CHAPTER V.

THE SECOND EXPERIMENTAL TOWN - SPRINGS NEW NATIVE TOWNSHIP OF KWA-THEMA.

ABSTRACT: The planning, organisation and teamwork in respect of Native housing are detailed. The part played by social surveys, planning, the development of row house layouts, relationship between the planning team and the Native population, organisation on the site, handling of building operators, final costs, stage development of communal buildings, landscaping and special buildings are all discussed. The conclusions are divided into successful and unsuccessful items of the work, which is the result of team work in which the architect plays an important part.

---oOo---

REFERENCE DIAGRAMS:

Diagram 4 Zoning Diagram.
Diagram 5 Preliminary Layout of Northern Neighbourhood.
Diagram 6 Layout of Northern Neighbourhood.
Diagram 7 Layout of Row Houses.
Diagram 8 Civic Centre.
Diagram 9 Western Neighbourhood.
Diagram 10 Eastern Neighbourhood.

---oOo---

Towards the end of 1950 the Municipality of Springs contacted the National Building Research Institute with regard to possible assistance in the planning of a new Native township which was to be located about one and a half miles to the south-west of the town's new industrial site of 'New Era'. The existing location of Payneville was very overcrowded and it was estimated that at least 15,000 persons required immediate housing. From the point of view of experience gained in the Witbank layout it was decided to follow certain definite lines in carrying out this work. Firstly, a complete social survey was suggested, in order that all the necessary planning information could be obtained and, secondly, it was agreed that the work should be controlled and guided by a team. The proposed approach was accepted by the Springs Town Council and the social survey was commenced in January, 1951.

The team approach was to follow the lines suggested in Figure 58, and the manner in which the planning was to be undertaken was as follows:

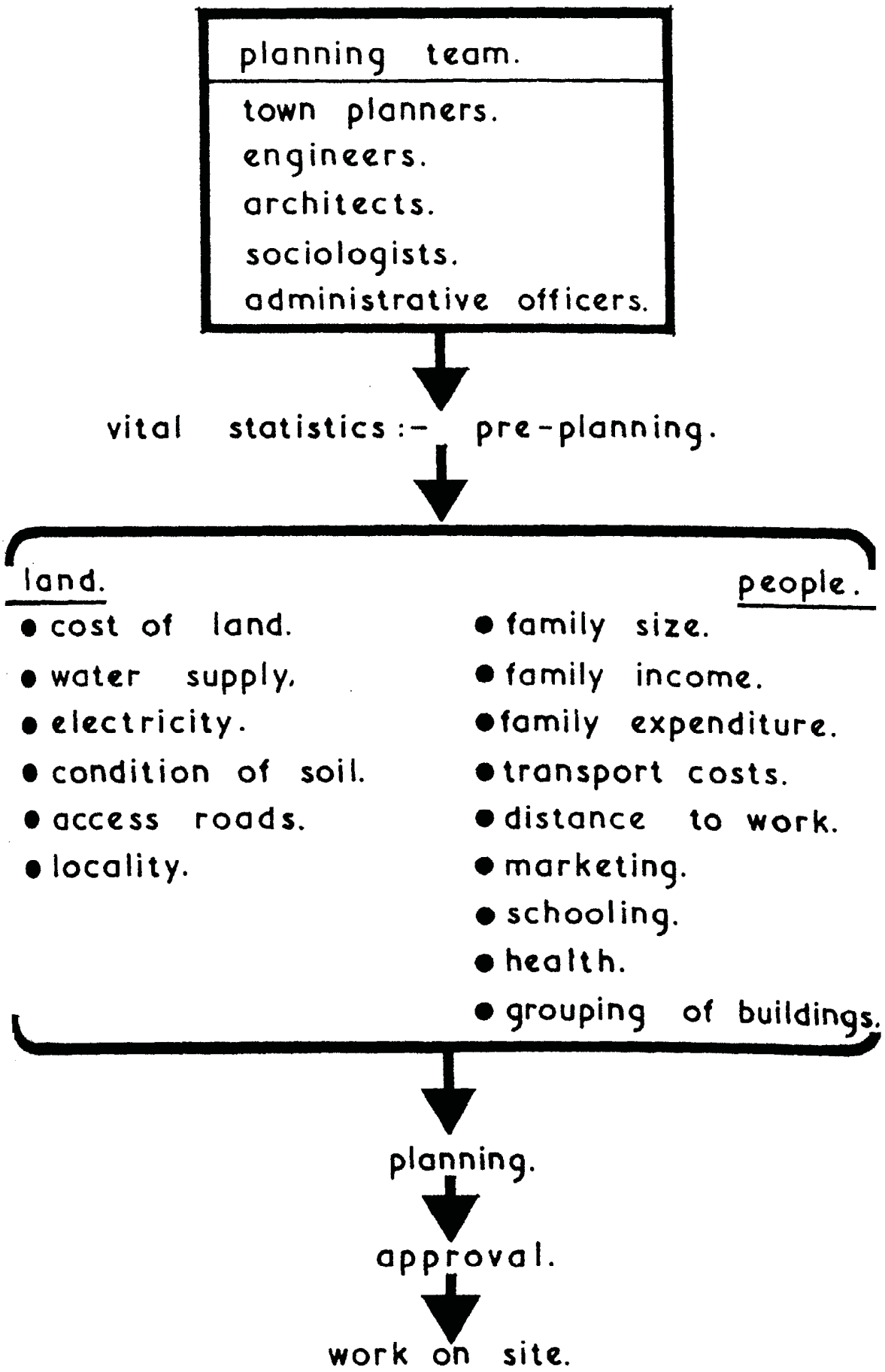
(a) The sociologist, working in conjunction with the town planner and architect, was to frame a list of questions which required definite answers in respect of planning problems.

(b) The sociologist was then to frame questionnaires and organise a field team of social workers who would be responsible for filling in the questionnaires and for personal interviews.

(c) The sociologist would extract the information from the questionnaires and present the planning team with the necessary information for detailed planning.

(d) / ...

S P R I N G S .



• planning of kwa-thema. •

(d) The town planner and engineer would inspect the site and discuss the technical approach to the planning. These discussions would include cost of land, extent of land to be immediately developed, road, water, electricity and sewer connections in relation to the site, the general densities and development programme to be aimed at.

(e) The engineer would carry out a survey of the site, giving the necessary data in respect of contours, existing buildings, vegetation etc. Trial holes were to be dug and any bad soil conditions reported.

(f) After a detailed land survey was completed, the town planner and engineer would accustom themselves to the site and carry out any special investigations necessary. (As bad ground was encountered a soil mechanics specialist of the National Building Research Institute was consulted and the building programme had to be revised in order to allow a safe period of time to elapse between the felling of trees and the building of houses.)

(g) The town planner would prepare a zoning diagram of the area.

(h) The engineer would investigate the position of materials - their supply, bulk-buying, storage, delivery and costs - and labour.

(i) The town planner, after receiving information from the sociologist, would prepare preliminary layout plans which would be inspected by roads engineer, drainage engineer etc. and, after discussions, a final layout plan would be prepared.

(j) The final layout would be inspected carefully by constructing models, which, from the architect's point of view, would assist him in positioning and designing buildings.

(k) Approval by the Springs Municipality, the National Housing and Planning Commission and the Department of Native Affairs would be sought.

(l) The architect, working in conjunction with the Manager of non-European Affairs, Springs and the National Housing and Planning Commission, would prepare plans for houses and certain other buildings.

(m) The engineer would organise the work on site and supervise building operations.

(n) The Manager of non-European Affairs would be responsible for moving families and for supervision and administration of the families once they were housed in the new Township.

In addition, many further details were actually attended to by the planning team.

SOCIAL SURVEY.

Social surveys are not plans, but they attempt to collect together as much information as possible for consideration of competent planners, whose real work starts when the surveys are completed. Without the surveys, however, the planner is left in the dark and must base his decisions upon guesses and prejudices (often referred to as experience).

The terms of reference of the survey were to make an analysis of the population in relation to housing, transport, place of work, education, recreation and other social services in the overcrowded location of Payneville. In addition, information was required in respect of the economic and future trends, which must be considered in the planning and development of a new Native township.

From the inception of the scheme it was decided to treat the new township, known as KWA-THEMA, as a complete unit in which people must live, work and play - in fact an environment must be created in which the inhabitants must be able to live a full and happy life. This would require a complete picture of the social inter-relationship of the different groups making up the whole community in respect of time and situation. As a community is never static, it was necessary to study aspects of demography and family composition, in order to achieve a flexible plan which would satisfy both immediate and future demands.

H.J.J. van Beinum in a paper entitled "Social Science in relation to Town Planning", delivered to the Regional Conference on Housing Research in Africa south of the Sahara, in Pretoria, 1952, defines the main factors which lead to the integration of a neighbourhood unit as: (i) its size, (ii) its point of focus, (iii) its institutions and amenities and (iv) the type of people who will inhabit the area. He further states: "The size of a neighbourhood unit is accepted as being between five to ten thousand people, but this is to a great extent arbitrary and is mainly based upon and determined by the point of focus, the school or community centre". The argument is then advanced that too often the 'school' is established as the nucleus of social cohesion, whether the resulting size of the neighbourhood is effective or not. In the fourth point mentioned, the question of distinct or mixed groups is discussed in relation to their particular demands which will vary, according to whether the group consists of, for example, low income families or economically independent professional classes.

The provision and positioning of amenities within a given neighbourhood demands a great deal of careful investigation. In the social and industrial survey of Wolverhampton (known of as 'MIDLAND CITY') by Tom Brennan, the relation of shopping facilities to housing areas is carefully examined and the conclusion reached that the shape of the area of service is a semi-circle on the side of the shop away from the town centre. Only the town centre servicing the houses about it, is in the shape of a full circle of service. This means that in terms of population behaviour people do not walk away from the centre of the town to their local shopping centre. In the same survey it was noted that a correlation did exist between place of work, in relation to use made of local facilities such as clinic, library, youth club, cinema and shopping centre. It was, however, not possible to determine the exact reason for such a correlation.

Ray Kantorowich after his recent visit to Israel made a similar point in respect of the positioning of a civic centre in relation to three neighbourhood units and the industrial sites of a new town. In this case although the planners had, after careful consideration, zoned the civic centre in one area, the natural pull of the inhabitants established the centre in a completely different area. The explanation was found in population movement; the area selected as the civic centre was not on the

routes leading either to the place of work or to the sea front, but the area naturally developed was. Tom Brennan sees this problem as follows: "Planners should follow the same principle as is adopted by the news-vendor who takes up his stand at the entrance to a station in preference to the most 'desirable' site at the geographical centre of the town".

Considering the above factors it is obvious that a survey of Payneville could give only a limited amount of information and in order to obtain a full and comprehensive picture of the relationship between the inhabitants' demands and the planning solution, future surveys of the new township would be necessary. In this respect such questions as grouping, size of neighbourhood, and siting and provision of amenities could be answered, and the success or otherwise of the plan assessed.

The social scientist can assist the town planner in analysing existing statistics which are then related and correlated in order to give basic data. If no valid statistics exist, then surveys must be undertaken: the method usually adopted is the sample survey technique, based upon a statistical validity which allows for examination of an appropriately chosen part of a whole, so that conclusions can be drawn for the whole. This system of surveying samples only, was developed by Professor Bowley, of the London School of Economics, in 1912, and led to the use of social surveys as an economical tool for the study of society. In regard to Native housing it is an essential of all planning that the vital information be obtained by social surveys. In the case of the social survey of Payneville, the author demanded a full survey, but as time passed it became obvious that, firstly, this method was extremely expensive and, secondly, the time factor allowed so many changes and movements within the community that the accuracy of the survey was completely upset. In fact the total survey method was a failure. H.J.J. van Beinum, the sociologist undertaking the survey, displayed co-operation and control in carrying out this survey, which he knew would not be very successful. When he completed his second and sample survey, he was able to show immediately that the sample technique was as reliable as a total survey. In addition, he was able to collect a great deal more information in about one quarter of the time, than was possible in the total survey. The author learnt another very important lesson in respect of social surveys; this was the framing of questionnaires. Firstly, a questionnaire must be carefully drawn up so that it is clear, concise and unbiased; time spent on working and framing of questions can save untold difficulties and problems at a later stage. Secondly, questionnaires must be planned in such a way that only data relevant to town planning are collected.

In the field of Native housing, the value of social surveys as applied to planning can determine the social, emotional and material needs of the inhabitants so that these can be satisfied by planning and thus stimulate spiritual growth.

