# AN INVESTIGATION INTO THE PLANNING OF URBAN NATIVE HOUSING IN SOUTH AFRICA.

by

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THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF ARCHITECTURE.

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## C H A P T E R IV.

## CHAPTER IV.

## THE FIRST EXPERIMENTAL TOWN - WITBANK NEW NATIVE TOWNSHIP.

ABSTRACT:

This scheme, which forms part of the density research project for South Africa, attained a gross density of 5.3 dwellings per gross acre and kept service costs down to a minimum; it is the product of teamwork which is so essential to planning.

Site organisation and success and failures of the scheme are discussed.

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REFERENCE DIAGRAMS.

Diagram 1. Preliminary layout of Witbank's new Native Township.
Diagram 2. Layout of Experimental Row Houses.
Diagram 3. Final layout of Witbank's new Native Township.

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As a result of the rapid suburban sprawl at present taking place in the larger urban areas of South Africa and the need to study the unseen service costs in estate layouts, the National Building Research Institute has been investigating the possibilities of increasing densities, as discussed in Chapter II.

The importance of providing a good environment and adequate amenities became obvious as the density was increased, and the need for developing practical schemes on an experimental basis appeared the most satisfactory way of producing conclusive findings to these problems. The process of experimental layouts considered was one whereby density was increased gradually, stage by stage, until the maximum, at minimum development costs, was obtained.

The Witbank new Native township is the first of these experimental layouts. At a meeting held in September, 1949, the Town Engineer of Witbank approached the National Building Research Institute to assist in increasing the densities in a proposed Native township within the Municipal area. The area, some 290 acres in extent, had been planned by the Witbank Municipality in accordance with the space provisions of the report on 'Estate Planning' by a sub-committee of the Research Committee on Minimum Standards of Accommodation. The plan had been submitted to the National Housing and Planning Commission for approval, who had expressed the opinion that the density of 3.9 dwellings/acre was too low. They therefore recommended that the National Building Research Institute

should / ...

should be contacted and asked to ascertain whether it would be possible to increase the gross density* to at least the 5 dwellings/acre, suggested in the abovementioned report.

During discussions with the Town Engineer it was decided to treat the problem purely as a current one within the financial limits of Native housing, and not to consider any buildings of two storeys or more because of lack of knowledge, both as regards the costs of such buildings and the attitude towards them of the persons to be housed. The township was to contain family units only, no provision for single quarters being made at this stage. This decision was made after studying the results of the social survey carried out in the existing Native township. The necessity of providing space for all necessary amenities was emphasized by the Town Engineer, who also stated that tree planting and development of green areas within the township must be a major consideration.

PROBLEM SET:

The problem was to develop an area of approximately 290 acres in extent, as an estate layout at a gross density of at least 5 dwellings/acre, providing for all necessary amenities in the best manner possible and using only single storey dwelling units, which must conform to the costs of present-day Native housing. All surveying and design of services, viz. sewerage, stormwater, water, roads and electricity, were to be carried out by the Witbank Municipality working in co-operation with the National Building Research Institute.

The solution was therefore to be the work of a team consisting of the Town Engineer and his staff, the Location Superintendent, The Director of Parks and Estates, the technical staff of the National Housing and Planning Commission and the architectural staff of the National Building Research Institute. During the design stages, the National Building Research Institute would lead the work, whereas during construction the Town Engineer would assume control.[1)]

SURVEY / ...

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* Gross density is the number of dwelling units per acre of total neighbourhood land and is obtained by dividing the total number of dwelling units by the total area of the site in acres.

1) Frederick J. Adams, Head of the Department of City and Regional Planning in the School of Architecture and Planning at the Massachusetts Institute of Technology: "Planning in a democracy involves effective citizen participation. The planner is only one of many technicians. Broadly speaking, he is no more important than members of a planning commission or city council, or the head of a line department. A comprehensive plan is not the creation of a master mind but is essentially a collaborative effort".

"What is needed is teamwork - teamwork between and within professional groups and between such groups and the public at large".

SURVEY OF SITE:

The site slopes down to a stream, which forms its northern and western boundaries and has a good sunny aspect and a view over the existing location. There is a small blue-gum plantation in the south-east corner, and a road, leading to the existing location in the north, cuts through the site. The north bank of the river is badly eroded, owing to the Natives keeping animals in this area, which is most unsuitable for the purpose.

In general, the site may be classified as an ideal site: its location is suitable in relation to places of work, both existing and future; the soil in general is good for foundations and water supply, waterborne sewerage and electricity are accessible to the site.

THE SOCIAL SURVEY:

The Witbank Municipality carried out a sample social survey in the existing location to ascertain what was required in respect of house sizes, population to be housed, etc. The following information was received from a sample survey of 779 families:

Average income per family - £6. 8. 8 p.m.
202 families consisting of 3 or less persons.
255 families consisting of 3 to 5 persons.
322 families consisting of 6 or more persons.

These figures give a very clear indication of the large families which have to be housed.

The total number of lodgers amounted to 684 persons, consisting of 190 male adults, 210 female adults and 284 children. The means of transport reflected a total of 330 cycles, 4 motor lorries and 6 motor cars. The stock held by the persons visited, amounted to 122 cows, 58 oxen, 58 sheep or goats, 13 pigs, 63 horses or mules and 181 dogs. It is obvious from these figures that in such an area the provision of good roads is hardly as important as that of good grazing areas for the stock, although both need consideration. The Town Engineer himself undertook to study the problem of providing grazing lands, lest the same conditions of soil erosion should develop in the new area.

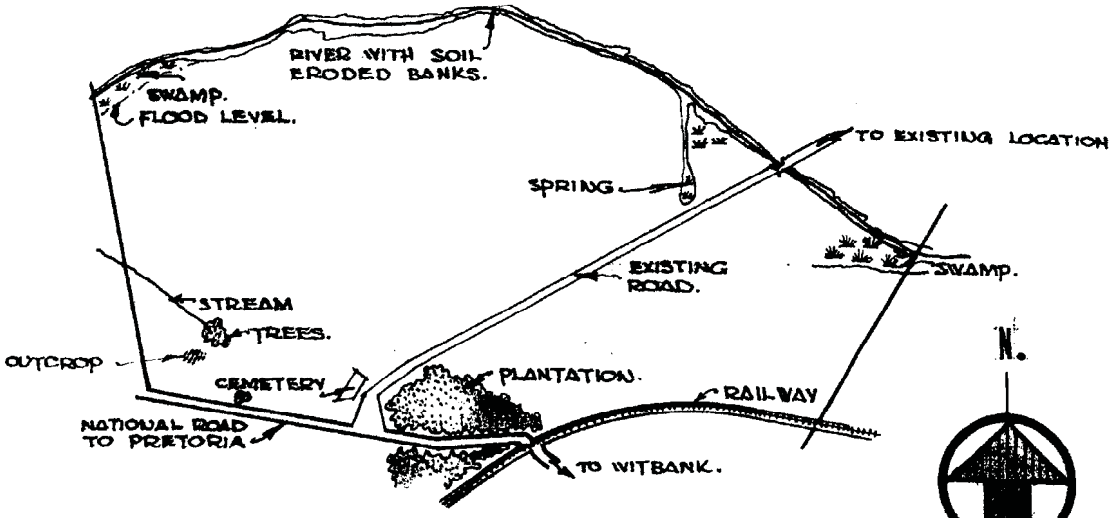
Due to its close proximity, the existing location will serve the new area in regard to beer hall, hospital services and cemetery, so that the problem is purely one of providing a residential area with schools, shops, administrative buildings, churches and market place.

The new area would need to provide about 1,500 houses to satisfy the overcrowding of the existing location.

As the author's knowledge of housing problems increased it was realised that a survey of this nature was only part of the information required. It can be seen that, although the family sizes are broken down to give the proportion of house types, the incomes of the families are treated as average. This could easily result in forcing poor families to pay rentals far in excess of their abilities, the results being either to cut expenditure on food which may cause malnutrition or to force the family to look towards sources of income which are not legal and beneficial

to / ...

# • WITBANK SITE. •




AREA OF SITE 288·3 ACRES.

## • SITE PLAN. •

SCALE: 1·15000 APPROX.

CONSIDERATIONS OF AREA. •

THE PLANTATION, SWAMPS, SOIL ERODED AREA ALONG RIVER, EXISTING ROAD, CEMETERY AND SPRING, OCCUPY 37·75 ACRES OF SITE. CONSIDERING THE SHAPE LEFT OVER ABOUT ANOTHER 14·55 ACRES ARE DIFFICULT: THIS GIVES A DEVELOPMENT AREA OF 230 ACRES.

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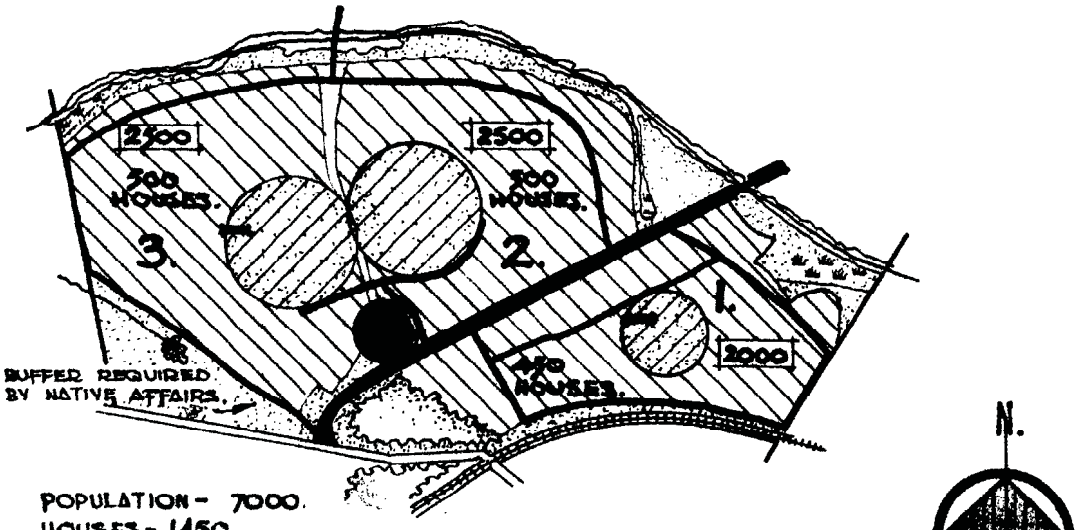



POPULATION - 7000.
HOUSES - 1450

## • ZONING DIAGRAM. •

- OPEN SPACE CAUSED BY NATURE OF SOIL, SET BACKS ETC.
- CIVIC CENTRE.
- RESIDENTIAL. FIGURE IN RECTANGLE = ESTIMATED POPULATION.
- LARGE FIGURES 1,2 & 3 DENOTE THREE RESIDENTIAL UNITS.
- OPEN SPACE PLANNED FOR SCHOOLS, PARKS ETC.
- RESIDENTIAL UNIT SHOPS: Nº 4 PER ALLOCATION.

to their good living conditions. The problem will be fully investigated when a social survey is undertaken in the future. The object of this survey is to test the validity of the planning and to obtain the success of decisions made during the planning stages. When the first four hundred families were moved from the squatting area, which was one of the best organised in the country and contained many attractive self-built houses, not one complaint was registered and the general feeling was one of being extremely glad to move.

Contact with the Advisory Board was maintained throughout the planning and development stages. Good faith was shown early in the scheme when a complaint was received by the Assistant Engineer stating that the new housing was being placed upon the existing location's golf course. The Assistant Engineer immediately obtained permission to develop the area to the west of the new township as a golf course, and spent much of his free time surveying a well-designed nine-hole course. This action was done spontaneously, but the reward of good relations and mutual co-operation has been its lasting return.

THE PLAN.

1. Zoning. The area was zoned into three housing groups or residential units, consisting roughly of 500 dwellings each, or 2,500 persons, which number is sufficient to support a junior school. (Figure 42). Each residential unit is to be developed about an open space, which will contain the school, nursery school and church sites. These open spaces were to be the lungs of the scheme and were so arranged that no dwelling would be very far removed from a green area.

A civic centre, comprising shops, administrative sites, community hall and market place, is positioned centrally to the three residential units and is so planned on the existing road as to enable easy delivery of goods to the area, without having to cut into the residential areas. As the Native people do not possess refrigerators and storage space for food is limited, two further shopping areas are provided, one in the eastern section and one in the western section, so that every dwelling is in easy reach of a store. The shopping areas are all provided with an open area in the front of the stores, where people can gather and converse during shopping hours.

