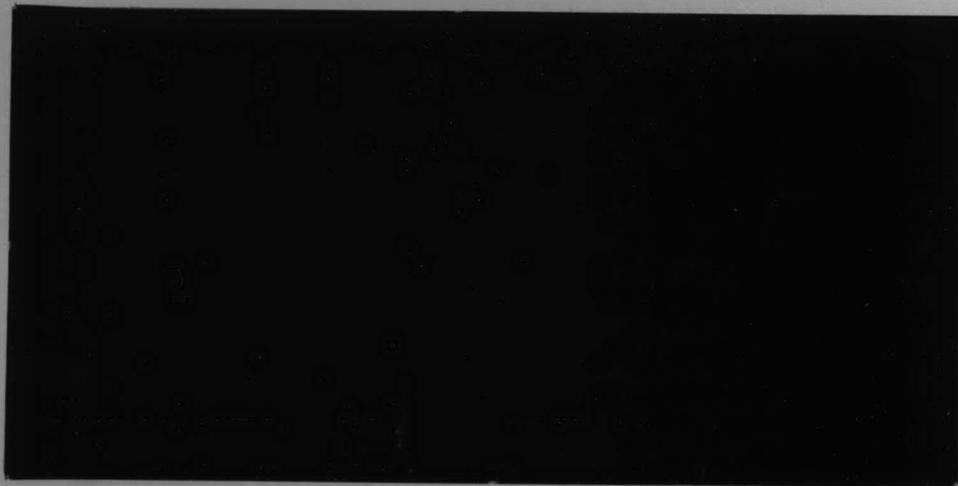


# INVENTORY AND EVALUATION

SOIL AND WATER RESOURCES



SOIL CONSERVATION SERVICE  
U.S. DEPARTMENT OF AGRICULTURE



# INVENTORY AND EVALUATION

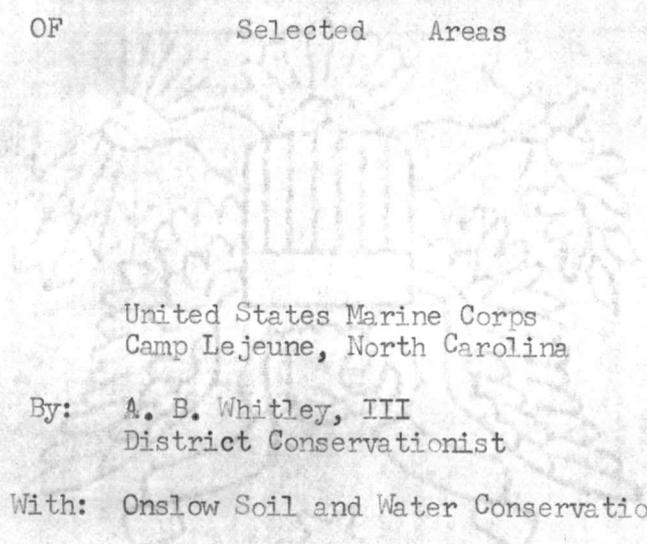
SOIL AND WATER RESOURCES



SOIL CONSERVATION SERVICE  
U.S. DEPARTMENT OF AGRICULTURE



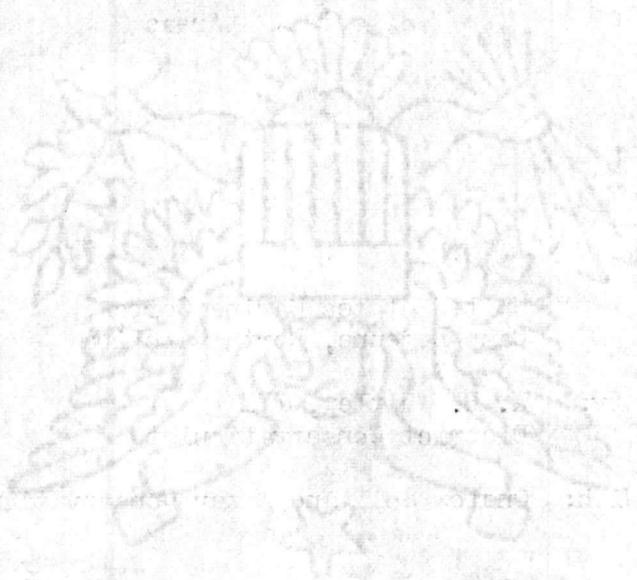
DETAILED SOIL SURVEY  
OF Selected Areas



United States Marine Corps  
Camp Lejeune, North Carolina

By: A. B. Whitley, III  
District Conservationist

In Cooperation With: Onslow Soil and Water Conservation District



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Affecting Selected Use



Onslow County  
Soil Identification Legend

1-1-74 - Revised 7-1-74

<u>MAP SYMBOL</u>	<u>NAME OF SOIL MAPPING UNITS LISTED ALPHABETICALLY</u>
860	Bayboro loam
739	Baymeade sand, 1 to 6 percent slopes
BA	*(Woodland) Baymeade soils, 1 to 6 percent slopes
BJ	(Woodland) Bibb and Johnston soils, frequently flooded
853 (818)	Bladen fine sand loam
730	Blanton sand
B.P.	Borrow pits
CA	Capers soils, flooded by tides
CD	Corolla-Duckston complex
558B	Craven fine sandy loam, 1 to 4 percent slopes
558C	Craven fine sandy loam, 4 to 8 percent slopes
455	Exum very fine sandy loam, 0 to 2 percent slopes
410	Goldsboro loamy sand, 0 to 2 percent slopes
402	Johns sandy loam
704	Kureb sand, 0 to 6 percent slopes
KL	(Woodland) Kureb and Lakeland soils, 0 to 6 percent slopes
78	Lakeland sand, 0 to 6 percent slopes
564	Lenoir loam
582	Leon sand
LN	(Woodland) Leon soils
814	Lumbee sandy loam