SOME IMPORTANT ASPECTS OF THE SOCIAL SURVEY OF PAYNEVILLE LOCATION, SPRINGS.

To record all the information collected in respect of the inhabitants of Payneville Location which would be a complete thesis in itself and as H.J.J. van Beinum* is compiling a record of this work it is

only / ...

* Mr. H.J.J. van Beinum is submitting a thesis to Rhodes University, Grahamstown, entitled "A sociological analysis of the dichotomy of values in Western Society with particular reference to planning of urban communities in South Africa."

only necessary to extract that information which is basic to the planning of Kwa-Thema. Payneville's inhabitants would, as already mentioned, form the greatest part of the population of the new Native township. The location contained 892 privately owned houses and 610 houses leased by the municipality. The total and sample surveys revealed a population of 20,000 persons. This meant that each house contained 13.4 persons or that approximately 2,500 families required housing.

The municipality, in order to prevent the growth of a squatters' camp erected 1,100 temporary houses at Payneville which were financed out of economic moneys to be repaid in ten years. The intention was to create a temporary housing area which would accommodate families until such time as permanent dwellings in the new township were available. At the end of the ten year repayment period, the temporary houses would be demolished and replaced by permanent dwellings. These temporary houses, built in rows, consisted of consolidated sand block walls, covered by a rough-cast cement plaster and fitted with windows with steel-surrounds, steel door frames, earth floors and corrugated iron roofs. The intention was to salvage the doors, door frames, windows, purlins, roofing iron and stoves and stove pipes for re-use in the permanent houses: the only loss would be the walls, the cost of which was mostly in the labour, and in a small quantity of cement. In addition, the temporary houses would serve as a dispersal area where lodgers, removed from the old location, would be housed prior to their being moved to the new township. While in the dispersal area the administration could collect information in respect of family size and income so that correct placing in the respective housing types in the new township could be achieved.

Place of Work.

The first information required was to ascertain whether the families housed in Springs worked in the municipal area. It was found that 96% of the families worked in the Location or in the municipal area of Springs. (See Figure 59).

Demography.

The tertiary masculinity rate* of total population was 102 which indicated a population which was fairly static, and a permanent urban population could be expected. From the 1946 census figures the tertiary masculinity rate of urban Natives in the Union was 179.4(1), whereas in rural areas it was 56.6. The preponderance of males in urban areas does not augur well for family life and the figure at Springs is important in this respect as it indicates a more satisfactory proportion of males to females. Unfortunately, if the number of mine Natives in the area is added, the figure is quite different and would be only slightly below the national rate.

Figure / ...

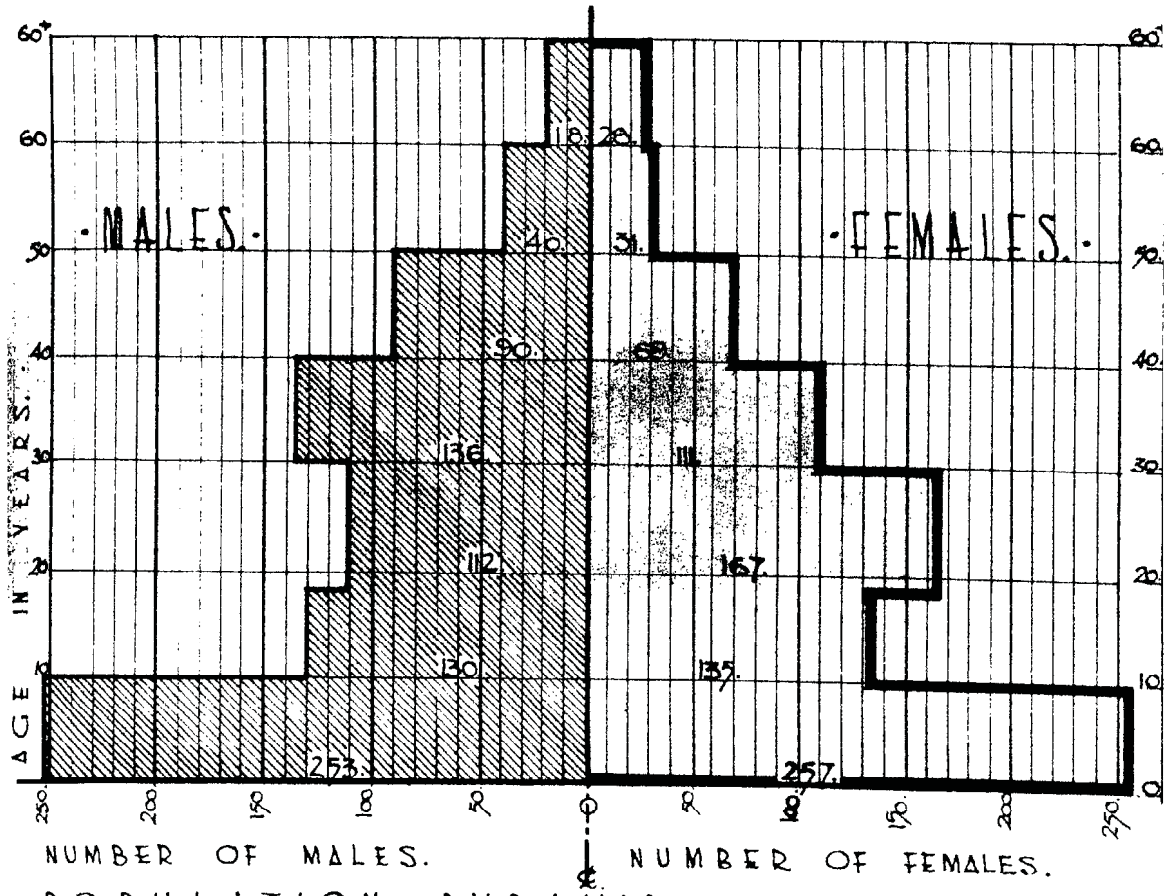
---

* Tertiary masculinity as defined by Dr. H. Sonnabend in "Handbook on Race Relations in South Africa."

---

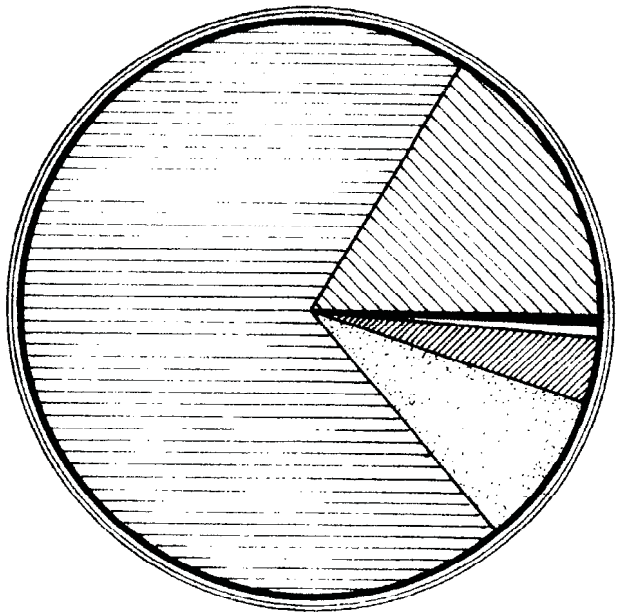
(1) 1946 Census 1,152,022 Native males in Urban areas in the Union.
642,190 " females in Urban areas in the Union.

Total ..... 1,794,212 Natives in urban areas.



·POPULATION PYRAMID OF PAYNEVILLE ·LOCATION, SPRINGS. ·

·PLACE OF WORK.



SPRINS TOWN: 69·7%.
IN LOCATION: 16·4%.
OUTSIDE SPRINGS EXCLUDING JOHANNESBURG 8·9%.
IN JOHANNESBURG: 3·7%.
SOMETIMES EMPLOYED IN SPRINGS: 1·1%.
SOMETIMES EMPLOYED OUTSIDE 0·2%.

·SURVEY OF SPRINGS. ·

FIGURE NUMBER: 50

Figure 59 illustrates the composition by age and sex of the population in Payneville. This pyramid indicates a normal population except in the case of the young males and females, which can possibly be accounted for by the fact that these persons have been sent to a rural area for safe keeping. The case is, however, still being investigated. Figure 60 illustrates yet further information collected which has a direct bearing upon new housing.

Certain vital information was difficult to obtain, and it is obvious that in future better records must be kept of urban Natives. Registration of all population births, deaths and marriages must be kept if reliable information is to be obtained.

Town Planning and Housing Data.

The most important aspects of the survey were those obtained from the following analyses:

(a) the distribution of family sizes in relation to dwelling sizes;

(b) the classification of population according to rent-paying ability of the families to be housed.

The socio-economic aspect of the Payneville Survey is recorded, together with the sample method applied in an article 'A Study of the Socio-Economic Status of Native Families in the Payneville Location, Springs.' by H.J.J. van Beinum*. In carrying out the survey a team of four specially trained qualified Native social workers using questionnaires which had first been tested in a pilot survey, was organised and directed by van Beinum. In addition contact with the inhabitants was established by explaining to different groups and institutions, including the Advisory Board, the purpose of the survey. This resulted in friendly relations being established between the social workers and the inhabitants. In addition the co-operation and confidence between the planning team and the community was based upon this foundation.

In order to establish the ability of families to pay rent, the methods of Booth, Rowntree and Bowley were adopted, but improved and modified. The family composition was broken down and all the families in the sample were grouped into a particular family size, e.g. one, two, three or four persons per family, etc.

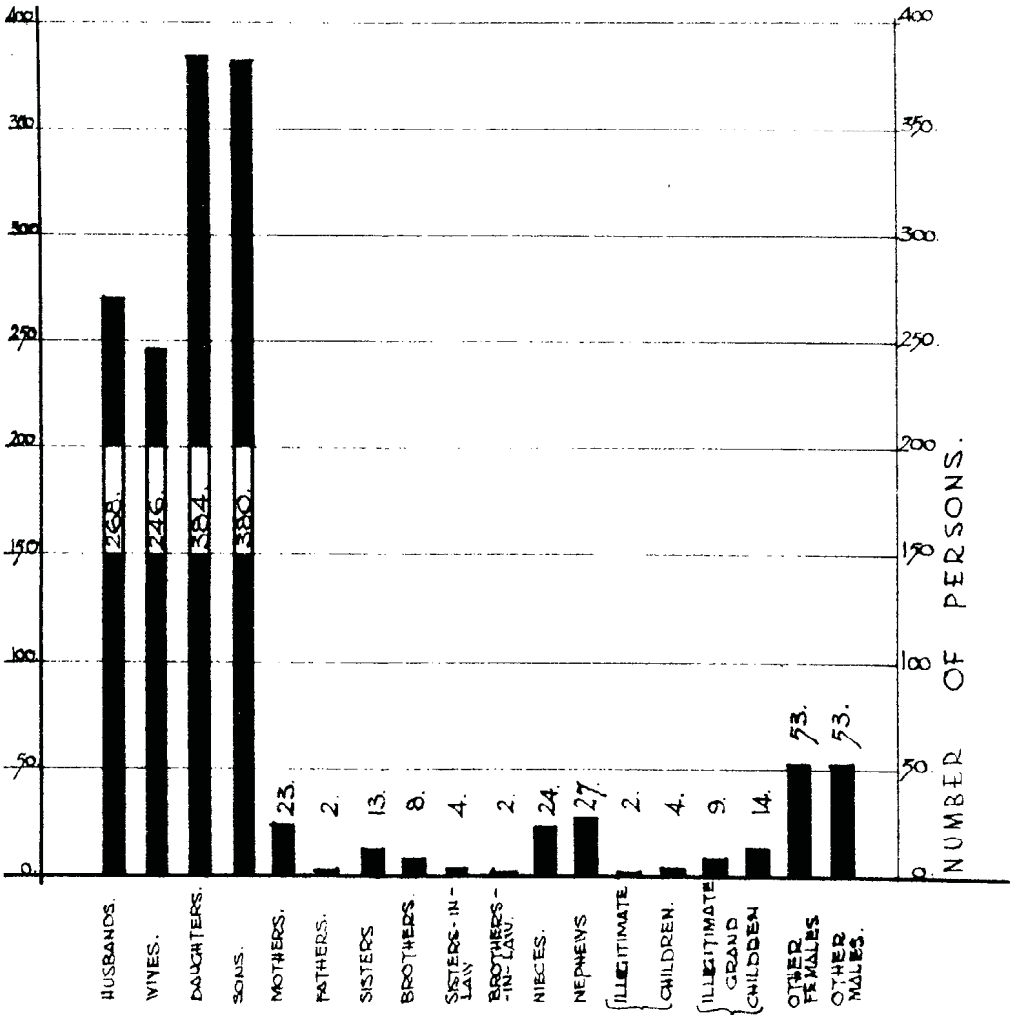
These families are plotted along the base line AB of the graph, Figure 61, and are grouped according to family size, shown below the line AB. (viz. there are 17 single persons; 46 families of 2 persons; 42 families of 3 persons, etc.) Above the line AB the family's legal and regular income is plotted from left to right in ascending amounts (i.e. in the 48 families consisting of 4 persons per family, their incomes as plotted range from no income in the first case to £2 per month in the second and third cases, and finally to £35 per month in the last case.)

