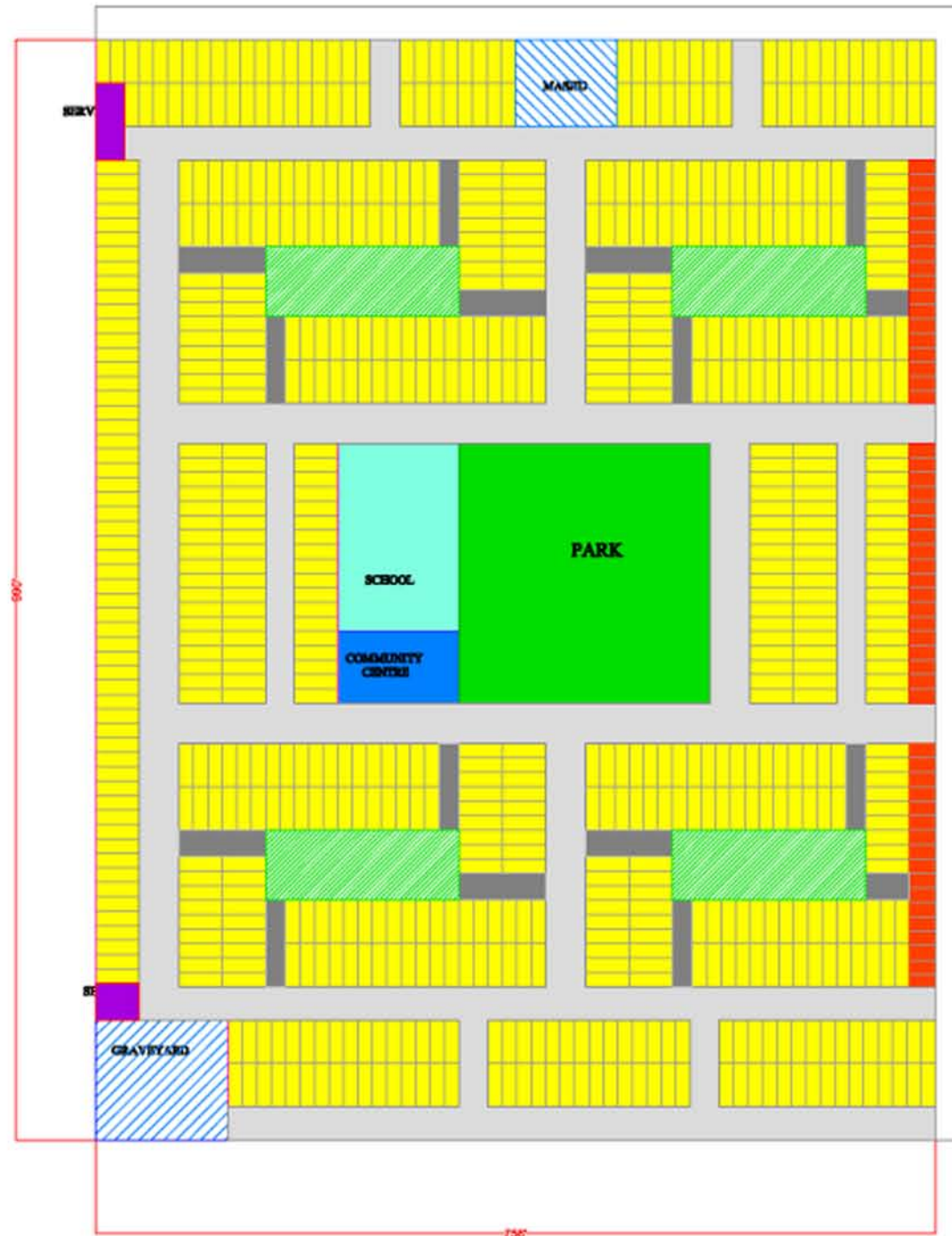
SCHEME 7

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				
3 marla plots(1:2) = 18' x 36'	510	72	36720	44.2
2. COMMERCIAL PLOTS				
1.6 marla plots	40	38.9	1556	2.5
1.28 marla plots	4	31.1	124.4	
1.12 marla plots	18	24	432	
3. AMENITIES				
3.1 Community Centre				
Main Centre	1	778	778	
Centre at cluster level	6	144	864	
3.2 School				
	1	2040	2040	
3.3 Mosque				
	1	720	720	
3.4 Graveyard				
	1	1419	1419	
3.5 Services and Utilities				
	2	varies	380	
4. PUBLIC OPEN SPACE				
4.1 Park				
	1		5077	18
4.2 Community Open Spaces				
At cluster level	6	varies	3952	
Pedestrian walkways			5896	
5. ROADS FOR VEHICULAR TRAFFIC				
			23226	27.9

LANDUSE COSTING	
Total Area of PLOT = 83,160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 2,000,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 36,720 sq. yds.	3 marla residential
1,556 sq. yds.	1.6 marla commercial
124.4 sq. yds.	1.24 marla commercial
432 sq. yds.	0.96 marla commercial
Total sale-able area = 38,832.4 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 38,832.4 = Rs 885 /sq.yd	
Percentage of sq. yds. COST of sale-able areas	
3 marla residential =	Rs. 32,497,200 /- for 510 plots
	Rs. 63,720 /- per plot
1.6 marla commercial =	Rs. 1,377,060 /- for 40 plots
	Rs. 34,426.5 /- per plot
1.24 marla commercial =	Rs. 110,094 /- for 4 plots
	Rs. 27,523.5 /- per plot
0.96 marla commercial =	Rs. 382,320 /- for 18 plots
	Rs. 21,240 /- per plot

Note: 1 Marla = 25 sq.yards

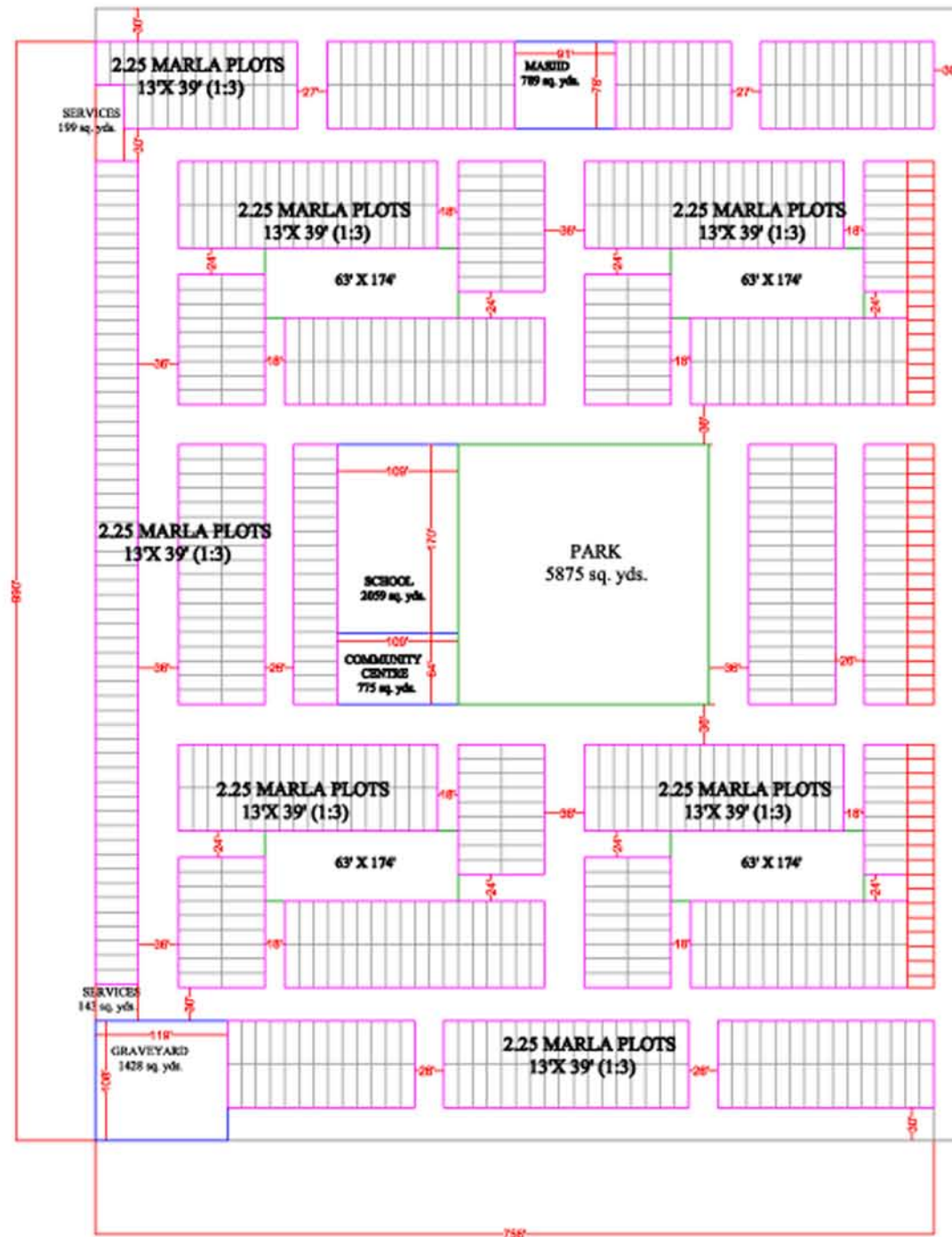
Project : SAIBAN CITY LAHORE	SCHEME 7	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-07-02
Date : 07-09-2011	Scale : 1/128" = 1'-0"	