<u>MAP SYMBOL</u>		<u>NAME OF SOIL MAPPING UNIT</u>
417		Lynchburg sandy loam
891		Lynn Haven sand
LM	(Woodland)	Lynn Haven and Murville soils
894		Murville fine sand
458		Nahunta very fine sandy loam
708		Newhan sand, 2 to 15 percent slopes
365A		Norfolk loamy sand, 0 to 2 percent slopes
365B		Norfolk loamy sand, 2 to 6 percent slopes
365C		Norfolk loamy sand, 6 to 10 percent slopes
415 (564)		Onslow loamy fine sand
ON	(Woodland)	Onslow and Norfolk soils, 0 to 6 percent slopes
460		Pactolus loamy sand
PM	(Woodland)	Pamlico soils
836		Pantego loam
738		Pocalla loamy sand, 0 to 6 percent slopes
830		Rains sandy loam
RL	(Woodland)	Rains and Lynchburg soil
452		Seabrook loamy fine sand
420		Stalling loamy sand
870		Torhunta fine sandy loam
TP	(Woodland)	Torhunta and Pantego soils
877		Trebloc loam
UL		Urban land
UL-0		Urban land-Onslow soils complex, 0 to 6 percent slopes



<u>MAP SYMBOL</u>	<u>NAME OF SOIL MAPPING UNIT</u>
370B	Wagram loamy sand, 0 to 6 percent slopes
370C	Wagram loamy sand, 6 to 10 percent slopes
722	Wando fine sand
WA	(Woodland) Wando and Seabrook soils, 0 to 6 percent slopes
833	Woodington loamy sand

\*The woodland delineations are generally larger and the composition of the unit is apt to be more variable than for other units in the survey area. Usually there is more than one soil series in each unit. Mapping has been controlled well enough, however, for soil interpretation for woodland and wildlife uses of the areas.



## Special Symbols



Small borrow pits,  $\frac{1}{2}$  to 1 acre in size.



Wet area. Small areas ( $\frac{1}{2}$  to 3 acres) of somewhat poorly to poorly drained soils that are at least one drainage class wetter than the surrounding soils.



Sand area. Small well or excessively drained area, ( $\frac{1}{2}$  to 3 acres) of soils with very thick sandy surface layers or deep sand soils which occur in areas with less than 20 inches of surface soil.



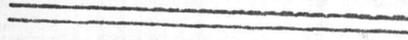
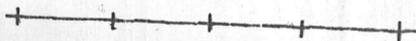
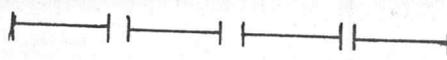
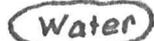
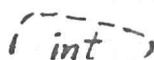
Short steep slopes (10 to 30 percent; 20 to 100 feet long) which are too narrow to delineate from surrounding nearly level to gently sloping layer.