From this basic information tabulated in Table XXXIII, it can be seen how important such data can be in respect of planning. The danger of working with an average family size when housing persons is demonstrated

by / ...

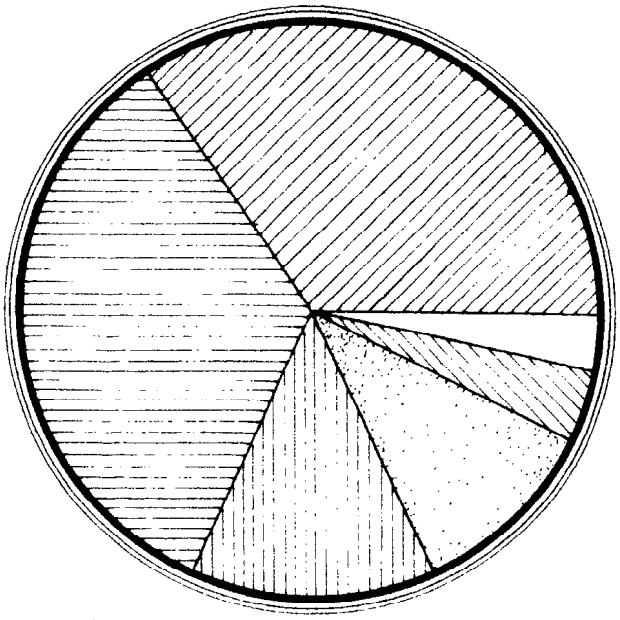
---

* National Building Research Institute, Bulletin No. 8 June, 1952.



NOTE 1278 OUT OF 1516 PERSONS ARE #USBAND, WIFE & THEIR CHILDREN - THIS DETERMINED #OUSING.

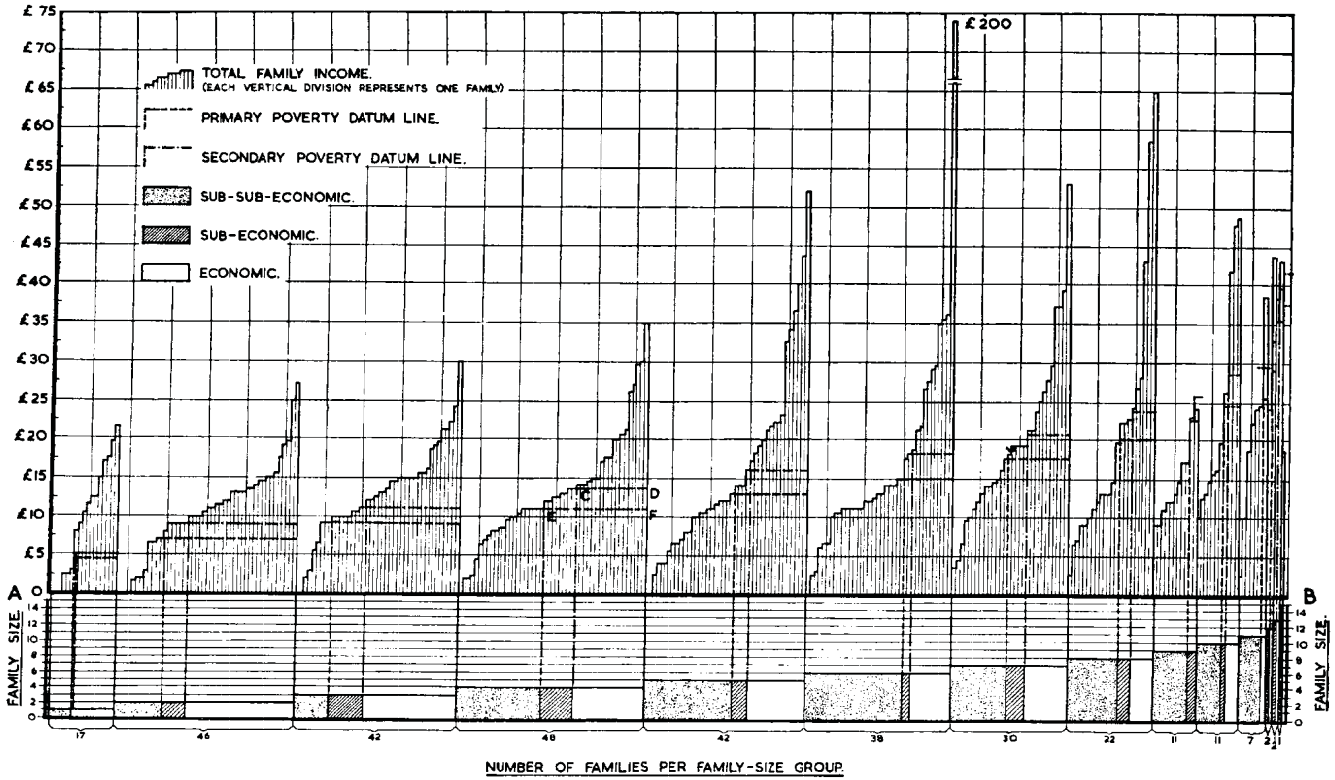
· FAMILY RELATIONSHIP & #OUSING. ·



· IMPROVEMENTS MADE BY TENANTS. ·

PLASTERED WALLS :	34·54 %.
FLOOR FINISH :	33·64%
CEILINGS :	13·64%.
DOORS :	11·21%
ELECTRIC LIGHT :	3·64%
OTHERS :	3·33%.

· SURVEY OF SPRINGS. ·



Histogram showing distribution of family sizes and family incomes in Payneville Native Township.

Fig. 61.

by the demand for at least six dwelling sizes to properly house the population in terms of the minimum standards of housing accommodation. Although the average family size is 5.02 persons, only 13.17% of the total number of families consist of 5 persons. If all the houses were designed to accommodate the average family, then 47.96% of the families would be overhoused, 13.17% would be correctly housed and 38.87% would be overcrowded. As these figures indicate, the economies and correct supply of house sizes to meet demand, are completely lost.

TABLE XXXIII.

Extractions from social survey Springs (Payneville).

No. of persons comprising family.	Percentage of total Survey.	No. of rooms required in terms of minimum standards of housing accommodation.	Percentage of houses of same socio-economic type within each house size.		
			S.S.E.	S.E.	E.
1	5.33%	Single quarters	35.40%	-	64.60%
2 3	14.43%) 13.16%)	1 roomed house	23.86%	17.05%	59.09%
4 5	15.04%) 13.17%)	2 roomed house	50.00%	13.33%	36.67%
6 7	11.92%) 9.40%)	3 roomed house	57.36%	10.29%	32.35%
8 9	6.89%) 3.44%)	4 roomed house	66.67%	15.15%	18.18%
More than 9 persons.	7.22%	5 roomed house	65.22%	17.39%	17.39%
TOTALS	100.00%		47%	13%	40%
Average family size = 5.02 persons.					

S.S.E. = Sub-Sub-economic.
S.E. = Sub-Economic
E. = Economic.

In order to assess the ability to pay rent it was necessary to establish, for each family size and composition, primary and secondary poverty datum lines. The determination of the primary poverty datum line was to include the minimum expenditure required for the barest subsistence without injury to health. This would include expenditure on food, clothing, fuel, lighting and cleaning materials, transport and tax, and would not include any other items such as medicine, education, savings, furniture and household equipment. In fact it is hardly a human standard of living and obviously omits almost as much as it includes.

Each of the items included in the primary poverty datum line were calculated as follows:

A. Food.

This calculation was based upon the diet considered to be the minimum possible for health, as worked out and determined by a dietary survey, carried out on a random sample of 100 Native families in the Payneville Location by the Division of Nutrition. This survey, being undertaken at the same time as the sample survey, established the lowest possible price for foodstuffs purchased in the area.

B. Clothing.

This was based on the calculation of the data obtained from a survey done by Ethel Wix* but adjusted to the lowest prices existing in second hand clothing shops in Springs and Payneville.

C. Fuel, lighting and Cleaning materials.

This item of expenditure was largely based upon the survey of Ethel Wix.

D. Transport.

This was taken as 8/8 per person per month only for those persons working outside of the location area. This only allowed for the monthly bus fare to the centre of Springs from Payneville, at the rate of one return trip per working day.

E. Tax.

Tax for an adult male Native is £1 per annum and amounted to 1/8 per month.

In determining the secondary poverty datum line all the items listed for the primary poverty datum line were included but an expenditure was allowed for rent. The economic rents for the different sizes of dwellings for various family sizes were determined with the assistance of the National Housing and Planning Commission, in respect of present-day (1951) building costs. The items included in the rent were repayment of capital costs of house and services, maintenance, administration and running costs, based upon the housing accommodation standards of the minimum standards of housing accommodation for non-Europeans. The resultant economic monthly rents were as follows:

Single quarters	£0.10. 0
2-3 person house	£2. 0. 0
4-5 person house	£2.10. 0
6-7 person house	£3. 0. 0
8-9 person house	£3.10. 0
10+ person house	£4. 0. 0

It is obvious that before a family can afford to pay rent, it must have an income sufficient to provide its members with those necessities of life essential to the maintenance of minimum standards of

health / ...

* Ethel Wix. "The Cost of Living - August-December 1950" S.A. Institute of Race Relations, Johannesburg.

health and decency. In applying the lines of primary and secondary poverty to the incomes of families, the lines will vary greatly even within one particular family size, dependent on the composition of each family within that group. For simplicity the average values will be used and on the graph, Figure 61, the average primary and secondary poverty datum lines for each family size are applied horizontally across the resultant histograms of the incomes. The example demonstrated on the Figure is in relation to a family size of 4 persons; the line E-F indicates the mean primary poverty datum line and C-D the secondary poverty datum line. The intersection of these lines with the histogram are then projected down vertically on to the line A.B., thereby dividing the families into three economic classes or groups.

(i) The first group, dotted on the drawing, consists of those families whose incomes are not higher than the primary poverty datum line and, therefore, cannot afford to pay any rent. For the purpose of identification this group is termed the 'sub-sub-economic' or S.S.E.

(ii) The second group, indicated by cross hatching, consists of those families whose incomes are higher than the primary poverty datum line but not higher than the secondary poverty datum line. These families can afford to pay some rental but require assistance; they are, therefore, 'sub-economic' or S.E.

(iii) The third group, unshaded on the graph, consists of those families whose incomes exceed the secondary poverty datum line. This group can afford to pay an economic rent and is termed 'economic' or E. (ref. Table XXXIII).

Study of Figure 61 will show that as the family size increases the incomes increase too. This may be due to the fact that more members contribute to the family income and/or that the larger families have been in the urban area longer and have learnt to make more of the opportunities offered.

The sub-economic group is the smallest and decreases when the family size increases. The economic group decreases as the family size increases whereas the sub-sub-economic group increases. This gives a picture common to any survey of housing of low income groups. The total figures of the survey give

47% are sub-sub-economic.
13% are sub-economic.
40% are economic.

It is of interest to note that according to the income level of £15 per month as determined by the National Housing and Planning Commission, in defining the upper income limit of subsidised rentals for sub-economic loans, that 34% of the population is economic and 66% is sub-economic, which means a reduction of numbers in the economic class. The method adopted by the National Housing and Planning Commission, although easily applied in practice, is one which will subsidise small families who really do not require assistance and will force large families into the economic class when in actual fact they are the families who really require assistance. A more practical scale would be to base income limits upon family size, but many argue that this will only encourage larger families. Determined, however, upon such a basis as the primary and secondary poverty datum lines, the encouragement of increasing the family size will give no

financial assistance to the larger family. Such a scale would be as follows:

Size of natural family.	Income limit for determining assisted rents (upper limit or income per month.)
2 and 3 persons	£10 per month.
4 and 5 persons	£15 per month.
6 and 7 persons	£19 per month.
8 and 9 persons	£22 per month.
10 and more persons.	£24 per month.