SCHEME 8

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	54.0
	10 marla plots	
	3 marla plots	
	COMMERCIAL	2.0
	AMENITIES	8.0
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	17.0
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	19.0

Project : SAIBAN CITY LAHORE	SCHEME 8	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-08-01
Date : 07-09-2011	Scale : 1/128" = 1'-0"	



SCHEME 8

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				50.1
2.25 marla plots(1:3)= 13' x 39'	740	56.3	41662	
2. COMMERCIAL PLOTS				2.2
1.39 marla plots	52	34.7	1804.4	
1.17 marla plots	2	29.3	58.6	
3. AMENITIES				7
3.1 Community Centres				
At cluster level	0	0	0	
Main Center	1	775	775	
3.2 School	1	2058	2058	
3.3 Mosque	1	780	780	
3.4 Graveyard	1	1428	1428	
3.5 Services and Utilities	2	varies	342	
4. Public Open Spaces				16.3
4.1 Park	1	5875	5875	
4.2 Community Open Spaces				
At cluster level	4	1218	4872	
Pedestrian Walkways			2704	
5. Roads for Vehicular Traffic			20330	24.4

LANDUSE COSTING	
Total Area of PLOT = 83,160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 2,000,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 41,662 sq. yds.	2.25 marla residential
1,804.4 sq. yds.	1.39 marla commercial
58.6 sq. yds.	1.17 marla commercial
Total sale-able area = 43,525 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 43,525 = Rs 789.5/sq.yd	
Percentage of sq. yds. COST of sale-able areas	
2.25 marla residential = Rs. 32,892,149 /-	for 740 plots
	Rs. 44,449 /- per plot
1.39 marla commercial = Rs. 1,424,573.8 /-	for 52 plots
	Rs. 27,395.6 /- per plot
1.17 marla commercial = Rs. 46,264.7 /-	for 2 plots
	Rs. 23,132.4 /- per plot

Note: 1 Marla = 25 sq.yards

Project : SAIBAN CITY LAHORE	SCHEME 8	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-08-02
Date : 07-09-2011	Scale : 1/128" = 1'-0"	



SCHEME 9

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	48.5
	10 marla plots	
	3 marla plots	
	COMMERCIAL	3.0
	AMENITIES	7.5
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	12.5
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	28.5

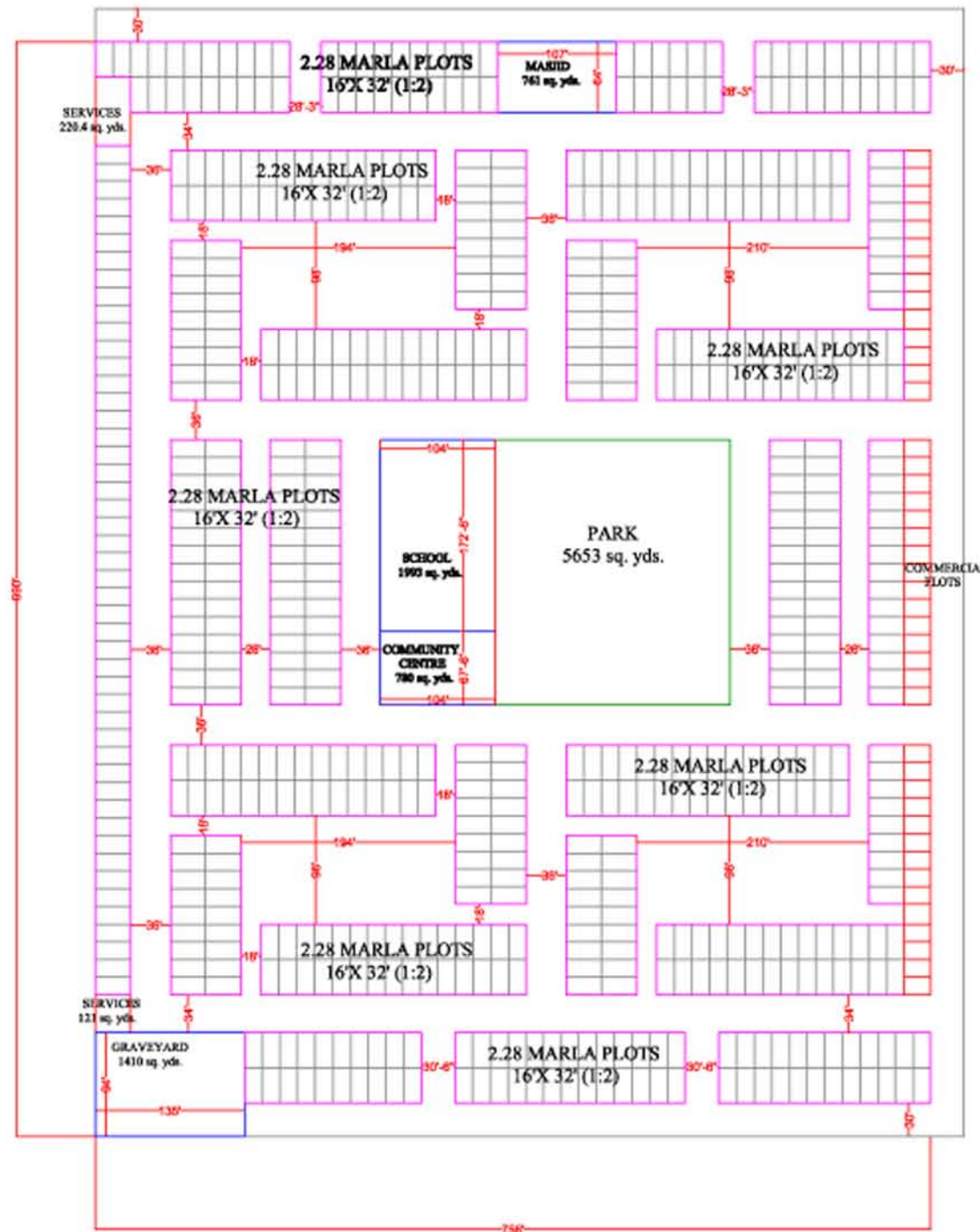
Project : SAIBAN CITY LAHORE	SCHEME 9	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-09-01
Date : 07-09-2011	Scale : 1/128" = 1'-0"	



SCHEME 10

LANDUSE CODING		
COLOUR CODE	TYPE OF PLOT	AREA (PERCENTAGE)
	RESIDENTIAL	45.7
	2.28 marla plots	
	COMMERCIAL	2.1
	AMENITIES	6.2
	Schools	
	Mosque	
	Community centres	
	Services	
	Graveyard	
	PUBLIC OPEN SPACES	19.6
	Park	
	Community open spaces	
	Pedestrian Circulation	
	VEHICULAR CIRCULATION	28.4

Project : SAIBAN CITY LAHORE	SCHEME 10	
Drawing Title: LANDUSE CODING		
Architect / Planner: ARIF HASAN		A-10-01
Date : 07-09-2011	Scale : 1/125" = 1'-0"	