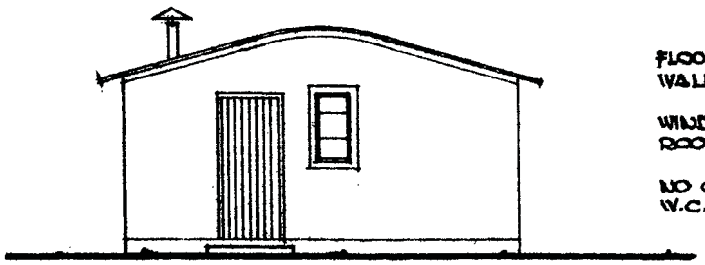
In the area lying at the side of the National Road into Witbank, a good screen was essential to keep the area quiet. The existing plantation in the south-east corner was retained for this purpose, and further west the area is zoned as park, and will be planted out with trees and shrubs. The area along the stream, being too low-lying and unsuitable for building purposes, is also zoned as parkland.

This zoning has caused the scheme to develop with central lungs surrounded by houses, which in turn are enclosed in a green belt.

2. House types. Five types of house have been selected (Figures 43 to 47) and their numbers have been related to the requirements noted in the social survey. In all, 334 two-roomed, semi-detached houses, 222 three-roomed, semi-detached houses, 138 three-roomed, experimental terraced houses, 660 three-roomed, detached houses and 156 four-roomed detached houses have been planned, forming a total of 1,510 dwellings. The types are all considered as economical from the constructional point of view, and maintenance costs ought to be very low, as walls are all built in selected stock bricks.

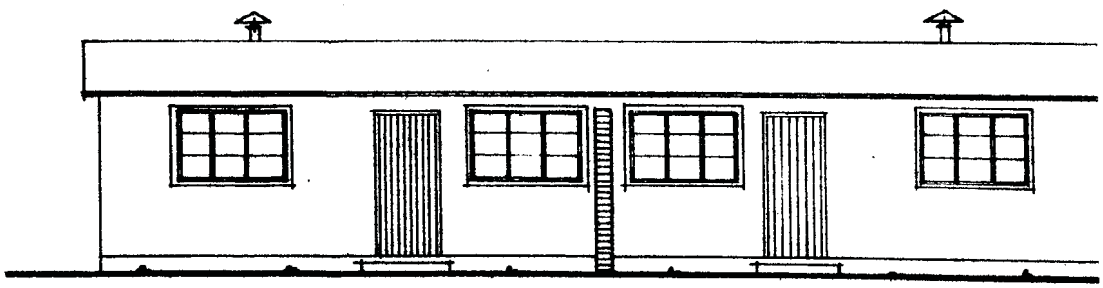
The gross density thus obtained was 5.3 dwellings/acre.

# WITBANK.

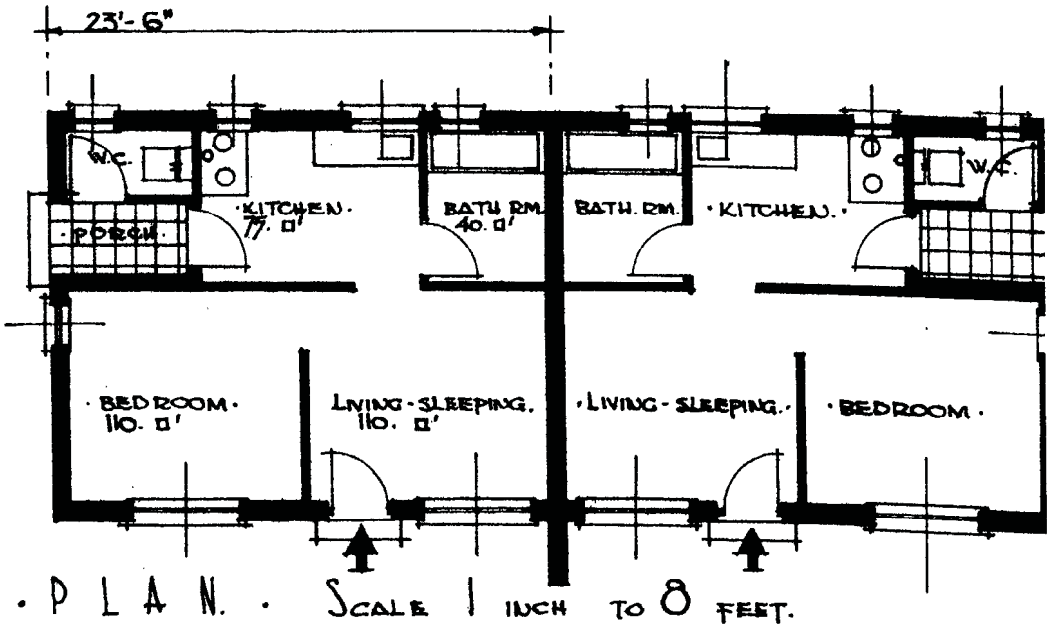


FLOOR : ASHCRETE SLAB.
WALLS : 9" STOCK BRICK EXTERNAL & 4½" BAGGED INTERNAL.
WINDOWS : STEEL SURROUND TYPE.
ROOF : CORR. ASBESTOS ON 4½" x 3" PURLINS.
NO CEILING. STOVE PROVIDED.
W.C. INTERNAL. NO BATH.

· SIDE ELEVATION. ·



· FRONT ELEVATION. ·

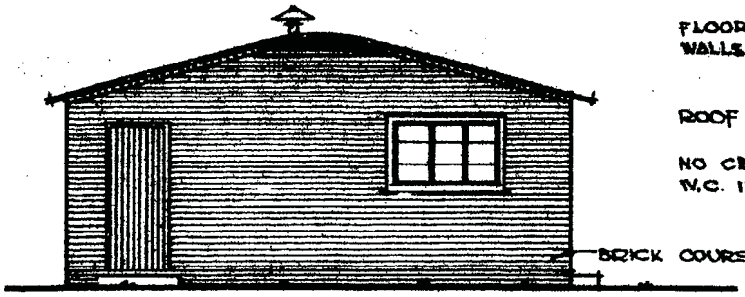



· PLAN. · SCALE 1 INCH TO 8 FEET.

# · TWO-ROOMED SEMI-DETACHED · UNIT.

· NOTE AREAS BELOW MINIMUM STANDARDS AS PLAN APPROVED PRIOR TO STANDARDS.

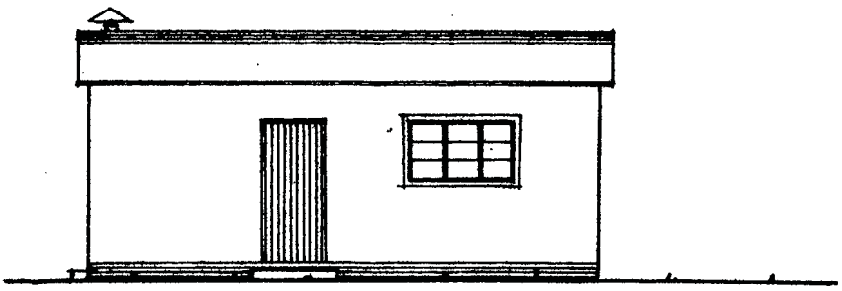
# W I T B A N K.



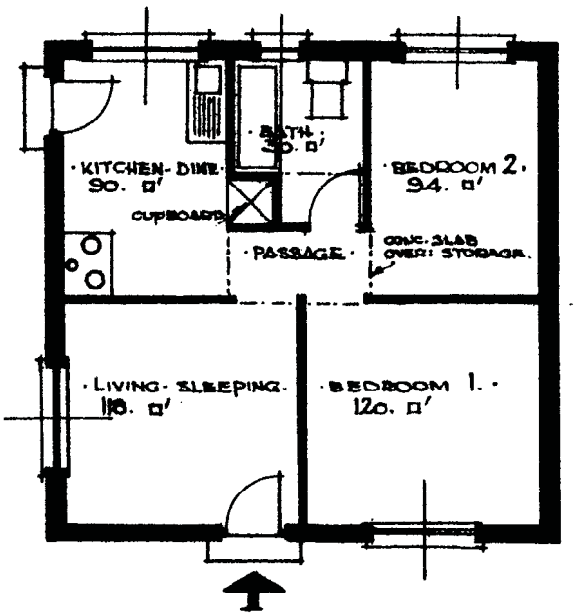
FLOOR : 3" ASHCRETE.
WALLS : 9" SELECTED STOCKS EXTERNAL, 4½" BAGGED INTERNAL.
ROOF : C.G.I. OR ASBESTOS ON 4½" x 3" PURLINS.
NO CEILINGS.
W.C. INTERNAL, NO BATH PROVIDED.

BRICK COURSES SHOWN.

. SIDE ELEVATION. .



. FRONT ELEVATION. .

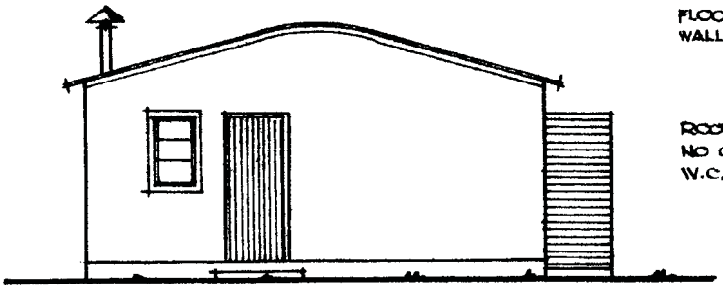



. P L A N . SCALE 1 INCH TO 8 FEET. .

. THREE ROOMED HOUSE. .

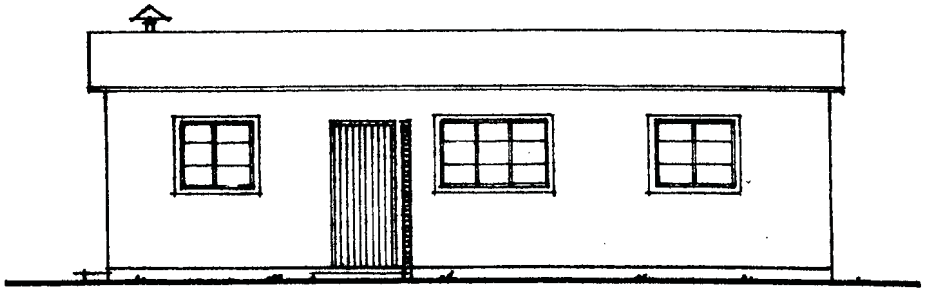
FIGURE NUMBER : 44.

# W I T B A N K. .

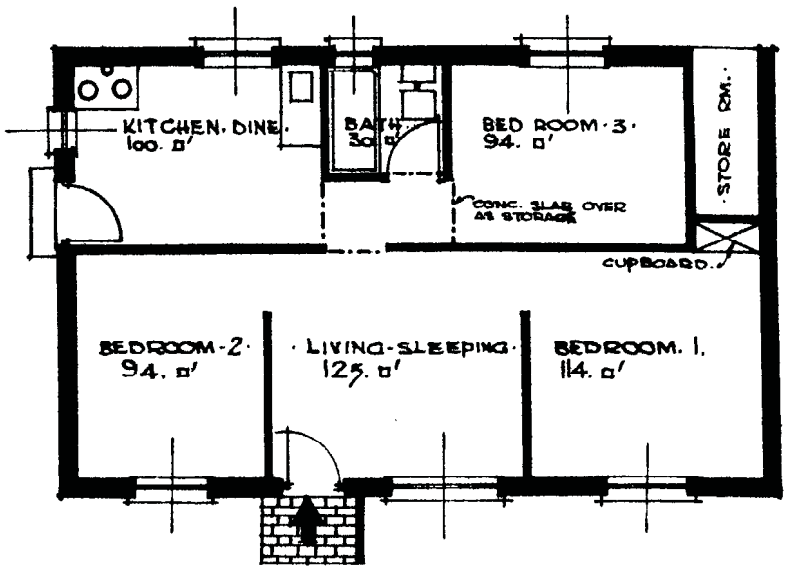


FLOOR : 6" ASHCRETE SLAB
WALL : 9" FACEBRICK EXTERNAL & 4½" STOCK BRICK INTERNAL.
ROOF : C.G.I. OR ASBESTOS
NO CEILING.
W.C. INTERNAL.

SIDE ELEVATION. .



. FRONT ELEVATION. .

