Homesite Judging

In South Dakota Guidebook

South Dakota State University Extension

USDA Natural Resources Conservation Service
U.S. Department of Agriculture

South Dakota Section – Society for Range Management

Updated: 2026

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P-000375

Judging Land for Homesites in South Dakota

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Revised and Reviewed: March 2026
Originally Published: June 2008

A home is a major investment for most people. Individual families and communities can avoid construction and maintenance problems if a study of soil conditions is made before construction begins. Soil information can be used to predict potential problems associated with planned or existing homesites. Before building or buying a home, consider if:

- There is a flood hazard.
- Drainage and seasonal high water table are a problem.
- The soils have high shrink-swell properties.
- Slope and unstable soil make erosion and soil movement a major problem.
- Soil conditions exist that corrode uncoated steel and concrete easily.
- Grading and soil removal was extensive.
- The soil properties are favorable for plant growth without extensive soil modification.
- Bedrock is present.

This contest is designed to emphasize the importance of soils and their limitations for homesites. The importance of a soil's suitability for parks, playgrounds, roads, streets, and other uses can also be considered. Many of the properties important for agricultural uses are also important for urban/rural uses (e.g., homesites). While the properties are the same, a different set of criteria is used to evaluate urban/rural uses.

Use of soil survey information can be very useful in determining general locations for homesites, but on-site soil investigations should be performed since soil survey information is not site specific and the site may be on an included soil in the soil map unit.

Defining Limitations

Soils have limitations in use depending on their inherent properties. In homesite evaluations, the soils are rated as having slight, moderate, or severe limitations as follows:

Slight limitations – Soils or sites have properties favorable for the planned use and present few limitations. Low maintenance can be expected.

Moderate limitations – Soils or sites have one or more properties considered somewhat restrictive for the planned use. Limitations may be overcome or modified with special planning, design, treatment, and/or maintenance.

Severe limitations – Soils or sites have one or more properties unfavorable for the planned use. Limitations are very difficult and expensive to modify or overcome for the desired use. A severe rating means that extensive, costly work needs to be done to overcome the soil limitations for the desired use.

Overcoming Limitations

Within the paragraph under each limiting factor, potential ways to overcome the limitation for use are given in italic font. Some moderate or severe limitations may be too costly to overcome or simply cannot be overcome (i.e. limitations from soil texture). In cases where it is not economically feasible or possible to overcome the limitations, the homesite will need to be relocated.

Defining Land Uses

Limitation ratings will be made for four homesite uses: (1) foundations for buildings, (2) lawns and landscaping, (3) septic system absorption field, and (4) sewage lagoon. Ratings for other uses can be made but are not included in this contest.

Foundations for buildings – This determination reflects the suitability of the soil to support buildings. Some important soil properties that affect building foundations are soil depth, slope, erosion, runoff, shrink-swell potential, water table, and flooding.

Lawns and landscape plantings – This rating reflects the use of the soil for growing lawns, shrubs, trees, and vegetable gardens. The important soil properties are those that affect establishment and maintenance of planting. They include texture, permeability, soil depth, runoff, water table, slope, erosion, flooding, fertility, pH, salinity, and sodicity.

Septic system absorption field – This subsurface system of tile or perforated pipe distributes waste water (effluent) from a septic system into the soil for purification. Properties and features that affect the movement and absorption of the effluent are permeability, soil depth, slope, erosion, runoff, shrink-swell, water table, and flooding. Absorption fields are typically installed at 2 to 4 feet.

Sewage lagoon – A dug pond used to hold sewage solids for bacterial decomposition and effluent evaporation is a sewage lagoon. Consideration of the soils ability to impound water and for use as embankment material must be made. Soil properties affecting sewage lagoons are permeability, soil depth, slope, erosion, water table, and flooding. Sewage lagoons are typically installed below a depth of 2 feet.

Factors Affecting Suitability

1. Texture

This refers to the texture of the surface soil layer/horizon. Surface texture is not a factor for foundation for buildings, septic systems, and sewage lagoons because foundations, lagoons, and lateral lines are dug below the surface layer. Surface textures may be a limitation for lawns and landscape plantings. Water and wind erosion may be a problem during construction.

Table 1 (below) is a guide for evaluation of texture for homesite uses.