This scale is far from perfect but does give a better relationship between family size and income in determining assisted and economic rentals in practice.

This survey had virtually introduced a new and fundamental approach to the problem of providing Native housing. The application of the survey to the planning shows immediately how important these results were and how a new concept was born which had to provide houses not only of differing sizes but also to cater for three economic classes of people. The survey was so important that the Council for Social Research lent financial support to further surveys of this nature - i.e. ability to pay rents - throughout the Union, in order to ascertain the general picture and establish whether Springs was just an isolated case. The surveys cannot establish actual rentals but can indicate how rent determination should be related to family size.

SURVEY OF SITE.

At the same time as the social survey was progressing, the Engineer's department carried out a complete survey of the site. A carefully prepared contour map of the whole area was drawn up and included such details as trees, footpaths, existing tracks, existing cemetery site and Native huts. A soil survey was carried out and, from examination of trial holes, the pattern of soil types was plotted. Unfortunately this plotting was not an easy matter as later 'on site' inspections revealed that soil types varied very rapidly, and to plot an exact pattern from trial holes was extremely difficult. The Soil Mechanics Division of the National Building Research Institute has, however, overcome this difficulty. The complete area of Springs was covered by an aerial survey taken by Trigonometrical Survey photographers. By careful inspection of these photographs and knowing the soil conditions encountered in certain areas, the scientist was able to plot an exact soil pattern. This information has helped the planning a great deal and saved much time spent on inspecting the site.

As the social survey came to an end the planning team really started its work in earnest. Meetings were called and such items as water supply, electrical supply, sewerage disposal, road construction, link services and roads into the industial area, were all discussed. Estimated costs for development work were assessed and the most economical development programme was drawn up. A time schedule was drawn up for ordering of materials, completing drawings, surveying, bringing main services onto the site, road development and finally, for recruiting a labour team and commencing building.

The author was then given the task of producing a general zoning diagram and preparing the plan of a neighbourhood for approximately 7500 persons. The first two weeks were spent mainly on the site, which consisted of an area of 300 acres on the farm Rietfontein and 700 acres on the farm Vlakfontein some three miles south-west of the centre of Springs. The planning team had decided to develop the area Rietfontein first, as it was the most conveniently positioned in relation to water supply and existing sewers. This area was almost entirely covered by a bluegum plantation and detailed examinations of the site were a very important factor. As the site was fairly level and service costs had to be kept to a minimum, each stage in the planning had to be checked by repeated visits to the site.

ZONING DIAGRAM.

The first stage in developing the plan was to draw up a zoning diagram and plan a main road pattern. Diagram 4 shows the main zoning and it was estimated that the area would accommodate 30,000 persons or about 6,000 dwellings. This was then related to the information gained from the social survey, and revealed that the town would be completely occupied in from 10 to 15 years. This information caused the Springs Municipality to negotiate for an extension of a further 600 acres which would mean that the township, when fully developed, would house from 35,000 to 40,000 persons.

The area was zoned into three neighbourhood units surrounding a civic centre, but as the plan was developed seven neighbourhoods were formed. As pedestrian access and a bus service constituted the main forms of transport, the neighbourhoods were ringed by a main road which would form the bus routes, and each neighbourhood was linked to the civic centre by a park strip. The park strips would contain schools, churches and playing fields and the residential areas were grouped on either side of these strips, thus concentrating services within the residential zone. The basic principle behind the planning was to allow short walks between home and bus route, playing field, park or school. Within each neighbourhood unit a further breakdown was visualised - roughly that three residential areas would comprise a neighbourhood and these would contain a primary school, shopping centre and playing field.

The proposed zoning diagram was discussed with three main bodies: (a) the local authority (b) the National Housing and Planning Commission and (c) the Department of Native Affairs. In the discussions with the local authority the Town Engineer after 'on site' inspections broke the area down into areas of development giving priorities and indications of the lines of drainage and connections to existing services within the town. The Town Council approved the scheme in general and agreed upon the immediate development of the Northern neighbourhood. The plan was also discussed with the Advisory Board of the Payneville location, and after consultation the zoning diagram was placed on the public notice board for public inspection. At the next meeting of the Advisory Board it was decided to call the new town 'KWA-THEMA' and it was apparent that interest was growing very rapidly.

The technical officers of the National Housing and Planning Commission studied the proposals and gave directions on the financing of the scheme and general approval of the layout. The Department of Native Affairs made suggestions in respect of buffer strips, the purchase of more ground and the future development of the scheme. Together with the information from the social survey, a complete picture had now been obtained and considerable interest had been aroused.

PLANNING THE FIRST NEIGHBOURHOOD. (Diagrams 5 and 6).

A rough sketch of the first neighbourhood was prepared in accordance with the information of the social survey, but many problems immediately presented themselves. The economy of development lay in single storey dwelling types but to avoid the drab monotony usually associated with such a layout, required careful planning. Much of the ground was unsuitable for building purposes and it was necessary to arrange the dwellings upon the good land and leave the less favourable areas as parks, sport fields and open spaces. Fortunately, the area not suitable for building was ideal for parks, This arrangement, although reasonable, removed the open spaces away from the dwellings but by means of loop roads safe access from home to park land was maintained.

Certain problems presented themselves and can be classified as follows:

(a) The provision of housing for the sub-sub-economic group appeared to present the planners with an impossible task and required a new approach.

(b) The existing houses in Payneville were mostly one and two roomed dwellings and should play an important part in determining the house sizes which were to be built first.

(c) The next problem which presented itself was in respect of the economic class of Natives; as these people were dependent upon the rest of the community for their incomes it was impossible to house them first as they required trading sites, schools, churches and, most important, a community of consumers.

(d) The desirable size of neighbourhood was not known and also, no one could determine whether the neighbourhood should be formed all of one class of persons or if the mixed type of development was the ideal solution. It was noted during the progress of the social survey that a class grouping was taking place in Payneville and that friendships were formed rather through work and position than from tribe or place of home in the location.

Once again the planning team met and, with the rough layout plan in front of them, decisions were reached as to the immediate aims. As the area Rietfontein was well-wooded it was decided to retain as many selected trees as possible to assist in creating a pleasant appearance, but as these would cause foundation troubles no tree was to be left closer than 30'-0" to any house. The technical staff of the Building Research Institute advised that after felling the trees the area be left standing for a year so that a stable soil condition could be achieved.* This meant that tree felling would have to commence immediately but as trees were to be left to enhance the appearance a detailed plan was essential. Fortunately a small area north of the railway line was sparsely wooded and

the / ...

---

* Ref. J.E. Jennings, "Foundations for Buildings in the Orange Free State Goldfields," Journal of the S.A. Institution of Engineers, Vol. 49 Nos. 4 and 8.

the area south of the line was free of trees, so it was decided to develop these areas first, leaving the necessary time for tree felling and obtaining conditions of stability in the soil.

The first housing to be undertaken was to be for the sub-economic class as this type was understood in so far as standards and costs were concerned. The economic class was to be catered for last of all as it was dependent upon the remainder of the community for its livelihood; this group, however, would form a part of this first neighbourhood, and plots 50' x 70' would be set aside for economic houses. The sub-sub-economic group demanded a new approach and after discussions on controlled squatting, serviced stands and other methods such as 'self-help' or 'stage building' it was decided that all these methods were wasteful and would result in unattractive areas of which the town of Springs could never be proud. The Town Engineer pointed out that wages were constantly increasing, that greater opportunities were being offered to the Natives as the secondary industries of Springs developed, and that he intended using Native building operators to construct KWA-THEMA; all these factors pointing to a possible decrease in the number of sub-sub-economic families. It was decided, therefore, to build these houses to the suggested minimum standards and not reduce the space or occupancy in any way, except for the bath space which was to be provided in a slightly extended W.C. (This arrangement allowed a space big enough to accommodate a free-standing zinc bath in front of the W.C. pan). Every economy of building was to be sought in order that the most economical structure could be erected. The planners were to consider terraced houses with reduced structural standards, while the engineer was to inspect the economies of task building and the employment of Native building operators. The resulting houses would then provide shelter at the lowest cost possible, but would not provide a full range of comfort as would be found in the economic houses. (Occasional damp walls during heavy rain storms would be permitted and provision of complete privacy between dwellings was not considered a major problem.)

Finally, after inspection of the site during a period of heavy rainfalls, it was decided definitely to concentrate the houses upon the good ground and to position school buildings and other buildings in the open spaces after site inspections and digging of trial holes. The reason for this decision was that in general, more money is made available for these buildings than for housing, and an increase in the costs of providing special foundations is slight in comparison with total costs, when the building is more expensive.

The questions of neighbourhood size and the problems arising from the mixing of different classes could not be answered, but it was decided to create neighbourhoods and residential areas of different sizes and composition, and then by further visits to establish what was the most successful layout.

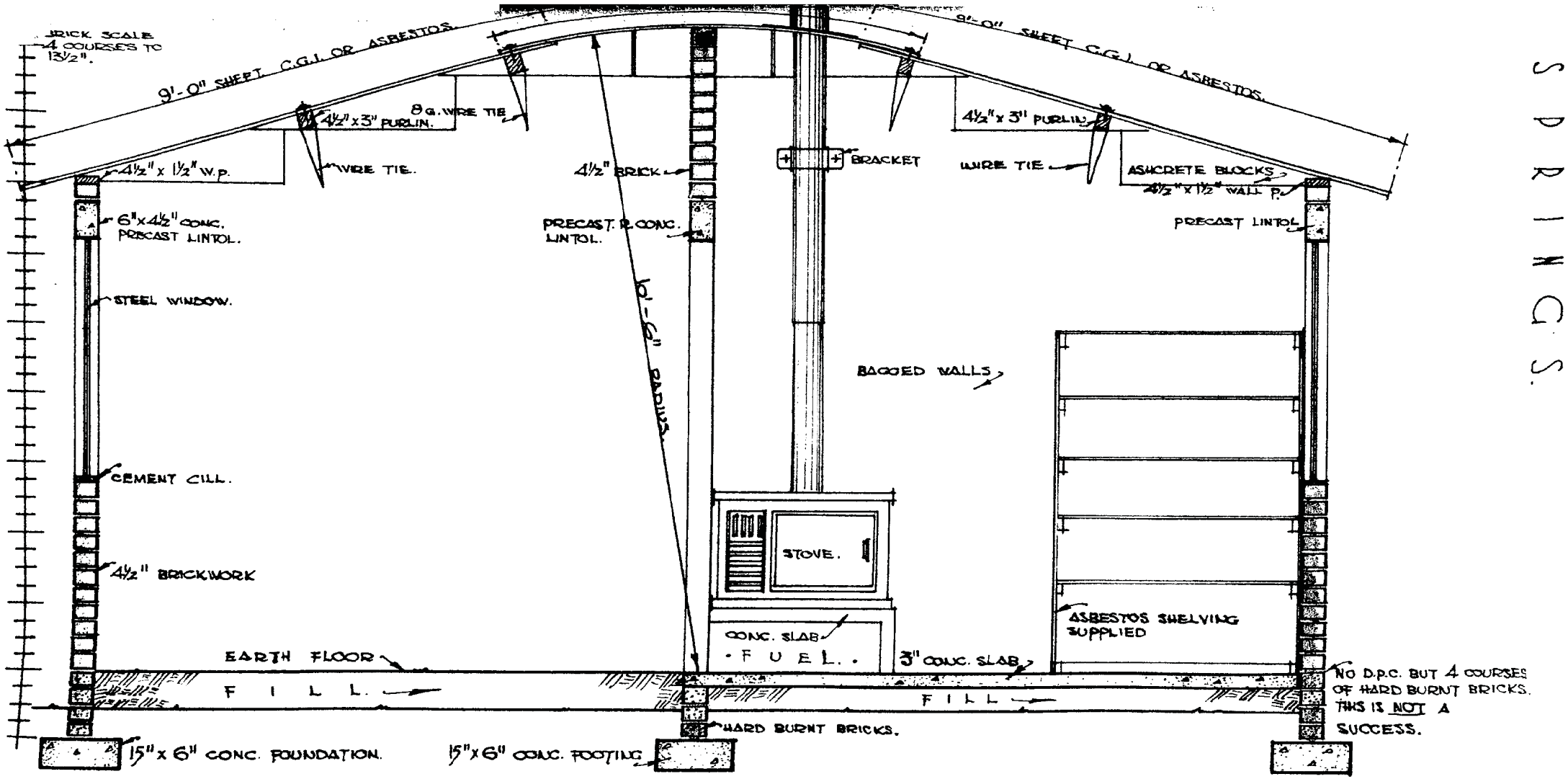
Work then commenced on the preparation of the final layout drawing of the first neighbourhood see Diagram 6. Each section of the scheme was checked on the site as the work proceeded in order to obtain the most economical layout. The author's wife, in addition, built up a contoured model of the site so that each section when planned could be viewed on the model by positioning of unfixed dwelling units until a satisfactory layout was obtained. As the sections were completed, they were surveyed on the site and the Assistant Engineer marked the trees which had to be retained. One point which became very obvious during the work, was the necessity of obtaining a balance between the aesthetic values

