EILANDGEBIED ST. MAARTEN
NEDERLANDSE ANTILLEN

PUBLIC NOTICE No. 986/98

The Executive Council or Island Territory of Sint Maarten hereby makes known that they have established a policy concerning guidelines for development in the hillside areas.

The **Hillside Policy** states that:
1. only residential development is allowed in the hillsides;
2. general guidelines are established for building in the hillside areas, indicating minimum lot sizes, maximum building percentages, regulations for excavating, building of roads and prevention of erosion etc. The conditions differ depending on the slope of the land and the location of the land in altitude;
3. no building should occur on hill tops, rides, and above 200 meter altitude line;
4. a hillside nature park is projected for the hillside area of Cole Bay Hill, Sentry Hill, St. Peters Hill, Concordia Hill, Marigot Hill, Waymouth Hill and Williams Hill.
5. certain hillsides, which are considered important for their visual impact on the general landscape, should also be conserved.

The policy concerns:
in general all hillside land located above the 50 meter altitude line

The consequences of this policy are that the Island Government will strive to ensure that the guidelines are adopted in the development of the zoning plan for St. Maarten, that subdivision plans and building permit requests for land in hillsides will be judged taking the hillside policy in consideration and that domain land will be granted in accordance with the policy.

Summary
The main objective of the policy is to conserve the green hillsides, protect and if needed restore their natural value for the benefit of the environment, the tourist industry and quality of life on St. Maarten. Furthermore by regulating development in the hillsides in a proper manner by setting building guidelines, the island government wishes to limit erosion and uncontrolled rain and waste water runoff which affects the ecosystem of the whole island from the hills down to the lower and coastal areas.

More information and further detailing regarding this policy can be obtained at the department of Public Housing, Physical Planning and Environment (VROM) at Tamarinds Steeg, Philipsburg (Savance Building) – Tel. 24957, 24943, fax 25486.

The Executive Council of the Island Territory of Sint Maarten
The Island Secretary, A.O. Muller The Lt. Governor, L. Richardson.

1. Introduction
The green hills of St. Maarten are considered important by government and society for the tourist industry and the natural habitat of the inhabitants of St. Maarten. The intensity in which building-activities take place has consequences for the attractiveness of the scenery provided by the hillsides and thus the precious tourist value of the area.

At present the green character of the hills is changing due to development of said areas. It is especially apparent at higher elevations where excavations and the cutting of roads take place to develop the land. An additional negative side effect of

this process I that it causes speedy rain water run off and erosion which has its negative effects on the lower parts of St. Maarten. The function of the ponds as a buffer between the land and the coast diminishes due to the silt coming from the hills by the erosion which fills up the ponds. This causes deterioration to the beaches and the coast water with its plant and animal life. With the development of an area, usually the natural vegetation is removed which, if it occurs on large scale, could affect rainfall patterns. Therefore, if development in the hill sides is not regulated in a proper way it will affect the ecosystem of the whole island from the hills down to the lower grounds and the coastal area. This may have severe effects for the tourist economy of the island.

From society it is realized that the uncontrolled development of the hillsides can not continue since the natural resources of the island are being destroyed. This was especially emphasized at the Socio Economic Conference in 1995 and the document which was the result of the conference 'New Perspective for Sint Maarten' (May 1995). In this document it was established that guidelines for the development of hillsides have to be determined and it needs to be on of the 'Quick Actions' of the Multi Annual Policy Plan (MAPP).

From government the demand for such guidelines also became obvious after the establishment of the zoning law (Eilandsverordening Ruimtelijke Ontwikkelingsplanning Sint Maarten, EROP) in December 1993. This law states that as long as there is no overall zoning plan for the whole island, developers need to request a planning permit if they want to subdivide a piece of land or construct two or more buildings on a single parcel. The first planning permit request concerned the development of a piece of land located on a ridge in Guana Bay which was visible from Philipsburg. In the discussions that followed it was clear that guidelines needed to be developed for government to be able to draw a consistent line for future cases and for the public to know in advance what kind of development is allowed in the hillsides.