Overcome Statement *- It is very difficult to overcome limitations posed by inherent soil texture. Some beneficial practices are listed under each texture group in the paragraphs below.*

Coarse: Moderate limitations for all uses – These soils are subject to wind erosion with inadequate ground cover. Coarse textures throughout the profile may also cause a caving hazard during excavation and construction. *May require stabilization with organic material (such as manure, straw, grass clippings, etc.) and/or loamy topsoil to improve moisture and nutrient holding capacity for desired plant growth.*

Moderately Coarse, Medium, Moderately Fine - Slight limitations for all uses – Care should be exercised during construction to be sure the surface soil is not covered by less desirable material. *Additions of organic matter will still be beneficial. Efforts to minimize soil compaction from heavy machinery especially when the soil is wet is also recommended.*

Fine: Severe limitations for all uses – Soil is sticky when wet, hard when dry, and difficult to work within flower beds and gardens. Water infiltration and permeability is slow. The soils crack when dry, swell when wet, requiring frequent and low rate of watering for plant growth. These soils are subject to wind erosion with inadequate ground cover. *Core aeration along with top dressing with sand and adding organic matter (such as manure) will help improve water infiltration and workability over time. Additional organic matter will also help improve the soil's available water holding capacity and workability over time.*

Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Coarse		Moderate		
Mod. Coarse Medium Mod Fine		Slight		
Fine		Severe		

Table 1. Effect of Texture on Land Use Adaptation

2. Permeability

This refers to the rate water or air moves through the most restrictive layer in the soil. Laterals for septic systems may be located below such layers in some soils. Final design should be based on detailed study of permeability, and seasonally high water tables. A standard percolation test should be performed on site to determine permeability rates. These investigations are important factors in deciding between septic tank absorption fields, sewage lagoons, or a community sewage system (Figure 1).

Figure 1. Soil Disposal of Septic System Effluent

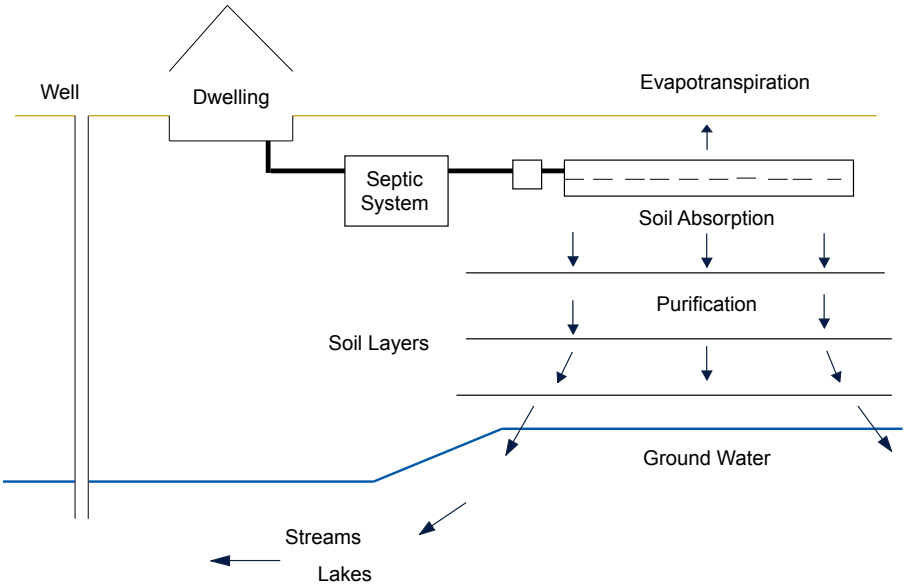

Table 2 (below) is a guide for evaluation of permeability for homesite uses.

Overcome Statement *- Local or state regulations need to be reviewed and followed to determine suitability of a given site based on percolation test results. Some beneficial practices are listed under each permeability group in the paragraphs below.*

Special note: For contest purposes, permeability will be determined from the subsoil texture box. A 3rd box for homesite may be used to determine the most restrictive layer; if significant coarse material (>12 inches) is present in the profile & noted on the field conditions card as other considerations.

Very Slow: Severe limitations for septic system absorption field. The subsoil has a fine textured layer. Permeability is less than 0.06 inches per hour. Septic systems are generally not recommended. *Would require a prohibitively large field or costly modifications would be necessary to effectively dispose of the effluent such as a mound system.* **Limitations would be slight for sewage lagoons.** The subsoil has a fine textured layer and usually coated with clay which restricts water movement. **Limitations would be severe for lawns and landscape plantings.**

Slow: Severe limitations for septic system absorption field. The subsoil has a moderately fine textured layer. Permeability ranges from 0.06 to 0.6 inches per hour. Problems are generally similar to the very slowly permeable soils but the modifications required for use are less intense *but modifications would be necessary to effectively dispose of the effluent such as a mound system.* At the .06 inch per hour rate (1 1/2 inches per day), the cost of modifications and size of filter field would be prohibitive. **Limitations would be slight for sewage lagoons and lawns and landscape plantings.**

Moderate: Slight limitations for septic system absorption field, lawns and landscape plantings, and moderate for sewage lagoons. The subsoil has a medium textured layer. Permeability ranges from 0.6 to 2 inches per hour. Sewage lagoons may need to be lined with a clay or synthetic liner.