and the economy of the schemes. On the model it was an easy matter to create delightful and interesting arrangements but when the sewers and water supply were considered it was found that excavations had increased and so had the number of running feet. In addition, the temptation of viewing the model from above often led the ovserver to believe that the layout was good whereas to the person in the street, the view was not at all satisfactory. In the layout, Diagram 6, the repetition of the loop roads may appear very monotonous to the person travelling down the main approach road from north to south, but in actual fact this is not the case. Firstly, there are six different blocks of housing and these are further relieved by two shopping centres and a large park strip. Secondly the ground formation is such that some roads offer a complete vista through to the park strip or to a church, school or creche, whereas others provide a short view terminating on a rise in the road. By January 1952, the layout of the area north-west of the railway lines was completed and approved by the Town Council, the National Housing and Planning Commission and the Department of Native Affairs. This section was divided into two residential areas, each containing a primary school, shopping centre, churches and nursery schools, and having a focal point in a common community hall, tennis courts, sports stadium and provisional swimming bath area. The area was for mixed development to study whether an incentive could be produced to induce the families to move from the lower income housing towards the more attractive economic housing by improving their efficiency and obtaining higher wages.

The next two areas developed were, firstly, the experimental row of terraced housing area south of the railway line and, secondly, the area to the east. (See Diagrams 6 and 7). These areas were planned as residential, each possessing a primary school but were planned as one class layouts. Their proximity to the civic centre meant that shops were not essential in the row house layout but a small centre was provided in the eastern area. The eastern section also made provision for a few single quarters, and special trading sites. Once again unsuitable ground determined the positioning of open spaces which, in the case of the area adjacent to the railway line, is important as a future halting place, should the mines close and the railway line not be required any longer. This line links the S.A.R. system and could, by means of a few modifications be used for passenger trains to all the industrial areas of the town. In the meantime a bus service forms the main system of transportation.

The hospital site was moved out of the first neighbourhood, as the existing European hospital, located about a mile from Kwa-Thema, was converted into a Native hospital during 1951. In addition, Springs purchased an area of ground for a T.B. settlement, and the original idea of having an isolation settlement attached to a sub-regional hospital was thus proved redundant. An area is, however, still zoned for a hospital site as the present hospital is finding that its accommodation is being overtaxed.

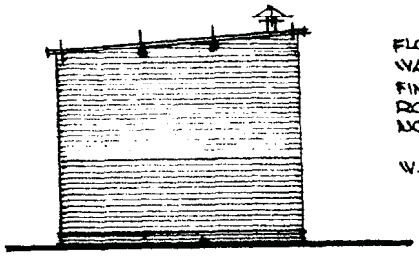
The eastern section is planned to form part of the civic centre which is positioned immediately to the south. The area provides stables for those traders who require horse transport and also provides sites for 'on site traders' such as coal merchants, building contractors, shoemakers and the like. These sites are immediately linked to the stables so that animals can be controlled and inspected when necessary. The whole neighbourhood is surrounded by a 600'-0" buffer strip in accordance with the requests of the Department of Native Affairs, and, although expensive, this area adds greatly to the feeling of freedom and space which one obtains in the township.



· ½" SECTION OF SPRINGS' SUB-SUB-ECONOMIC HOUSE ·

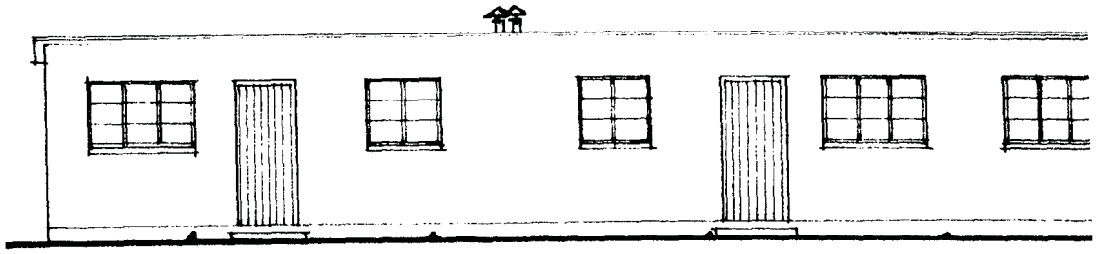
SPRINGS.

S P R I N G S.

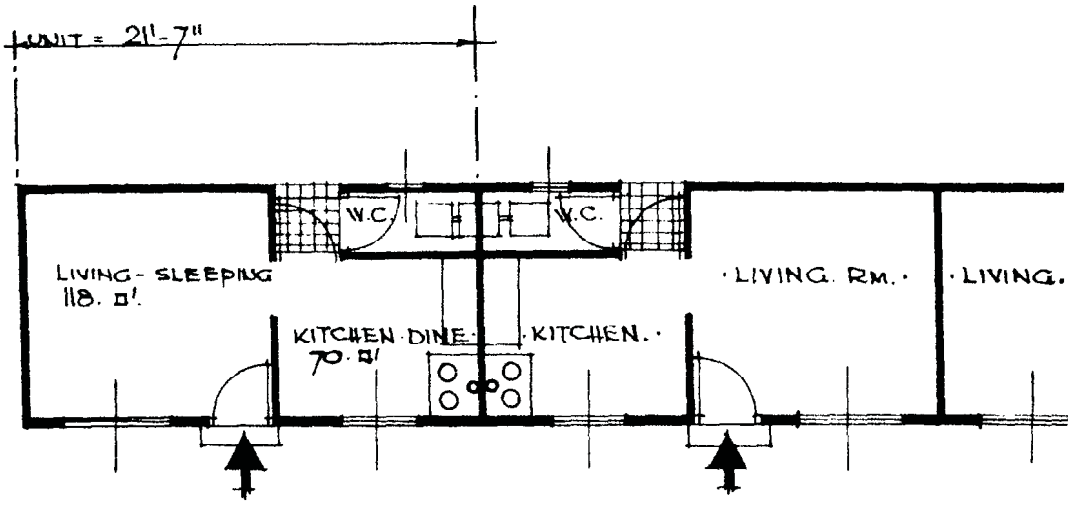


FLOOR : EARTH IN LIVING ROOM REMAINDER CONC.
WALLS : 4½" STOCK BRICK.
FINISH : BAGGED INTERNAL.
ROOF : C.G.I. ON 4½" x 3" PURLINS.
NO CEILING, BUT STOVE, WORK TOP & ASBESTOS SHELVING PROVIDED.
W.C. OFF PORCH.

· SIDE ELEVATION. ·



· FRONT ELEVATION. ·

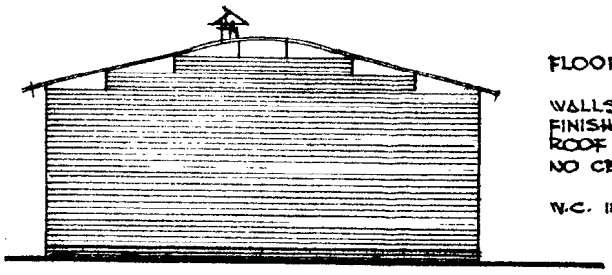


· PLAN. · SCALE. 1 INCH TO 8 FEET. · AREA 244 SQ.F

· ONE ROOMED ROW HOUSE. ·

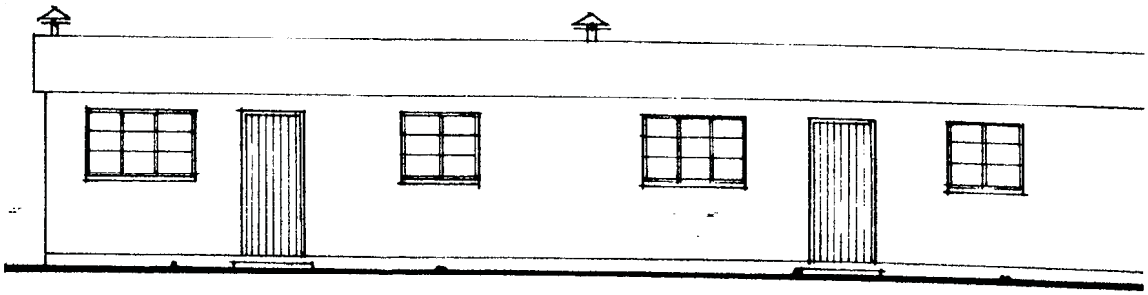
· SUB - SUB - ECONOMIC. ·

S P R I N G S. .

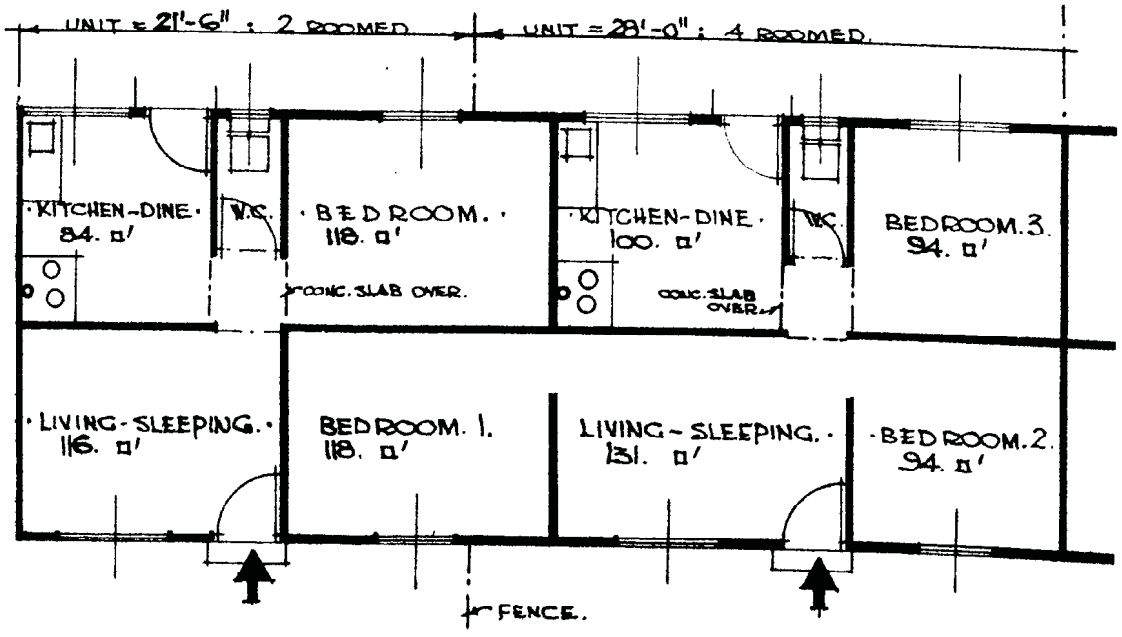


FLOOR : EARTH WITH CONC. IN KITCHEN W.C, AND PASSAGE.
WALLS : 4½" STOCK BRICK.
FINISH : BAGGED INTERNAL.
ROOF : C.G.I. OR ASBESTOS.
NO CEILING, BUT STOVE, SHELVING & CONC SLAB PROVIDED.
W.C. INTERNAL.

. SIDE ELEVATION. .



. FRONT ELEVATION. .

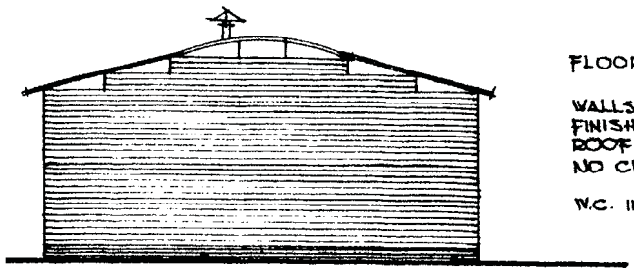


. PLAN. . SCALE 1 INCH TO 8 FEET . AREA = 626 SQ.FT & 382 SQ.F

2 & 4 ROOMED ROW HOUSE. .