2. The hillside policy

It is the intention of government to conserve the green hillside, protect their natural value and if needed restore, for the benefit of the environment, the tourist industry and quality of life on St. Maarten. Projected development in the hillsides is limited to residential function unless specifically and with motivated reasoning permitted otherwise by the Executive Council.

Excavation of land and roads is considered an intention to subdivide land for development. In such cases a planning permit is needed as according to the Zoning Ordinance (EROP). Therefore the execution of excavations will be stopped when a building permit has not been obtained.

The Island Government is responsible for preparing a policy to come to a sustainable land use of St. Maarten, the hillsides form an essential part of the island's environment. This policy is needed in order to pro-actively treat requests for building- and planning permits. With a clearly formulated development and building policy, the public can take into account the criteria established by government. This relieves the necessity of finding solutions afterwards. In addition government is given an instrument to enforce the realization of the desired situation. The interests of the owners of the land will be taken into consideration as well as the traffic and housing issues. To accomplish this certain measures will have to be taken on short term and long term.

2.1 Long term zoning plan.

To reach the goal described before a Global Land Use plan will have to be prepared for the whole Dutch side of St. Maarten. This plan will describe the government's policy on land uses of the different areas. After scrutiny from interest groups in society the plan will become one or more zoning plans as according to the Zoning law. This zoning plan will be law and future development will be judged by this plan. Building permits will only be granted if the proposed development fits within the zoning plan. Permits will be required to excavate, to construct roads and to install other infrastructure works.

2.2 Short term: guidelines

To establish a Global Land Use Plan is a lengthy process requiring extensive public consultations and Island Council decision making. In the mean time development continues, therefore guidelines are set in this document to bridge the period between now and the moment that the Global Land Use Plan is established. The guidelines will bridge the period but will also be a step in preparing the Global Land Use Plan/Zoning Plan. These guidelines may be replaced by the Global Land Use Plan when that is established, when an evaluation of the application of this policy will be available to determine if and to what extent fine tuning may be necessary.

2.3 The nature park

The hillsides play an important role in the landscape, the water management and the nature of St. Maarten, not to mention the role in sustaining the tourist economy. Next to the guidelines and at a later moment the zoning plan, actions will have to be taken to protect, restore, develop and manage the natural resources. Furthermore an effort will have to be made to make it accessible to the general public to educate about the flora, fauna and eco-system, also to inform them about the need and get their support in preserving it. The natural resource (and landscape hillside vegetation) is important as the natural heritage of St. Maarten but it also prevents erosion, regulates the rain water run off and influences the moderate climate in the hillsides.

An effective way to achieve proper protection of the natural resources of the hillsides would be to establish a nature park. It is the intention of government to establish a nature park in the future. Based on a study about the natural resources of St. Maarten, it was concluded that the hillsides of Cole Bay Hill, Sentry Hill, St. Peters Hill, Marigot Hill, Waymouth Hill, Flagstaff/Williams Hill and the areas of Bethlehem and Belvedere are important to the ecology and natural value of the island for their exceptional bio-diversity in flora and fauna.

3. The guidelines

Awaiting the establishment of the global land use plan, guidelines need to be set with which government can control the development in the hillsides. With these guidelines government intends to guide the building and the execution of roads in such a way that the green character of the hillsides is preserved.

To acquire a basis for the guidelines, studies were executed to determine the quality of the hillsides of Sint-Maarten, with respect to the ecological, historical and landscape-technical values. These surveys include a slope-analysis and an identification of prominent ridges in the hillside area. The slope analyses study indicates the steepness of the different slopes. The general idea is that the steeper the slopes, the more difficult to build. The second study was with regards to construction in the hillsides compared to nature, water management and environment. These studies were used as a basis to prepare the policy on hillsides, including the guidelines.

The guidelines take the following aspects into consideration:

- landscape - the height of the hills and the presence of ridges are visually important to the landscape;
- nature - the presence of nature values and connected nature areas are considered important
- environment and economical use of space
  - the presences of sloping or steep hillsides are important in this case. They determine to which extent the building of houses and roads affect the surroundings and the way the waste water drainage should take place.
- Historical rights, the acute demand for housing and other customary uses
  - this aspect determines the moderate character of the guidelines for residential development.