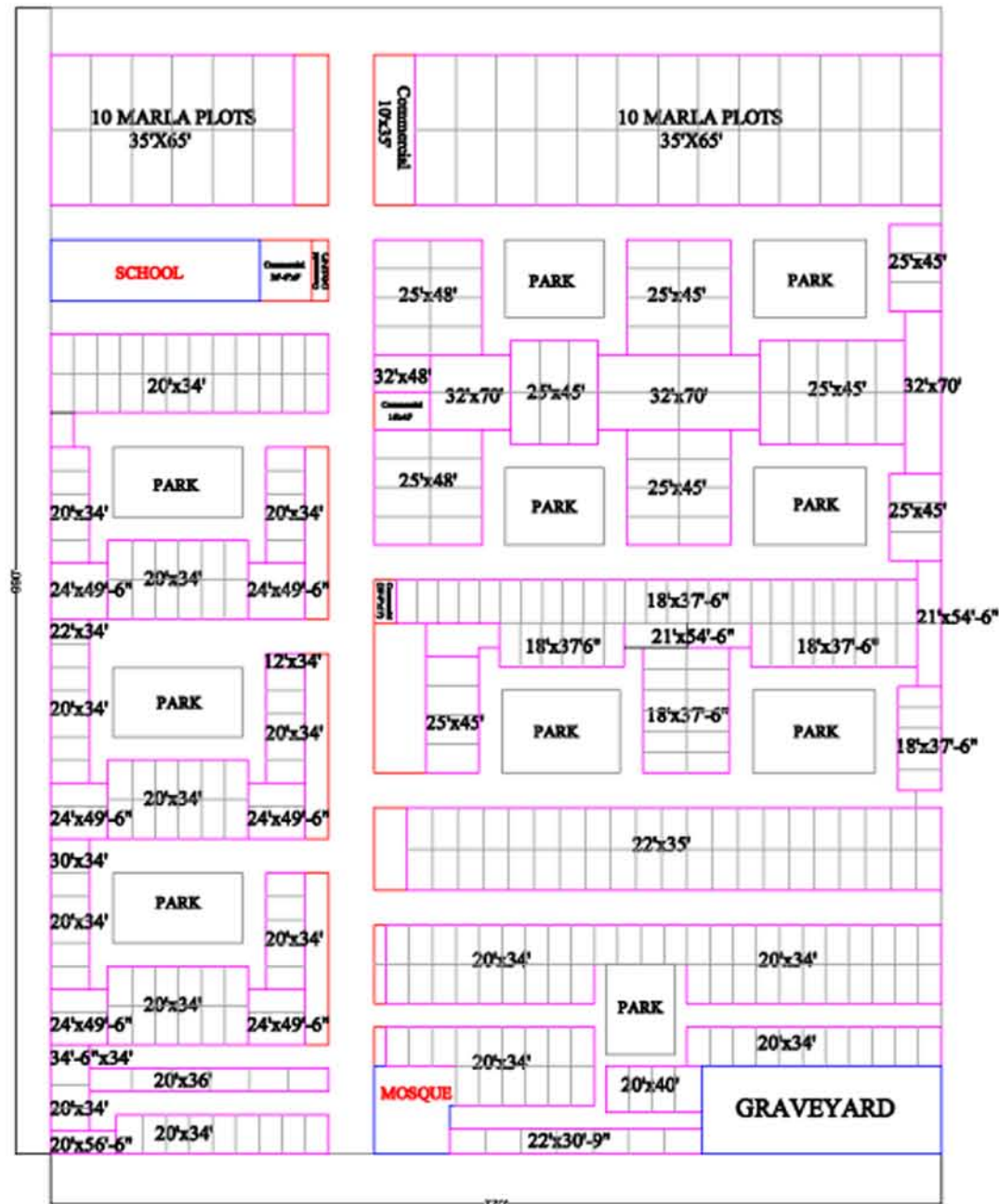
SCHEME 10

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				45.7
2.28 marla plots(1:2)= 16' x 32'	669	56.9	38066	
2. COMMERCIAL PLOTS				2.1
1.9 marla plots	2	48	96	
1.7 marla plots	41	42.7	1750.7	
3. AMENITIES				6.2
3.1 Community Centres	1	780	780	
3.2 School	1	1993	1993	
3.3 Mosque	1	781	781	
3.4 Graveyard	1	1410	1410	
3.5 Services and Utilities	2	varies	341.4	
4. PUBLIC OPEN SPACE				19.6
4.1 Park	1	5653	5653	
4.2 Community Open Spaces				
Cluster level - open spaces	4	varies	8798	
Pedestrian walkways			1920	
5. ROADS FOR VEHICULAR TRAFFIC			22054	26.4

LANDUSE COSTING	
Total Area of PLOT = 83,160 sq. yds.	
Total Area of PLOT = 17.1818 acres	
Cost @ Rs: 2,000,000/- per acre = Rs: 34,363,600/-	
Sale-able area = 38,066 sq. yds.	2.28 marla residential
96 sq. yds.	1.9 marla commercial
1,750.7 sq. yds.	1.7 marla commercial
Total sale-able area = 39,912.7 sq. yds	
Total Cost of Plot = Rs. 34,363,600/-	
Per sq.yd of sale-able area = Rs. 34,363,600 / 39,912.7 = Rs 861 /sq.yd	
Percentage of sq. yds. COST of sale-able areas	
2.28 marla residential =	Rs. 32,774,826 /- for 669 plots
	Rs. 48,991 /- per plot
1.9 marla commercial =	Rs. 82,656 /- for 2 plots
	Rs. 41,328 /- per plot
1.7 marla commercial =	Rs. 1,507,353 /- for 41 plots
	Rs. 36,765 /- per plot

Note: 1 Marla = 25 sq.yards

Project : SAIBAN CITY LAHORE	SCHEME 10	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-10-02
Date : 07-09-2011	Scale : 1/250" = 1'-0"	



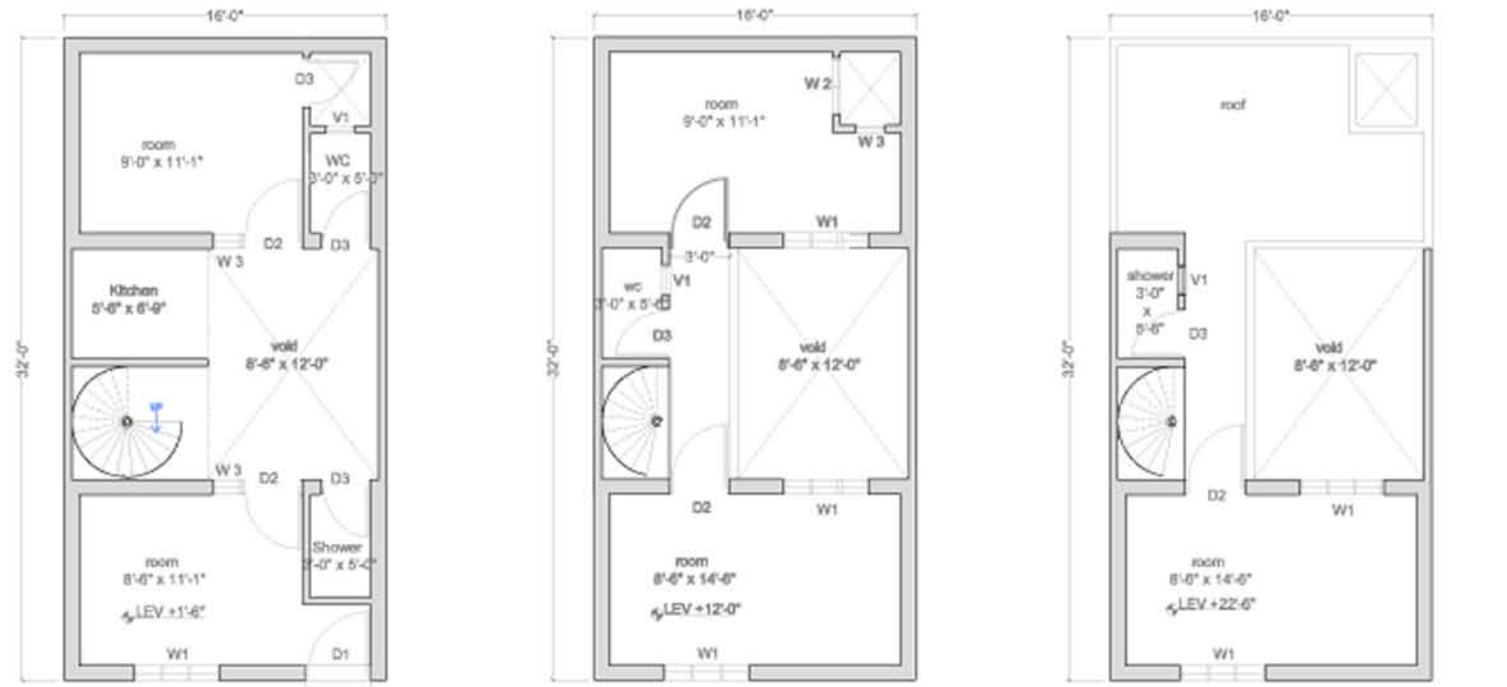
SCHEME 11

LANDUSE DETAILS				
Type of Plots	No. of plots	Area of each plot (sq. yds.)	Total Area of plots. (sq. yds.)	%
1. RESIDENTIAL PLOTS				
10 marla plots	38	252.78		
9.9 marla plots	08	248.89		
7.5 marla plots	01	186.98		
6.8 marla plots	01	170.67		
5.3 marla plots	28	133.33		
5.1 marla plots	04	127.17		
5 marla plots	43	125		
3.6 marla plots	04	88.89		
3.4 marla plots	42	85.56		
3.2 marla plots	06	80		
3 marla plots	236	75.56		
1.8 marla plots	01	45.33		
2. COMMERCIAL PLOTS				
1.5 marla plots	90	3530.21		

Total Area of SITE = 84,700 sq.yards
 Total Circulation Area = 25,928 sq.yards
 Total Infrastructure Length = 9497'-3" or 3165 yards
 Infrastructure Length per plot = 19'

Note: 1 Marla = 25 sq.yards

Project : SAIBAN CITY LAHORE	SCHEME 11	
Drawing Title: LANDUSE DETAILS		
Architect / Planner: ARIF HASAN		A-11-02
Date : 07-09-2011	Scale : 1/128" = 1'-0"	



Ground Floor - 48.3 sq.yds (40.4sq.m) First Floor - 42.9 sq.yds (35.9 sq.m) Second Floor - 15.2 sq.yds (12.7sq.m)
 (A) PLOT SIZE: 16' X 32' - 56.9 sq.yds (47.6sq.m) BUILT-UP AREA PER CAPITA: 8.9 sq.yds (7.42 sq.m)



Ground Floor - 59.4sq.yds (49.7sq.m) First Floor - 55.6 sq.yd (46.5sq.m) Second Floor - 22.7sq.yds (19 sq.m)
 (B) PLOT SIZE: 18' X 36' - 72 sq.yds (60.5 sq.m) BUILT-UP AREA PER CAPITA: 11.5 sq.yds (9.6 sq.m)