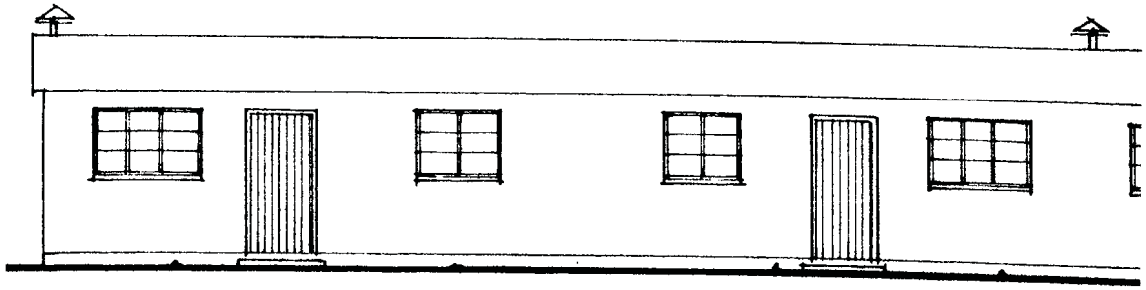
. SUB-SUB-ECONOMIC. .

· S P R I N G S. ·

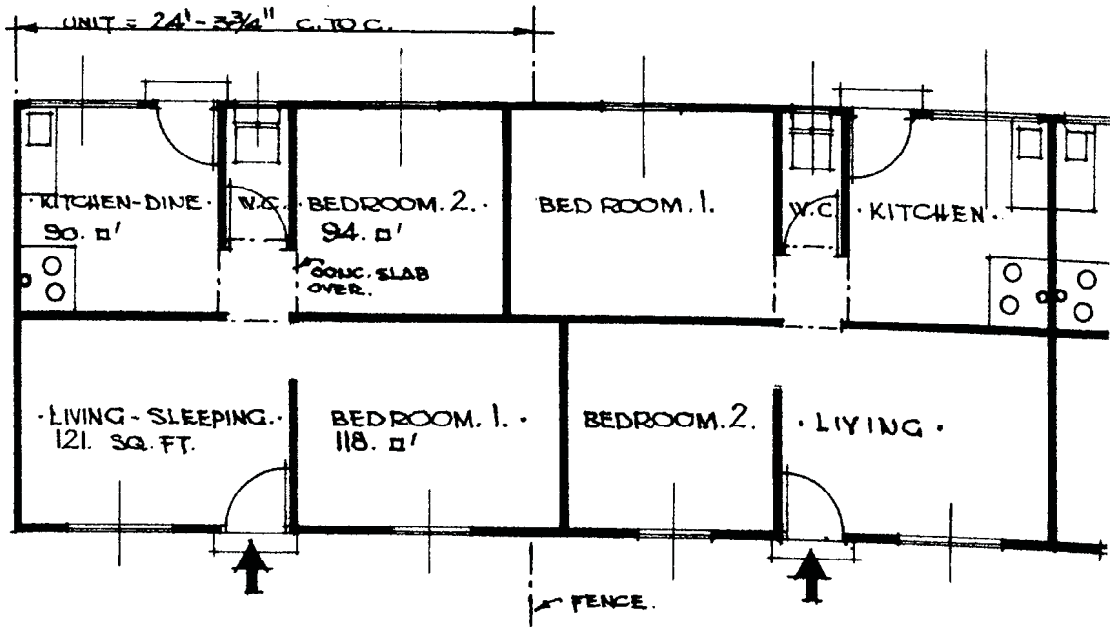


FLOOR : EARTH EXCEPT IN KITCHEN & W.C. WHERE CONC. SLAB.
WALLS : 4½" STOCK BRICK
FINISH : BAGGED INTERNAL.
ROOF : C.G.I. OR ASBESTOS.
NO CEILING, BUT STOVE, SHELVING & CONC. SLAB PROVIDED.
W.C. INTERNAL.

· SIDE ELEVATION. ·



· FRONT ELEVATION. ·

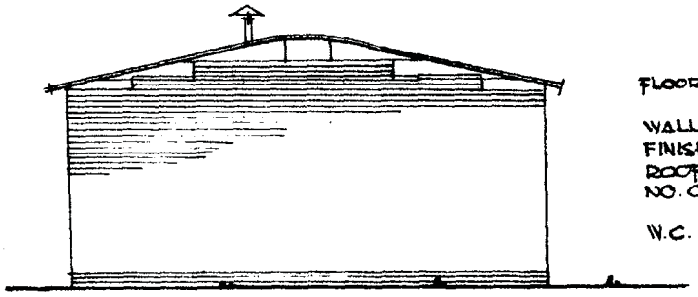


· PLAN. · SCALE 1 INCH TO 8 FEET. · AREA = 499 SQ. FT.

· THREE ROOMED ROW HOUSE.

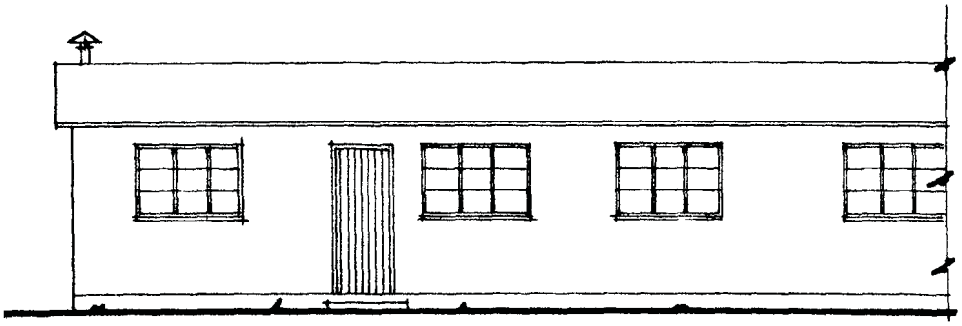
· SUB - SUB - ECONOMIC. ·

· S P R I N G S. ·

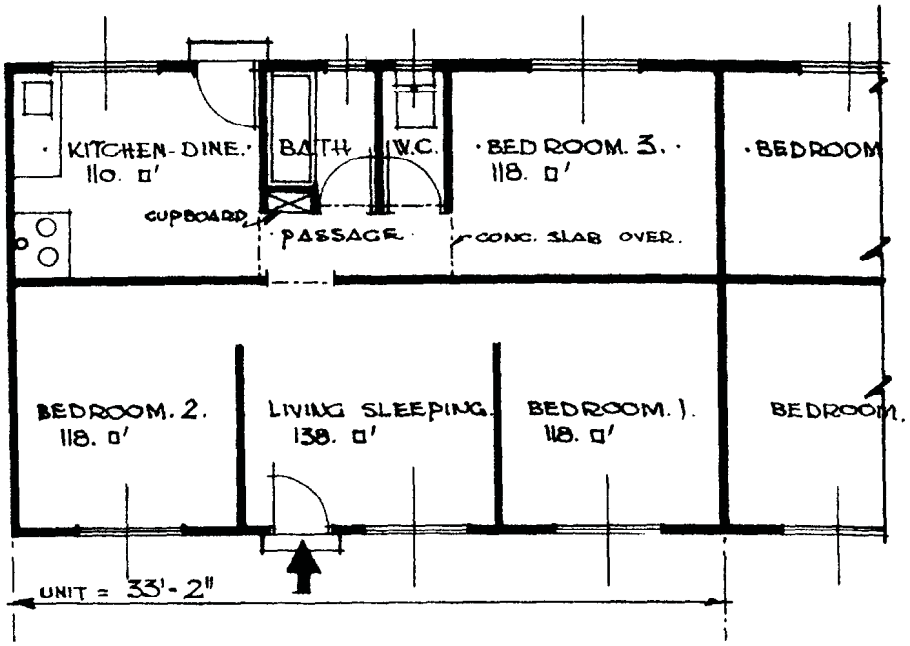


FLOORS : EARTH WITH CONC. SLAB TO KITCHEN, BATH, WC. & PASSAGE.
WALLS : 4½" STOCK BRICK.
FINISH : BAGGED INTERNAL.
ROOF : C.G.I. OF ASBESTOS.
NO. CEILING BUT STOVE, SINK & ASBESTOS SHELVES PROVIDED.
W.C. INTERNAL.

· SIDE ELEVATION. ·



· FRONT ELEVATION. ·



· PLAN. · SCALE 1 INCH TO 8 FEET. · AREA 744 SQ.FT.

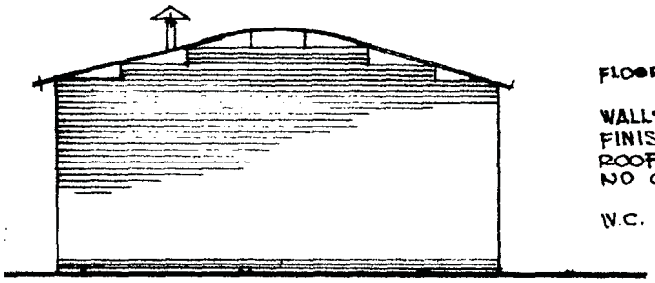
· FIVE ROOMED HOUSE ·

· THIS HOUSE ACCOMMODATES 11 PERSONS.

· SUB-SUB-ECONOMIC. · ALL BEDROOMS 118 SQ.FT.

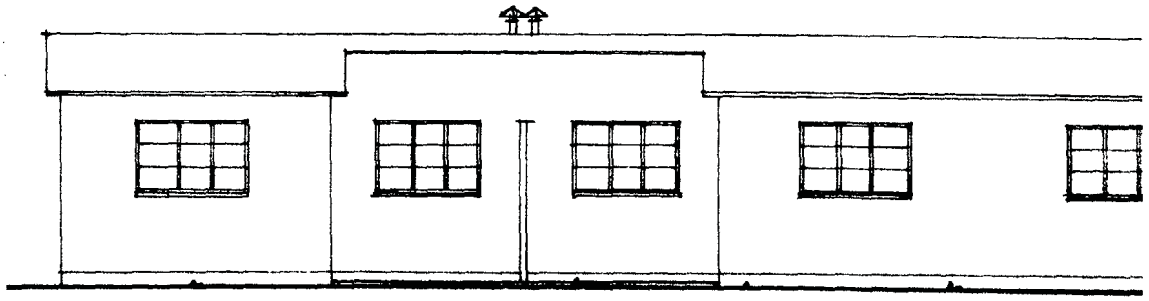
FIGURE NUMBER : 66

S P R I N G S.

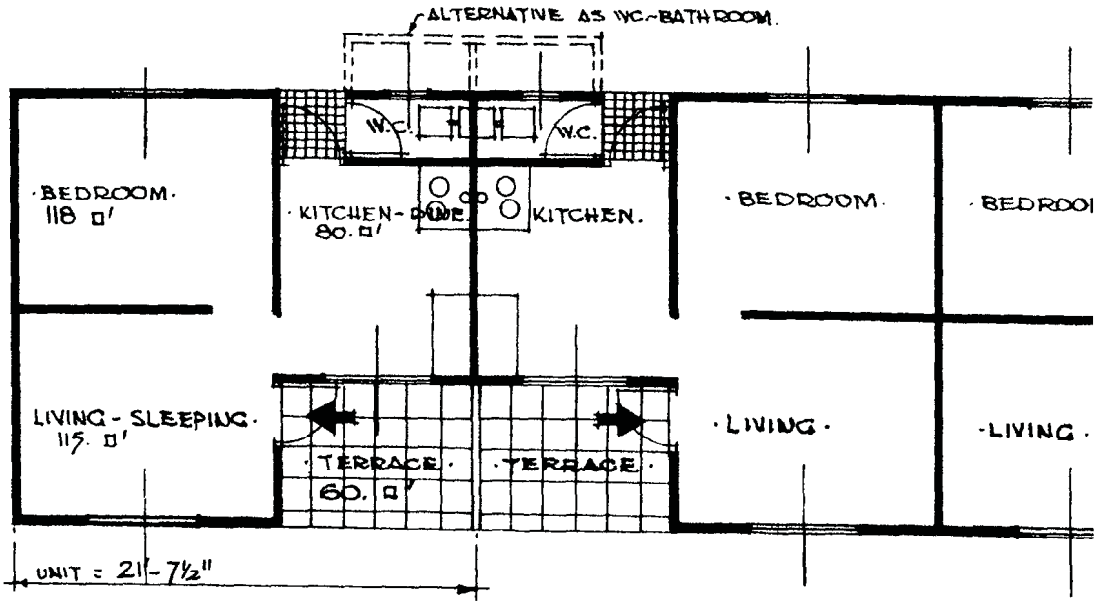


FLOORS : EARTH WITH CONC. SLAB TO KITCHEN, W.C., & BACK PORCH.
WALLS : 4½" STOCK BRICK.
FINISH : BAGGED INTERNAL.
ROOF : C.G.I. OR ASBESTOS.
NO CEILING. STOVE, ASBESTOS WORK TOP SUPPLIED.
W.C. INTERNAL.

