CHAPTER 2 - SITE ACCEPTABILITY CRITERIA

200. GENERAL. Before approval of the site can begin, preliminary information about the site must be provided. Information to be provided appears in Appendix E.

201. SITE SUITABILITY. Site conditions can determine whether a given foundation design will be suitable for the manufactured home. Problem soils, flood-prone building sites, sloping sites, and ground-water level can affect decisions about foundation design. An investigation of the problem site by a qualified geotechnical engineer is recommended to assure that site conditions will not adversely affect foundation performance.

201-1. EXISTING GRADE ELEVATION(S) must be provided using a level and known benchmarks if any of the following are true:

A. The elevation is to be altered by grading or fill; or

B. The site is near a flood zone (e.g. lakes, rivers, streams, or coastal areas); or

C. The site is or will be incorporated in subdivisions and communities.

201-2. FLOOD-PRONE SITES. Building sites near lakes, rivers, streams and oceans are likely flood-prone areas. Information about whether the site is flood-prone should be obtained from FEMA Flood Maps. Determine whether the building site is in a flood zone. Refer also to the map showing distribution of great floods in the United States, page H-3.

A. Sites in Flood Zones. If the building site is within a flood zone, the finish grade of the building site must be located above the 100-year return frequency flood elevation, and in accordance with *HUD Handbooks 4135.1 REV.2* and *4145.1*.

B. Elevated Homes within flood zones can be built on specially-designed elevated foundations.

1. Refer to *Manufactured Home Installation in Flood-Hazard Areas*, FEMA-85 / Sept. 1985.

2. Homes built on elevated foundations must comply with requirements of the National Flood Insurance Program to qualify for flood insurance. (N.F.I.P.)

201-3. FROST PENETRATION DEPTH. Verify the frost penetration depth with local building code department. Refer to the Maximum Annual Frost Penetration map on page H-4. The base of the foundation footing must be below the maximum frost penetration depth. Foundations in permafrost must be designed by an engineer registered in Alaska.

201-4. GROUND WATER TABLE ELEVATION. Water table elevations vary from season to season and/or by locations. Building structures, streets, paved areas, and utilities shall be located or engineered to minimize the adverse effects of a high water table.

A. Subdivisions. A subsurface investigation by a Geotechnical Engineer is required to determine water table elevation.

1. Developed portions of a site which can be adversely affected by a po-

tentially high ground water table shall be drained where possible (based on recommendations by Geotechnical Engineer) by subsurface drainage facilities adequate for the disposal of excess ground water or by provision of surface drainage and surface ponds.

2. A Geotechnical Engineering Report shall be submitted in subdivision applications.

B. Exceptions. For individually-sited homes, the water table elevation may be based on local records if available; otherwise, determine by subsurface investigation.

202. SOIL BEARING CAPACITY

202-1. GENERAL. Soil conditions typically vary with depth. Subsurface investigations to a minimum recommended depth below the footing depth by a Geotechnical Engineer, using appropriate laboratory tests, are recommended to identify soil type and bearing capacity.

202-2. REQUIRED SUBSURFACE INVESTIGATION. For subdivisions and communities, a subsurface investigation is required.

A. Preliminary Design. Other sources may be consulted for presumptive bearing pressures for preliminary design purposes.

1. Allowable bearing pressures based on national model codes:

   a. BOCA - Basic National Building Code

   b. SBCC - Standard Building Code

   c. ICBO - Uniform Building Code

   d. CABO - One and Two Family Dwelling Code

2. Local authority having jurisdiction

3. Soil Conservation District

4. United States Geological Survey

5. Soil Conservation Service of the U.S. Dept. of Agriculture

6. Highway Department

7. Utility Company Records

B. Exceptions. For individually-sited homes, the bearing capacity may be determined based on local building codes, unless the site is located in an area of known or suspected adverse soil conditions (as defined in Section 203), then a subsurface investigation may be required.

203. PROBLEM SOIL AND SITE CONDITIONS

203-1. ORGANIC SOILS

A . Soil Identification. If any of the following soil types is identified at the proposed site by a Geotechnical Engineer (or soil conservation maps), removal of the problem soil type and replacement with an engineered fill is permitted if submitted and approved by a Geotechnical Engineer.

1. *Loess*. Deposits of windblown organic silts. Susceptible to moisture and frost action and excessive settlement.

2. *Peat*. River or water deposits of organic matter and silts, susceptible to excessive settlement.

3. *Topsoil*. Top organic layer of soil, susceptible to excessive settlement.

4. *Others* (As defined by Geotechnical Engineer). Refer to overview map of expansive soils, Appendix F.

203-2. UNSTABLE CLAYS have potential for large movements.

A. Conditions Causing Instability:

1. Expansive characteristics

2. Highly plastic characteristics

3. High compressibility

4. Other conditions as noted by Geotechnical Engineer.

B. Foundations for Unstable Clays. The presence of unstable clays indicates that special foundation treatment as recommended by a Geotechnical Engineer be included in the approval plan.

203-3. SLOPING SITES

A. General. There is the potential for slope instability and soil movement if the following conditions occur:

1. Loading on the slope by fill, home, or foundation.

2. Removal of lateral supports by construction.

3. Inherent characteristics of soil material and slope geometry.

4. Changes in the water content of the soil.

5. Refer to overview map of landslide problems on pages H-6 and H-7, and National Academy of Sciences Report *Reducing Losses from Landsliding in the United States*.

B. Local Records. Refer to local Geotechnical records and ordinances for guidance.

C. Identification. Subsurface investigation by a Geotechnical Engineer is recommended for sloping sites. This is the primary method of determining slope instability.

203-4. SUBSIDENCE

A. General. Subsidence refers to the potential for lowering or collapse of the land surface. Its causes are:

1. Dissolving of soluble materials below the surface to form cavities.

2. Underground mining.

3. Withdrawal of gas, oil, and water from subterranean cavities

4. Other causes as noted by Geotechnical Engineer.

B. Identification. Areas where subsidence occurs can be identified by local geological records or by subsurface investigation by a Geotechnical Engineer. Refer to the maps showing cave locations and coal field locations on pages H-8 and H-9, NBSIR 81-2215 *Construction of Housing in Mine Subsidence Areas*, and National Academy of Sciences Report

Mitigating Losses from Land Subsidence in the United States.

C. Stipulations. Construction on the site should be determined by a Geotechnical Engineer.

203-5. TERMITE HAZARD. Refer to the map on page H-10 for locations and intensity of termite infestation. Wood selection and treatment, and wood members in close proximity to the ground shall be in accordance with CABO *One & Two Family Dwelling Code* (all provisions listed in section R-309) or with local ordinances.