3.1 The boundaries

As indicated before the hillsides will only be used for medium and low density residential purposes as well as conservation area. The other areas of the island are reserved for other land use purposes, including high density residential. This will be developed in the Global Land Use plan which is currently under preparation. The guidelines concern the hillsides which is described primarily as the area above 50 meters altitude line above sea level as a point of departure. Furthermore guidelines concern areas with an average slope of more than 40 degrees (no development allowed) and areas with a sloped exceeding 25 degrees below the line of 50 meters altitude above sea level (development allowed as according to the medium density hillside guidelines).

The above describes the boundaries of the policy to be applied: in the future these boundaries will be identified more specifically in a Global Land Use Plan.

3.2 Building stop

Essentially the guidelines indicate areas for medium density residential use (areas between the 50 and 100 meters altitude line), low density residential use (areas between the 100 and 200 meters altitude line) and intentions for a building stop for the areas above the 200 meters altitude line. As map 1 shows, areas above the 200 meters altitude are a very small part of the island which are reserved in principle as conservation areas.

Furthermore a building stop is intended for very steep areas (more than 40 degrees) and for the immediate vicinity of ridges of the primary hills as far as they play an important role in the visual aspect of the landscape and skyline. As immediate vicinity to the ridges a distance 50 meters measured vertically from the ridge line is used as a point of departure. The ridge areas are in general considered no building areas for visual aesthetic reasons. Especially if a ridge forms the "sky line" bulding on the ridge is considered visually disturbing.

In the hillsides the guts form natural drainage channels. These naturals drainage channels are in general also subject to a building stop since development and excavation of these guts could cause severe erosion.

3.3 Building Guidelines

The areas in the hillsides where development is allowed (between the 50 and 200 meter altitude lines) future development will take place under certain conditions and restrictions. These conditions and restrictions are less strict for the areas reserved

for medium density development, than for the areas reserved for low density development.

In general it concerns guidelines with regards to building density, building height, excavation of lots and roads and other conditions. The conditions become more or less strict depending on the altitude and slope of the area.

3.4 Criteria for subdivision

The hillside areas can be subdivided in different areas on the basis of several criteria:

1. Visual and landscape-technical criteria
   - Altitude
   - Ridges and tops of hills
2. Environmental criteria
   - Slope (erosion and drainage of sewage, and rainwater)
3. Ecological criteria
   - Ecological value

In maps 1 and 2 the hillside area is divided in different zones on the basis of the above mentioned criteria. The following areas are recognized:

MAP 1

1. Areas between 50 and 100 meters altitude which allows primarily medium density residential development
2. Areas between 100 and 200 meters altitude which allows primarily low density residential development (map1);

MAP 2:

3. Areas above 200 meters altitude indicated as conservation areas;
4. Location of the ridges and hill tops indicated as conservation areas
5. Areas below the 50 meters altitude line with a slope angle of more than 25 degrees (as mentioned before these areas will also be subject to the hillside policy but are not shown on any of the maps. The slope analyses map which indicated these areas can be reviewed at the dept. VROM)

The guidelines (values with respect to building-possibilities) are differentiated for the above mentioned areas (table 1). Furthermore they are differentiated related to the average slope of the area.

3.5 Explanatory notes on criteria

3.5.1 Altitude

The altitude on which building takes place has consequences for the attractiveness of the scenery provided by the hillsides and the tourist value of the area. For this reason guidelines for building are related to altitude, providing less restrictions for the range between the 50 and 100 meters altitude line, more restrictions above the 100 meter altitude line and in principle a building prohibition above 200 meters altitude line.

3.5.2 Ridges

Building on ridges can be a disturbing factor in experiencing the landscape. This is especially true for ridges and tops which are seen as the "skyline". For lower ridges, form behind which a higher hill can be seen , the disturbance is experienced to a lesser degree (see fig. 1a and 1b). For practical reasons, the policy on the ridges concentrated on the higher ridges (above 100 meter). For the direct vicinity of these ridges and tops a building prohibition will be applied (ridge line less 50 meters vertically as point of departure).