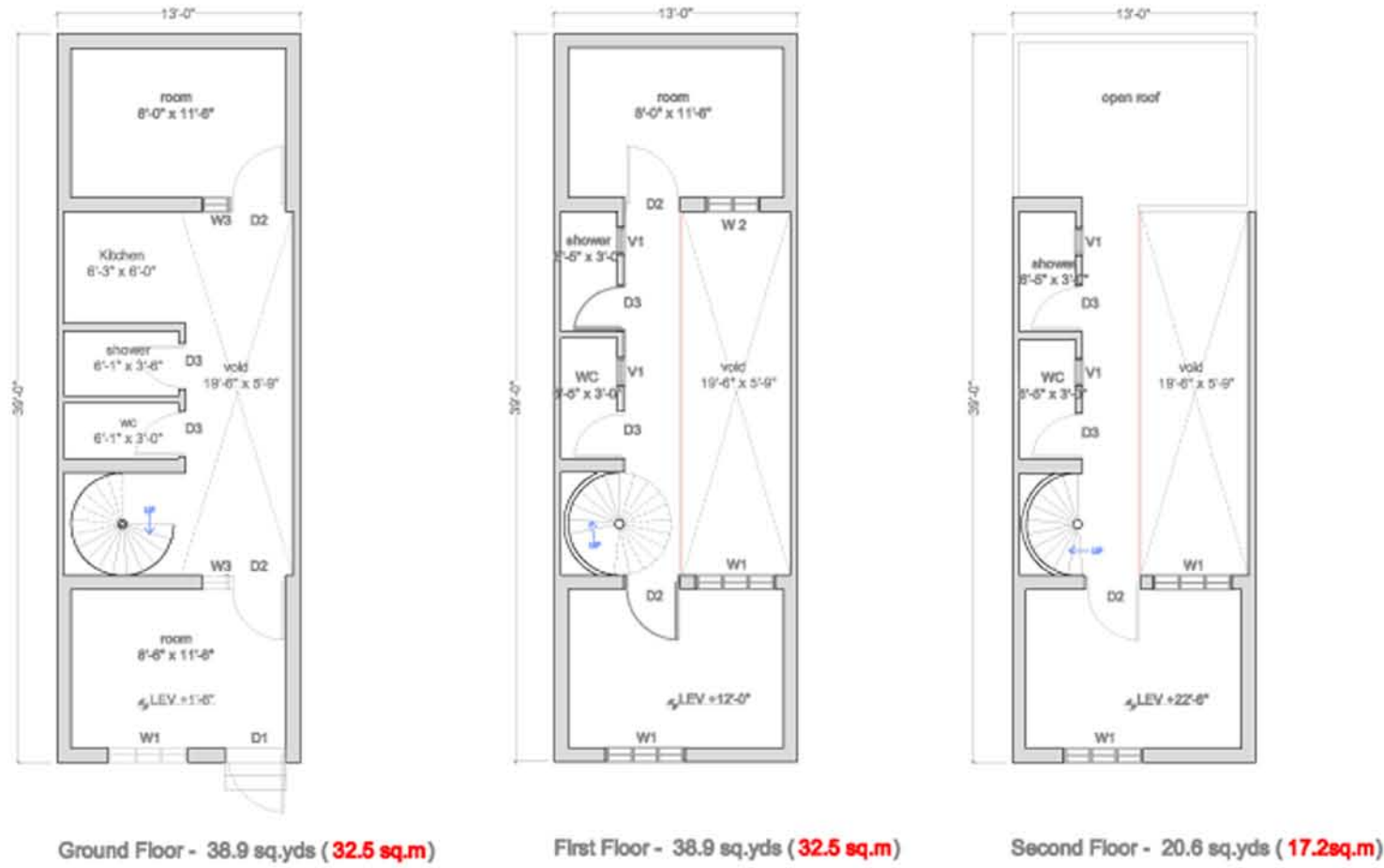
APPENDIX - 4 - House Plans

(A) CONSTRUCTION COST					
STAGE ONE (GROUND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:2	16' x 32' 56.9 sq.yds (47.6 sq.m)	48.3sq.yds (40.4sq.m)	Rs 503,581	Rs 87,532	Rs 591,113
STAGE TWO (FIRST FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:2	16' x 32' 56.9 sq.yds (47.6 sq.m)	42.9sq.yds (35.9sq.m)	Rs 249,105	Rs 124,020	Rs 373,125
STAGE THREE (SECOND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:2	16' x 32' 56.9 sq.yds (47.6 sq.m)	15.2sq.yds (12.7sq.m)	Rs 171,358	Rs 88,284	Rs 259,642
Total covered area		105.4sq.yds (89 sq.m)	Total contractor's cost Rs 924,044	Total owner's cost Rs 299,836	Total cost of unit Rs 1,223,880
Built-up Area per capita		8.9sq.yds (7.42 sq.m)			
(B) CONSTRUCTION COST					
STAGE ONE (GROUND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:2	18' x 36' 72 sq.yds (60.5 sq.m)	59.4 sq.yds (49.7sq.m)	Rs 540,873	Rs 99,253	Rs 640,126
STAGE TWO (FIRST FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:2	18' x 36' 72 sq.yds (60.5 sq.m)	55.6 sq.yds (46.5 sq.m)	Rs 327,743	Rs 147,943	Rs 475,686
STAGE THREE (SECOND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:2	18' x 36' 72 sq.yds (60.5 sq.m)	22.7 sq.yds (19 sq.m)	Rs 241,685	Rs 95,328	Rs 337,013
Total covered area		137.7 sq.yds (115.2 sq.m)	Total contractor's cost Rs 1,110,301	Total owner's cost Rs 342,524	Total cost of unit Rs 1,452,825
Built-up Area per capita		11.5 sq.yds (9.6 sq.m)			

SCHEDULE OF DOORS & WINDOWS

NO.	SIZE		DESCRIPTION
	WIDTH (FT)	HEIGHT (FT)	
D1	3'-3"	7'-0"	Steel: 1, side hinged
D2	3'-0"	7'-0"	Steel: 1, side hinged
D3	2'-6"	7'-0"	Steel: 1, side hinged
W1	4'-3"	5'-6"	Steel: 3, Glass panel, side hinged
W2	2'-10 1/2"	5'-6"	Steel: 2, Glass panels side hinged
W3	1'-6"	5'-6"	Steel: 1, Glass panels side hinged
W4	2'-10 1/2"	3'-6"	Steel: 2, Glass panels side hinged
V1	1'-6"	2'-0"	Steel: 1, Glass panels side hinged

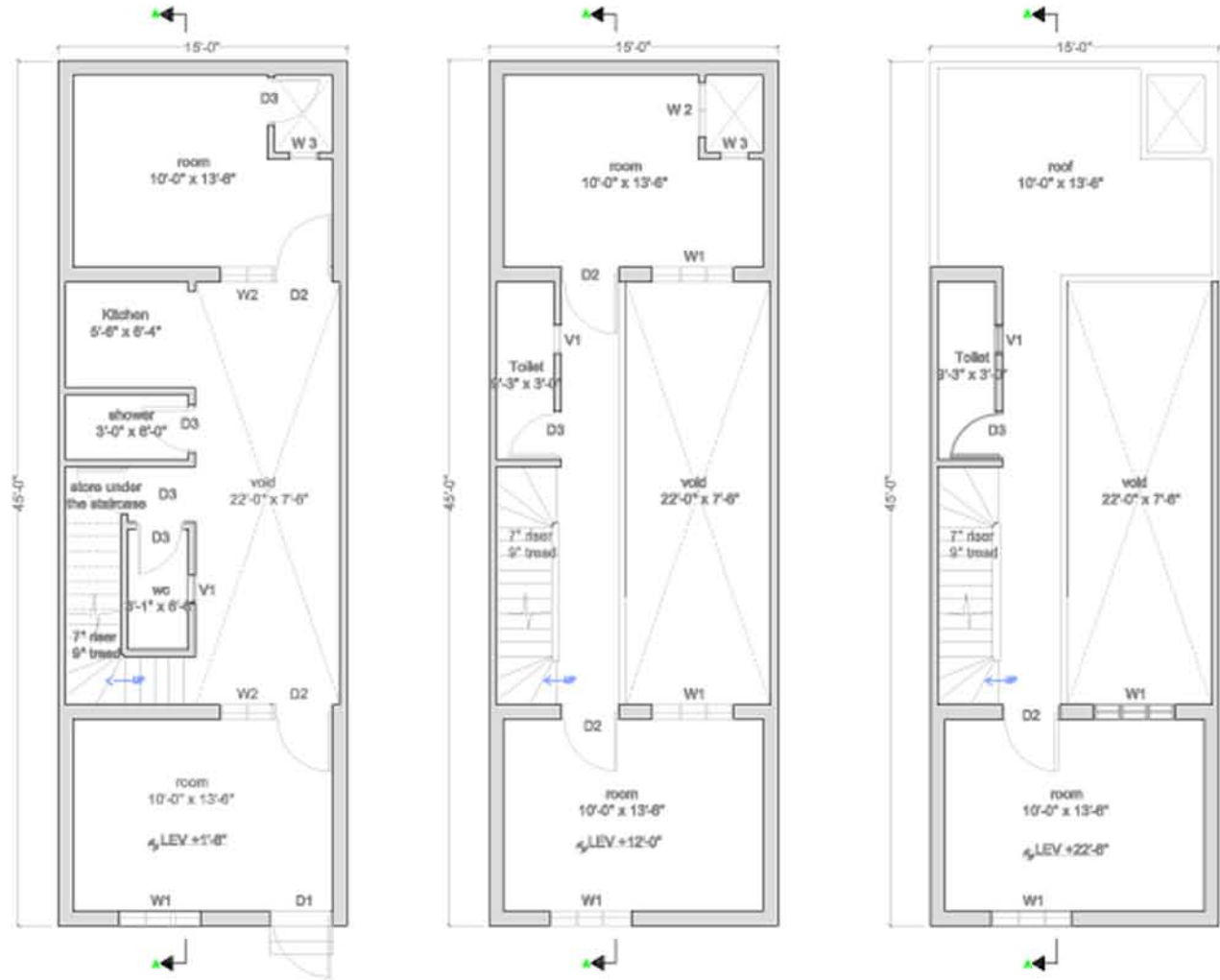
Project : SAIBAN CITY LAHORE	SCHEME: 2,4,7 & 10
Drawing Title: HOUSING UNITS - RATIO - 1:2 - PLAN/COST	
Architect / Planner: ARIF HASAN	
Date : 07-09-2011	Scale : 1/8" = 1'-0"
A-12-01	



