The word “environment” is defined not only as one’s surroundings, but as all conditions affecting life and human behaviour. Wise planning with a long-range point of view for the entire area will benefit the most people, be the most economical in the long run, and create the greatest beauty which can be enjoyed for years (Lois Davidson Gottlieb, 1965).

Man is the only animal that can adapt his environment to his needs. In pre-historic times when man had only his primitive tools and changing his environment, the mistakes he made weren’t that serious because they were not too large or destructive. With rising population, areas left to develop are getting smaller. More time and human energy must be spent on the planning of projects that are identified for these areas. The impact that these developments would have on the environment are increasing considerably because our communities are densified to counter the space required for the population growth. Are we only now noticing these impacts because we dwell closer to our neighbours? Whichever is the right answer, it is each person’s responsibility to try and make both his immediate and the entire environment more sustainable. For the architects and designers dealing with this sustainability issue; the materials we use are not as impotent as the way in which we use it. This concept also applies to the amount of space created, which is not as impotent as how the space is arranged and limited.
4.1 Site selection
4.1.1 Physical limitations (Fig. 4.1.1.1)

The farm is approached from the R522 main tar road. A 2km gravel road leads to the entrance of Madi a Thavha. A conventional farm methodology is evident along this gravel road with subsistence farming and decrepit structures. A stream (Fig. 4.1.1.2), which also forms part of the south eastern boundary of the land is the entrance to the farm. Instead of building a bridge over the stream a drift will be constructed as the experience of driving through the water will aid in the psychological awareness of the experience with nature.

The existing farmhouse is situated on the edge of the valley basin floor with agricultural activities covering the floor of the valley. The stream that was crossed at the entrance, breaks away from the boundary and forms the edge of the agricultural land. The stream runs diagonally through the farm in a south easterly direction from its origin on top of the mountain. The northern boundary is emphasized by the 60m high cliff face, (Fig. 4.1.1.3). This view will be explored as the main view in the development. It is also the location of the waterfall that will be explored through hiking trails.

The infrastructure of the farm includes the house, and three outbuildings that are used for storage and processing of produce. The farm is supplied with Eskom electricity. The roads are all gravel roads and these will need to be improved to handle additional traffic. All sewerage is currently disposed of by means of septic tanks and French drains.

4.1.2 Climate Parameters

The main wind is from the northwest. Wind speeds are low but can be utilized to ventilate buildings efficiently during hot, dry summer months. Evaporative water cooling can be implemented to lower air temperature. The dense green vegetation on the southern slopes of the mountain also contributes to the humidity levels of the air. Care must be taken against the thunderstorms that approaches from the east which are accompanied by lightning. If thatch roofs are used, they need to have proper lightning protection. All construction details concerning open-air ventilation of buildings must prevent rainwater entering buildings as these storms are accompanied by an easterly wind. Roof overhangs can be used to keep specific surfaces dry or wet if needed. Rainwater harvesting must be utilized to its maximum. Recycling of all water is crucial.
4.1.3 Visual impact assessment

The visual impact assessment is done from the perspective of a vehicle travelling east on the R522 main road. The point is chosen in the line of sight of an approaching vehicle. The dark green indicates the area not visible by the occupant (Fig. 4.1.3.1). A development in this area will not have an impact when experiencing the natural beauty of nature. This may however cause some difficulty in locating the farm for first time visitors, but it enhances the experience of discovering nature, the unexpected. The topography of the valley basin, wherein the development will be located, does provide a 360° view of the surrounding landscape.

4.1.4 External influences

Light pollution from nearby townships is blocked from the basin view by the topography of the area. The ridge that forms the southern boundary keeps the township of Tshiozwi out of view. At night the amount of light does not change the skyline. The light pollution at night from the eastern side, towards Makhado, colours the skyline significantly. This view at night must be blocked. Light pollution from the development itself must be kept to a minimum. Low voltage electrical bulbs must be used and no light fittings must point upwards, preferably all downlighters. The surrounding farm complexes do not pose a problem because all are well screened by vegetation.

Noise pollution will be mainly from the main road. These noises are screened by the southern boundary ridge and do not pose a problem. Noise levels of activities on the farm and those surrounding it will be high during the day. These levels are acceptable in that visitors are engaging in an agri-tourism concept. At night time a silence will fall over the valley and enhance the experience of the wilderness at night.
4.1.5 Contour Analysis (Fig. 4.1.5.1 & 4.1.5.2)

The areas chosen with approximately 1:15 slopes will be used for agricultural activities as a minimum of extra measures will have to be taken in terms of prevention of erosion control. No structures can be placed in this area because the biggest area possible needs to be used for agriculture in order to make it feasible. The area on the northern side of the stream will be rehabilitated for animal grazing and minimum of human influence on the stream is needed.

The areas depicted with the steeper 1:5 slopes are the maximum slopes on which structures can be built. Building on a steeper slope will become unfeasible as too much cutting and filling will be required, making the construction cost too high. Smaller single areas do give a better view to experience the environment but existing infrastructure and existing developed areas will be utilized for development. The impact on the environment will be kept as small as possible.

4.1.6 Zoning (Fig. 4.1.5.3)

The proposed areas are divided into five different zones. The agricultural area is fixed as was discussed in 4.1.5. The agri-tourism area includes the agricultural product processing, skills training, reception, conference facilities and tourist accommodation. This forms the basis of the development. Centralizing these activities in relation to agricultural land, makes them more economical and more manageable. The ridge where these activities are located provides the opportunity to raise accommodation units in order to enhance their views.

A variety of the types of experiences give this development that extra scope in terms of marketability. This will give rise to the different types of accommodation. The eco-tourism facilities are located on a platform that will give a 360° view of surrounding areas. It is far enough from the active lands to place the nature experience as main priority. The camping site caters for another type of visitor and its location was influenced by the existing infrastructure and existing accommodation (two timber houses). The private area is for the farm owners where the existing farm house is located. Re-development is needed as much of the agriculture activities are going to be moved to the agri-tourism complex. These developments stay connected to the central facility of the farm by means of view and distance. The decision is up to the visitor whether to participate or not.