Moderately Rapid: Moderate limitations for septic system absorption field. Limitations would be slight for lawns and landscapes and severe for sewage lagoons. The subsoil has a moderately coarse textured layer. Permeability ranges from 2 to 6 inches per hour. Septic systems may not adequately filter waste water. *Costly modifications would be necessary to effectively dispose of the effluent such as a mound system. Sewage lagoons will need to be lined with a clay or synthetic liner.*

Rapid: Severe limitations for septic system absorption field and sewage lagoons. Limitations would be moderate for lawns and landscape plantings. The subsoil has a coarse textured layer. Permeability is 6 inches or more per hour. These soils have a very low available water content which makes it very difficult to establish lawns and landscape plantings. Seepage from lagoons and septic tank absorption fields will occur and make it difficult to maintain adequate water depth and could contribute to ground water pollution. Septic systems will not adequately filter waste water. *Addition and incorporation of organic matter may improve water holding capacity over a long period of time for lawns and landscaping. Septic drain fields would have to be excavated, coarse material removed and suitable material brought in or a mound system installed which are very costly. Sewage lagoons will need to be lined with a thick clay, concrete or synthetic liner.*

Special note: The ratings for Homesite permeability are different from the land judging permeability. Land judging permeability ratings are determined on how permeability would limit plant growth only with soil texture and structure.

Degree of Limitation	Subsoil Texture	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Very Slow	Fine		Severe	Severe	Slight
Slow	Moderately Fine		Slight	Severe	Slight
Moderate	Medium		Slight	Slight	Moderate
Moderately Rapid	Moderately Coarse		Slight	Moderate	Severe
Rapid	Coarse		Moderate	Severe	Severe

Table 2. Effect of Permeability on Land Use Adaptation

3. Soil Depth

This refers to the vertical depth of a soil to bedrock such as sandstone, limestone, or consolidated clays (shale) that restrict roots and excavations. Severity of limitations because of depth varies greatly for different uses. If the soil depth falls on a break, use the more restrictive rating (i.e. if soil depth is 20 inches, use the Shallow ratings).

Table 3 (below) is a guide for evaluation of soil depth for homesite uses.

Overcome Statement *- Overcoming soil depth limitations generally are very costly and require additions of topsoil for lawns, going to a mound system for septic systems, and concrete or synthetic liners for sewage lagoons. State or local laws will dictate methods for septic systems and lagoons. Type of bedrock (shale, sandstone, limestone, etc.) will also determine methods for foundations, septic systems, and lagoons. Soft bedrocks can be excavated but care should be taken. Installing drainage around foundations will aid in removing potential excess water moving along the bedrock contact or within layers of the bedrock.*

Special note: In Homesite Evaluation, soils with coarse gravel are not limiting for soil depth. For contest purposes soils with coarse gravel will be rated in the permeability section.

Degree of Limitation	Depth in Inches	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Very Shallow	< 10”	Severe	Severe	Severe	Severe
Shallow	10-20”	Severe	Severe	Severe	Severe
Moderately Deep	20-40”	Severe	Moderate	Severe	Severe
Deep	40-60”	Moderate	Slight	Moderate	Moderate
Very Deep	> 60”	Slight	Slight	Slight	Slight

Table 3. Effect of Soil Depth on Land Use Adaptation

4. Slope

This refers to the steepness of the surface or the vertical rise or fall over 100 feet of distance, expressed in percent. Broader and different slope ranges apply to homesite use considerations than normally apply to considerations for agricultural uses. If the slope falls on a break, use the more restrictive rating (i.e. if slope is 6%, use Moderately Sloping rating).

Table 4 (below) will aid in interpretation of the slope condition for homesite evaluation.

Overcome Statement *- Excavation and leveling are the primary methods for overcoming limitations due to slope but are very expensive. Filling of depressional areas is not recommended due to continued potential wetness and settling issues. Drainage systems will likely need to be installed. Federal or state laws may restrict filling in wetlands.*

Degree of Limitation	Slope in Percent	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Depression		Severe	Severe	Severe	Severe
Nearly Level	0 - 3%	Slight	Slight	Slight	Slight
Gently Sloping	3 - 6%	Slight	Slight	Slight	Moderate
Moderately Sloping	6 - 9%	Slight	Slight	Slight	Moderate
Strongly Sloping	9 - 15%	Moderate	Moderate	Moderate	Severe
Steep & Very Steep	> 15%	Severe	Severe	Severe	Severe

Table 4. Effect of Slope on Land Use Adaptation

5. Erosion

Wind and water erosion of the soil can increase the expense of landscaping and require additional topsoil to be brought onto the site. Severe gullies will impose additional limitations on septic system absorption fields.