(C) PLOT SIZE: 13' X 39' - 53.6 sq.yds (47.1 sq.m) BUILT-UP AREA PER CAPITA: 8.2 sq.yds (6.85 sq.m)

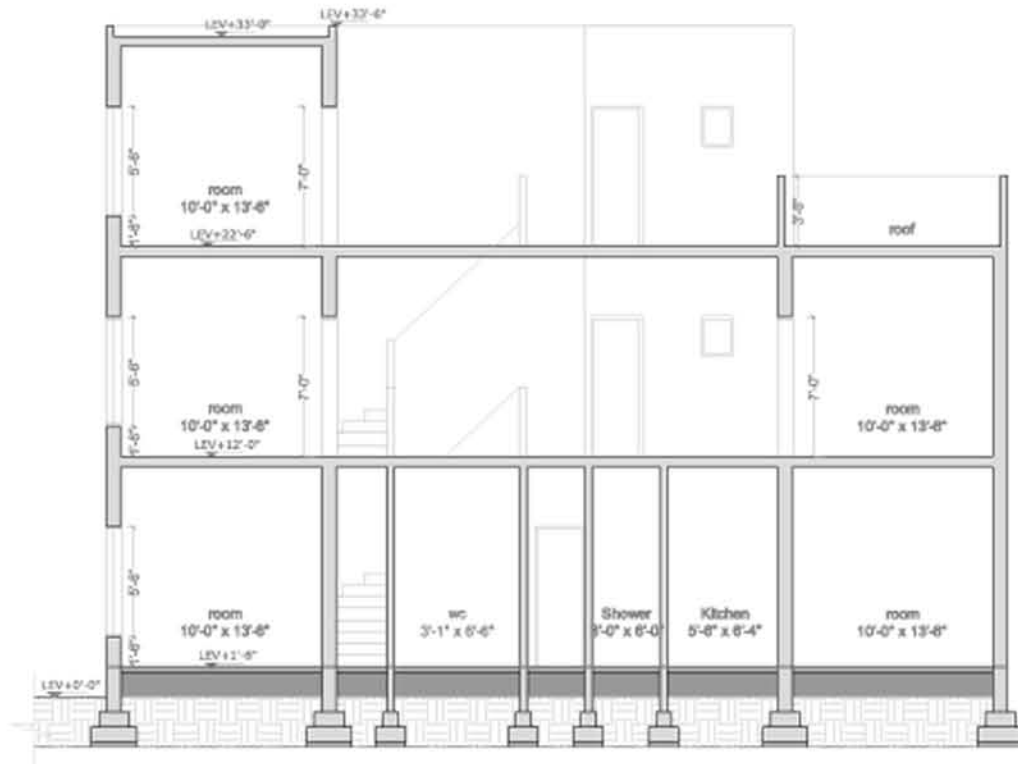
(C) CONSTRUCTION COST					
STAGE ONE (GROUND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:3	13' x 39' 56.3 sq.yds (47.1 sq.m)	38.9 sq.yds (32.5 sq.m)	Rs 509,975	Rs 94,760	Rs 604,735
STAGE TWO (FIRST FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:3	13' x 39' 56.3 sq.yds (47.1 sq.m)	38.9 sq.yds (32.5 sq.m)	Rs 266,488	Rs 114,070	Rs 380,558
STAGE THREE (SECOND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:3	13' x 39' 56.3 sq.yds (47.1 sq.m)	20.6 sq.yds (17.2 sq.m)	Rs 178,247	Rs 87,589	Rs 265,836
Total covered area		98.4 sq.yds (82.2 sq.m)	Total contractor's cost Rs 954,710	Total owner's cost Rs 296,419	Total cost of unit Rs 1,251,129
Built-up Area per capita		8.2 sq.yds (6.85 sq.m)			

Project : SAIBAN CITY LAHORE	SCHEME: 8 & 9	A-12-02
Drawing Title: HOUSING UNITS - RATIO - 1:3 - PLAN/COST		
Architect / Planner: ARIF HASAN		
Date : 07-09-2011	Scale : 1/8" = 1'-0"	



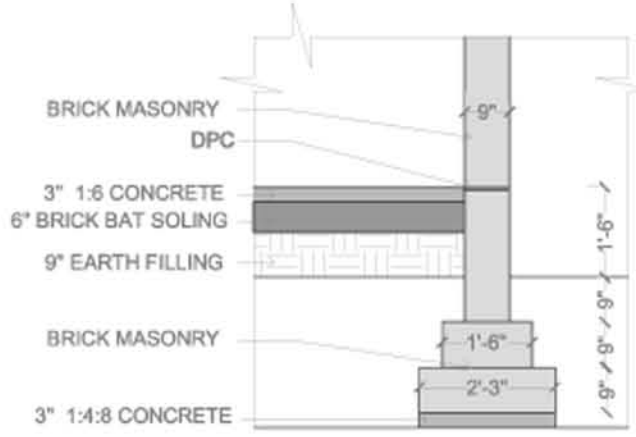
Ground Floor - 53.7 sq.yds (45 sq.m) First Floor - 48.7 sq.yds (40.7 sq.m) Second Floor - 23.4 sq.yds (19.6 sq.m)

(D) PLOT SIZE: 15' X 45' -75 sq.yds (62.7sq.m) BUILT-UP AREA PER CAPITA: 10.5 sq.yds (8.775 sq.m)

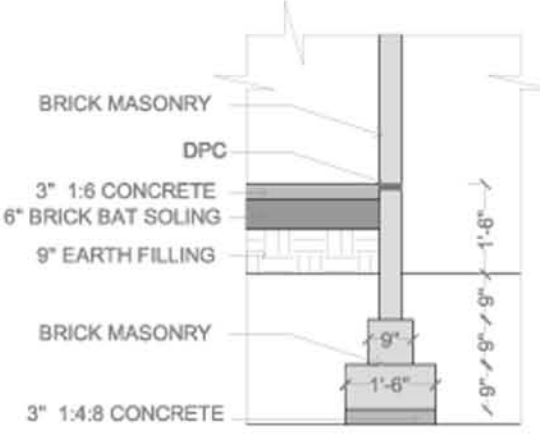


Section AA

(D) CONSTRUCTION COST					
STAGE ONE (GROUND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:3	15' x 45' 75 sq.yds (62.7 sq.m)	53.7 sq.yds (45 sq.m)	Rs 526,876	Rs 89,952	Rs 616,828
STAGE TWO (FIRST FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:3	15' x 45' 75 sq.yds (62.7 sq.m)	48.7 sq.yds (40.7 sq.m)	Rs 296,196	Rs 143,366	Rs 439,562
STAGE THREE (SECOND FLOOR)					
Width : Depth Ratio	Plot size	Covered Area	Contractor's cost	Owner's cost	Total cost
1:3	15' x 45' 75 sq.yds (62.7 sq.m)	23.4 sq.yds (19.6 sq.m)	Rs 204,248	Rs 101,711	Rs 305,959
Total covered area		125.8 sq.yds (105.3 sq.m)	Total contractor's cost Rs 1,027,320	Total owner's cost Rs 335,029	Total cost of unit Rs 1,362,349
Built-up Area per capita		10.5 sq.yds (8.775 sq.m)			



9" WALL DETAIL SCALE: 3/8" = 1'



4-1/2" WALL DETAIL SCALE: 3/8" = 1'

Project : SAIBAN CITY LAHORE	SCHEME: 1,3,5 & 6
Drawing Title: HOUSING UNITS - RATIO - 1:3 - PLAN/COST	
Architect / Planner: ARIF HASAN	
Date : 07-09-2011	Scale : 1/8" = 1'-0" or As shown
A-12-03	

APPENDIX – 5 – CONSTRUCTION AND LAND COST OF DIFFERENT HOUSE PLAN OPTIONS

APPENDIX – 5- CONSTRUCTION AND LAND COST FOR DIFFERENT HOUSE PLAN OPTIONS								
Scheme	Ratio	Plot size (sq.m)	Type of settlement	Plot Price (Rs)	Plot price with susidy (Rs)	Cost of Construction - Stage - 1 (Rs)		
						Contractor's cost	Owner's cost	Total
A	As per Saiban requirements							
1	1:2	209	cluster	186,500		NA	NA	NA
	1:3	62.7		55,950		526,876	89,952	616,828
2	1:2	209	cluster	207,000		NA	NA	NA
	1:2	60.5		59,616		540,873	99,253	640,126
3	1:2	209	grid-iron	202,750		NA	NA	NA
	1:3	62.7		60,825		526,876	89,952	616,828
4	1:2	209	grid-iron	203,500		NA	NA	NA
	1:2	60.5		58,608	54,198	540,873	99,253	640,126
B	Options tested - 62.7sq.m & 60.5 sq.m (75 sq.yd & 72 sq.yd)							
5	1:3	62.7	cluster	56,497.50	56,452	526,876	89,952	616,828
6	1:3	62.7	grid-iron	59,700		526,876	89,952	616,828
7	1:2	60.5	cluster	63,720		540,873	99,253	640,126
C	Options tested - 47.1 sq.m & 47.6 sq.m (56.3 sq.yd & 56.9 sq.yd)							
8	1:3	47.1	cluster	44,449	44,051	509,975	94,760	604,735
9	1:3	47.1	grid-iron	45,771		509,975	94,760	604,735
10	1:2	47.6	cluster	48,991		503,581	87,532	591,113
D	Scheme prepared by KKB team, having plots of various sizes							
11	NA	varies	NA	varies		NA	NA	NA