· SIDE ELEVATION ·



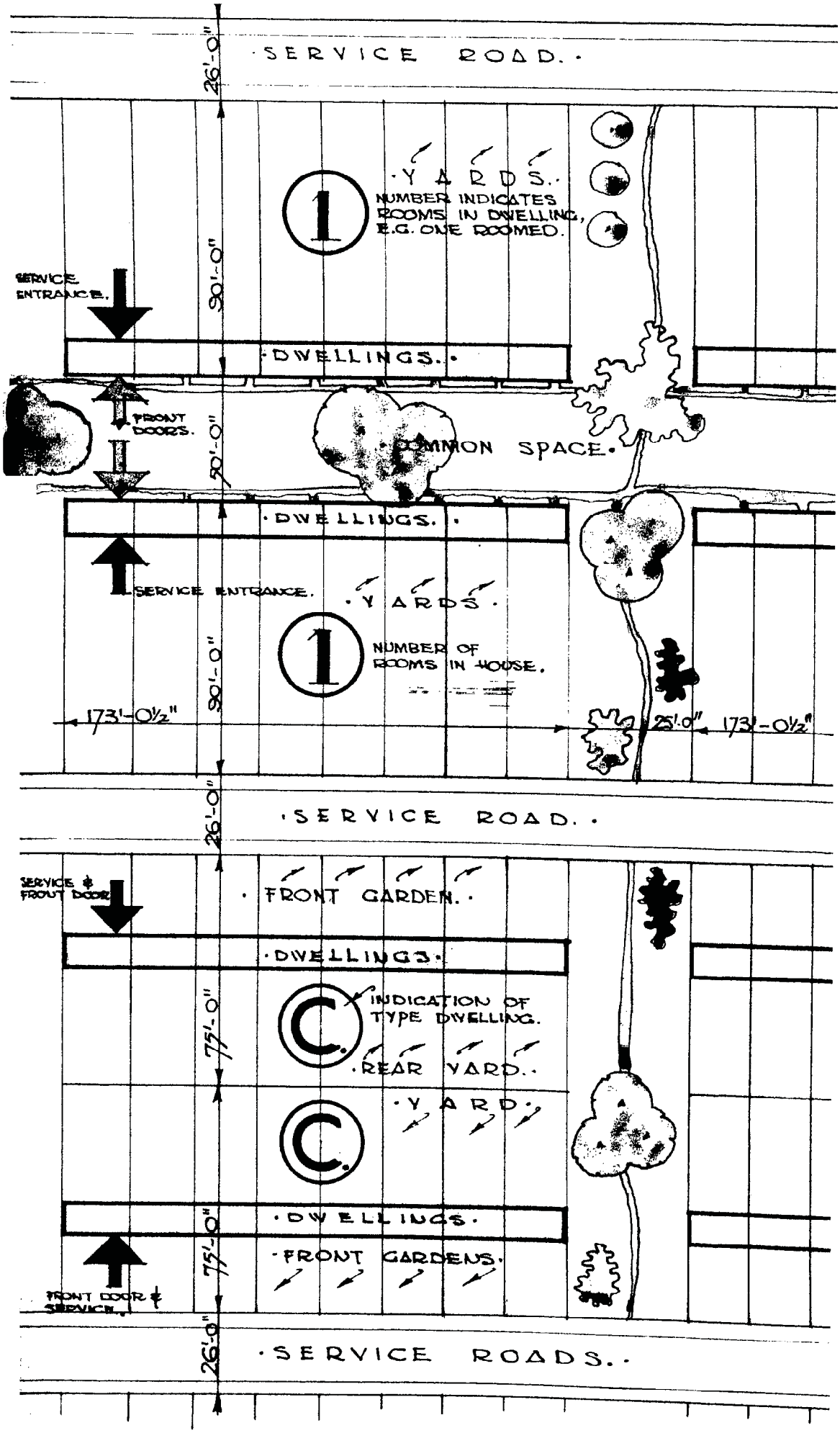
· FRONT ELEVATION. ·



· P L A N. · SCALE 1 INCH TO 8 FEET. · AREA 387.5 SQ.

· TWO ROOMED HOUSE

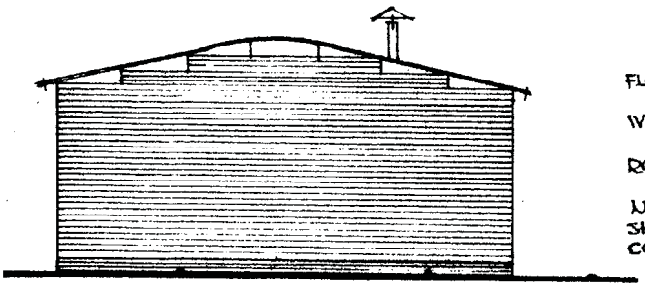
· SUB- SUB- ECONOMIC.



A N. · SCALE 1 INCH TO 40 FEET. ·

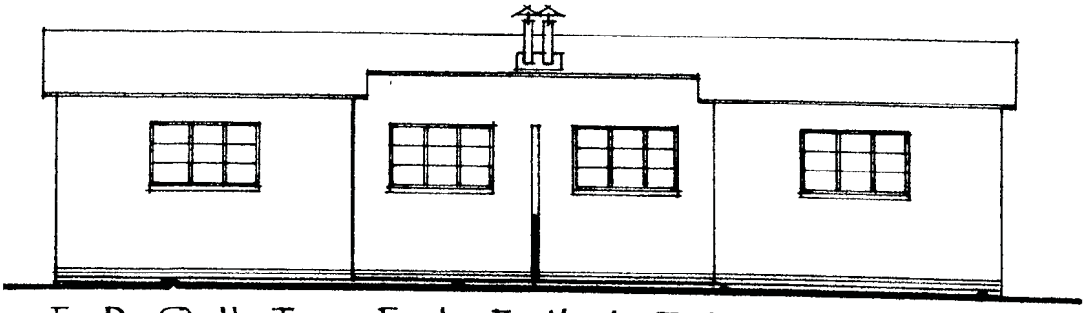
)W HOUSES SPRINGS. · ALTERNATIVE LAYOU

S P R I N G S. .

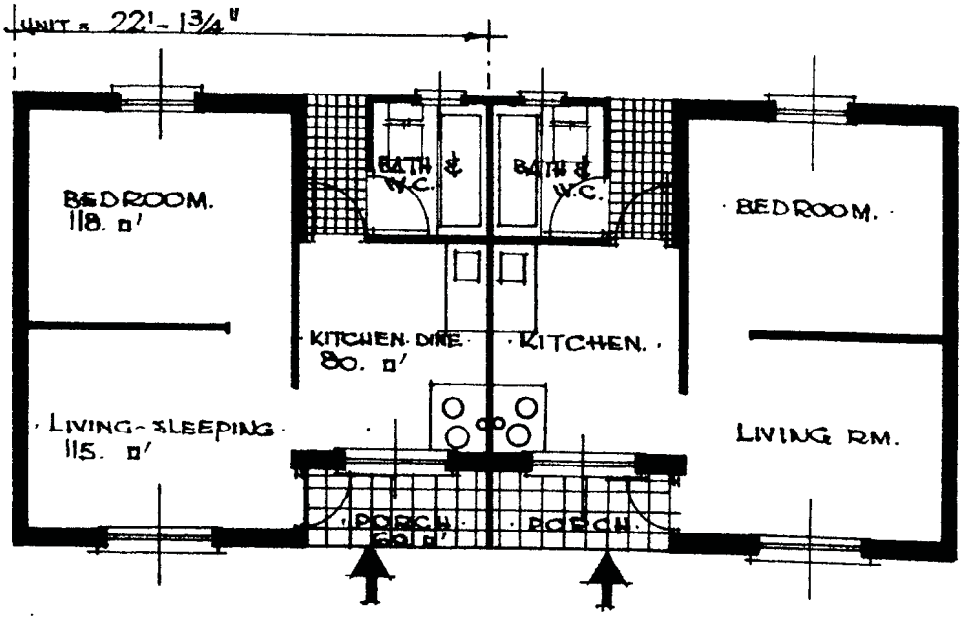


FLOOR : EARTH EXCEPT IN KITCHEN, BATH & BACK PORCH WHERE CONC.
WALLS : 9" EXTERNAL & 4½" INTERNAL & BAGGED INSIDE. STOCKBRICK.
ROOF : C.G.I. OR ASBESTOS ON 4½"x3" PURLINS.
NO CEILING. STOVE & ASBESTOS SHELVING PROVIDED. W.C. INTERNAL. CONC. WASH TROUGH EXTERNAL.

· S I D E E L E V A T I O N. ·



· F R O N T E L E V A T I O N. ·



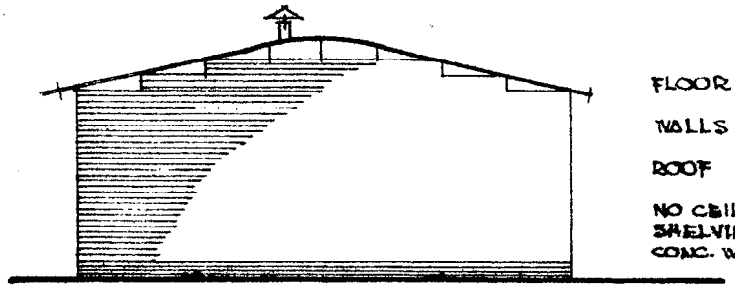
· P L A N. · SCALE 1 INCH TO 8 FEET. · AREA. 470 SQ. FT.

· TWO ROOMED SUB-ECONOMIC · HOUSE. IT IS SUITABLE AS A ROW · OR SEMI-DETACHED UNIT.

· AS SEMI-DETACHED UNIT MINIMUM STAND FRONTAGE = 35'-0" .

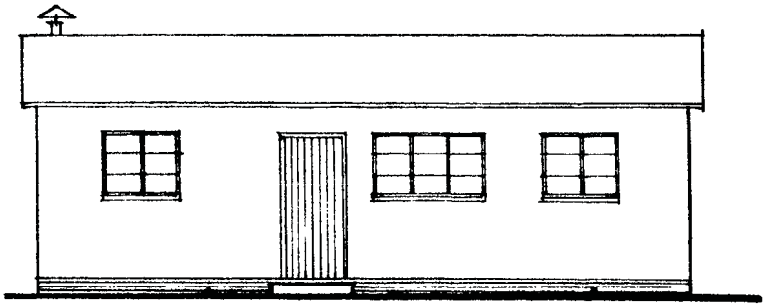
FIGURE NUMBER : 69

S P R I N G S. ·

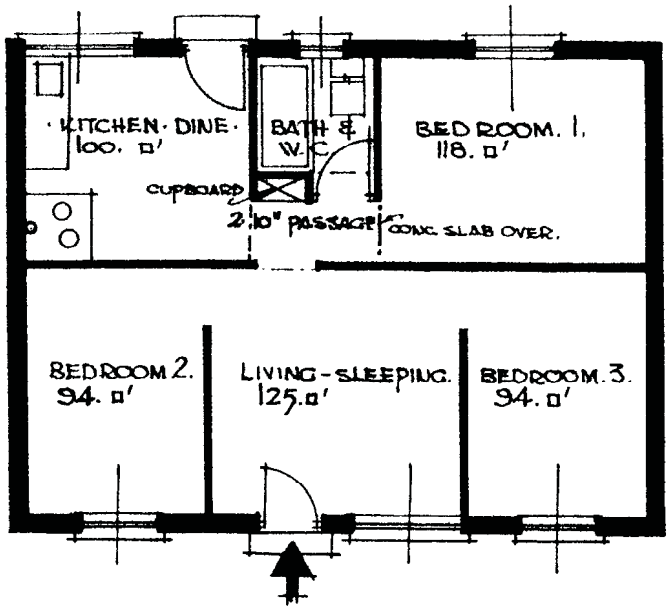


FLOOR : EARTH EXCEPT IN KITCHEN BATH & PASSAGE WHERE CONC.
WALLS : 9" STOCKBRICK EXTERNAL & 4½" INTERNAL. BAGGED.
ROOF : C.G.I. OR ASBESTOS ON 4½" x 3" PURLINS.
NO CEILING. STOVE & ASBESTOS SHELVING PROVIDED. W.C. INTERNAL. CONC. WASH TROUGH EXTERNAL.