Table 5 (below) will aid in interpretation of the erosion condition for homesite evaluation. The amount of past erosion that has occurred is calculated by comparing present topsoil depth with original topsoil depth given under the “Field Condition Card”

Overcome Statement *- Usually severely gullied areas require extensive filling and leveling, extra design/installation expense for septic system absorption fields, and extensive modification for flower beds, lawns, etc. Installation of diversion terraces may be required to divert overhead water if a suitable outlet can be found. Addition of good (high in organic matter) loamy topsoil to moderately or severely eroded areas is possible (especially for lawns) but is very expensive if covering large areas. Measures will still need to be taken to control the primary erosion forces initially causing the site to erode such as slope, lack of vegetation/residue, etc.*

Slight: Slight limitations for any use and less than 25% topsoil loss.

Moderate: Moderate limitations for any use and between 25% to 75% topsoil loss.

Severe: Severe limitations for any use and greater than 75% topsoil loss. Usually severely gullied areas require much filling and leveling, extra expense on septic system absorption field, and extensive modification for flower beds, lawns, etc.

Degree of Limitation	Erosion Percent	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Slight	< 25%	Slight	Slight	Slight	Slight
Moderate	25 - 75%	Moderate	Moderate	Moderate	Moderate
Severe	> 75%	Severe	Severe	Severe	Severe

Table 5. Effect of Erosion on Land Use Adaptation

6. Surface Runoff

This is generally a factor of importance in connection with drainage, infiltration, permeability, and erosion. It is a function of slope and surface texture. Special attention needs to be given to surrounding areas. Runoff from adjacent areas onto building sites and the possibility of ponding water around the building foundation need consideration.

Table 6 (below) will aid in interpretation of the surface runoff condition for homesite evaluation.

Overcome Statement *- Installation of diversion terraces may be required to divert overhead water if a suitable outlet can be found. Additions of organic material such as straw or other crop residues that can be anchored may help reduce surface runoff on sloping areas and help increase infiltration. Surface runoff is not a factor for sewage lagoons because they will be protected from outside water. Review factors affecting suitability of texture and slope for overcoming limitations from surface runoff.*

Ponded: Free water stands on the surface for long periods of time, for several days or almost continuously during wet periods. *Installation of surface drainage will be required to overcome this limitation. However, state and federal laws may prohibit drainage activities. Best to avoid ponded areas.*

Slow: Occurs on nearly level to very gently sloping areas (0 to 3%) and coarse textured surfaces. Moderate limitations may require modification for building foundations and special design of septic system absorption field. On deep sands, slow runoff would not present any limitations. Limitations are *slight* for other uses.

Moderate: Slight limitations for foundations and septic systems. Moderate limitations for lawns and landscape plantings and occurs on slopes of (3 to 6%), except on coarse textured surfaces where runoff would be slow.

Rapid: Occurs on slopes above (6%) except on coarse textured surfaces where runoff would be slow. Severe limitations requiring care to maintain and to prevent erosion on lawns and gardens. Limitations would be slight for foundation for buildings and septic systems absorption field.

Degree of Limitation	Slope Percent	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Ponded		Severe	Severe	Severe	
Slow (Coarse surface/subsoil)	All Slopes	Slight	Slight	Slight	
Slow	< 3%	Moderate	Slight	Moderate	
Moderate	3 - 6%	Slight	Moderate	Slight	
Rapid	> 6%	Slight	Severe	Slight	

Table 6. Effect of Surface Runoff on Land Use Adaptation

7. Shrink-Swell

This factor is implied in the permeability, texture, and mineralogy of a soil. Because it is important in foundation design, it should have special consideration. The most clayey layer in the profile is generally considered in shrink-swell limitations. Shrink-swell is not generally a factor for lawns and landscape plantings and sewage lagoons.

Table 7 (below) will aid in interpretation of the shrink-swell condition for homesite evaluation.

Overcome Statement *- To overcome limitations, building sites need to be over excavated and back-filled with coarse material and foundations need to be thickened and reinforced with additional rebar. Care needs to be taken to move runoff water from the home and surrounding land surface away from foundations at least 3 to 5 feet. For septic systems, costly modifications would be necessary to effectively dispose of the effluent such as constructing a mound system.*

Low: Coarse and moderately coarse textured soils have slight limitations for all uses.

Moderate: Medium and moderately fine textured soils have moderate limitations for all uses, except slight for sewage lagoons.

High: Fine textured soils have severe limitations for all uses.

Special note: For contest purposes the subsoil texture box will be used to determine the shrink-swell.

Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Low	Slight		Slight	
Moderate	Moderate		Moderate	
High	Severe		Severe	

Table 7. Effect of Shrink-Swell on Land Use Adaptation

8. Water Table

The internal wetness of an area is influenced by most of the factors previously discussed. The presence and depth to a water table is the reflection of climate, season, parent material, and landscape position. It must be evaluated on the basis of depth to the seasonal high level and the permanency of the water table. This requires study during different times of the year and under differing climatic conditions. Capillary water is moisture held in the tiny pores between soil particles and is dependent on the soil texture. It is the principal source of moisture for plants.

Table 8 (below) will aid in interpretation of the water table condition for homesite evaluation.

Overcome Statement *- Overcoming water table limitations, typically involves installing drainage tile to remove excess water and lower the water table. However, state and federal laws may prohibit drainage activities. Also, a sufficient outlet needs to be obtained which is normally very difficult where apparent water tables are an issue. It is best just to avoid the area and re-locate to a suitable site. Perched water tables can exist where there are restrictive features in the soil such as bedrock or dense clayey layers. During wet periods, water can build in soil profiles and move laterally along bedrock, bedding planes, or dense clayey layers and pose a problem for foundations. No matter where the homesite is located, installation of a drain field around foundations is always recommended.*

Deep: Water table greater than 72 inches.

Moderately Deep: Water table 40 to 72 inches.

Shallow: Water table less than 40 inches.

Special note: Season High Water Table will be listed on the Field Condition Card in inches.

Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
Slight	> 72”	> 30”	> 72”	> 60”
Moderate	30” - 72”	12” - 30”	48” - 72”	40” - 60”
Severe	< 30”	< 12”	< 48”	< 40”

Table 8. Effect of Shrink-Swell on Land Use Adaptation

9. Flooding

The occurrence of flooding is a factor frequently overlooked in planning the use and management of land. Flooding may not occur on an area for many years however, a serious flood can occur. Urban development on the watershed of a small stream can increase runoff up to 75%, thus greatly increasing the flooding hazards. Soils may give an indication of flooding, but records must be studied to determine the true condition. Position in the landscape and proximity to nearby streams are good indicators of frequency of flooding. In contests this is normally given information. For contest purposes, the number of time flooding occurs out of 100 will be given on the Field Conditions card.

Table 9 (below) will aid in interpretation of the flooding condition for homesite evaluation

Overcome Statement *- Dikes or levees can be installed to protect buildings or lagoons from flooding but are not guaranteed to protect from all flood events, are expensive to build and maintain, and normally can't be economically installed by individuals. Also, state or federal regulations may restrict building or development in flood prone areas. It is best just to re-locate to a suitable location.*

None: *Slight* limitations for all uses.

Rare: 1 to 5 percent chance of flooding in any year or 1 to 5 times in 100 years. Slight limitation for lawns and landscaping. Moderate limitation for septic system absorption field and sewage lagoon. Severe limitation for foundations for buildings.

Occasional: 5 to 50 percent chance of flooding in any year or 5 to 50 times in 100 years. Severe limitations for foundations for buildings, septic system absorption field and sewage lagoon. *Moderate* limitations for lawns and landscaping.

Frequent: more than a 50 percent chance of flooding in any year or more than 50 times in 100 years. *Severe* limitations for all uses.

Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic System Absorption Field	Sewage Lagoon
None	Slight	Slight	Slight	Slight
Rare	Severe	Slight	Moderate	Moderate
Occasional	Severe	Moderate	Severe	Severe
Frequent	Severe	Severe	Severe	Severe

Table 9. Effect of Flooding on Land Use Adaptation

Resources:

- South Dakota State University
- Natural Resources Conservation Service
- www.landjudging.com

South Dakota Homesite Tutorial

Homesite evaluation contests are conducted in the same manner as land judging contests. Two points will be awarded for each feature in Part 1; one point for each feature in Part 2; fifty one points represents a perfect score. The factors are similar to land judging with the exception of *permeability, shrink-swell, water-table*, and *flooding*.