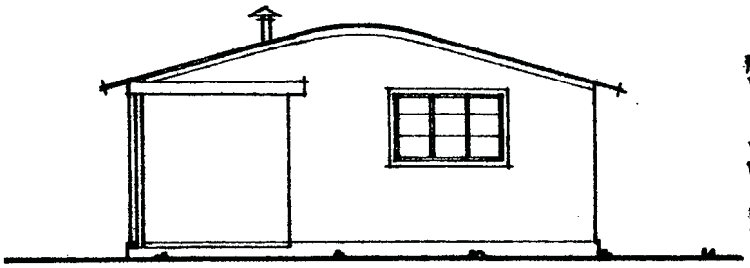



. P L A N . SCALE. 1 INCH TO 8 FEET.

. FOUR ROOMED HOUSE. .

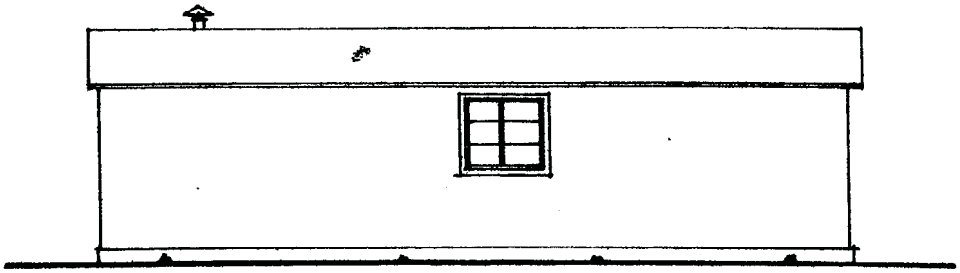
FIGURE NUMBER: 45

# · WITBANK. ·

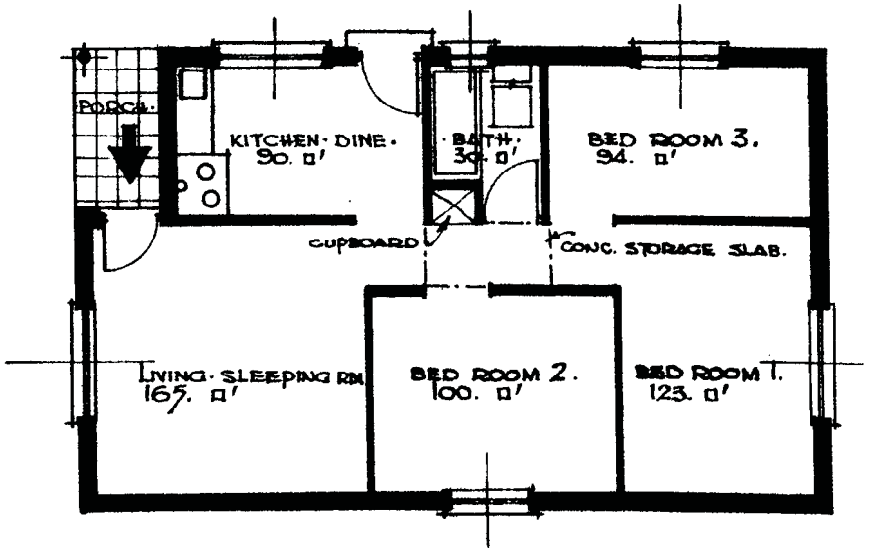


FLOOR : ASHCRETE SLAB.
WALLS : 9" STOCK BRICK EXTERNAL & 4½" BAGGED INTERNAL.
WINDOWS : STEEL SURROUND TYPE.
ROOF : CORR. ASBESTOS ON 4½"x 3" PURLINS.
NO CEILING, STOVE PROVIDED,
W.C. INTERNAL. NO BATH.

· FRONT ELEVATION. ·



· SIDE ELEVATION. ·

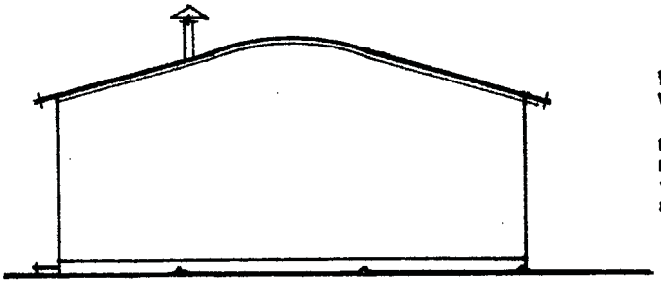



· PLAN. · SCALE: 1 INCH TO 8 FEET. ·

## FOUR ROOMED HOUSE..

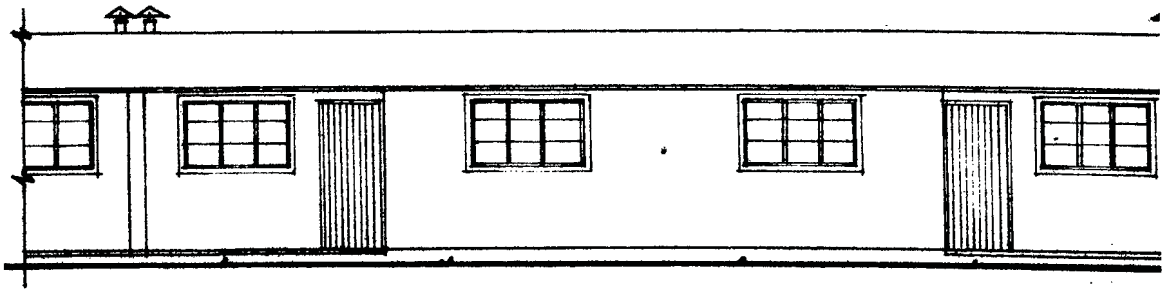
DISCARDED AS IT WAS EXPENSIVE AND THE ELEVATIONAL TREATMENT WAS UNSATISFACTORY. IT IS, HOWEVER, SUITABLE FOR A NARROW SITE.

# · W I T B A N K. ·

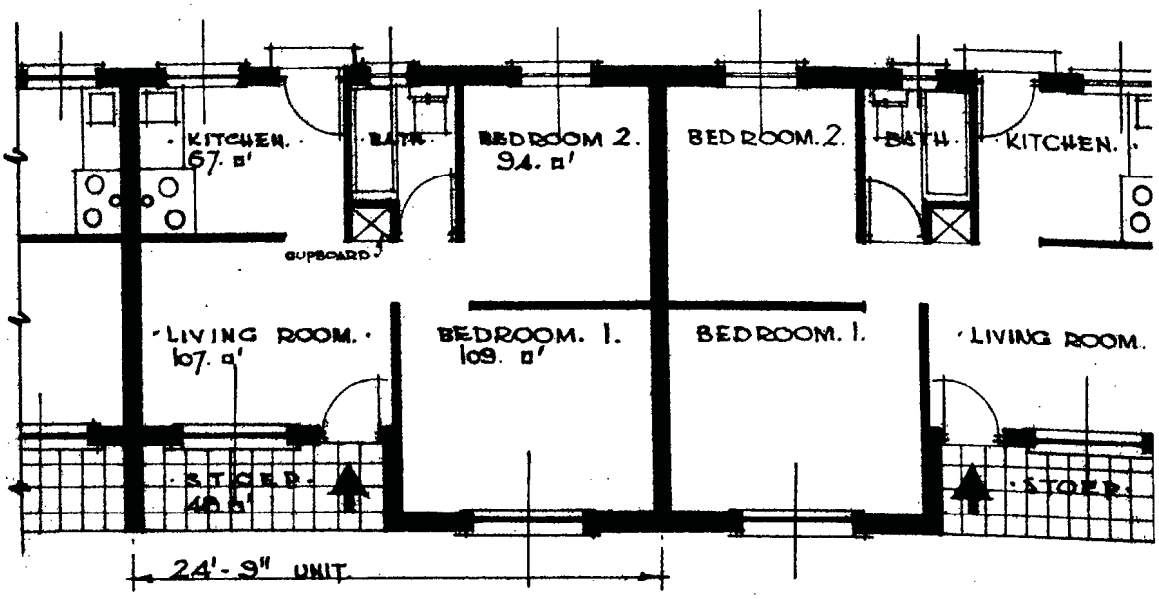


FLOOR : ASHCRETE.
WALLS : 9" STOCK BRICK EXTERNAL & 4½" BAGGED INTERNAL.
ROOF : C.G.I. ON 4½"x 3" PURLINS.
NO CEILINGS.
WINDOWS STEEL SURROUND TYPES.
DOORS. STOCK L & B.
W.C. INTERNAL.

· SIDE ELEVATION. ·



· FRONT ELEVATION. ·




· PLAN. SCALE 1 INCH TO 8 FEET. ·

· THREE ROOMED ROW HOUSE

3. Construction. It was the intention to construct the houses in rat-trap bond (bricks are built on edge-two skins of 3" with a 3" cavity, and bonding is obtained by building in an on-edge header at every 3'0" horizontally, and every 4th course vertically for external walls) and 3" brick-on-edge internal partition walls. The bricks available in the area did not allow successful construction of this type and the houses were finally built of 9" external brick walls with 4½" internal (see Figure 48). The foundations were a raft type formed in a steel shutter and of ashcrete, the internal walls were bagged, steel surrounded windows were used, doors were ledged and braced, and the roof was corrugated asbestos supported on 4½" by 3" timber purlins. In addition, tenders were invited for sand cement block construction which had to be competitive with the brick houses. One contract for 200 houses was accepted, the remaining houses being brick.

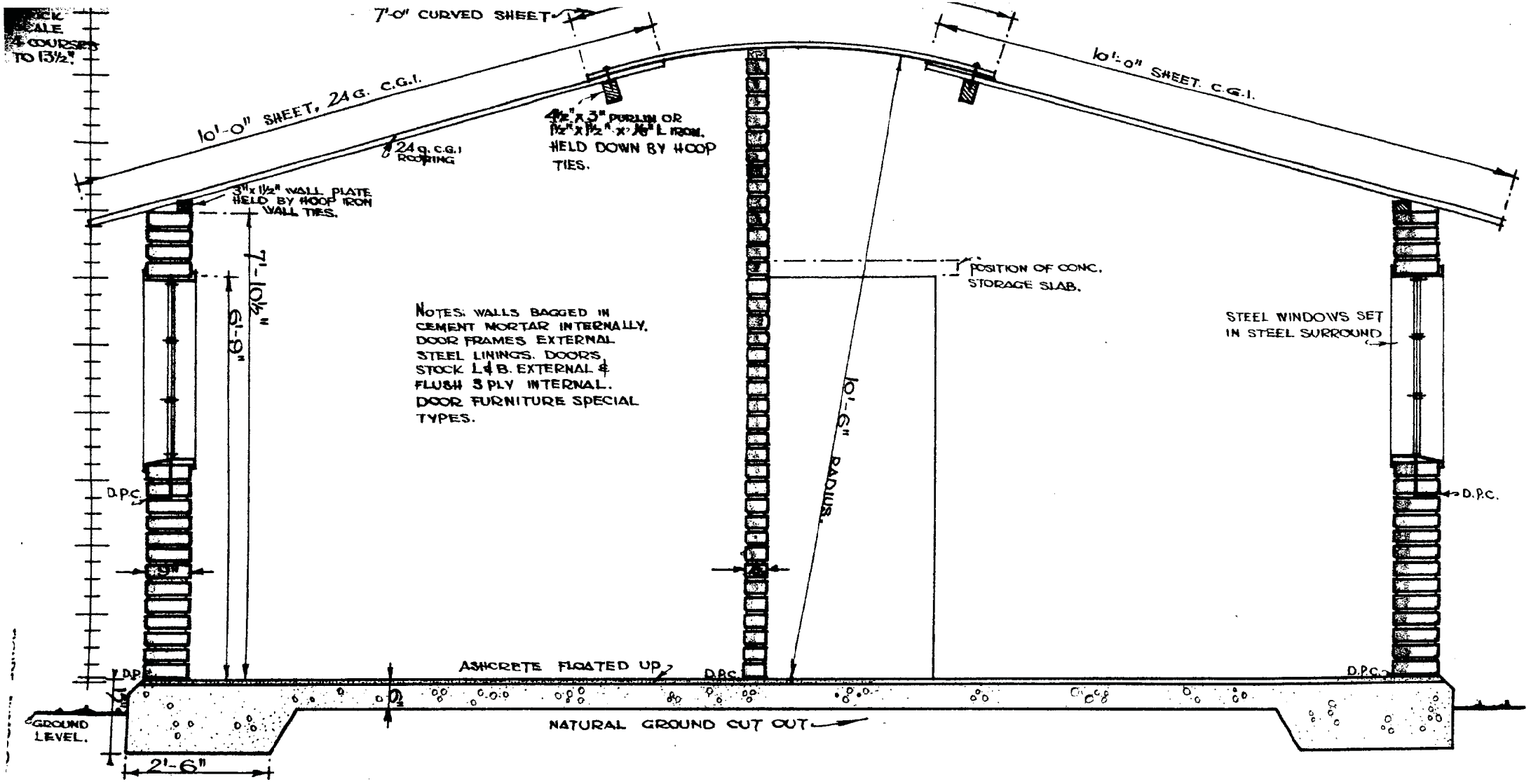
4. Layout. During the design period, the eastern section was developed first. (See photograph of model). The short 'U-loop' blocks were however found to be too uneconomical, and had to be replaced as shown in the general layout. It was interesting to find that these 'U-loop' blocks only become economical when the block measures more than 900'0" in length.