3.5.3 Slopes

Building on steep slopes can harm the environment because of the existing practice of damaging (cutting) the hill dramatically. This will enhance erosion which reduces the water-containing capacity and thus the filtering capacity of the ponds. In the intensively connected marine-terrestr9ial system, the ponds are an important protecting system for the marine area of Sint-Maarten. Silting of the ponds therefore means a risk for the quality of the marine area.

Besides the occurrence of erosion, cutting the hillsides for building purposes seriously affects the attractiveness of the hillside scenery.

GENERAL GUIDELINES FOR BUILDING IN THE HILLSIDE AREAS

TABLE 1: **Between 50 and 100 meter altitude:**

	0 - 10°	10 - 20°	20 - 30°	30 - 40°
BUILDING INTENSITY				
Min. lot size	400 m2	800 m2	1200 m2	2000 m2
Max. % of lot	35%	30%	25%	15%
Max. nr. of floor levels	2	2	3	3
ROADS				
Max. elevation access road	10°	15°	15°	15°
Max. elevation drive-way	10°	20°	20°	20°
Max. width roads	-	8 m	6 m	6 m
Max. slope of cut for roads	-	60°	60°	60°

TABLE 2: Between 100 and 200 meter altitude:

	0 - 10°	10 - 20°	20 - 30°	30 - 40°
BUILDING INTENSITY				
Min. lot size	800 m2	1200 m2	2000 m2	3000 m2
Max. % of lot	30%	25%	15%	10%
Max. nr. of floor levels	2	2	2	2
ROADS				
Max. elevation access road	15°	15°	15°	15°
Max. elevation drive-way	20°	20°	20°	20°
Max. width roads	8 m	6 m	6 m	6 m
Max. slope of cut for roads	60°	60°	60°	60°

General notes for table 1 and 2:

Building intensity:

For any construction in the hillsides the maximum allowable eaves height of the outside elevation perpendicular to the slope of the hill is 6 meters. This

corresponds to a maximum of 2 to 3 floor levels (depending on the slope and the altitude) in consideration for slope of the hill.

Roads:

a. Road building and excavation for road building Is assumed to be an intention to subdivided for construction and base on the Zoning Ordinance (EROP) a planning permit in such cases is required;
b. Above an angle of 10 degrees the minimum length alongside roadparts should be 150 meters (see figure 3c).
c. When building roads the maximum allowed slope of the cut alongside the road is 60 degrees. This cut must be planted to avoid erosion. Along the road on the side of the hill adequate water drainage facilities must be constructed.
d. Avoid positive drainage along roadways (rainwater drainage) where such system directly fall into waterbodies and cause pollution. Systems of swales along the roadway help to filter nutrients from roadway surface before entering natural waterbodies, thereby minimizing water pollution.

Civil works

a. An obligation exists to build a retaining wall if during excavation a cut is made with an angle of more than 45 degrees.
b. The maximum allowed depth of exposed excavation for construction is two meters.

Environmental concerns

a. Minimize disruption of existing topography, erosion and sedimentation problems by reducing cut and fill requirements.
b. Minimize disruption of natural overland and subsurface water flows.
c. Minimize disruption of existing vegetation and animal life
d. Avoid positive drainage along roadways (rainwater drainage) where such system directly falls into waterbodies and causes pollution.
e. Preservation of original vegetation, the presence of trees and the disposal of household waste water will be taken in consideration when planning permits are judged.

4. Explanatory notes on guidelines

4.1 Building intensity

4.1.1 Regulations

The above mentioned values are sued as the basic maximum building intensities in hillside areas between 50 and 100 meters altitude.

The effects of building increase significantly at higher slopes. This can be seen from fig. 3.1, where the effects of building in two situations is explained. Progressing in steepness the allowed building intensity is reduced significantly by the minimum size of the lots and the maximum percentage of the lot that can be built. At slopes above 30 degrees only 5 lots per ha are allowed (lot size: 2000m^2).

The second part of table 1 (areas above 100 m altitude) shows the same tendency. In these areas however a stricter policy is applied. Here the minimum lots sizes are 700 m^2 at 0-10 degrees and 3000 m^2 at slopes above 30 degrees. The last building restriction is considered as creating an uninteresting situation for possible intense development.