Land Factors		Interpretations of Limitations in Terms of: (1 pts. each)			
Features of Site being Considered (2 pts. each)		**Foundations for Buildings**	**Lawns and Landscaping**	**Septic System**	**Sewage Lagoon**
A. Texture - Surface					
Coarse			Moderate		
Moderately Coarse, Medium, Moderately Fine			Slight		
Fine			Severe		
B. Permeability - Subsoil					
Very Slow	Fine		Severe	Severe	Slight
Slow	Moderately Fine		Slight	Severe	Slight
Moderate	Medium		Slight	Slight	Moderate
Moderately Rapid	Moderately Coarse		Slight	Moderate	Severe
Rapid	Coarse		Moderate	Severe	Severe
C. Depth of Soil					
Very Shallow	< 10”	Severe	Severe	Severe	Severe
Shallow	10 - 20”	Severe	Severe	Severe	Severe
Moderately Deep	20 - 40”	Severe	Moderate	Severe	Severe
Deep	40 - 60”	Moderate	Slight	Moderate	Moderate
Very Deep	> 60”	Slight	Slight	Slight	Slight
D. Slope					
Depression		Severe	Severe	Severe	Severe
Nearly Level	0 - 3%	Slight	Slight	Slight	Slight
Gently Sloping	3 - 6%	Slight	Slight	Slight	Moderate
Moderately Sloping	6 - 9%	Slight	Slight	Slight	Moderate
Strongly Sloping	9 - 15%	Moderate	Moderate	Moderate	Severe
Steep/Very Steep	> 15%	Severe	Severe	Severe	Severe
E. Erosion					
Slight	< 25%	Slight	Slight	Slight	Slight
Moderate	25 - 75%	Moderate	Moderate	Moderate	Moderate
Severe	> 75%	Severe	Severe	Severe	Severe
F. Surface Runoff					
Ponded		Severe	Severe	Severe	
Slow - Surface & Subsoil Coarse Texture	All Slopes	Slight	Slight	Slight	
Slow	< 3% slope	Moderate	Slight	Moderate	
Moderate	3 - 6% slope	Slight	Moderate	Slight	
Rapid	> 6% slope	Slight	Severe	Slight	

Land Factors		Interpretations of Limitations in Terms of: (1 pts. each)			
Features of Site being Considered (2 pts. each)		Foundations for Buildings	Lawns and Landscaping	Septic System	Sewage Lagoon
G. Shrink-Swell (subsoil texture)					
Low	Coarse or Moderately Coarse	Slight		Slight	
Moderate	Medium or Moderately Fine	Moderate		Moderate	
High	Fine	Severe		Severe	
H. Water Table (permanent or temporary) *Given Factor Information at site will be in inches.*					
Deep	> 72”	> 72” Slight	> 30” Slight	> 72” Slight	> 60” Slight
Moderately Deep	40 - 72”	30 - 72” Moderate	12 - 30” Moderate	48 - 72” Moderate	40 - 60” Moderate
Shallow	<40”	< 30” Severe	< 12” Severe	< 48” Severe	< 40” Severe
I. Flooding (given factor)					
None		Slight	Slight	Slight	Slight
Rare	1 - 5 in 100 yrs.	Severe	Slight	Moderate	Moderate
Occasional	5 - 50 in 100 yrs.	Severe	Moderate	Severe	Severe
Frequent	> 50 in 100 yrs.	Severe	Severe	Severe	Severe
Final Evaluation					
		Most Limiting Factor Marked Above	Most Limiting Factor Marked Above	Most Limiting Factor Marked Above	Most Limiting Factor Marked Above

Conducting Homesite Evaluation

Homesite evaluation contests are conducted in the same manner as land judging. Both land and homesite evaluations are judged simultaneously with a combined time of 20 minutes per site, with an additional 15 minutes at the end of the contest to finish filling out your scantron at the final site.

South Dakota Homesite Evaluation Card

South Dakota State University Extension

School Name: _____ Field No. _____

Contestant Name: _____ Contestant Number: _____

Part 1 Land Factor (2 pts each)		Part 2. Planned Use - Family Dwelling Site With Basement. Interpretations of Limitations in Terms of: (1 pt each)			
Score Features of the Site Being Considered	Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic System	Sewage Lagoon
A. Texture - Surface ☐ Coarse ☐ Mod. Coarse, Medium, Mod. Fine ☐ Fine	Slight Moderate Severe		☐ ☐ ☐		
B. Permeability ☐ Very Slow Fine ☐ Slow Mod. Fine ☐ Moderate Medium ☐ Moderately Rapid Mod. Coarse ☐ Rapid Coarse	Slight Moderate Severe		☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
C. Depth of Soil ☐ Very Shallow < 10” ☐ Shallow 10 - 20” ☐ Moderately Deep 20 - 40” ☐ Deep 40 - 60” ☐ Very Deep > 60”	Slight Moderate Severe	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
D. Slope ☐ Depression ☐ Nearly Level 0 - 3% ☐ Gently Sloping 3 - 6% ☐ Moderately Sloping 6 - 9% ☐ Strongly Sloping 9 - 15% ☐ Steep & Very Steep > 15%	Slight Moderate Severe	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
E. Erosion ☐ Slight < 25% ☐ Moderate 25 - 75% ☐ Severe > 75%	Slight Moderate Severe	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
F. Surface Runoff ☐ Ponded ☐ Slow ☐ Moderate ☐ Rapid	Slight Moderate Severe	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
G. Shrink-Swell (Subsoil Texture Box) ☐ Low ☐ Moderate ☐ High	Slight Moderate Severe	☐ ☐ ☐		☐ ☐ ☐	
H. Water Table (permanent or temporary) ☐ Deep > 72” ☐ Moderately Deep 40 - 72” ☐ Shallow < 40 “	Slight Moderate Severe	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
I. Flooding ☐ None ☐ Rare 1 - 5 in 100 yrs ☐ Occasional 5 - 50 in 100 yrs ☐ Frequent > 50 in 100 yrs	Slight Moderate Severe	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Final Evaluation All factor slight One or more factors moderate, none severe One or more factors severe	Slight Moderate Severe	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐

Score Part 1: _____ Possible 18 Score Part 2: _____ 8 9 9 7

TOTAL SCORE: _____ Possible 51

South Dakota Land & Homesite Judging Field Conditions

Field Number: _____

- Original top soil thickness was _____ inches.
- Seasonal high water table depth at _____ inches.
- Flooding occurs _____ times in 100 years.
- Soil test levels are:

  _____ lbs/a N _____ lbs/a P _____ lbs/a K

- Livestock manure available (yes/no) _____
- Nutrient value of manure: at 10 tons/acre rate only

  _____ lbs/a N _____ lbs/a P _____ lbs/a K

- Crop/plant to be grown and nutrient requirements:

  If Land Class I/II then: _____

  _____ lbs/a N _____ lbs/a P _____ lbs/a K

  If Land Class III/IV then: _____

  _____ lbs/a N _____ lbs/a P _____ lbs/a K

  If Land Class V/VI/VII then: _____

  _____ lbs/a N _____ lbs/a P _____ lbs/a K

- Other considerations:

_____

_____

Pay no attention to practices on the field.
Consider the most intensive use of the land.

South Dakota Homesite Evaluation

Form #: 601SD-3

Team Name

Team #

Code

Last Name

First Name

Site 1

	Part 1: Land Factors	Part 2: Planned Use* — Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic Systems	Sewage Lagoon
TEXTURE SURFACE	Coarse	Slight				
	Mod Crse, Med, Mod Fine	Mod.				
	Fine	Severe				
PERM-EABILITY	Very Slow (Fine)	Slight				
	Slow (Mod. Fine)	Mod.				
	Moderate (Medium)	Severe				
	Mod. Rapid (Mod. Coarse)					
	Rapid (Coarse)					
DEPTH OF SOIL	Very Shallow (<10")	Slight				
	Shallow (10-20")	Mod.				
	Mod. Deep (20-40")	Severe				
	Deep (40-60")					
	V. Deep (>60")					
SLOPE	Depression	Slight				
	Nearly Level (0-3%)	Mod.				
	Gently Sloping (3-6%)	Severe				
	Mod. Sloping (6-9%)					
	Strongly Sloping (9-15%)					
	Steep & V. Steep (>15%)					
EROSION	Slight (<25%)	Slight				
	Moderate (25-75%)	Mod.				
	Severe (>75%)	Severe				
SURFACE RUNOFF	Ponded	Slight				
	Slow	Mod.				
	Moderate	Severe				
	Rapid					
SHRINK - SWELL	Low	Slight				
	Moderate	Mod.				
	High	Severe				
WATER TABLE	Deep (>72")	Slight				
	Mod. Deep (40-72")	Mod.				
	Shallow (<40")	Severe				
FLOOD -ING	None	Slight				
	Rare (1-5 in 100yr)	Mod.				
	Occasional (5-50 in 100yr)	Severe				
	Frequent (>50 in 100yr)					
FINAL EVAL.	All factors slight	Slight				
	One or more factors mod.; none severe	Mod.				
	One or more factors severe	Severe				

* Part 2: Planned Use - Family Dwelling Site With Basement. Interpretations of Limitations in Terms of...

Site 2

Part 1: Land Factors		Part 2: Planned Use*				
		Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic Systems	Sewage Lagoon
TEXTURE SURFACE	Coarse	Slight				
	Mod Crse, Med, Mod Fine	Mod.				
	Fine	Severe				
PERM-EABILITY	Very Slow (Fine)	Slight				
	Slow (Mod. Fine)	Mod.				
	Moderate (Medium)	Severe				
	Mod. Rapid (Mod. Coarse)					
	Rapid (Coarse)					
DEPTH OF SOIL	Very Shallow (<10")	Slight				
	Shallow (10-20")	Mod.				
	Mod. Deep (20-40")	Severe				
	Deep (40-60")					
	V. Deep (>60")					
SLOPE	Depression	Slight				
	Nearly Level (0-3%)	Mod.				
	Gently Sloping (3-6%)	Severe				
	Mod. Sloping (6-9%)					
	Strongly Sloping (9-15%)					
	Steep & V. Steep (>15%)					
EROSION	Slight (<25%)	Slight				
	Moderate (25-75%)	Mod.				
	Severe (>75%)	Severe				
SURFACE RUNOFF	Ponded	Slight				
	Slow	Mod.				
	Moderate	Severe				
	Rapid					
SHRINK - SWELL	Low	Slight				
	Moderate	Mod.				
	High	Severe				
WATER TABLE	Deep (>72")	Slight				
	Mod. Deep (40-72")	Mod.				
	Shallow (<40")	Severe				
FLOOD -ING	None	Slight				
	Rare (1-5 in 100yr)	Mod.				
	Occasional (5-50 in 100yr)	Severe				
	Frequent (>50 in 100yr)					
FINAL EVAL.	All factors slight	Slight				
	One or more factors mod.; none severe	Mod.				
	One or more factors severe	Severe				