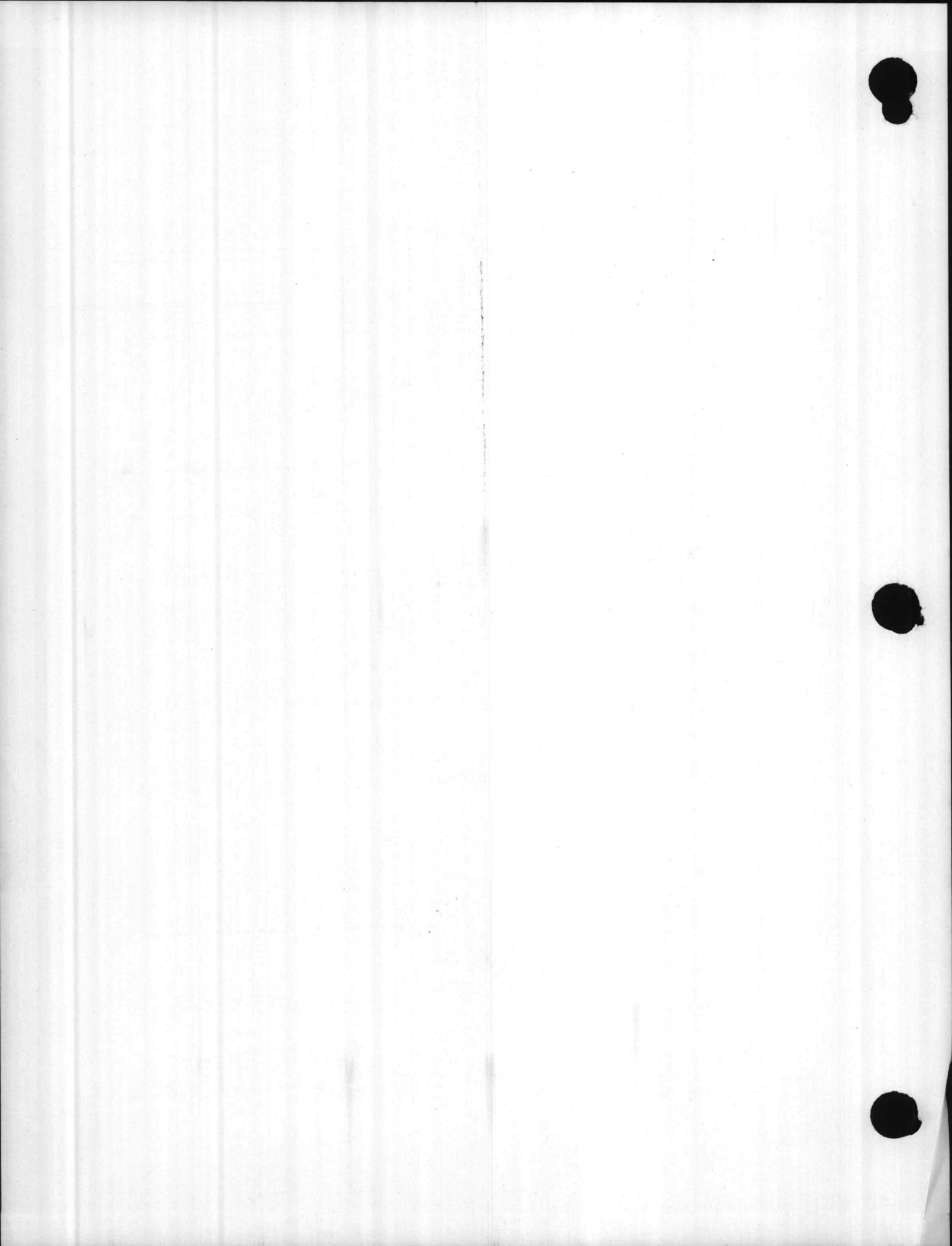


Gravelly area. Percent of gravel by volume is 20 to 50 percent and  $\frac{1}{2}$  to 3 acres in size.



LIST OF CONVENTIONAL SYMBOLS USED ON FIELD SHEETS

Roads		
Divided		U. S. 70 
Good Motor		 or 
Poor Motor or Private		
Route Designation		Int. 20, U. S. 70, N. C. 58 or 3708 or <u>3708</u>
Railroads		
Power-Transmission Line		
Natural Gas Mains (Major Pipe Lines)		
Buildings		
Dwelling		
Church		
School		
Forest Fire Lookout Station		
Cemetery		 +
Boundaries		
County		
Drainage Features (Blue)		
Large Perennial Streams		
Small Perennial Streams		
Intermittent Streams		
Impounded Pond		
Dug Ponds		 
Intermittent Lake or Pond		





SOIL MAP

Approx. Scale 1" = 1000'

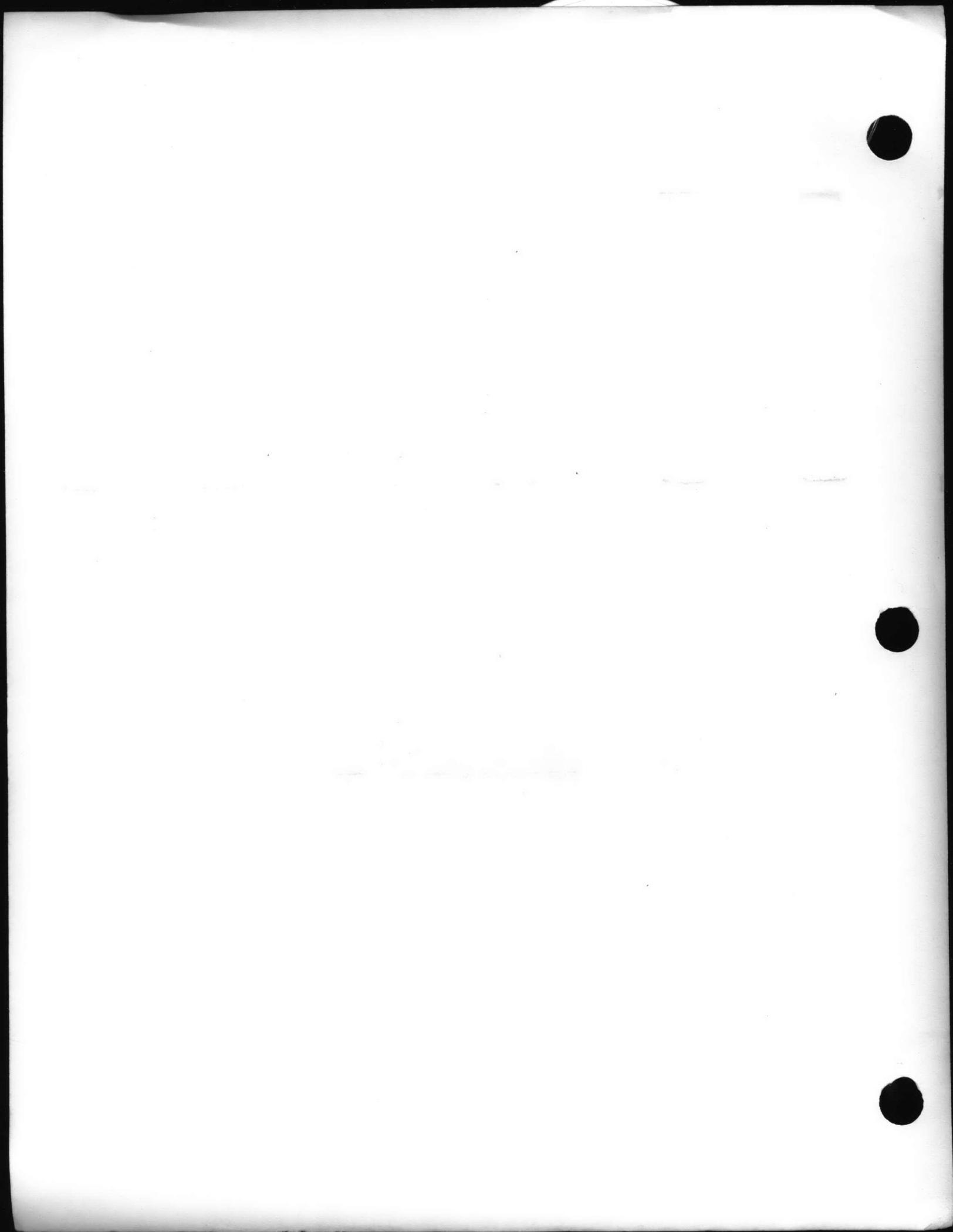
Prepared By

DA, SOIL CONSERVATION SERVICE COOPERATING WITH THE STATE AGRICULTURAL EXPERIMENT STATION AND THE SOIL & WATER CONSERVATION DISTRICT