As indicated in the general notes under b. the maximum eaves height of a building is limited to 6 meters for the outside elevation perpendicular to the slope

of the hill (see fig. 2a). This measure is to prevent the construction of massive structures to be built visible from above or below the hill, which tends to be visually disturbing in the hill sides.

Two floorlevels are allowed for the flatter areas (0-20 degrees) of the medium density areas and the low density areas. In general two floorlevels are allowed for residential areas on flat land. For the steeper areas (20-40 degrees) of the medium density areas a maximum of three floorlevels is allowed since excavation is in general required to develop a lot and it is possible to built three floorlevels taken the six meters eaves height into consideration (see fig. 2b).

4.2 Roads

4.2.1 Existing situation on Sint-Maarten

The practice of road building in the hillside area is among others a consequence of the system of proprietary rights on the island and the lack of governmental regulations. In many cases the areas is divided in long-stretched land parts of approximately 50 meters wide, originating at the foot of the hill and ending at the top (fig. 3a).

In many cases the owner of a property willing to build a house on his land finds his neighbour not (yet) ready. To avoid long negotiations about the building of a road on joint account, road building often takes place within the borders of the own property. On a broader scale this practice leads to unwanted situations: too many roads are built, which are too steep, leading to excessive erosion and too many intersections to the primary public (roads) infrastructure (fig. 3b).

On Sint Maarten several situations exist in which road building occurs at the boundaries of what is considered technically and socially responsible. Road elevations of more than 20 degrees are no exception.

Problems that arise allowing the building of these roads are:

- Technical problems
- Safety problems
- Erosion

Technical problems

At a steepness of 18 degrees and more no asphalt machines can be used anymore, while above 24 degrees no concrete can be applied.

Safety

Middle class cars with average power have problems elevating roads of 15 degrees and more, as do trucks, ambulances and fire control trucks.

Road with a steepness of above 20 degrees are considered as extremely unsafe, especially in conditions of rainfall. Vehicles (including ambulances and fire trucks) cannot reach the sites accessed by these roads.

Erosion

Steep roads lead to heavy erosion because of the necessary cutting of the hill (see fig. 4a). An alternative building strategy (back filling the valley side of the hill) is not considered as a feasible option: in these situations there is a high risk of prolapsing of the road (4b).

A lot of erosion is caused by dirt roads, therefore roads should be paved, either with asphalt or concrete and proper drainage facilities should be provided for alongside the roads.

4.2.2 Regulations

The slope values for roads in the hillsides are identical in the hillside area above and below 100 meters, mainly because not only environmental aspects play an important role, also safety aspects are considered as most important.

Allowed slopes of 15 degrees (roads) and 20 degrees (access roads) are seen as maximum values to allow normal traffic passing and to guarantee the safety on the road.

To avoid a situation in which more roads are constructed than strictly necessary, policy is drafted for the manner in which roads are constructed. The policy refers to a combination of maximum slope (10-20 degrees) and minimum length of an alongside road part of 150 meters.

This combination has different effects:

1. Application of a minimum length of the alongside road part has the consequence that even in cases that the applicant can comply with the maximum steepness, the possibility of building a public road accessing and crossing properties not owned by the applicant has to be studied.
2. The road with a minimum length of 150 is constructed over more properties and is no longer considered an access road (but a public road). For roads a maximum steepness of 15 degrees is applied.

Fig. 3 gives an example of the undesired practice (b) and the effect of the construction regulation (c).

The effect of the policy is expected to be that owners of adjacent properties have to negotiate to come to an acceptable building strategy before building can take place. The department of VROM can in such a case play the role of intermediary.

The slope of the "scar" created by road building may never have an elevation of more than 1:2 (60 degrees) and should be planted to avoid erosion. Higher values lead to high landslide-risk and irrecoverable sites for vegetation (fig 1c).

4.3 Civil Works

4.3.1. Existing situation on SInt Maarten.

Presently no permits are needed to excavate one's land and no regulations exist with regards to retaining walls. The lack of these regulations cause bad 'scarring' in the hillsides and the occurrence of erosion.

4.3.2. Regulations

Before starting with the construction of roads a planning permit will have to be requested since said construction implies that the intention exists to subdivide for construction and according to the EROP a planning permit needs to be requested in such cases.