* Part 2: Planned Use - Family Dwelling Site With Basement. Interpretations of Limitations in Terms of...

Site 3

Part 1: Land Factors		Part 2: Planned Use*				
		Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic Systems	Sewage Lagoon
TEXTURE SURFACE	Coarse	Slight				
	Mod Crse, Med, Mod Fine	Mod.				
	Fine	Severe				
PERM-EABILITY	Very Slow (Fine)	Slight				
	Slow (Mod. Fine)	Mod.				
	Moderate (Medium)	Severe				
	Mod. Rapid (Mod. Coarse)					
	Rapid (Coarse)					
DEPTH OF SOIL	Very Shallow (<10")	Slight				
	Shallow (10-20")	Mod.				
	Mod. Deep (20-40")	Severe				
	Deep (40-60")					
	V. Deep (>60")					
SLOPE	Depression	Slight				
	Nearly Level (0-3%)	Mod.				
	Gently Sloping (3-6%)	Severe				
	Mod. Sloping (6-9%)					
	Strongly Sloping (9-15%)					
	Steep & V. Steep (>15%)					
EROSION	Slight (<25%)	Slight				
	Moderate (25-75%)	Mod.				
	Severe (>75%)	Severe				
SURFACE RUNOFF	Ponded	Slight				
	Slow	Mod.				
	Moderate	Severe				
	Rapid					
SHRINK - SWELL	Low	Slight				
	Moderate	Mod.				
	High	Severe				
WATER TABLE	Deep (>72")	Slight				
	Mod. Deep (40-72")	Mod.				
	Shallow (<40")	Severe				
FLOOD -ING	None	Slight				
	Rare (1-5 in 100yr)	Mod.				
	Occasional (5-50 in 100yr)	Severe				
	Frequent (>50 in 100yr)					
FINAL EVAL.	All factors slight	Slight				
	One or more factors mod.; none severe	Mod.				
	One or more factors severe	Severe				

* Part 2: Planned Use - Family Dwelling Site With Basement. Interpretations of Limitations in Terms of...

Site 4

Part 1: Land Factors		Part 2: Planned Use*				
		Degree of Limitation	Foundations for Buildings	Lawns and Landscaping	Septic Systems	Sewage Lagoon
TEXTURE SURFACE	Coarse	Slight				
	Mod Crse, Med, Mod Fine	Mod.				
	Fine	Severe				
PERM-EABILITY	Very Slow (Fine)	Slight				
	Slow (Mod. Fine)	Mod.				
	Moderate (Medium)	Severe				
	Mod. Rapid (Mod. Coarse)					
	Rapid (Coarse)					
DEPTH OF SOIL	Very Shallow (<10")	Slight				
	Shallow (10-20")	Mod.				
	Mod. Deep (20-40")	Severe				
	Deep (40-60")					
	V. Deep (>60")					
SLOPE	Depression	Slight				
	Nearly Level (0-3%)	Mod.				
	Gently Sloping (3-6%)	Severe				
	Mod. Sloping (6-9%)					
	Strongly Sloping (9-15%)					
	Steep & V. Steep (>15%)					
EROSION	Slight (<25%)	Slight				
	Moderate (25-75%)	Mod.				
	Severe (>75%)	Severe				
SURFACE RUNOFF	Ponded	Slight				
	Slow	Mod.				
	Moderate	Severe				
	Rapid					
SHRINK - SWELL	Low	Slight				
	Moderate	Mod.				
	High	Severe				
WATER TABLE	Deep (>72")	Slight				
	Mod. Deep (40-72")	Mod.				
	Shallow (<40")	Severe				
FLOOD -ING	None	Slight				
	Rare (1-5 in 100yr)	Mod.				
	Occasional (5-50 in 100yr)	Severe				
	Frequent (>50 in 100yr)					
FINAL EVAL.	All factors slight	Slight				
	One or more factors mod.; none severe	Mod.				
	One or more factors severe	Severe				

* Part 2: Planned Use - Family Dwelling Site With Basement. Interpretations of Limitations in Terms of...