Considering the general layout, it will be seen how the existing road through the area has been treated in a formal style. The superintendent's house is enclosed in the trees of the existing plantation, with an outlook over the sports area containing tennis courts and bowling green. Further along the road, service roads are provided to separate residential and through traffic. At the civic centre, parking areas are provided and all shops are accessible from a service road in their rear. Traffic, where possible, is kept to the perimeter of the residential areas so as to keep the dwellings free from any form of through traffic.

Experimental terraced houses have been positioned north of the existing plantation. They are developed with 25' wide service roads at the rear of the houses, and a communal open space which provides pedestrian access to the front of dwellings. It is intended to construct one section first and lay out the open space in hardy grass with scattered trees and shrubs. The area will be observed, and, if successful, the remaining area will be completed on these lines. The basic reason for this experiment is that terraced houses show considerable economies which are so vital to this type of work. The savings are affected in the dual partition walls between dwellings and the fencing about dwellings, while the narrow frontages present economies in land and services. Close observation must be kept once these houses are occupied, so that further developments along these lines may be considered.

The use of land can be readily seen from the following table:-

Allocation / ...




½ INCH SECTION OF WITRANK HOUSE.

| Allocation. | Area in Acres. | Percentages. |
|---|---|---|
| 1,510 residential plots | 106.70 | 37.6 |
| 3 primary schools | 16.15 | 5.67 |
| Shops and market | 4.0 | 1.31 |
| Community centre | 1.14 | 0.42 |
| Parks | 68.97 | 24.22 |
| Sport | 3.051 | 2.04 |
| Roads | 69.646 | 24.52 |
| Churches | 3.051 | 1.1 |
| Ablution Blocks | 1.998 | 0.75 |
| Administration | 2.06 | 0.73 |
| Existing cemetery | 0.4 | 0.1 |
| Nursery schools | 2.8 | 0.97 |
| Pump station | 0.448 | 0.16 |
| Transformer sites | 0.25 | 0.07 |
| Car park | 0.982 | 0.34 |
| Totals | 284.5 | 100.0 |

The interesting figures are those of parks at 24.22% and roads at 24.52%. In the first case the area devoted to parkland is generous, so that although the density has been increased, the open space is still well looked after. In the second case it seems that, considering the quantity of traffic, this figure is one that needs careful consideration in future schemes. From analysis of several Native townships, it appears that the area devoted to roads in any scheme ranges from 25% to over 30%, and in many cases these roads are just dust traps or soil eroded gullies after a few years of use. All these observations point to investigating the possibility of planning the rows of houses at right angles to the roads, and having communal refuse bins provided at the ends of each block of houses. Waterborne sewerage is, however, essential if such layouts are to be attempted. The scheme would provide for pedestrian access only to the dwellings, and the limitation of such layouts would be the length of block in relation to comfortable walking distances.

5. Aesthetic considerations. In a layout of this nature where all the buildings are of the same height, viz. single storey, monotony is difficult to overcome and it is necessary to look to landscaping for assistance in creating aesthetic appeal. Confidence in landscaping is all-important; it does not constitute the camouflage, it is an art and should be used in the manner of art. Landscaping creates and should stimulate the senses of the observer to the point of undergoing a thrilling experience.

Garrett Eckbo in his book 'Landscape for Living' states: "To the extent that this problem of complete space organisation and co-ordination is not dominated as much by questions of specific functions, structural necessities and economics as is architecture and engineering design, the landscape development is a more purely plastic and aesthetic problem, requiring greater concentration on questions of pure form and material, and approaching somewhat closer to painting and sculpture in the freedom of its form concepts".

In this layout, landscaping has been kept in mind throughout the design, and opportunities have been provided for it in all parts of the scheme. Garrett Eckbo, further states: "People feel a need for bigger

lots because they have no secure control of anything beyond their lot. With guaranteed neighbourhood open space, community facilities, and stability, we probably wouldn't feel the need for so much private space. Most of us can't develop or maintain a half-acre lot as our private public park. But it is insulation a greenbelt - between home and an unplanned, unpredictable, chaotic world, and until we have some guarantee of controlled neighbournood planning in which we have democratic participation, we will doubtless continue moving to suburban half acres and rural acres - that is, the relative few of us who can afford it".

Studies are at present being undertaken to consider the siting of buildings, as here too monotony can be avoided. These studies consist of small scale models which will be constructed as each phase of the work proceeds. These models have proved to be the only successful way of presenting the problems and thereby solving them. Le Corbusier: "The exterior is always an interior". To sum up, in architectural esembles, the elements of the site itself come into play by virtue of their cubic volume, their density and the quality of the materials of which they are composed, bringing sensations which are very definite and very varied (wood, marble, a tree, grass, blue horizons, near or distant sea, sky). The elements of the site rise up like walls panoplied in the power of their cubic coefficient, stratification, material, etc., like the walls of a room. Walls in relation to light, light and shade, sadness, gaiety, or serenity, etc. Our compositions must be formed of these elements."

6. Services. The whole scheme has been considered from all points of view, and as the working team was aiming at one goal, namely the success of the scheme, no aspect has been omitted or suppressed. The consideration of services was investigated in every detail and the location of every manhole was considered from the economic and planning point of view. In fact, a completely new type of construction is visualised in the manholes to be used, in order to allow for rapid construction and savings in cost. The team at no time dictated a set policy, and when differences of opinion were encountered the issue was solved by visiting the site and carefully surveying the area under consideration so that the best solution could be found. The scheme is therefore one complete whole, designed in every respect to produce what the team believes to be the best results within the limitations of the scheme.

The following table gives the estimated costs of the scheme as fully developed.

| Item. | Total cost. | cost per unit. |
|---|---|---|
| Land costs ..... | £4,000 | £2.13. 0 |
| Housing costs including all development costs on site i.e. fencing, etc. | 391,820 | 272. 8. 7 |
| Water reticulation ..... | 16,729 | 12. 3. 9 |
| Sewerage reticulation ..... | 40,225 | 29. 6. 1 |
| Roads ..... | 31,271 | 22.15. 7 |
| Stormwater ..... | 4,329 | 3. 3. 1 |
| Landscaping and playing fields ..... | 6,887 | 5. 0. 4 |
| Buildings ..... | 44,624 | 31. 0. 7 |
| Electricity ..... | 12,072 | 8.16. 0 |
| Total ..... | £551,957 | £387. 7. 0 |

As / ...

As can be seen, the amount spent on housing amounts to 70% of the total cost of development. The amount allowed for buildings includes the ablution blocks, clinic, superintendent's cottage, administrative block, nursery schools and community centre. The ablution blocks are small structures, consisting of concrete wash tubs which have a constant supply of hot water. These blocks are only used for washing clothes, as each house is provided with cold water supply, stove and bath to meet conditions of personal cleanliness.

The houses have been planned for waterborne sewerage, water supply and electricity which is believed to be required in the Witbank scheme. The roads are being graded and consolidated with ash and clinker except along the existing road and in the civic centre where black top is being laid.

The team felt that the cost of £78.17. 6 per dwelling unit for full services of this nature was a very big achievement.

SITE ORGANISATION.

The first point to be considered before commencing work was the system of construction to be adopted. Towards the end of 1950, building costs were high and certain materials were in short supply. In the Witbank area the supply and cost of building sand was good and the power station could give unlimited supplies of ash which had been proved by laboratory tests to be suitable for mass concrete work where no steel reinforcing was required. Bricks were being manufactured in the area but until the one factory was extended the supply was limited. Steel windows, water piping and roofing materials were almost unobtainable and no delivery date could be given for the supply of the necessary pump for pumping sewage back to the existing main.

The services were considered in respect of an overall scheme so as to reduce off-site costs to an absolute minimum. In the case of sewage disposal, a short connection, to the old location requiring a pump station, was planned. The costs of disposal were not increased owing to the system of disposal into the largest septic tank of its kind in the Union, viz. the sewerage was pumped into a disused colliery shaft. Water and electricity were planned to serve the new cemetery, the new Native township and the new industrial sites to the north-west of the old location. This meant that, by a proportional allocation of costs, very little was debited to each scheme.

The Engineer approached the Master Builders working in the Witbank area and, after discussions in which both parties placed their cards upon the table, it was decided that large contracts demanding a continuous supply of materials were unsatisfactory: a suggestion was made that the Municipality should buy and supply materials, thereby gaining the economies of bulk buying, and the contractors should supply the labour. Further, the Engineer should undertake all site development work and the casting of the raft foundations.

In November 1950 an allocation of money from the Transvaal Provincial Administration, following approval of the scheme by the National Housing and Planning Commission, set the Engineer the task of constructing at least 120 houses by the 31st March 1951 (the end of the financial year). Each of four contractors was given 30 dwellings to construct, but the Engineer's Department did not have the necessary equipment to cast 120 raft foundations during the month of December. Immediately the contractors

heard / ...

heard of this position they placed their own equipment at the disposal of the Engineer so that during the builders' holidays the work would proceed to a stage where the contractors could take over. During December, water had to be laid on, materials ordered and delivered, 120 raft foundations had to be poured and a stores section established. In addition surveys had to be done and roads graded to the building sites.

The organisation on the site was so arranged that at each stage of development all stores and equipment were ready on the site. Steel templates for casting the foundations were set up over four pegs which had been previously surveyed in; the exact quantities of sand, stone and ash for the entire structure were deposited in the correct position upon the site. The excavation for foundations having been completed, the concrete mixer moved up into position and the foundation was cast. The next stage was the delivery of bricks and once again these were stacked in the best position upon the site. Each detail was carefully studied so that maximum efficiency could be obtained.

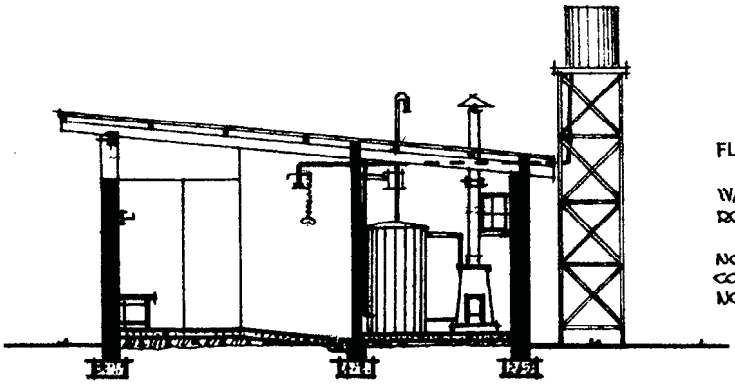
The measure of success that was achieved can be judged from the fact that all 120 houses were completed except for roofing, which could not be obtained in sufficient quantities, by the end of March 1951. In addition, other methods of construction were invited so the contractors could work on the site and enter into competitive tendering on the work to follow. When it is considered that the staff of the Engineer's department consisted of the Town Engineer, the Assistant Engineer and one pupil Engineer, and that these three men carried out not only all the work involved on the Native Township, but also all the municipal work in Witbank, this is a remarkable achievement. It is also of note that not one estimate was exceeded in actual costs during the first four months of construction, which included all building costs, streets, stormwater and sewers.

The financial year 1951/52 saw the work really move ahead. The supply of bricks became easier, and the roofing manufacturer contracted to supply and fix the roofs. Steel windows were in better supply and a glazing contract enabled the window supply and glazing to be done by one firm. The building contractors still co-operated to the full and, having completed thirty houses each, returned an even more competitive price for the larger contracts. Only one unorthodox contractor could better the building contractor's figure for 9" brickwork built by European artisans, and this firm limited the size of its contract.