Furthermore a maximum depth of exposed excavation is allowed of 2 meters to avoid erosion and too much scarring of the hillsides. Furthermore an obligation exists to build a retaining walls if a cut is made of more than 45 degrees.

4.4 Other issues of interest: drainage, original vegetation, tree cutting

The drainage of waste water run off has a big impact on the hillsides and the lower parts of St. Maarten. Therefore it will be taken in consideration when judging planning permits and building permits.

Another attention point will be the local vegetation, especially higher up in the hils and in the steeper areas. The natural vegetation is the best guarantee against erosion. When requesting a building permit the conservation of the natural vegetation should be indicated. Furthermore attention will be given to the preservation of large trees which is considered important for the hillsides.

5. Implementation and status of the guidelines

The guidelines will be used to judge building permits (Bouw en Woningverordening 1935), planning permits (EROP 1994) and domain land requests (Eilandverordening op de uitgifte van erfpacht (1954).

The guidelines as a policy are not law. The specific situations will be taken into consideration. Deviation is possible if it is clear that in a certain situation ponderous arguments are present which show that utilization of the guidelines would not be reasonable. Requests for deviation (exemption) will always be checked by the before mentioned criteria: landscape, nature, environment and economical use of space.

6. Exemption from requesting a planning permit in the hill sides.

A planning permit is required when a land owner wants to subdivide his land for development and when he wants to construct more than one building on the land. The possibility exists to request exemption from requesting a planning permit in the hillsides under certain conditions. The Executive Council has mandated the head of VROM to grant such exemption when a plan fits entirely within the guidelines of the hillside policy and when the plan consists of not more than four lots or houses.

7. Discussion

7.1 Result of the proposed regulation

In preparing a building policy for the hillside area emphasis was given to the principle of minimizing building prohibitions and maximizing building regulations. For most areas a building permit can be allowed, when building takes place in a way meeting criteria for sustainable use.

However for the areas located above the 200 meter altitude line, the hill tops, the ridges and the areas where the slope is more that 40 degrees building is seen as undesirable.