Owner \_\_\_\_\_ Operator \_\_\_\_\_ Date \_\_\_\_\_

County \_\_\_\_\_ State \_\_\_\_\_ Sheet & Code No. \_\_\_\_\_







SOIL MAP

Approx. Scale 1" = 1000'

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### SOIL MAP

Approx. Scale 1" = 1000'

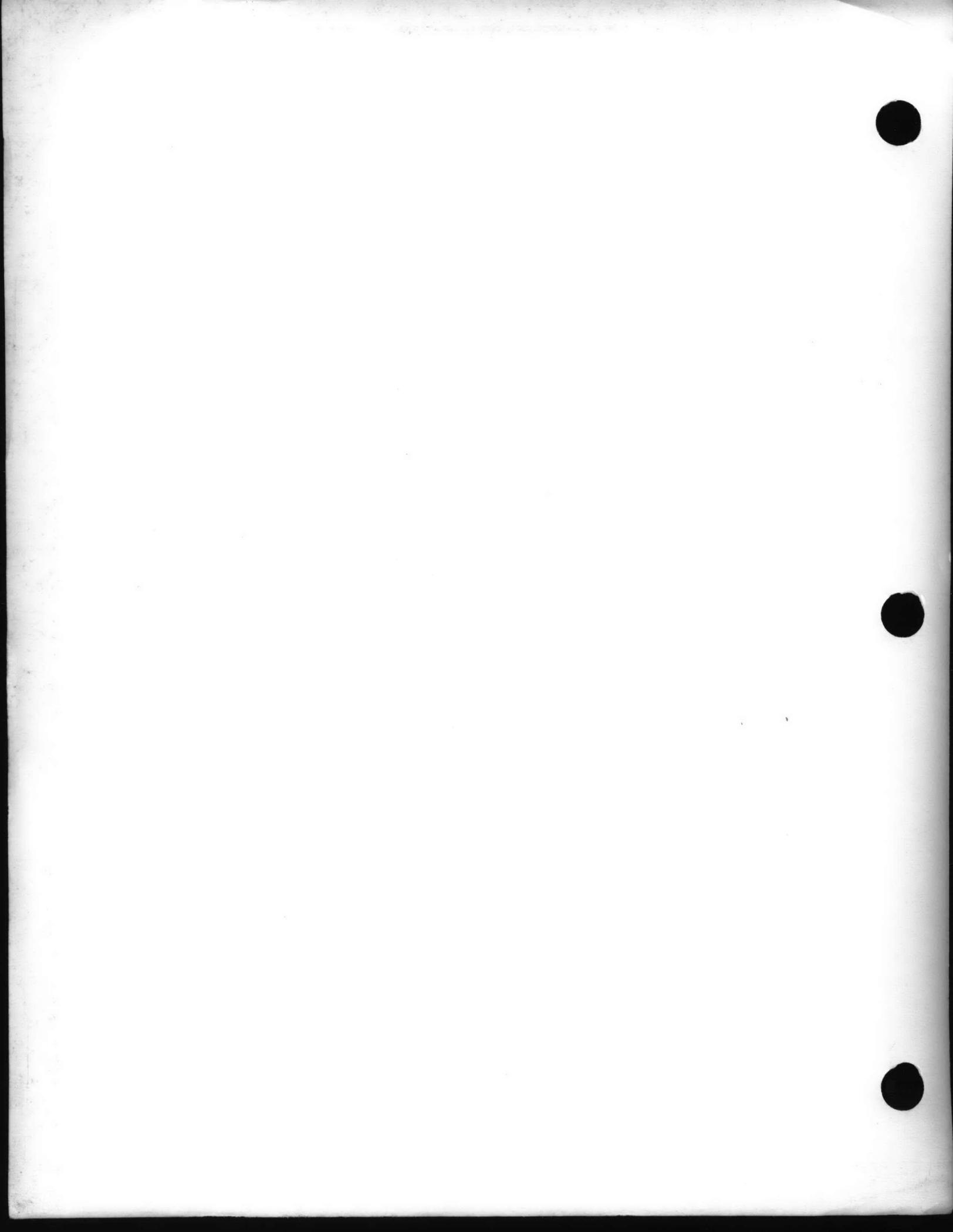
Prepared By \_\_\_\_\_

USDA, SOIL CONSERVATION SERVICE COOPERATING WITH THE STATE AGRICULTURAL EXPERIMENT STATION AND THE \_\_\_\_\_ SOIL & WATER CONSERVATION DISTRICT

Owner \_\_\_\_\_ Operator \_\_\_\_\_ Date \_\_\_\_\_

County \_\_\_\_\_ State \_\_\_\_\_ Sheet & Code No. \_\_\_\_\_





MAP SYMBOL  
739

SOIL NAME  
Baymeade sand, 1 to 6 percent slopes

BAYMEADE SERIES  
SOIL SURVEY INTERPRETATIONS 1/

somewhat excessively

The Baymeade series are / drained soils with thick sandy surface horizons that have irregular intermittent Bh bodies in the A2 horizon over loamy strong brown Bt horizons. These soils are on broad undulating ridges in the lower Coastal Plains. Slopes range from 1 to 6 percent.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-36"	sand	SP,SM, SP-SM	A2,	100	100	100	50-70	5-15	--	Np	6.0-20.	.02-.06	5.1-6.5	Very low
36-49	sandy loam,	SM,SC, CL	A2,A-4	100	100	100	60-90	30-55	10-20	5-10	2.0-6.0	.10-.14	5.1-6.5	Low
49-78	sandy clay loam loamy sand, sand	SM,SP-SM	A-2	100	100	100	50-75	5-30	--	Np	6.0-20.	.02-.10	5.1-6.5	Very low