The object was to build 400 houses per annum which would mean the township would be completed in three and a half years. Had the financial arrangements been better, it would have been possible to plan further ahead and complete the township in two and a half years. A national grant of a fixed sum for a given period, instead of having to work in the dark from one financial year to the next, would have enabled on-site planning of a much higher order and would have saved a great deal of expenditure due to rising costs. Grants from a national housing fund will be of great benefit to local authorities, who have the supply of good Native housing as a top priority problem and really want to solve it by action.

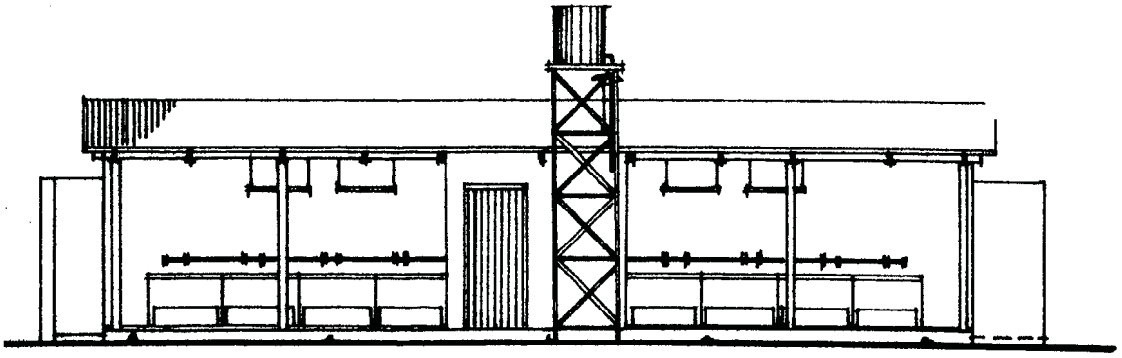
By March 1952, Witbank had proved to themselves and the rest of South Africa that Native housing problems could be solved. Five hundred houses were completed, two attractive face brick ablution blocks

# · W I T B A N K. ·

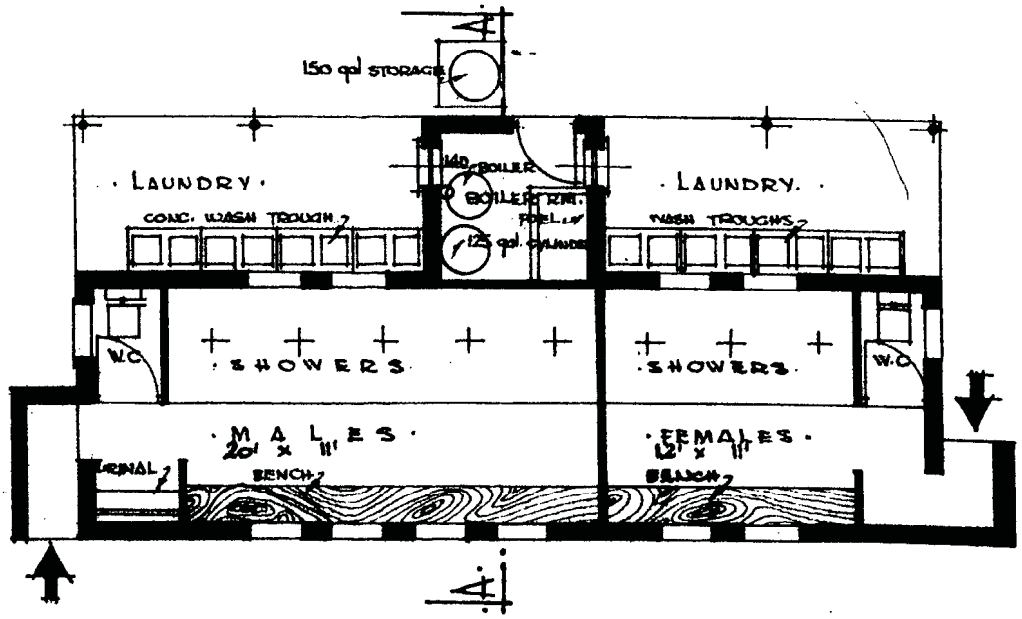


FLOOR : CONC. SLAB FINISHED IN GRI & LAID TO FALLS.
WALLS : 3" & 4½" FACE BICKS.
ROOF : C.G.I. ON 3"x 2¼" PURLINS LAID ON 6"x 1½" RAFTERS.
NO CEILINGS.
CONC. WASH TROUGHS.
NO WINDOWS EXCEPT IN BOILER ROOM

## · S E C T I O N. · A - A. ·



## · F R O N T E L E V A T I O N. ·

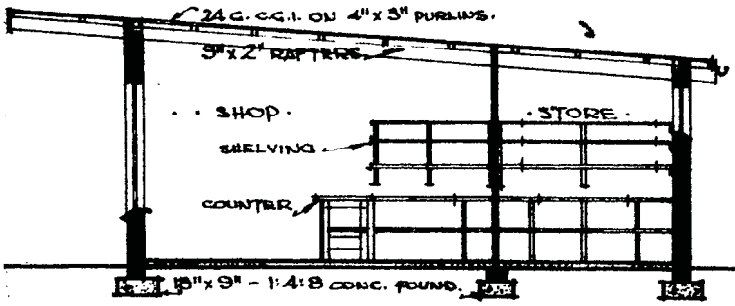



## · P L A N. · SCALE 1 INCH TO 8 FEET. ·

# · A B L U T I O N B L O C K.

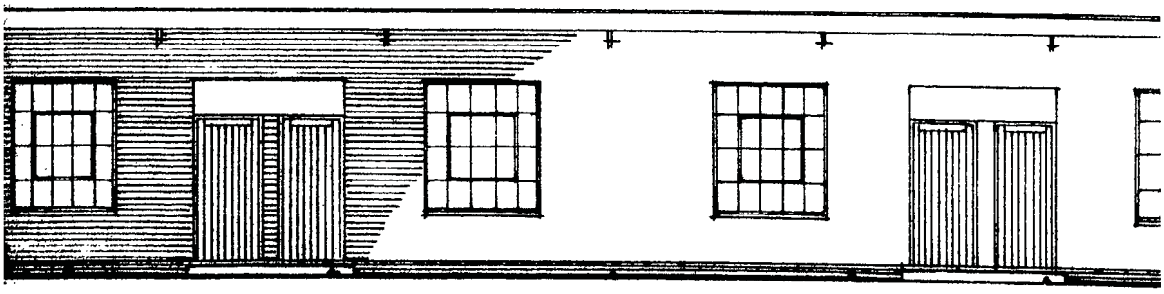
· DESIGNED IN ACCORDANCE WITH N.H. & P.C's. DRAWING. ·

# WITBANK.

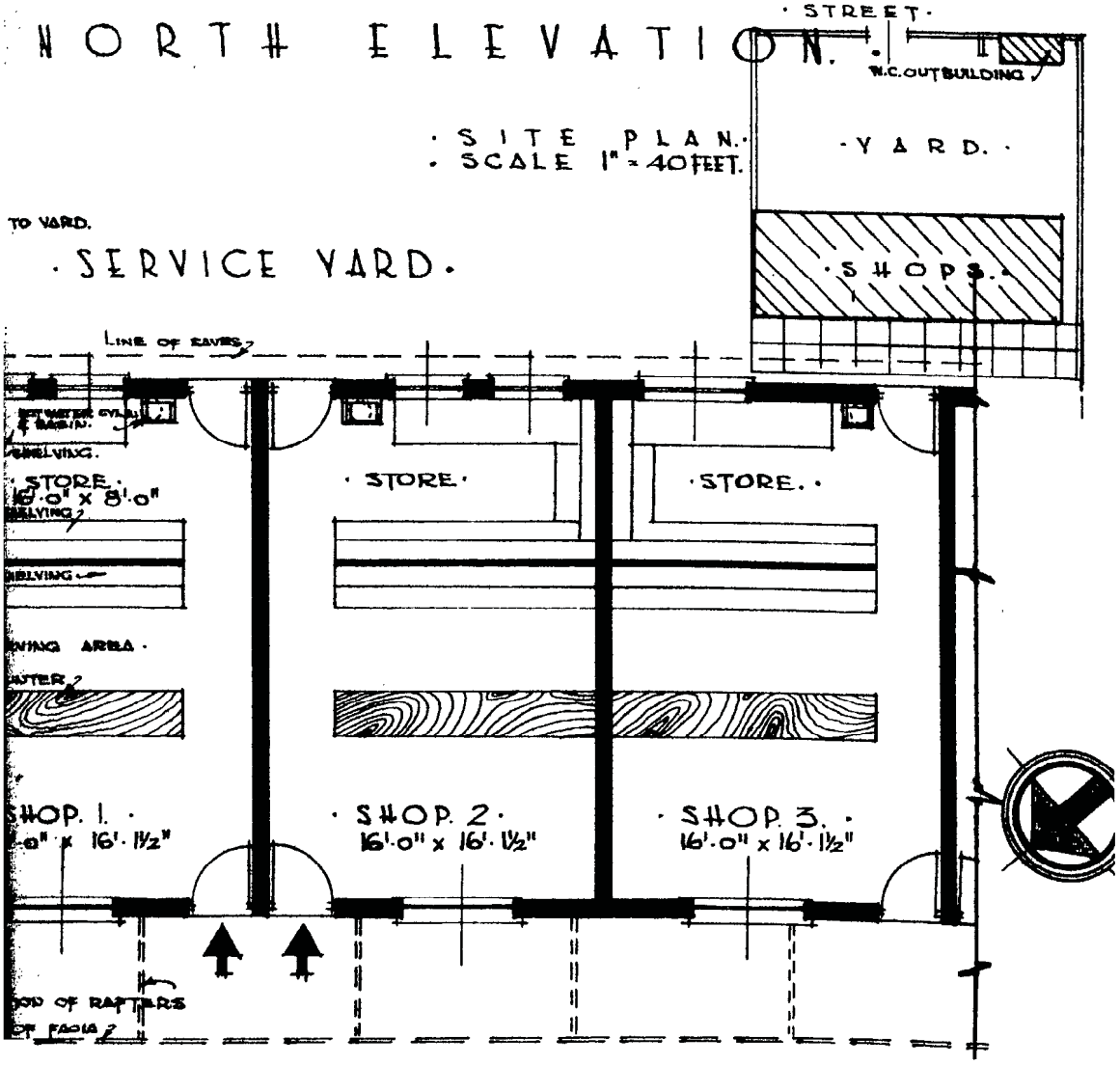



THE SHOPS HAVE A SERVICE YARD & EXTERNAL W.C'S. - MALE & FEMALE IN YARD.

SECTION.



NORTH ELEVATION.




PLAN. · SCALE 1 INCH TO 8 FEET.

RESIDENTIAL SHOPS, WITBANK.

stood ready to provide a constant supply of hot water for bathing and washing of clothes, and four shops, which would attract customers in any European township, stood ready for occupation. (Figures 49 and 50). The supply of the pump for the sewage disposal, had unfortunately, delayed the occupation of these houses and it was only in May 1952 that occupation was taken. Designs for school, administration block, post office, shops and flats in the Civic Centre, market stalls, clinic and Police station were all completed by this time, (See figures 51 to 57).

It is necessary at this stage to analyse what contributed to this successful development. The answers are listed in what the author believes to be an order of importance:-

(a) There was a will to solve the problem, and the Town Councillors were the first to realise that action was necessary. The Engineer was willing to go to any limits in order to obtain action.

(b) Team work was established between Town Planner, Engineers, Architect, Building Contractors and Administrators. This team-work even extended to the officials of the National Housing and Planning Commission and the Department of Native Affairs. The great future of team-work in solving Native housing cannot be overstressed.

(c) During the progress of the scheme it was realised that each phase of the work was best undertaken by the trained specialist. Specialisation is, of course, difficult in the case of the smaller local authority but it must be realised that in the National Housing and Planning Commission specialists are available to assist local authorities who require guidance and advice.

(d) Tribute must be paid to the enthusiasm of the Town Engineer and his staff whose energy ensured success.