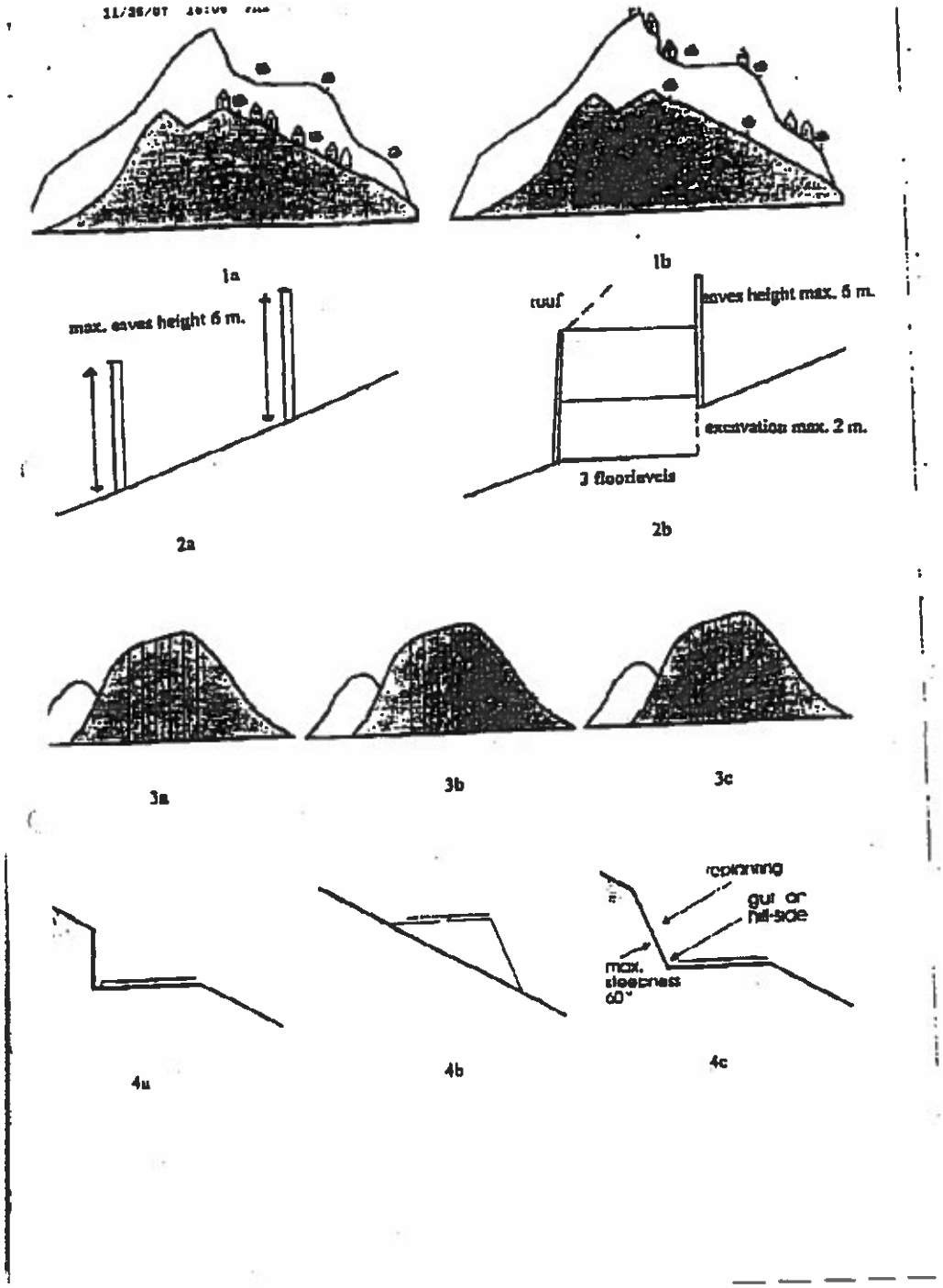
The result of the proposed combination of criteria and guidelines is a minimal area in which a complete building prohibition is valid. In the "open" areas below 200 meters building is possible in principle, however building guidelines are adjusted to the steepness of the area under consideration and the altitude.

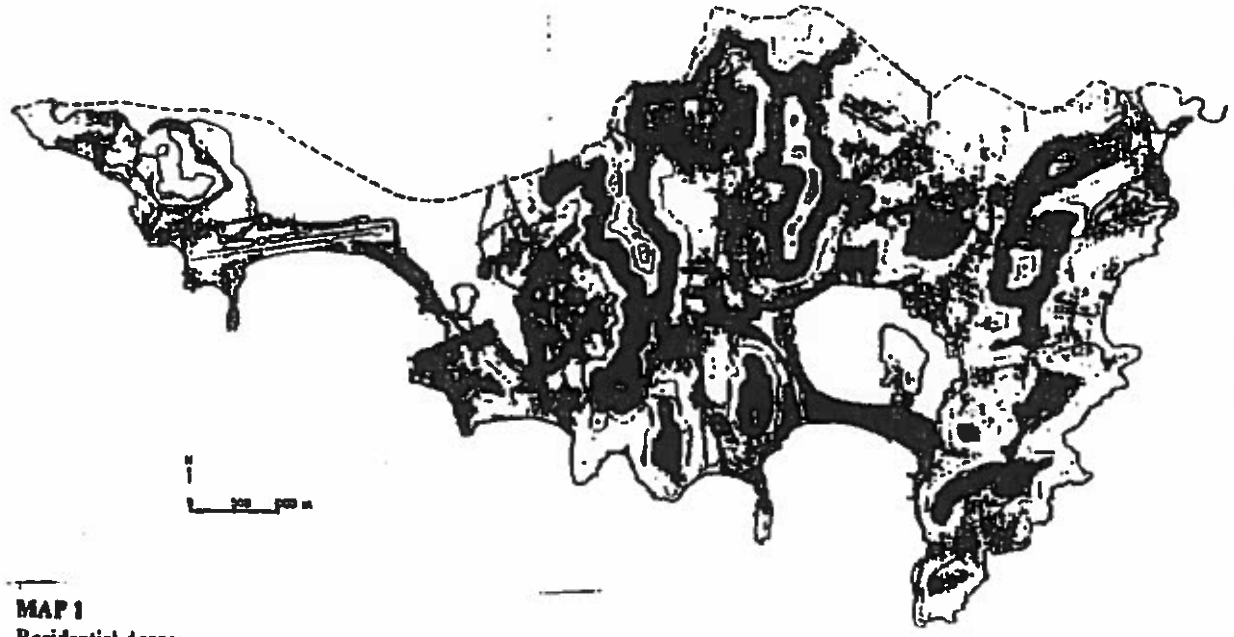
7.2 Evaluation of criteria and guidelines.