What the Poorer Poor Can Afford as Housing Loans

1. KKB-3 residents (March 2010 IIED Study) in 2009 had an average income of Rs 8,000 per month. Since the daily minimum wage has increased since then by 20 percent, it is assumed for the calculations below that the average per month earning of the future Saiban City residents will be Rs 10,000 and that they will be able to initially pay 20 percent of it for servicing a housing loan. After every three years the instalment can be increased by 25 percent.
2. Affordability in Rupees:

Down Payment	Ist 3 Years at Rs 2,000 per month	Next 3 years at Rs 2,500 per month	Next 3 years at Rs 3,000 per month	Next 3 years at Rs 3,500 per month	Next 3 years at Rs 4,000 per month	Total Amount
20,000	72,000	90,000	108,000	126,000	144,000	540,000

3. Costs of Construction (from Appendix 4 and 5):

	62.7 SM plot (in Rupees)	47.1 SM plot (in Rupees)
Total house cost	1,452,825	1,223,880
Contractor's share	1,110,301	924,044
Owner's share	342,524	299,836
Phase – 1 Cost	616,828	604,735
Contractor's share	526,876	509,975
Owner's share	89,952	94,760

4. Repayment at 4% compound interest in 15 years for design proposals in Appendix 4 is unaffordable.
5. Repayment at 12% compound interest in 15 years for design proposals in Appendix 4 is unaffordable.

The Impact of Saiban Proposed Cross Subsidy on Land Costs

	Scheme – 4	Scheme – 5	Scheme – 8
Total land cost	Rs 34,363,600	Rs 34,363,600	Rs 34,363,600
Land cost per square yard of sellable area (per square yard)	814	753.3	789.5
Land cost for commercial area	Rs 1,250,304	Rs 1,032,021	Rs 1,471,770
Land cost for commercial area plus 20%	Rs 1,500,365 (20% = Rs 250,061)	Rs 1,238,425 (20% = Rs 206,404)	Rs 1,766,124 (20% = Rs 294,354)
Land cost for larger plots	Rs 8,140,000	Nil	Nil
Land cost for larger plots plus 20%	Rs 9,768,000 (20% = Rs 1,628,000)	Nil	Nil
Land cost for small plots minus	Rs 24,967,008	Rs 33,333,525	Rs 32,892,149
• Commercial area subsidy	Rs 24,716,947	Rs 33,307,121	Rs 32,597,795
• Large plot subsidy	Rs 23,339,000	Rs 00,000,000	Rs 00,000,000
• Both commercial and large plot	Rs 23,088,497	Rs 33,307,121	Rs 32,597,795
Number of small plots	426	590	740

FINDINGS OF THE BANGKOK DENSITY STUDY

Brief description of Communities surveyed

1. Baan Mankong Bon Kai Community
 Baan Mankong Bon Kai Community is one of Baan Mankong's pilot projects since 2003. The community is comprised of 70 households that are paying rent on the Crown Property Bureau's land. The majority of the dwellers generate their income from informal businesses- they work as street vendors, hawkers, taxi drivers etc.
2. Bon Kai NHA Community
 Bon Kai NHA community is one of the oldest communities initiated by the NHA. It was built in 1975 and comprises of fourteen, four-story apartment buildings that house 3,200 dwelling units. Each unit covers an area of 32.75sqm.
3. Baan Uea-Arthorn Suan Plu Community (NHA)
 Baan Uea- Arthorn Suan Plu is a part of the Suan Plu Community that was completely destroyed by a fire in 2004. To alleviate the housing shortage that followed in the community, the cabinet assigned it to the National Housing Authority (NHA) which took measures under the Baan Uea-Arthorn Program. As a result, 1024 housing units in the form of apartment blocks were built to accommodate the people who were affected. Each unit covers an area of 37.4sq.m.
4. Baan Mankong Suan Plu Community (CODI)
 Baan Mankong Suan Plu is a part of the Suan Plu Community. Some members of this community joined the Baan Mankong Program that was offering a long tenure from the Treasury Department on 1.08 hectares of land. These members decided to build four different housing types to accommodate 330 households on 278 plots of land. They adopted the two stories row house, two and a half stories row house, three stories row house and apartment blocks.
5. Baan Mankong Wat Phrayakrai Community and Wat Phrayakrai Community (CODI)
 Baan Mankong Wat Phrayakrai Community was originally a part of the Wat Phrayakrai Community. In 2005, 0.24 hectares of the Wat Phrayakrai community land were destroyed by a fire that left 80 families temporarily homeless. These families joined the Baan Mankong Program under the thirty years land tenure on the Crown Property Bureau land. The dwellers opted for a low-rise condominium scheme and built two buildings, four stories each. Each dwelling covers an area of 41.25sq.m.

6. Wat Phrayakrai Community (Slum)

The Wat Phrayakrai Community has existed since the time of King Rama V. It covers an area of 17.62 hectares of Crown Property Bureau land and has been registered as a community since 1983. At that time it was not very densely populated but as development projects and urban infrastructure were introduced to the area the vacant lands were occupied turning it into a very crowded community.

Table 1 Comparison of open spaces among the case studies

Spatial analysis	Cases											
	Suan Plu (NHA)		Suan Plu (CODI)		Bon Kai (NHA)		Bon Kai (CODI)		Phraya-krai (Slum)		Phraya-krai (CODI)	
Plot size	13,600 sq.m	1,120 units	10,762 sq.m	249 units	60,800 sq.m	3,272 units	8,808 sq.m	202 units	14,800 sq.m	156 units	2,400 sq.m	80 units
Plot density (cap/hect)	3,558.7		1,089.3		4,184.1		2,257.3		506.1		1,000	
Percentage of open space	32%		20%		27%		20%		8%		18%	
Open space density (cap/hect)	11,111.1		5,464.5		15,384.6		11,236		6,329.1		5,555.6	

Table 2 Comparison of living density from various cases and aspects

Spatial analysis	Cases											
	Suan Plu (NHA)		Suan Plu (CODI)		Bon Kai (NHA)		Bon Kai (CODI)		Phraya-krai (Slum)		Phraya-krai (CODI)	
	Unit size	Size of hh	Unit size	Size of hh	Unit size	Size of hh	Unit size	Size of hh	Unit size	Size of hh	Unit size	Size of hh
	35.75	4.31	61.25	4.71	32.00	4.19	35.00	5.00	32.63	4.80	51.0	3.00
Living unit's density (sqm./cap)	8.29		13.00		7.64		7.00		6.80		17.0	
Plot size	13,600 sq,m	1,120 units	10,762 sq,m	249 units	60,800 sq,m	3,272 units	8,808 sq,m	202 units	14,800 sq,m	156 units	2,400 sq,m	80 units
Plot density (cap/hect)	3,558.7		1,089.3		4,184.1		2,257.3		506.1		1,000	
Percentage of open space	32%		20%		27%		20%		8%		18%	
Open space density (cap/hect)	11,111.1		5,464.5		15,384.6		11,236		6,329.1		5,555.6	

Source: Literatures and survey, 2010

Remarks: Generally, some units of residence contain more than one family which causes the number of households higher than the number of units.

Table 3 Level of neighborliness

Relation	average					
	NHA: Bon Kai	CODI: BonKai	NHA: Suan Plu	CODI: Suan Plu	Watprayakrai Community	CODI: Watprayakrai
1) Neighborhood relation	3.8	4.1	3.6	4.0	4.0	3.9
2) security	3.3	4.1	3.2	3.4	3.0	3.7
3) Community activity	3.0	4.1	3.0	3.8	2.7	3.5
4) Neighbor visiting	3.2	3.9	3.4	3.7	3.2	3.0
5) Entrust house to neighbors	2.4	3.7	2.4	3.1	2.6	2.2
6) Entrust children with neighbors	1.7	3.3	2.0	2.8	1.9	1.9
7) Lend various utensils	2.1	3.1	1.9	2.3	2.2	1.8
8) Borrow various utensils	2.1	3.0	1.8	2.2	1.9	1.5
9) Lend money (no interest)	1.9	2.7	1.6	1.8	1.9	1.6
10) Borrow money (no interest)	1.6	2.5	1.6	1.6	1.6	2.0
11) Overall satisfaction as a resident	3.7	4.3	3.8	4.0	3.4	4.1

Level of relationship

Low	Fairly	Much	Most
1.0-2.0	2.1-3.0	3.1-4.0	4.1-5.0

Table 4. The comparison of living satisfaction in six neighborhoods

Items	Average satisfaction					
	Bon Kai NHA	Baan Mankokng Bon Kai	Baan Uea-arthornn Suan Plu	Baan Mankong Suan Plu	Wat Phrayakrai	Baan Mankong Wat Phrayakrai
Satisfaction with neighbors	3.9	4.2	3.7	4.1	4.0	4.1
Satisfaction with local environments and neighborliness	3.7	3.9	3.6	3.9	3.7	4.2
Satisfaction to safety	3.5	4.0	3.3	3.6	3.1	4.2
Satisfaction to children environment	3.4	4.0	3.3	3.7	3.2	4.3
Satisfaction to work and job opportunities	4.2	4.3	4.0	4.4	4.0	4.3