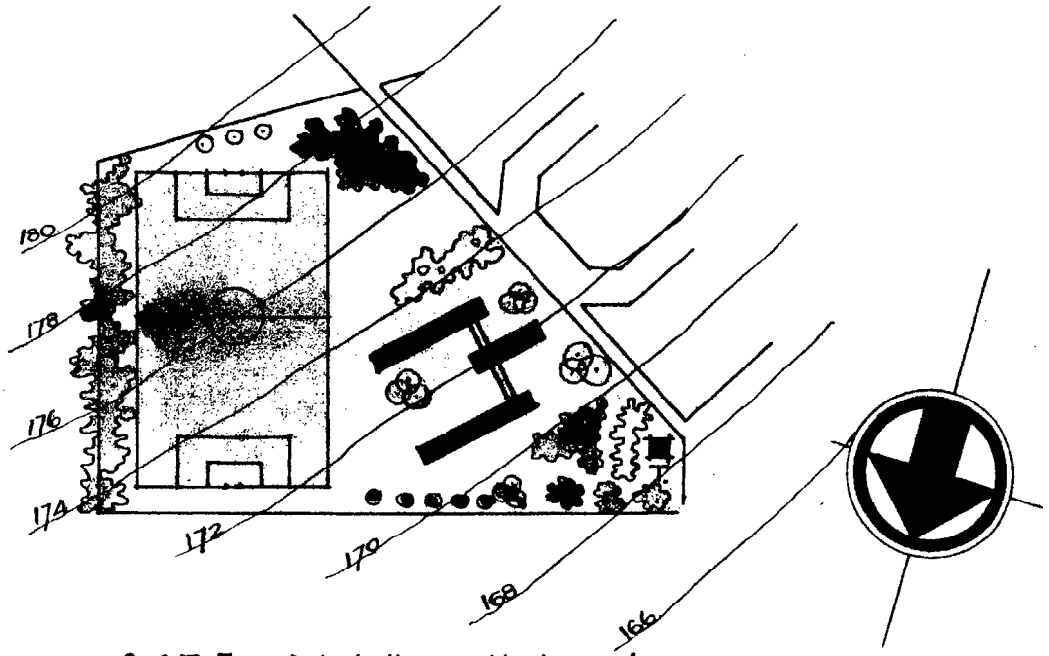
(e) Careful ordering of stores and costing of labour and materials, has kept the work until January, 1953 to £8,000 below estimates. At this date 900 houses were completed and a further 200 were under construction.

It is necessary to list the points, which to date have not been as successful as was hoped, in order that others may gain from these findings. It is fully realised that unseen factors may still be discovered and, by the re-visit of competent sociologists, a host of new factors may be raised which relate to the shortcomings of the planning.

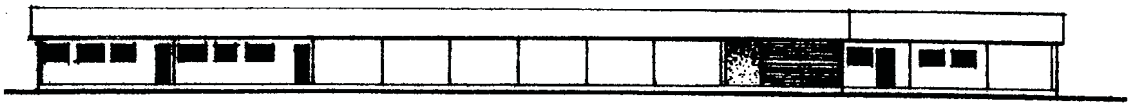
(a) The social survey was not extensive and many aspects were overlooked only to be answered in a very general way when detailed planning was commenced.

(b) Contact with the people was not sufficient in the early stages of planning: the author was responsible for this state of affairs as he did not realise the value of such measures. People like to feel that they have had a hand in the planning of their towns; they do not really belong unless this feeling of achievement is present. In Witbank much was done to remedy this position as construction work got under way, and the people were allowed to inspect the completed houses and make suggestions in respect of improvements.

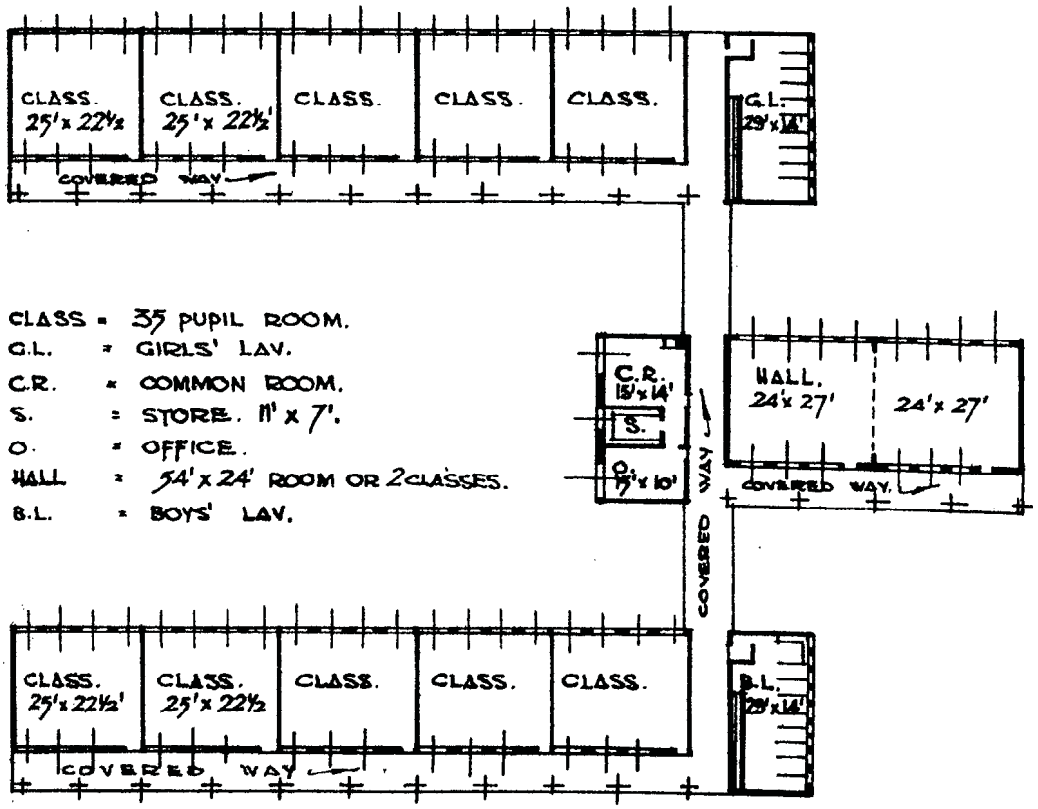
(c) / ...




· SITE PLAN: 1"=100'-0." ·



· NORTH ELEVATION. ·



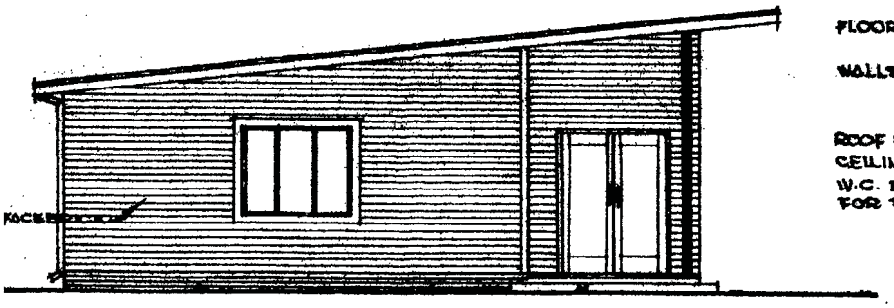

· PLAN. ·

# SCHOOL - WITBANK.

SCALE 1 INCH TO 32 FEET.

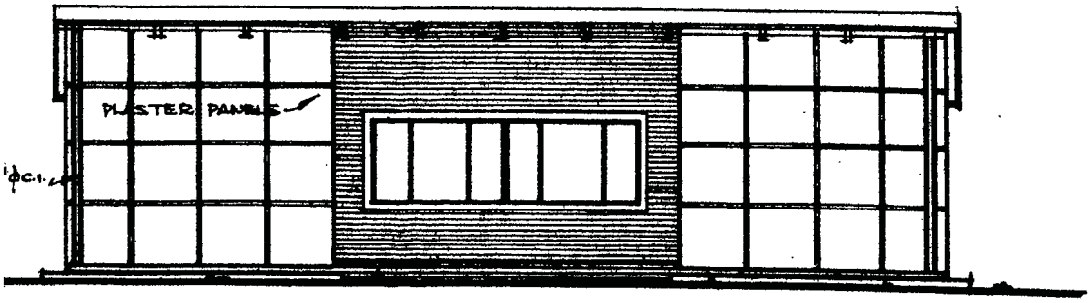
FIGURE NUMBER : 51.

# · W I T B A N K. ·

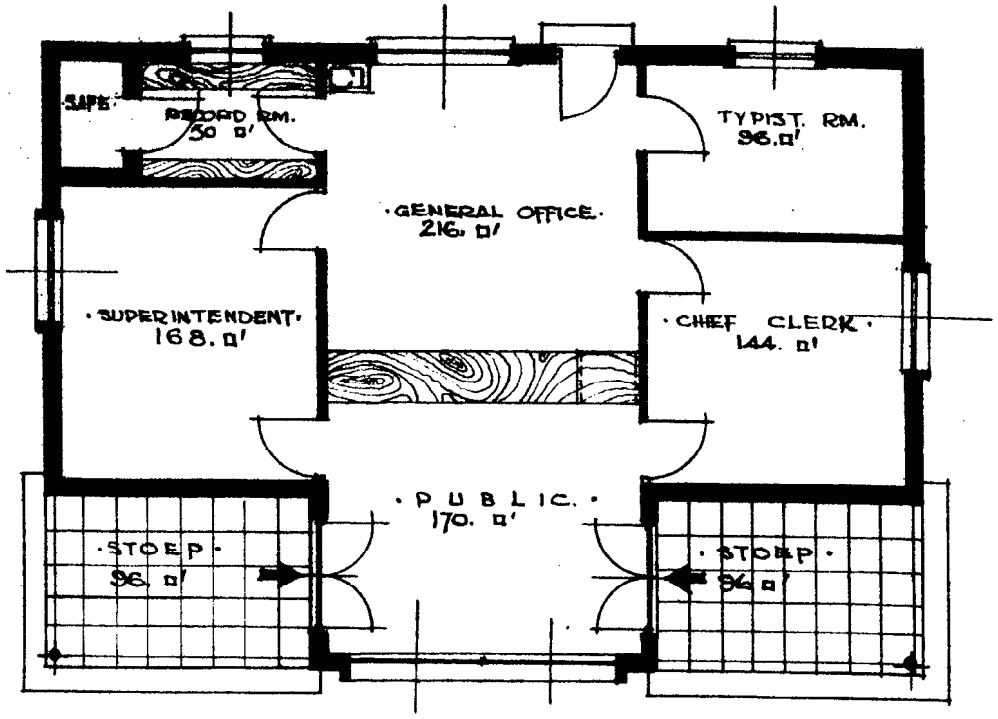



FLOOR: MASTIPAVE & GRANO CI
3" CONC. BED.
WALLS: 9" FACEBRICK EXTERN
4½" STOCK PLASTERED
INTERNAL.
ROOF: C.G.I. ON PURLINS & TRUS
CEILING: FIBRE BOARD.
W.C. EXTERNAL & ARRANGE
FOR FUTURE EXTENSIONS.

· 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. ·



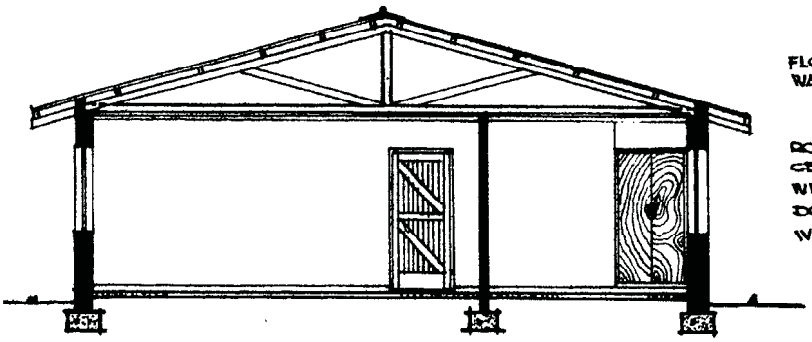

· P L A N. · SCALE 1 INCH TO 8 FEET. ·

# · A D M I N I S T R A T I O N  B L O C K. ·

DESIGN BY WITBANK, TOWN ENGINEER'S DEPARTMENT.

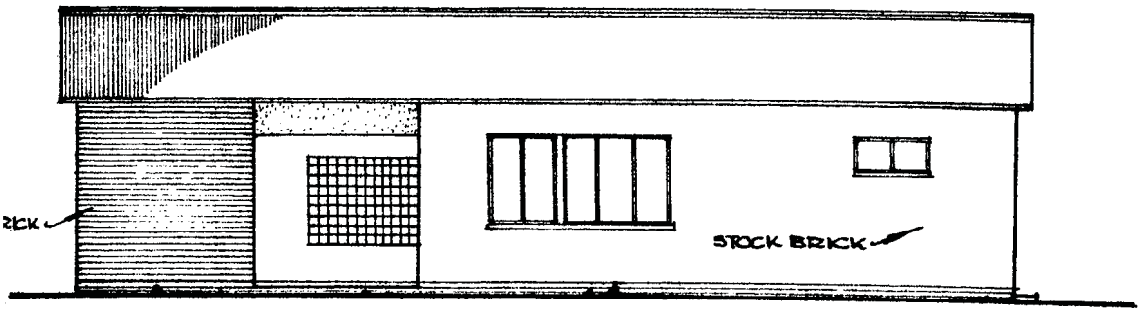
FIGURE NUMBER: 52.