Depth to rock: Rock free

Hydrologic group: A

Flood hazard: None

Wetness: Water table is below 5 feet

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

Topsoil	Poor - sand texture
Sand	Fair
Gravel	Unsuited
Roadfill	Good

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

Pond reservoir areas	Severe - permeability
Pond embankments	Moderate - susceptibility to piping
Excavated ponds (aquifer fed)	Severe - depth to seasonally high water table
Corrosivity - Uncoated steel	Low
Corrosivity - Concrete	High - soil texture and reaction
Dwellings	Slight
Septic tank filter fields	Slight - *
Sewage lagoons	Severe - permeability
Local roads and streets	Slight
Light industries	Slight
Sanitary landfill both types	Severe - permeability

BAYMADE SERIES  
DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT <sup>2/</sup>

Camp Areas	Moderate - sandy surface soil
Picnic Areas	Moderate - sandy surface soil
Playgrounds	Severe - sandy surface soil
Paths and Trails	Severe - sandy surface soil

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Corn bu.	Peanuts lbs.	Bahia Pasture AUM	Coastal Bermuda AUM	Coastal Bermuda Tons
		K	T					
1-6% slopes	IIIa	.17	5	60	2100	7.0	8.0	4.5

WILDLIFE SUITABILITY <sup>3/</sup>

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
All	Very poor	poor	poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor

WOODLAND SUITABILITY <sup>4/</sup>

Phases of Series	Ord.	Potential Productivity			Woodland Management Problems			Trees to Plant	
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	lbs/ac	Erosion Hazard	Equip. Limit.		Seedling Mortality
All	3s2	Loblolly pine Slash pine Longleaf pine	80 80 65	N/A		Slight	Moderate	Moderate	Slash pine Loblolly Longleaf pine

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac
		N/A

OTHER

		N/A
--	--	-----

- 1/ Interpretations based on "Guide for Interpreting Engineering uses of Soils", Nov. 1971  
 2/ Soils Memo 69  
 3/ Soils Memo 74  
 4/ Soil Survey interpretations for woodlands, "Progress Report W-16", January 1970.

**MAP SYMBOL**

811 *BS*

**SOIL NAME**

**Bibb soils, frequently flooded**

*Johnson*

**SOIL SURVEY INTERPRETATIONS**

**IBB SERIES**

The Bibb series consists of poorly drained, level to nearly level flood plain soils subject to frequent overflow. They have brownish to grayish sandy loam surface layers over gray stratified sandy and silty subsurface layers. A water table is within 8 inches of the surface from 6 to 11 months each year.

**ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES <sup>1/</sup>**

General Soil Profile (inches)	Classification			% of Material Passing Sieve No.				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink Swell Potential
	USDA Texture	Unified	AASHO	#4	#10	#30	#200						
0-37"	sl, l, sil	SM, ML	A-2 A-4	95-100	90-100	60-90	30-60	0-40	0-12	.63-2.0	.12-.18	4.5-5.5	Low
37-60"	sil, l, sl cl	ML, SM CL	A-4 A-2 A-6	60-100	50-100	40-100	30-90	15-40	4-14	.63-2.0	.12-.20	4.5-5.5	Low

Flood hazard: Very frequent, brief duration. Depth to rock: Rock free  
 Wetness: Very shallow water table for long periods. Poorly drained. Hydrologic group: *B<sub>6</sub>*

**SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL <sup>2/</sup>**

Topsail	Fair - moderate productivity
Sand	Fair - contains excess fines
Gravel	Poor - improbable source
Roadfill	Poor - poorly drained

**DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE**

Highway location	<i>2/</i>	Severe; flooding, high water table.
Pond reservoir areas	<i>2/</i>	Moderate; permeability
Pond embankments	<i>2/</i>	Moderate; moderate seepage and piping
Excavated ponds	<i>2/</i>	Moderate; fluctuating water table can cause excess fluctuation in impoundment; permeability
Corrosivity - Uncoated steel	<i>2/</i>	High; acidity; poorly drained
Corrosivity - Concrete	<i>2/</i>	Moderate; acidity
Foundations for low buildings	<i>2/</i>	Severe; flooding; high water table
Septic tank filter fields	<i>2/</i>	Severe; flooding; high water table
Sewage lagoons	<i>2/</i>	Severe; probable flood damage to embankments
Streets and low-cost roads	<i>3/</i>	Severe; flooding; high water table
Light industries	<i>3/</i>	Severe; flooding; high water table

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT 4/

Camp Areas	Severe; flooding and wetness
Picnic Areas	Severe; flooding and wetness
Playgrounds	Severe; flooding and wetness
Paths and Trails	Severe; flooding and wetness

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management) 3/

Phases of Series	Capability	Soil Loss		Corn (bu)	Soybeans (bu)	Clover grass hay (tons)	Pasture AUM	
		K	T				Bahia & Leg.	Fescue & Leg.
frequently flooded	Vw	-	-				7.0	7.0
occasionally flooded	IIIw	-	-	120	35	3.0	8.0	8.0

WOODLAND SUITABILITY

Phases of Series	Ord.	Potential Productivity		Seedling Mortality	Erosion Hazard	Equip. Limit.	Trees to Plant	Grazing Potential
		Important Trees	S. I. Class					
All	2w9	Loblolly pine Sweetgum	92+7 90+9	Severe	Slight	Severe	Sweetgum Cottonwood Nuttall oak Sycamore Loblolly pine	None

WILDLIFE SUITABILITY 5/

Openland Wildlife	Poorly suited
Woodland Wildlife	Suited
Wetland Wildlife	Well suited

RANGE

Site name and kinds and amounts of vegetation under potential (or climax) cover.