	Low	Fairly	Much	Most
Scale of satisfaction	1.0- 2.0	2.1- 3.0	3.1- 4.0	4.1- 5.0

SAIBAN CITY - BILL OF QUANTITIES**Unit size : 13' x 39' - 56.3 sq yards - 47.1 sq.m (1:3 width to depth ratio)****Part (A) - Items to be Taken care of by the Contractor****(1) Till Plinth Level - Stage 1**

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Excavation	CF	12	580	6,960
2	1:4:8 Foundation base	CF	200	75	15,000
3	Brick-work with cement mortar in foundation	CF	150	572	85,800
4	Earth filling	CF	8	322	2,576
5	Brick-bat soling in plinth	SF	30	435	13,050
6	3 inches , 1:6 concrete under floor (excluding courtyard floor)	SF	140	303	42,420
7	1:6 DPC with Pudlo mix	RF	30	157	4,710
					170,516

(2) Ground Floor - Stage 1

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	868	78,120
2	4 -1/2 " brick wall in mud mortar	SF	60	649	38,940
3	Girder and tile roof	SF	200	455	91,000
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms, toilets and kitchen	SF	45	160	7,200
6	Ceramic tiles in bathroom and kitchen	SF	80	310	24,800
7	Plumbing	job	x	1	20,000
8	Electrification	job	x	1	20,000
9	Service Connections	job	x	1	10,000
10	Main Door	SF	200	22.72	4,544
11	Steel Window on street	SF	150	23.37	3,355
					332,459

(3) First Floor - Stage 2					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9" brick wall in mud mortar	SF	90	1026	92,340
2	4-1/2" brick wall in mud mortar	SF	60	263	15,780
3	Girder and tile roof	SF	200	455	91,000
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms and toilets	SF	45	290	13,050
6	Ceramic tiles in bathroom and toilets	SF	80	204	16,320
7	Plumbing	job	x	1	12,000
8	Electrification	job	x	1	8,000
9	Steel window on street	SF	150	23.27	3,490
					266,488
(4) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9" brick wall in mud mortar	SF	90	404.75	36,427.50
2	4-1/2" brick wall in mud mortar	SF	60	604.75	36,285
3	Girder and tile roof	SF	200	314	62,800
4	Plaster on wall surfaces in bathrooms and toilets	SF	45	290	13,050
5	Ceramic tiles in bathroom and toilets	SF	80	204	9,600
6	Plumbing	job	x	1	3,500
7	Electrification	job	x	1	3,000
8	Steel window on street	SF	150	23.37	3,505
9	Parapet - 4-1/2" brick work	SF	60	168	10,080
					178,247

Part (B) - Items to be done through Self-help by the Owner					
(1) Ground Floor - Stage 1					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms and courtyard	SF	70	203	14,210
2	Internal plaster on wall surfaces	SF	38	1100	41,800
3	Distemper on wall surfaces	SF	8	1100	8,800
4	Doors (inclusive of paint)	SF	200	100	20,000
5	Windows (inclusive of paint)	SF	125	42	5,250
6	Light fittings and fans	number	200	11	2,200
7	Sanitary fittings	number	500	3	1,500
8	Paint on roof steel girders and T- sections		x	job	1,000
					94,760
(2) First Floor - Stage 2					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms	SF	70	250	17,500
2	Internal plaster on wall surfaces	SF	38	795	30,210
3	Distemper on wall surfaces	SF	8	795	6,360
4	Doors (inclusive of paint)	SF	200	77	15,400
5	Windows (inclusive of paint)	SF	125	70	8,750
6	Light fittings and fans	number	200	10	2,000
7	Sanitary fittings	number	500	2	1,000
8	Paint on roof steel girders and T- sections	SF	x	job	1,000
9	2 inches , 1:6 , concrete on ground floor roof	SF	70	455	31,850
					114,070

(3) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor Finish in rooms	SF	70	156	10,920
2	Internal plaster on wall surfaces	SF	38	514	19,532
3	Distemper on wall surfaces	SF	8	514	4,112
4	Doors (inclusive of paint)	SF	200	77	15,400
5	Windows (inclusive of paint)	SF	125	53	6,625
6	Light fittings and fans	number	200	7	1,400
7	Sanitary fittings	number	500	3	1,500
8	Paint on roof steel girders and T- sections		x	job	800
9	Insulation tiles on floor exposed to sunlight	SF	60	455	27,300
					87,589
COST OF LAND (Rs)					
					44,477
ESTIMATES FOR CONTRACTOR'S ITEMS (Rs)					
	STAGE 1				509,975
	STAGE 2				266,488
	STAGE 3				178,247
	Total				954,710
SELF HELP ESTIMATES (Rs)					
	STAGE 1				94,760
	STAGE 2				114,070

Unit size : 16' x 32' - 56.9 sq yards - 47.6 sq.m (1:2 width to depth ratio)**Part (A) - Items to be Taken care of by the Contractor****(1) Till Plinth Level - Stage 1**

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Excavation	CF	12	485	5,820
2	1:4:8 Foundation base	CF	200	60	12,000
3	Brick-work in cement mortar in foundation	CF	150	490	73,500
4	Earth filling	CF	8	368	2,944
5	Brick-bat soling in plinth	SF	30	480	14,400
6	3 inches , 1:6 concrete under floor (excluding courtyard floor)	SF	140	394	55,160
7	1:6 DPC with Pudlo mix	RF	30	135	4,050
					167,874

(2) Ground Floor - Stage 1

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	693.24	62,391.60
2	4 -1/2 " brick wall in mud mortar	SF	60	564.87	33,892.20
3	Girder and tile roof	SF	200	416	83,200
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms, toilets and kitchen	SF	45	255	11,475
6	Ceramic tiles in bathroom and kitchen	SF	80	320	25,600
7	Plumbing	job	x	1	20,000
8	Electrification	job	x	1	20,000
9	Service Connections	job	x	1	10,000
10	Main Door	SF	200	22.72	4,544
11	Steel Window on street	SF	150	23.37	3,505
					335,707

(3) First Floor - Stage 2					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9" brick wall in mud mortar	SF	90	792.56	71,330.40
2	4-1/2" brick wall in mud mortar	SF	60	431.24	25,874.40
3	Girder and tile roof	SF	200	416	83,200
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms and toilets	SF	45	80	3,600
6	Ceramic tiles in bathroom and toilets	SF	80	96	7,680
7	Plumbing	job	x	1	12,000
8	Electrification	job	x	1	8,000
9	Steel window on street	SF	125	23.37	2,921
					249,105
(4) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9" brick wall in mud mortar	SF	90	446.76	40,208.40
2	4-1/2" brick wall in mud mortar	SF	60	341.76	20,505.60
3	Girder and tile roof	SF	200	376	75,200
4	Plaster on wall surfaces in bathrooms and toilets	SF	45	80	3,600
5	Ceramic tiles in bathroom and toilets	SF	80	96	7,680
6	Plumbing	job	x	1	3,500
7	Electrification	job	x	1	3,000
8	Steel window on street	SF	150	23.37	3,505
9	Parapet - 4-1/2" brick work	SF	60	236	14,160
					171,358

Part (B) - Items to be done through Self-help by the Owner					
(1) Ground Floor - Stage 1					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms and courtyard	SF	70	336	23,520
2	Internal plaster on wall surfaces	SF	38	751	28,538
3	Distemper on wall surfaces	SF	8	751	6,008
4	Doors (inclusive of paint)	SF	200	96.27	19,254
5	Windows (inclusive of paint)	SF	125	42.5	5,312
6	Light fittings and fans	number	200	12	2,400
7	Sanitary fittings	number	500	3	1,500
8	Paint on roof steel girders and T- sections	job	x	job	1,000
					87,532
(2) First Floor - Stage 2					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms	SF	70	278	19,460
2	Internal plaster on wall surfaces	SF	38	1050	39,900
3	Distemper on wall surfaces	SF	8	1050	8,400
4	Doors (inclusive of paint)	SF	200	59.5	11,900
5	Windows (inclusive of paint)	SF	125	96	12,000
6	Light fittings and fans	number	200	9	1,800
7	Sanitary fittings	number	500	1	500
8	Paint on roof steel girders and T- sections		x	job	1,000
9	2 inches , 1:6 , concrete on ground floor roof	SF	70	416	29,120
					124,020

(3) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor Finish in rooms	SF	70	175	12,250
2	Internal plaster on wall surfaces	SF	38	747	28,386
3	Distemper on wall surfaces	SF	8	747	5,976
4	Doors (inclusive of paint)	SF	200	38.5	7,700
5	Windows (inclusive of paint)	SF	125	50.5	6,312
6	Light fittings and fans	number	200	7	1,400
7	Sanitary fittings	number	500	1	500
8	Paint on roof steel girders and T- sections	SF	x	job	800
9	Insulation tiles on floor exposed to sunlight	SF	60	416	24,960
					88,284
COST OF LAND (Rs)		48,991			
ESTIMATES FOR CONTRACTOR'S ITEMS (Rs)					
STAGE 1		503,581			
STAGE 2		249,105			
STAGE 3		171,358			
Total		924,044			
SELF HELP ESTIMATES (Rs)					
STAGE 1		87,532			
STAGE 2		124,020			
STAGE 3		88,284			
Total		299,836			
TOTAL COST		1,223,880			