# WITBANK.

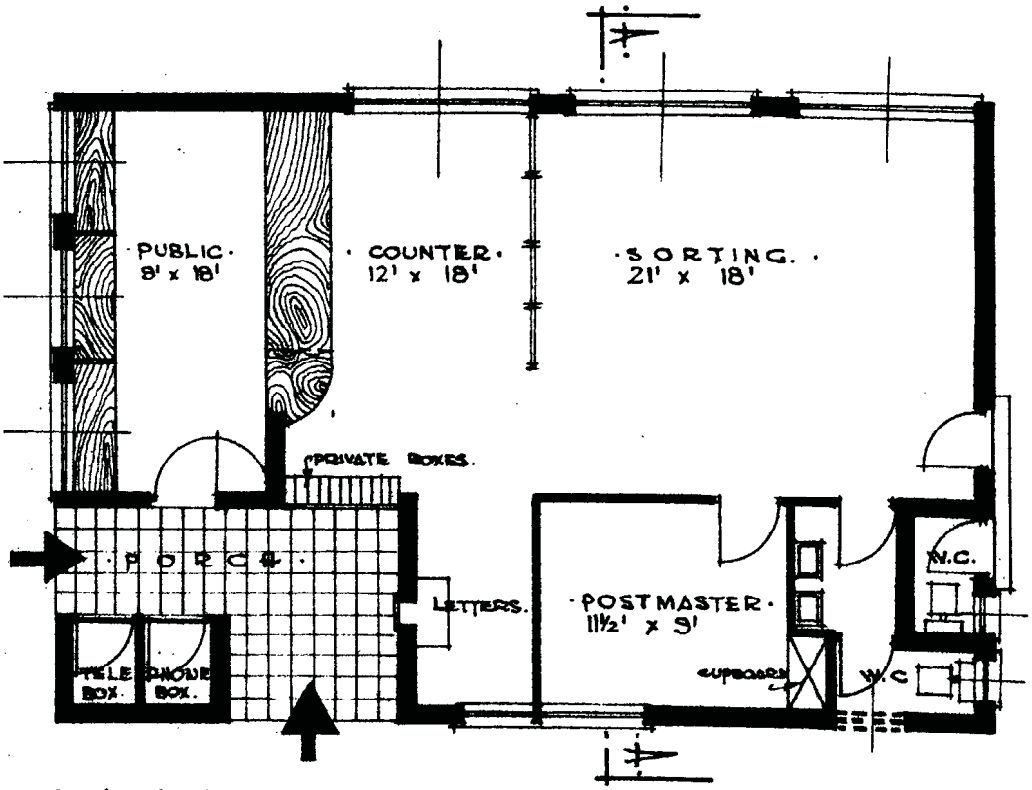


FLOOR : CONC. WITH ASPHALT TILES.
WALLS : 9" STOCK & FACE BRICK
EXTERNAL 4½ STOCK
PLASTERED INTERNAL.
ROOF : C.G.I. ON 4½"x1½" TRUSS.
CEILINGS : FIBRE BOARD.
WINDOWS STOCK STEEL.
DOORS STOCK.
W.C. & BASINS PROVIDED.

·SECTION. A-A.·

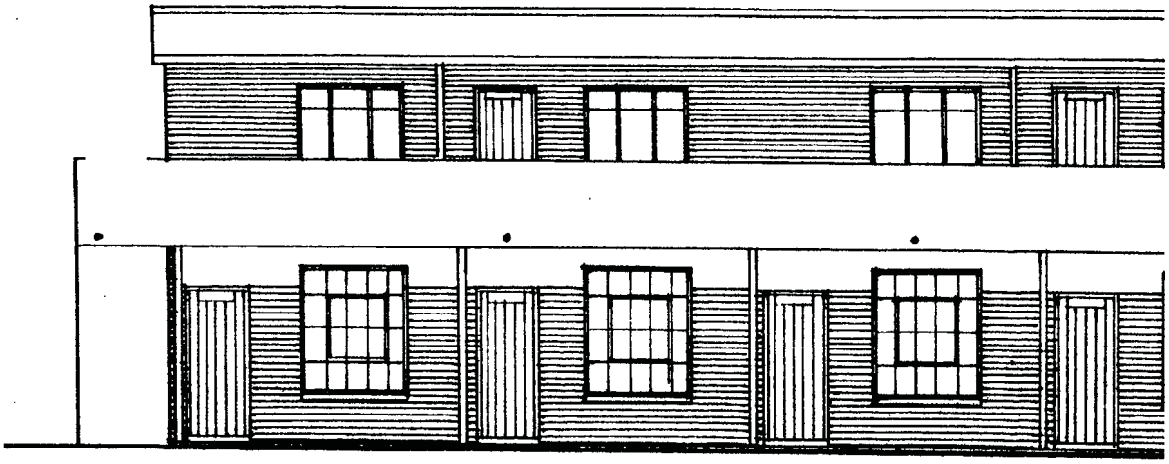



·FRONT ELEVATION.·



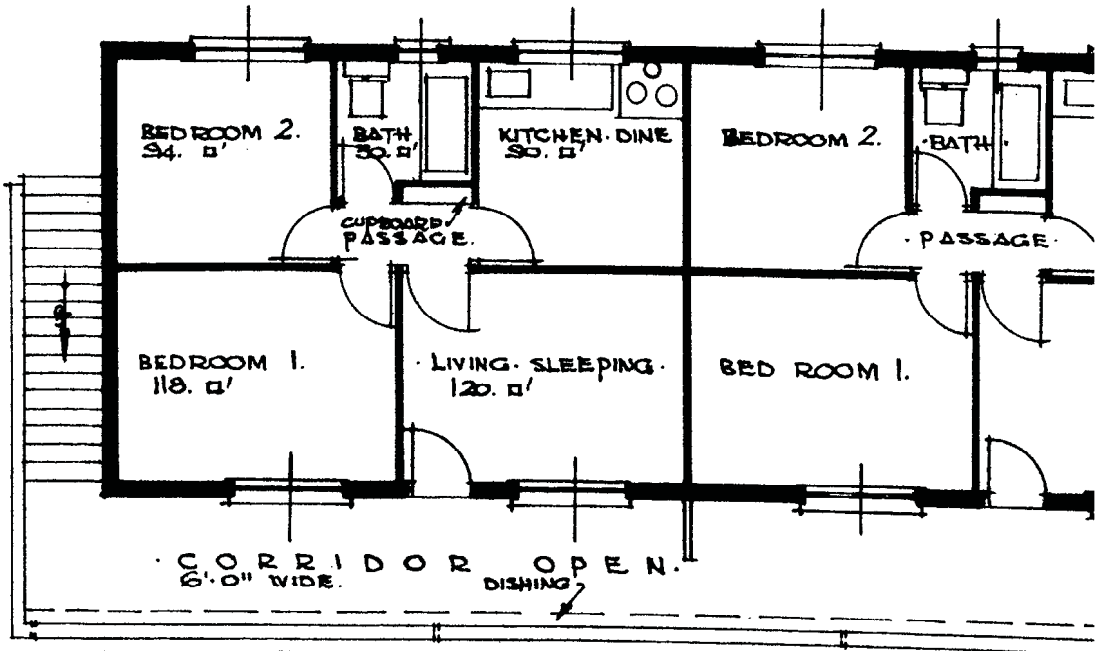

·PLAN.· SCALE. 1 INCH TO 8 FEET.

# ·POST OFFICE.·

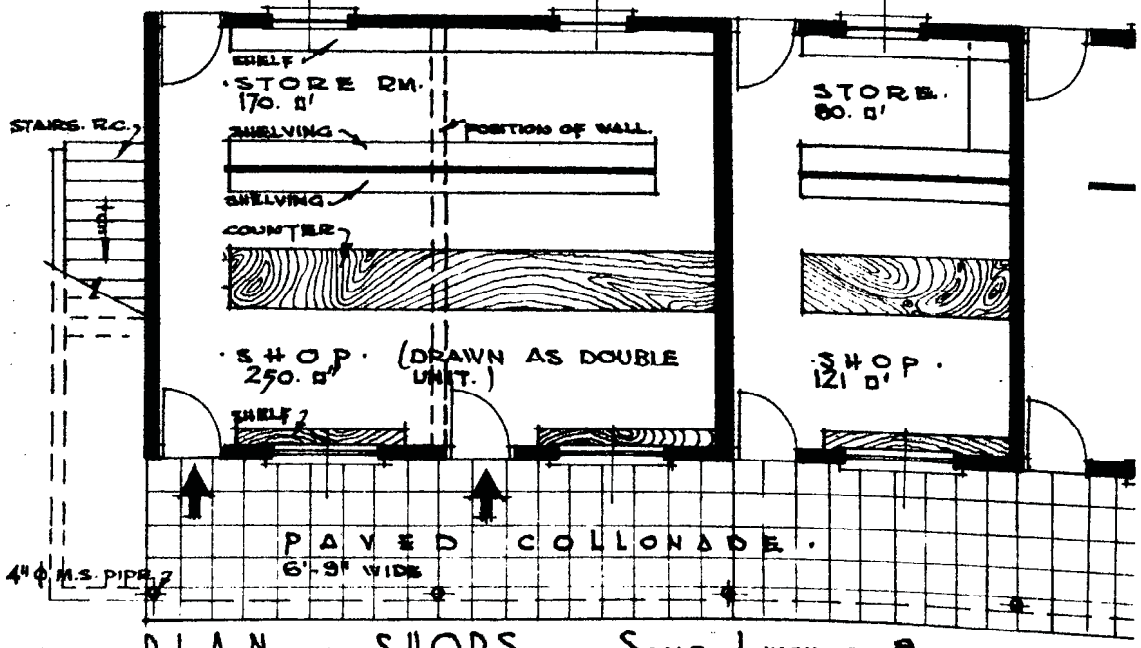


. PART FRONT ELEVATION. .

FLOOR : CONC. SLAB FINISHED IN GRANO.
WALLS : 9" SELECTED STOCK EXTERNAL, & 4½" STOCK PLASTERED IN SHOPS BAGGED IN FLATS INTERNAL.
CEILING : OFF SHUTTER IN SHOPS, NONE TO FLATS.
ROOF : C.G.I. ON 4½" x 3" PURLINS.
W.C. EXTERNAL TO SHOPS & INTERNAL TO FLATS.



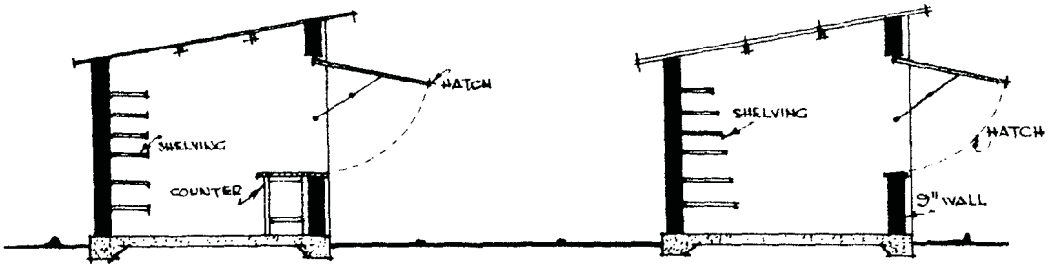

. FIRST FLOOR PLAN - FLATS. .




. PLAN OF SHOPS - SCALE 1 INCH TO 8 FEET. .

FLATS & SHOPS WITDRAWN

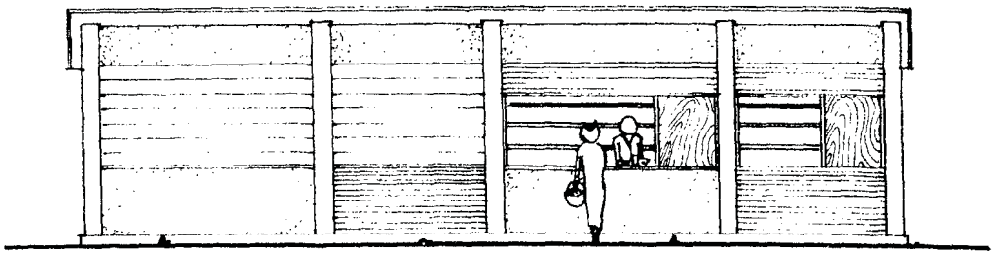
# · W I T B A N K. ·




SMALL STALL. LARGE STALL.