OTHER


1/ Estimated by using data from soils that have horizons of comparable texture.  
 2/ Guides for Interpreting Engineering Uses of Soils - Advisory Soils-4, 4/67  
 3/ MLRA-Coordinated Tables 1963  
 4/ Soils Memorandum-69 - Soil Interpretations for Recreation 10/68  
 5/ Ratings used are well suited, suited, poorly suited

MAP SYMBOL

558C

SOIL NAME

Craven fine sandy loam, 4 to 8 percent slopes

CRAVEN <sup>1/</sup>  
SOIL SURVEY INTERPRETATIONS

The Craven series consists of moderately well drained soils on nearly level to sloping Coastal Plain uplands. Typically, these soils have a grayish brown loam surface layer and a light olive brown and yellowish brown clay subsoil that is very firm and very slowly permeable. Gray mottles are common below about 18 inches. The substratum is commonly clayey with lenses of sandy material. Slopes range from 0 to 12 percent.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES <sup>2/</sup>

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-7	1, fsl, sil	ML	A-4		100	100	85-100	51-70	-	NP	0.63-2.0	.12-.18	4.5-6.0	low
7-55	clay	CH, MH	A-7		100	100	90-100	70-95	51-60	18-35	.06-.20	.12-.15	4.5-5.5	Mod
55-65	clay loam	CH, CL	A-7		100	100	90-100	55-85	42-55	15-35	.06-.20	.12-.15	4.5-5.5	Mod

Depth to rock: Rock free

Hydrologic group: C

Flood hazard: None

Wetness: Depth to seasonal high water table is within 2½ feet of the surface for 2 to 6 months annually on the nearly level phases.

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL <sup>3/</sup>

Topsoil	Poor: Thickness of material
Sand	Unsuited
Gravel	Unsuited
Roadfill	Poor: Unified soil group

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

Pond reservoir areas	Slight
Pond embankments	Moderate - compressibility
Excavated ponds (aquifer fed) Runoff fed	Moderate - depth to dry season water table Slight
Corrosivity - Uncoated steel	High - soil drainage and texture
Corrosivity - Concrete	High - acidity texture and acidity
Dwellings	Severe - unified soil group
Septic tank filter fields	Severe - depth to water table
Sewage lagoons	0-2% slopes - slight 2-7% slopes - moderate, slope 7-12% slopes - severe, slope
Streets and low-cost roads	Severe - unified soil group
Light industries	Severe - unified soil group
Sanitary Landfill Trench and Area Method	Severe - depth to seasonal high water table

CRAVEN

4/

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT

Camp Areas	Moderate - permeability
Picnic Areas	0-8% slopes - slight 8-12% slopes - moderate, slope
Playgrounds	0-6% slopes - moderate slope, permeability 6-12% slopes - severe, slope, permeability
Paths and Trails	Slight

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Cotton lbs.	Corn bu.	Tob. lbs.	Soy Bean bu	Oats bu	Wheat bu	Peanuts lbs	Co. ber. tons	Co. Per. Aum	Banana Aum
		K	T										
1, sil, fsl;		.37	.3										
0-1%	IIw			600	115	2700	45	70	60	2900	6.0	12.0	9.0
1-4%	IIIe			500	105	2500	40	60	50	2800	6.0	11.0	9.5
4-8%	IVe			-	-	-	-	-	-	-	5.0	9.0	7.5
8-12%	VIe										-	8.0	7.0
cl-;													
4-12%	VIe										5.0	8.0	7.0

WILDLIFE SUITABILITY

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
0-4%	well suited	well suited	well suited	well suited	poorly suited	poorly suited	well suited	well suited	well suited	well suited
4-8%	well suited	well suited	well suited	well suited	poorly suited	unsuited	unsuited	well suited	well suited	unsuited
8-12%								well suited	well suited	unsuited

5/

WOODLAND SUITABILITY

Phases of Series	Ord.	Potential Productivity				Woodland Management Problems			Trees to Plant
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	lbs/ac	Erosion Hazard	Equip. Limit.	Seedling Mortality	
All	3w2	Loblolly Pine	81 +4	N/A	N/A	Slight	Moderate	Slight	Loblolly Pine
		Longleaf Pine	67 +2						Slash Pine
		Water oak	80						

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac

OTHER

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- 1/ Interpretations based on "Guide for Interpreting Engineering Uses of Soils", Feb. 1971
- 2/ Based on data from one pedon, S65NC-74-1-6 Pitt County, N. C.
- 3/ Interpretations based on "Guide for Interpreting Engineering Uses of Soils," November 1971
- 4/ Soils Memo No. 69
- 5/ Woodland Progress Report W-16, Jan., 1970

MAP SYMBOL  
704

SOIL NAME  
Kureb sand, 0 to 6 percent slopes

SOIL SURVEY INTERPRETATIONS 1/

The Kureb series consists of excessively drained sands on broad undulating ridges and short side slopes in the Coastal Plains. These soils have thin dark gray and surfaces over thick light gray to white subsurfaces which are underlain by brownish yellow sands. Slope gradients range from 0-20 percent but are commonly less than 10 percent.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-89	Sand	SP	A-3	--	--	100	60-95	< 5	NP	NP	6.3-20	< .05	4.5-7.3	Very Low

Depth to rock: Rock free

Hydrologic group: A

Flood hazard: None

Wetness: Water table more than 6 feet deep.