The criteria and guidelines for building in the hillsides are derived from a general, technical approach. This means that the guidelines are not necessarily valid for every situation. Even low ridges can form a "skyline", while behind ridges and tops above 100 m even higher hills could be seen.

The same could be said of the altitude on which building is regulated and the slope of the area. There can be (good) reasons for adjustment of these guidelines. However the building-prohibition above 200 meters and above a maximum slope of 40 degrees are seen as necessary "inelastic" criteria.

After evaluation of the policy the guidelines will be translated and incorporated in the Global Land Use Plan.

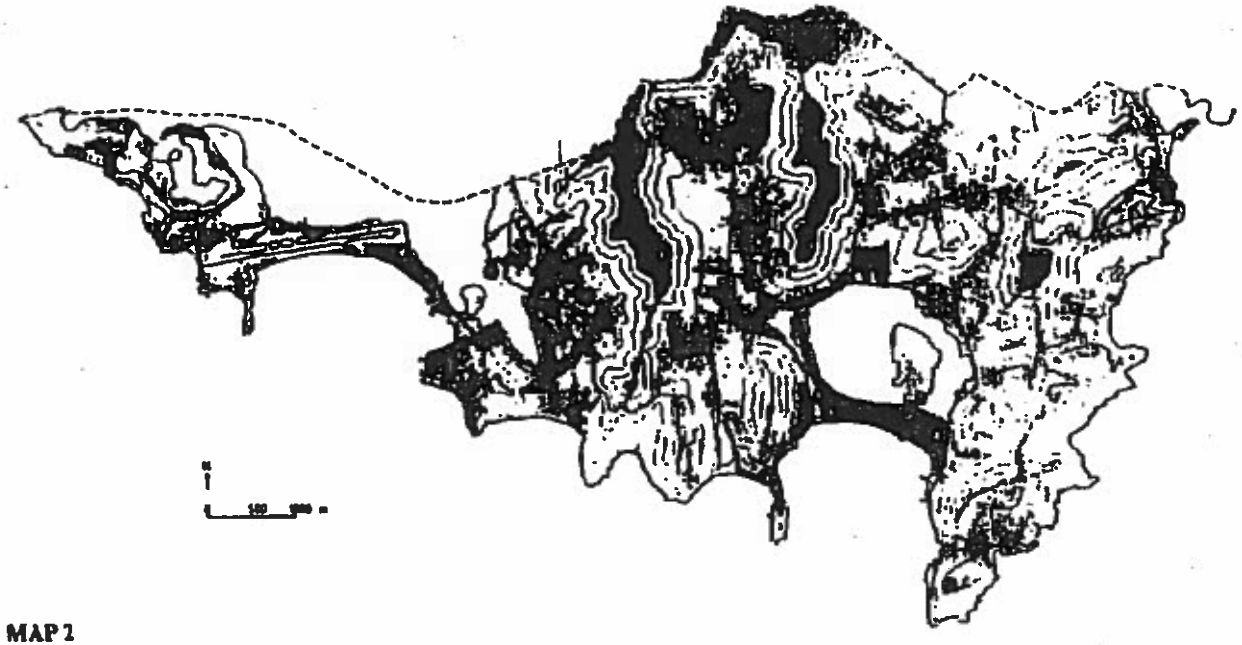




MAP 1
Residential Areas:

Medium Density Residential Areas (50 - 100m altitude)

Low Density Residential Areas (100 - 200m altitude)



MAP 1
Conservation Areas:

> 200m altitude

ridges and hilltops