Unit size : 15' x 45' - 75 sq yards - 62.7sq.m (1:3 width to depth ratio)**Part (A) - Items to be Taken care of by the Contractor****(1) Till Plinth Level - Stage 1**

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Excavation	CF	12	743.03	8,916.36
2	1:4:8 Foundation base	CF	200	93	18,600
3	Brick-work with cement mortar in foundation	CF	150	616	92,400
4	Earth filling	CF	8	458	3,664
5	Brick-bat soling in plinth	SF	30	611	18,330
6	3 inches , 1:6 concrete under floor (excluding courtyard floor)	SF	140	340	47,600
7	1:6 DPC with Pudlo mix	RF	30	128	3,840
					193,352

(2) Ground Floor - Stage 1

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	890.5	80,145
2	4 -1/2 " brick wall in mud mortar	SF	60	320.68	19,240.80
3	Girder and tile roof	SF	200	510	102,000
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms, toilets and kitchen	SF	45	270	12,150
6	Ceramic tiles in bathroom and kitchen	SF	80	343	27,440
7	Plumbing	job	x	1	20,000
8	Electrification	job	x	1	20,000
9	Service Connections	job	x	1	10,000
10	Main Door	SF	200	22.72	4,544
11	Steel Window on street	SF	150	23.37	3,505
					333,524

(3) First Floor - Stage 2					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	874.88	78,739.20
2	4 -1/2 " brick wall in mud mortar	SF	60	627.87	37,672.20
3	Girder and tile roof	SF	200	510	102,000
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms and toilets	SF	45	120	5,400
6	Ceramic tiles in bathroom and toilets	SF	80	95	7,600
7	Plumbing	job	x	1	12,000
8	Electrification	job	x	1	8,000
9	Steel window on street	SF	150	23.37	3,505
10	Parapet - 4-1/2" brick work	SF	60	113	6,780
					296,196
(4) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	480.63	43,256.70
2	4 -1/2 " brick wall in mud mortar	SF	60	633.12	37,987.20
3	Girder and tile roof	SF	200	430	86,000
4	Plaster on wall surfaces in bathrooms and toilets	SF	45	120	5,400
5	Ceramic tiles in bathroom and toilets	SF	80	95	7,600
6	Plumbing	job	x	1	3,500
7	Electrification	job	x	1	3,000
8	Steel window on street	SF	150	23.37	3,505
9	Parapet - 4-1/2" brick work	SF	60	200	12,000
					204,248

Part (B) - Items to be done through Self-help by the Owner**(1) Ground Floor - Stage 1**

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms and courtyard	SF	70	427	29,890
2	Internal plaster on wall surfaces	SF	38	597	22,686
3	Distemper on wall surfaces	SF	8	597	4,776
4	Doors (inclusive of paint)	SF	200	112	22,400
5	Windows (inclusive of paint)	SF	125	44	5,500
6	Light fittings and fans	number	200	11	2,200
7	Sanitary fittings	number	500	3	1,500
8	Paint on roof steel girders and T- sections		x	job	1,000
					89,952

(2) First Floor - Stage 2

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms	SF	70	338	23,360
2	Internal plaster on wall surfaces	SF	38	1286	48,868
3	Distemper on wall surfaces	SF	8	1286	10,288
4	Doors (inclusive of paint)	SF	200	59	11,800
5	Windows (inclusive of paint)	SF	125	74	9,250
6	Light fittings and fans	number	200	9	1,800
7	Sanitary fittings	number	500	2	1,000
8	Paint on roof steel girders and T- sections	SF	x	job	1,000
9	2 inches , 1:6 , concrete on ground floor roof	SF	70	510	35,700
					143,366

(3) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor Finish in rooms	SF	70	202	14,140
2	Internal plaster on wall surfaces	SF	38	926	35,188
3	Distemper on wall surfaces	SF	8	926	7,408
4	Doors (inclusive of paint)	SF	200	39	7,800
5	Windows (inclusive of paint)	SF	125	27	3,375
6	Light fittings and fans	number	200	7	1,400
7	Sanitary fittings	number	500	2	1,000
8	Paint on roof steel girders and T- sections	SF	x	job	800
9	Insulation tiles on floor exposed to sunlight	SF	60	510	30,600
					101,711
COST OF LAND (Rs)		56,497.50			
ESTIMATES FOR CONTRACTOR'S ITEMS					
STAGE 1		526,876.00			
STAGE 2		296,196			
STAGE 3		204,248			
Total		1,027,320			
SELF HELP ESTIMATES					
STAGE 1		89,952			
STAGE 2		143,366			
STAGE 3		101,711			
Total		335,029			
TOTAL COST		1,362,349			

Unit size : 18' x 36' - 72 sq yards - 60.5 sq.m (1:2 width to depth ratio)

Part (A) - Items to be Taken care of by the Contractor

(1) Till Plinth Level - Stage 1

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Excavation	CF	12	487.68	5,852.16
2	1:4:8 Foundation base	CF	200	54	10,800
3	Brick-work with cement mortar in foundation	CF	150	402	60,300
4	Earth filling	CF	8	438	3,504
5	Brick-bat soling in plinth	SF	30	586	17,580
6	3 inches , 1:6 concrete under floor (excluding courtyard floor)	SF	140	496	69,440
7	1:6 DPC with Pudlo mix	RF	30	110.66	3,319
					170,795

(2) Ground Floor - Stage 1

Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	1039.16	93,524.40
2	4 -1/2 " brick wall in mud mortar	SF	60	497.66	29,859.60
3	Girder and tile roof	SF	200	558	111,600
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms, toilets and kitchen	SF	45	300	13,500
6	Ceramic tiles in bathroom and kitchen	SF	80	373	29,840
7	Plumbing	job	x	1	20,000
8	Electrification	job	x	1	20,000
9	Service Connections	job	x	1	10,000
10	Main Door	SF	200	22.75	4,550
11	Steel Window on street	SF	150	23.37	3,505
					370,078

(3) First Floor - Stage 2					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	1106.87	99,618.30
2	4 -1/2 " brick wall in mud mortar	SF	60	582	34,920
3	Girder and tile roof	SF	200	558	111,600
4	Staircase	SF	300	115	34,500
5	Plaster on wall surfaces in bathrooms and toilets	SF	45	160	7,200
6	Ceramic tiles in bathroom and toilets	SF	80	205	16,400
7	Plumbing	job	x	1	12,000
8	Electrification	job	x	1	8,000
9	Steel window on street	SF	150	23.37	3,505
					327,743
(4) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	9 " brick wall in mud mortar	SF	90	530	47,700
2	4 -1/2 " brick wall in mud mortar	SF	60	561	33,660
3	Girder and tile roof	SF	200	558	111,600
4	Plaster on wall surfaces in bathrooms and toilets	SF	45	160	7,200
5	Ceramic tiles in bathroom and toilets	SF	80	205	16,400
6	Plumbing	job	x	1	3,500
7	Electrification	job	x	1	3,000
8	Steel window on street	SF	150	23.37	3,505
9	Parapet - 4-1/2" brick work	SF	60	252	15,120
					241,685

Part (B) - Items to be done through Self-help by the Owner					
(1) Ground Floor - Stage 1					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms and courtyard	SF	70	390	27,300
2	Internal plaster on wall surfaces	SF	38	943	35,834
3	Distemper on wall surfaces	SF	8	943	7,544
4	Doors (inclusive of paint)	SF	200	94	18,800
5	Windows (inclusive of paint)	SF	125	39	4,875
6	Light fittings and fans	number	200	12	2,400
7	Sanitary fittings	number	500	3	1,500
8	Paint on roof steel girders and T- sections		x	job	1,000
					99,253
(2) First Floor - Stage 2					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor finish in rooms	SF	70	300	21,000
2	Internal plaster on wall surfaces	SF	38	1323	50,274
3	Distemper on wall surfaces	SF	8	1323	10,584
4	Doors (inclusive of paint)	SF	200	77	15,400
5	Windows (inclusive of paint)	SF	125	61	7,625
6	Light fittings and fans	number	200	10	2,000
7	Sanitary fittings	number	500	2	1,000
8	Paint on roof steel girders and T- sections	SF	x	job	1,000
9	2 inches , 1:6 , concrete on ground floor roof	SF	70	558	39,060

(3) Second Floor - Stage 3					
Serial No	Description	Unit	Rate (Rs)	Quantity	Amount (Rs)
1	Floor Finish in rooms	SF	70	140	9,800
2	Internal plaster on wall surfaces	SF	38	763	28,994
3	Distemper on wall surfaces	SF	8	763	6,104
4	Doors (inclusive of paint)	SF	200	56	11,200
5	Windows (inclusive of paint)	SF	125	22	2,750
6	Light fittings and fans	number	200	6	1,200
7	Sanitary fittings	number	500	2	1,000
8	Paint on roof steel girders and T- sections	SF	x	job	800
9	Insulation tiles on floor exposed to sunlight	SF	60	558	33,480
					95,328
COST OF LAND (Rs)		63,720			
ESTIMATES FOR CONTRACTOR'S ITEMS (Rs)					
STAGE 1	540,873				
STAGE 2	327,743				
STAGE 3	241,685				
Total	1,110,301				
SELF HELP ESTIMATES (Rs)					
STAGE 1	99,253				
STAGE 2	147,943				
STAGE 3	95,328				
Total	342,524				