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

Topsoil	Poor: Texture
Sand	Good:
Gravel	Poor: Improbable source
Roadfill	Good: If soil binder is added

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

Pond reservoir areas	Severe: Permeability
Pond embankments	Severe: Permeability; poor resistance to piping and erosion
Excavated ponds (aquifer fed)	Severe: Depth to dry season water table more than 6 feet
Corrosivity - Uncoated steel	Very Low
Corrosivity - Concrete	Low to Moderate: Texture, reaction
Dwellings	None to Slight: 0-8 percent slopes Moderate: 8-15 percent slopes Severe: Slopes more than 15 percent
Septic tank filter fields	Severe: Permeability; possible contamination of water supply
Sewage lagoons	Severe: Permeability
Local roads and streets	Slight: 0-8 percent slopes Moderate: 8-15 percent slopes Severe: More than 15 percent slopes
Light industries	0-4 percent slopes: Slight 4-8 percent slopes: Moderate, slope Over 8 percent slopes: Severe, slope
Sanitary landfill Trench Method Area Method	Severe: Permeability Severe: Permeability

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT

Camp Areas	Severe: Texture
Picnic Areas	Severe: Texture
Playgrounds	Severe: Texture
Paths and Trails	Severe: Texture

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Bahia AUM			
		K	T				
0-6% slopes	VIIIs	.17	4	3.5			
Over 6% slopes	VIIIs	.17	4				

WILDLIFE SUITABILITY

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
All Phases	poorly suited	poorly suited	poorly suited	poorly suited	well suited	unsuited	unsuited	poorly suited	poorly suited	unsuited

WOODLAND SUITABILITY 2/

Phases of Series	Ord.	Potential Productivity			Woodland Management Problems			Trees to Plant
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	Erosion Hazard	Equip. Limit.	Seedling Mortality	
All Phases	5s3	Longleaf pine Slash pine	50 60	N/A	slight	severe	severe	Longleaf pine Slash pine

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac

OTHER

--

1/ Interpretations based on 1970 Guide Lines for Southern Regional Work Planning Conference.

2/ Based on Progress Report W-16 -- January 1970.

MAP SYMBOL

SOIL NAME

582

Leon ~~and Leon~~ sand

LEON SERIES

SOIL SURVEY INTERPRETATIONS

These are poorly drained, sandy soils with a weakly cemented, organic stained layer within 30 inches deep. They have a thin sand surface layer and a light gray sand subsurface layer. The weakly cemented, organic stained layer is black, dark reddish brown, or dark brown sand. Below the cemented layer to 80 inches deep is loose sand. These soils are nearly level to gently sloping and occur in the lower Atlantic and Gulf Coastal Plain. They formed in acid sandy marine sediments.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-15	Sand	SP, SP-SM	A-3, A-2-4		100	100	80-100	2-12	NP	NP	6.3-20	.01-.05	4.0-5.5	Very low
15-30	Sand	SM, SP-SM	A-3, A-2-4		100	100	80-100	5-20	NP	NP	.63-6.3	.05-.10	4.0-5.5	Very low
30-80	Sand	SP, SP-SM	A-3, A-2-4		100	100	80-100	2-12	NP	NP	> 20	.01-.05	4.0-5.5	Very low

Depth to rock: Rock free

Hydrologic group: A/D

Flood hazard: Depressional areas are ponded.

Wetness: Water table is 10 to 40 inches deep for more than 6 months during most years. It is less than 10 inches deep for 1 to 4 months during periods of high rainfall and recedes to more than 40 inches deep during some dry seasons.

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

Topsoil	Poor; sand texture
Sand	Probable source
Gravel	Improbable source
Roadfill	Good; wetness may be a hazard to its use

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

Pond reservoir areas	Severe; permeability
Pond embankments	Severe; slope stability, permeability
Excavated ponds (aquifer fed)	Moderate; depth to dry season water table
Corrosivity - Uncoated steel	Severe; fluctuating water table and reaction
Corrosivity - Concrete	Moderate to severe; reaction
Dwellings	Severe; high water table
Septic tank filter fields	Severe; high water table
Sewage lagoons	Severe; permeability
Local roads and streets	Severe; high water table
Light industries	Severe; high water table

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT

Camp Areas	Severe; high water table during season of greatest use
Picnic Areas	Severe; high water table during season of greatest use
Playgrounds	Severe; high water table during season of greatest use, sand texture
Paths and Trails	Severe; high water table during season of greatest use

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Irish potatoes	Cabbage	Corn	Pasture	
		K	T	100 lb. bags	50 lb. bags	Bu.	AUM	
0-5%	IVw	-	-	150	375	50	Grass	7.5
Ponded	VIIw	-	-	-	-	-	Grass-clover	11

WILDLIFE SUITABILITY

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
0-5%	Poorly suited -----									

WOODLAND SUITABILITY

Phases of Series	Ord.	Potential Productivity			Woodland Management Problems			Trees to Plant
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	Erosion Hazard	Equip. Limit.	Seedling Mortality	
0-5%	4w2	Loblolly Slash Longleaf (pine)	75 75 70		None	Mod.	Moderate	Slash pine Loblolly p.