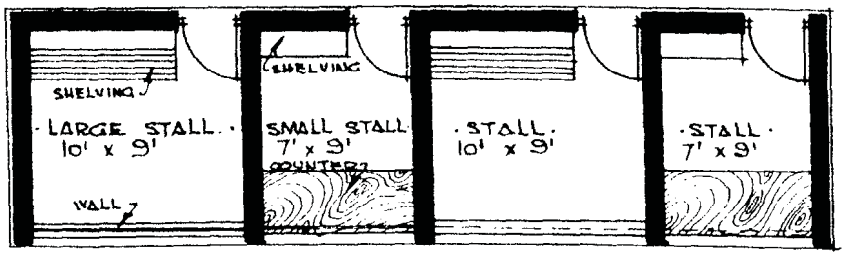
## · S E C T I O N S. ·

FLOOR : ASHCRETE FLOATED TO FINISH.
WALLS : 9" STOCK BRICKS, PLASTERED IN FRONT PANELS & BAGGED INTERNAL.
ROOF : C.G.I. ON 4½" x 3" PURLINS.
SHELVING & COUNTERS OREGON.



·STALLS CLOSED· ·STALLS OPEN.·

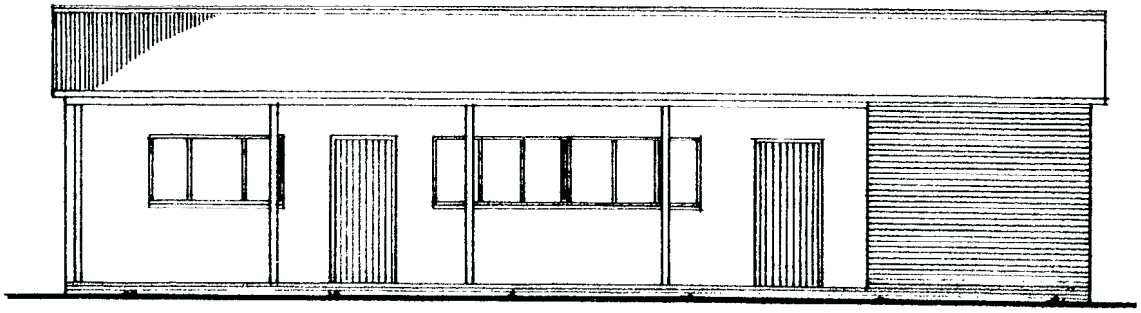
## · F R O N T E L E V A T I O N. ·




## · P L A N. · Scale 1 inch to 8 feet. ·

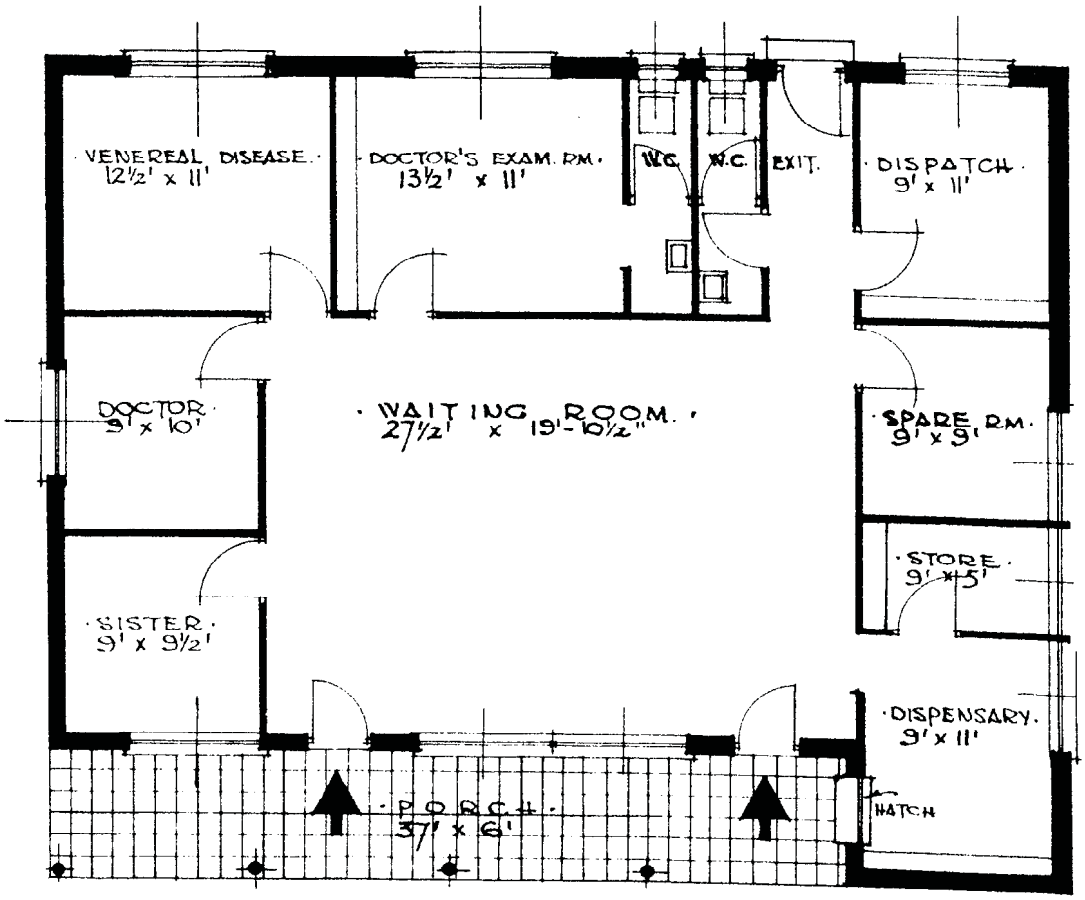
# · M A R K E T S T A L L S. ·

·WITBANK.·



·FRONT ELEVATION.·

FLOORS. : CONC. SLAB WITH ASPHALT TILES.
WALLS. : 9" FACEBRICK EXTERNAL & 4½" FACINGS AS DADO TO WAITING RM. REST PLASTERED STOCK BRICK INTERNAL.
ROOF : C.G.I. ON TRUSSES OF 4½"x1½".
CEILINGS : FIBRE BOARD.
WINDOWS : STOCK STEEL.
DOORS : STOCK THROUGHOUT.

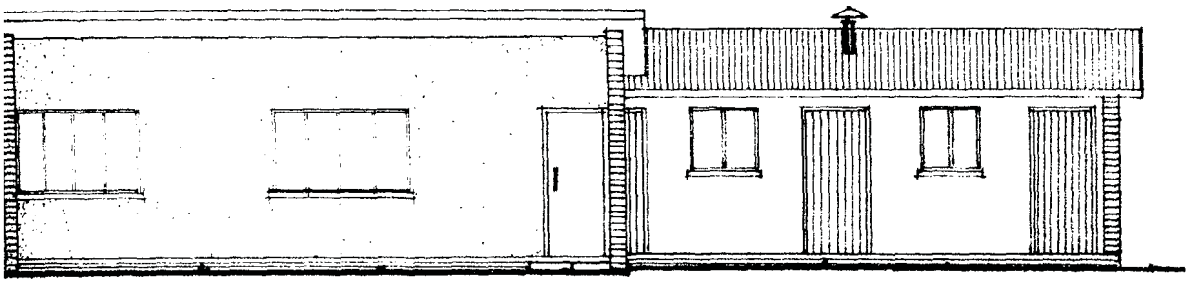



·PLAN. · SCALE. 1 INCH TO 8 FEET. ·

·CLINIC - WITBANK.·

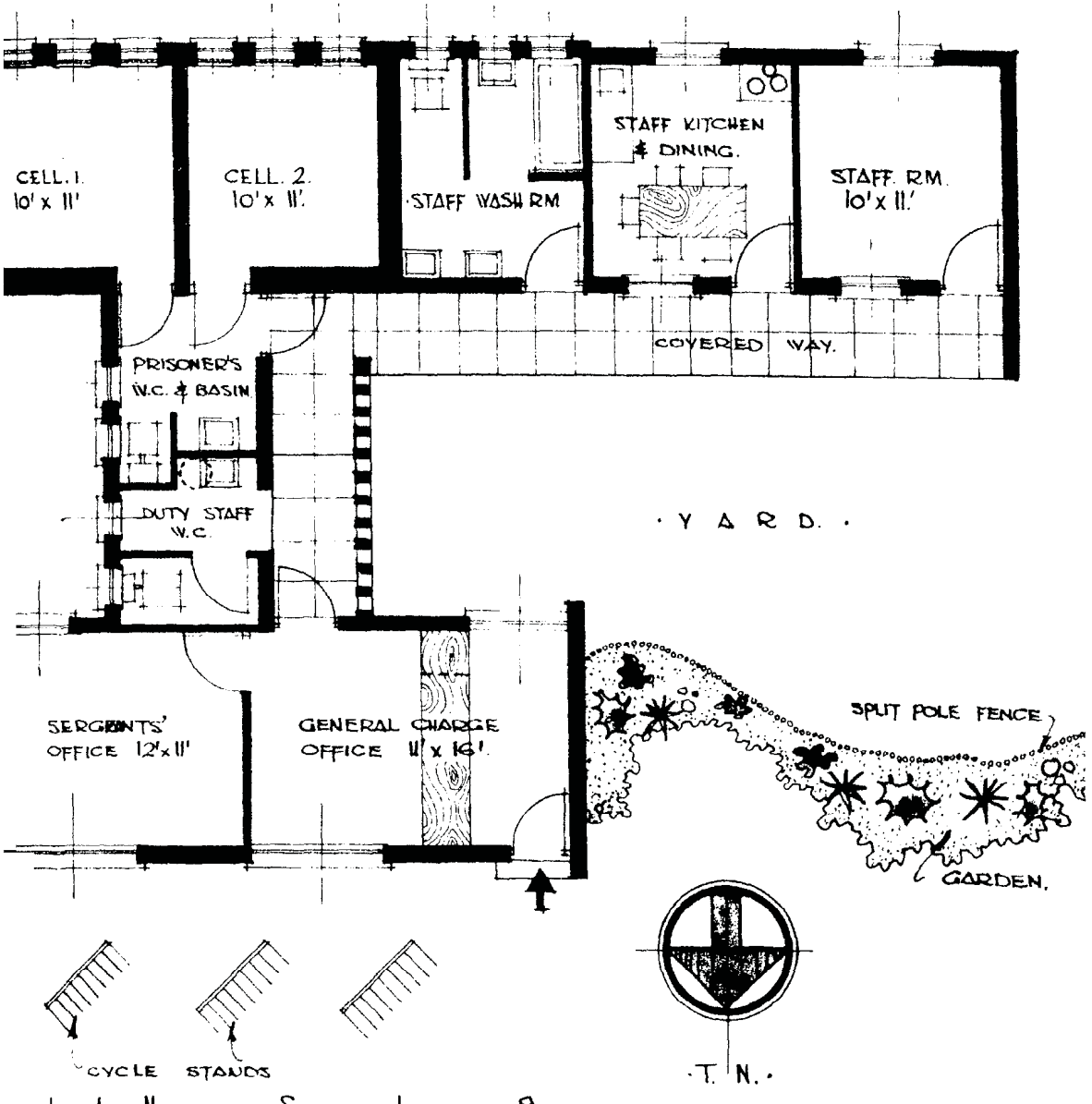
FIGURE NUMBER: 56.

WITBANK.



NORTH ELEVATION.

FLOORS : ASHCRETE. FINISHED IN GRANO.
WALLS : FACE BRICK 9" EXTERNAL & 4½" STOCK PLASTERED IN CEMENT PLASTER INTERNAL.
ROOF : C.G.I. WITH CONC SLAB OVER CELLS.
CEILINGS FIBRE BOARD. W.C. INTERNAL.
WINDOWS STOCK STEEL: DOORS STOCK.




L & N. · SCALE 1 INCH = 8 FEET.

POLICE STATION.

FIGURE NUMBER: 57.

(c) The planting of trees was delayed too long.

The sooner trees can be established in a housing scheme the better.

It is as well to remember that if the plan demands the faith of the public and gives them the hope to live a full and happy life, then the planner has achieved his goal.

# C H A P T E R V.