· SIDE ELEVATION. ·



· FRONT ELEVATION. ·

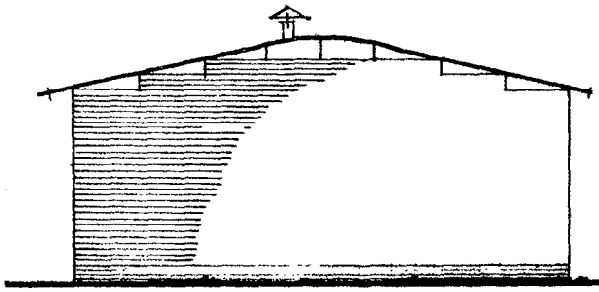


· PLAN. · SCALE 1 INCH TO 8 FEET : AREA 700 SQ.F

· FOUR ROOMED SUB-ECONOMIC
· HOUSE. IT IS SUITABLE AS A ROW
· OR SEMI-DETACHED UNIT.

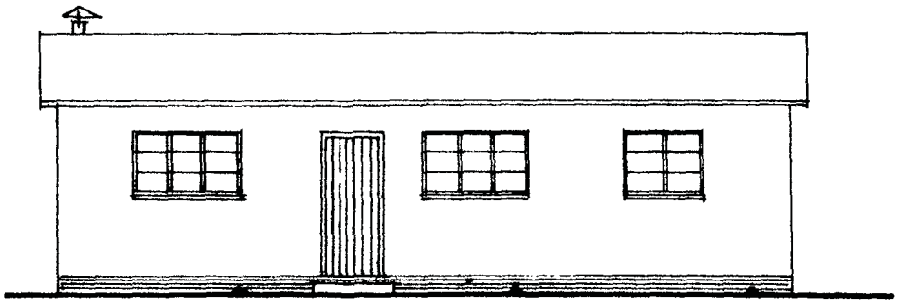
· AS SEMI-DETACHED UNIT MINIMUM STAND FRONTAGE 40'-0"

S P R I N G S. .

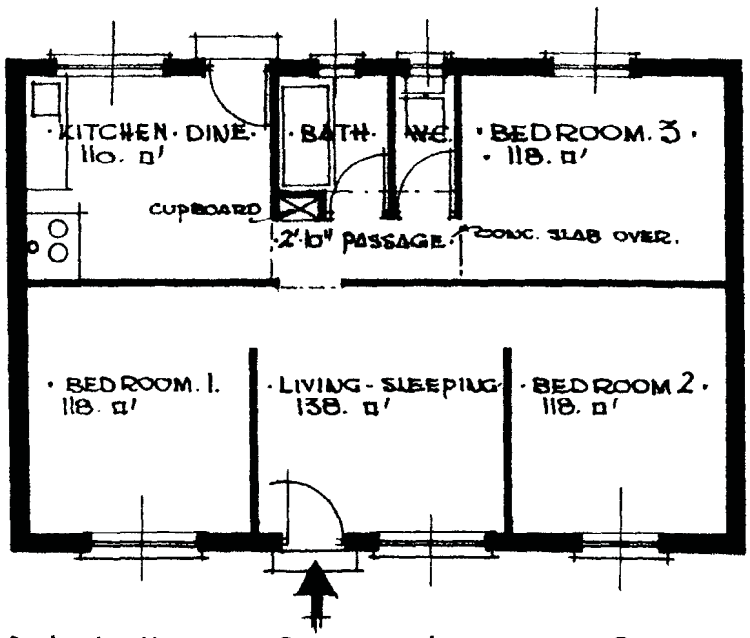


FLOOR : EARTH EXCEPT IN KITCHEN, BATH W.C. & PASSAGE WHERE CONC.
WALLS : 9" STOCK BRICK EXTERNAL & 4½ INTERNAL. BAGGED INTERNALLY.
ROOF : C.G.I. OR ASBESTOS ON 4½" x 3" PURLIN RAFTERS.
NO CEILING. STOVE & ASBESTOS SHELVES PROVIDED. W.C. INTERNAL.
CONC. WASH TROUGH EXTERNAL.

. SIDE ELEVATION. .



. FRONT ELEVATION. .



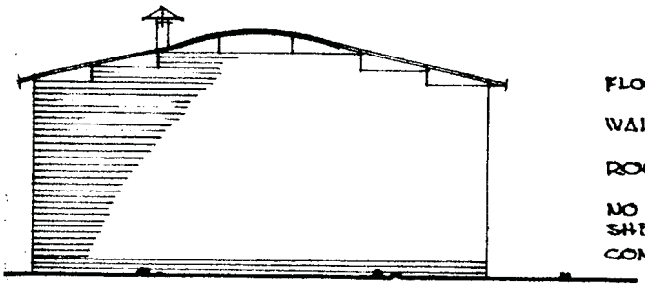
. PLAN. . SCALE 1 INCH TO 8 FEET. . AREA 788 SQ. FT.

. FIVE ROOMED SUB-ECONOMIC
. HOUSE. AS ROW OR SEMI-DETACHED.
. IT ACCOMMODATES 11 PERSONS. .

. AS SEMI-DETACHED UNIT MINIMUM STAND FRONTAGE 45'-0"

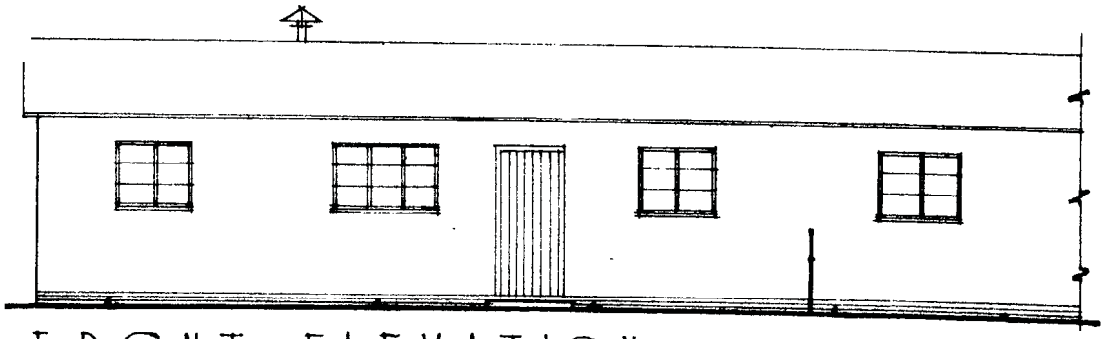
FIGURE NUMBER: 71.

SPRINGS.

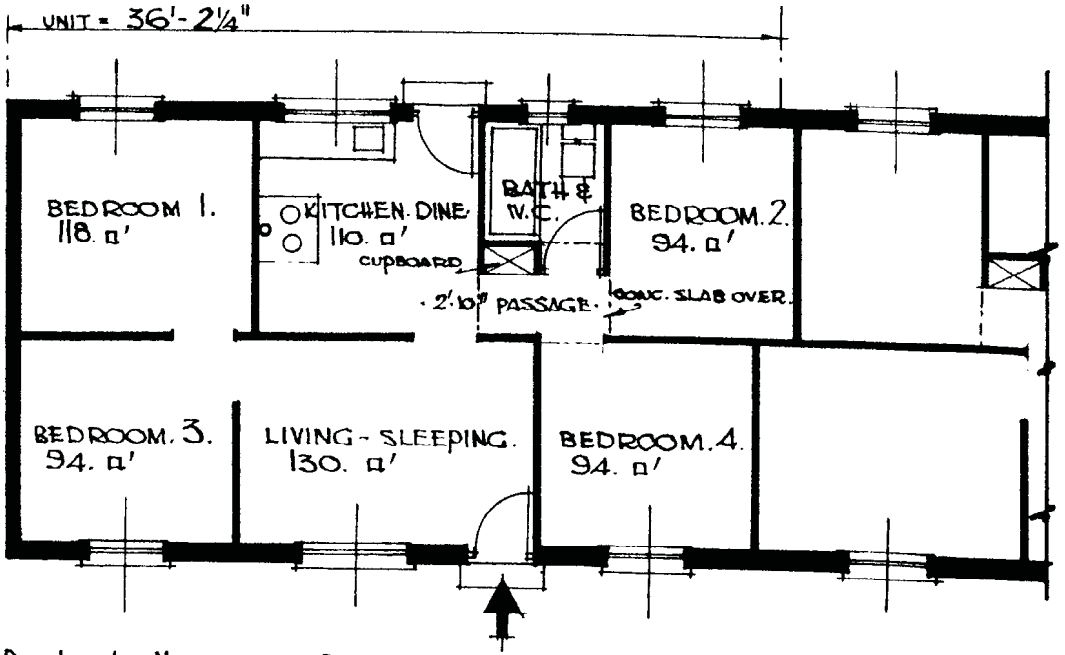


FLOOR : EARTH EXCEPT KITCHEN, BATH & PASSAGE WHERE CONCRETE
WALLS : 9" STOCKBRICK EXTERNAL & 4½" INTERNAL. BAGGED.
ROOF : C.G.I. OR ASBESTOS ON 4½" x 3" PURLINS.
NO CEILING. STOVE & ASBESTOS SHELVING PROVIDED. W.C. INTERNAL.
CONC. WASH TROUGH EXTERNAL.

SIDE ELEVATION.



FRONT ELEVATION.



PLAN. · SCALE 1 INCH TO 8 FEET. · AREA 770 SQ. FT

FIVE ROOMED SUB-ECONOMIC HOUSE. IT IS SUITABLE AS A ROW OR SEMI-DETACHED UNIT.

AS SEMI-DETACHED UNIT MINIMUM STAND FRONTAGE IS 45'-0"

produced so that owners could select the house type they desired or submit a plan of their own design for approval. These houses would only satisfy about one third of the economic group or about 10% of the total Native families in the survey. This proportion is based upon the fact that the secondary poverty datum line does not include any expenditure upon furniture, household utensils, medicines etc: therefore, to determine the families who can afford these truly economic houses, the poverty datum line was multiplied by 1½ and applied to the histograms of the Payneville social survey*. By applying this method it was also ascertained that in this group the largest house would only require to be of the three bedroom type, as the number of families over the size of 7 persons falling into this upper economic group was very small. Figures 74 to 83, show examples of the house types prepared for the upper economic group.

RELATIONS WITH THE NATIVE POPULATION.

Contact was maintained with the inhabitants of Payneville during all the planning stages since the planning team was working in conjunction with the advisory board and the Manager of non-European affairs. The Manager published a weekly news sheet which was distributed among the inhabitants of Payneville, and by this means items of interest were brought to the notice of the people. As the planning developed, contact was made with the advisory board and copies of the plans supplied for them to study. As the work progressed, an exhibition was arranged and in order to obtain funds it was suggested that a stall be erected at the East Rand Industrial Show. This was approved and a sum of money was voted which enabled the exhibition to become a reality. The exhibition stall was designed as a prefabricated unit so as to facilitate dismantling and subsequent erection. The advisory board room was converted into an exhibition hall and a Native social worker was given full instructions and placed in charge. A book was supplied in which the public who visited the exhibition could write their opinions, and the show was opened by the Mayor.

The planning team waited for reactions and for the first two days not much happened; then the visitors and school children started arriving. The visitors book was signed and comments made, but out of all the entries only two were critical and both of these were constructive. The exhibition has been a greater success than anyong had dreamt possible. The exhibition had aroused the attention of the Europeans and it was moved to the public library so that more people could view it. The Natives approached the Manager of non-European Affairs in order that special buses might be run out to the new township during the weekends so they could see for themselves what was being done. It became a weekend feature and the buses were filled with families who spent a day picnicking amid the new buildings.

The people began to feel that they were part of this new town and were proud of it even before they took occupation.

PLANNING THE CIVIC CENTRE.

The planning team considered the layout of a civic centre at an early stage so that it could be gradually developed as the township was built up. It was a very difficult task to establish the form that this

centre / ...

---

* Housing Estates - a study of Bristol corporation by Rosamand Jevous and John Madge.