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac
	Acid flatwoods	

OTHER

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MAP SYMBOL

891 (LR)

SOIL NAME

Lynn Haven soils

LYNN HAVEN SERIES

SOIL SURVEY INTERPRETATIONS

These are poorly drained sandy soils with a weakly cemented, organic stained layer within 30 inches deep. They have a black or very dark gray fine sand surface layer 8 to 20 inches thick and a light gray fine sand subsurface layer 2 to 10 inches thick. Below the organic stained layer is gray fine sand. These soils are nearly level and occur in the lower Atlantic and Gulf Coastal Plain. They formed in marine sand.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-16	Fine sand	SP, SP-SM	A-3, A-2-4		100	100	80-100	2-12	NP	NP	6.3-20	.02-.05	4.0-5.5	Very low
16-30	Fine sand	SM, SP-SM	A-3, A-2-4		100	100	80-100	5-20	NP	NP	.63-6.3	.05-.10	4.0-5.5	Very low
30-75	Fine sand	SP, SP-SM	A-3, A-2-4		100	100	80-100	2-12	NP	NP	> 20	.01-.05	4.0-5.5	Very low

Depth to rock: Rock free

Hydrologic group: B/D

Flood hazard: Flooded for short periods after heavy and extended rainfall.

Wetness: During most years water table is 0 to 10 inches deep for 2 to 6 months and 10 to 40 inches deep for more than 6 months; during extended dry periods it is below 40 inches deep.

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

Topsoil	Poor; sand texture
Sand	Probable source
Gravel	Improbable source
Roadfill	Good; wetness may be a hazard to its use

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

Pond reservoir areas	Severe; permeability
Pond embankments	Severe; slope stability, permeability
Excavated ponds (aquifer fed)	Slight
Corrosivity - Uncoated steel	Severe; fluctuating water table and reaction
Corrosivity - Concrete	Moderate to severe; reaction
Dwellings	Severe; high water table
Septic tank filter fields	Severe; high water table
Sewage lagoons	Severe; permeability
Local roads and streets	Severe; high water table
Light industries	Severe; high water table

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT

Camp Areas	Severe; high water table during season of greatest use
Picnic Areas	Severe; high water table during season of greatest use
Playgrounds	Severe; high water table during season of greatest use, sand texture
Paths and Trails	Severe; high water table during season of greatest use

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Irish potatoes 100 lb. bags	Cabbage 50 lb. bags	Corn Bu.	Pasture	
		K	T				AUM	
0-2%	IWw	-	-	175	400	70	Grass	9.0
							Grass-clover	11.0
Ponded	VIIw	-	-	-	-	-	-	-

WILDLIFE SUITABILITY

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
0-2%	Poorly suited	Suited	Suited	Poorly suited	Poorly suited	Suited	Suited	Suited	Poorly suited	Suited

WOODLAND SUITABILITY

Phases of Series	Ord.	Potential Productivity			Woodland Management Problems				Trees to Plant
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	Erosion Hazard	Equip. Limit.	Seedling Mortality	lbs/ac	
0-2%	3w2	Slash pine Loblolly p. Longleaf p.	80 80 70			None	Mod.	Moderate	Slash pine Loblolly p.

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac
	Acid flatwoods	

OTHER

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MAP SYMBOL

891 (LR)

SOIL NAME

Lynn Haven soils

LYNN HAVEN SERIES

SOIL SURVEY INTERPRETATIONS

These are poorly drained sandy soils with a weakly cemented, organic stained layer within 30 inches deep. They have a black or very dark gray fine sand surface layer 8 to 20 inches thick and a light gray fine sand subsurface layer 2 to 10 inches thick. Below the organic stained layer is gray fine sand. These soils are nearly level and occur in the lower Atlantic and Gulf Coastal Plain. They formed in marine sand.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-16	Fine sand	SP, SP-SM	A-3, A-2-4	100	100	80-100	2-12	NP	NP	6.3-20	.02-.05	4.0-5.5	Very low	
16-30	Fine sand	SM, SP-SM	A-3, A-2-4	100	100	80-100	5-20	NP	NP	.63-6.3	.05-.10	4.0-5.5	Very low	
30-75	Fine sand	SP, SP-SM	A-3, A-2-4	100	100	80-100	2-12	NP	NP	> 20	.01-.05	4.0-5.5	Very low	

Depth to rock: Rock free

Hydrologic group: B/D

Flood hazard: Flooded for short periods after heavy and extended rainfall.

Wetness: During most years water table is 0 to 10 inches deep for 2 to 6 months and 10 to 40 inches deep for more than 6 months; during extended dry periods it is below 40 inches deep.

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

Topsoil	Poor; sand texture
Sand	Probable source
Gravel	Improbable source
Roadfill	Good; wetness may be a hazard to its use

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

Pond reservoir areas	Severe; permeability
Pond embankments	Severe; slope stability, permeability
Excavated ponds (aquifer fed)	Slight
Corrosivity - Uncoated steel	Severe; fluctuating water table and reaction
Corrosivity - Concrete	Moderate to severe; reaction
Dwellings	Severe; high water table
Septic tank filter fields	Severe; high water table
Sewage lagoons	Severe; permeability
Local roads and streets	Severe; high water table
Light industries	Severe; high water table

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT

Camp Areas	Severe; high water table during season of greatest use
Picnic Areas	Severe; high water table during season of greatest use
Playgrounds	Severe; high water table during season of greatest use, sand texture
Paths and Trails	Severe; high water table during season of greatest use

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Irish potatoes 100 lb. bags	Cabbage 50 lb. bags	Corn Bu.	Pasture	
		K	T				AUM	
0-2%	IWw	-	-	175	400	70	Grass	9.0
							Grass-clover	11.0
Ponded	VIIw	-	-	-	-	-	-	-

WILDLIFE SUITABILITY

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
0-2%	Poorly suited	Suited	Suited	Poorly suited	Poorly suited	Suited	Suited	Suited	Poorly suited	Suited

WOODLAND SUITABILITY

Phases of Series	Ord.	Potential Productivity			Woodland Management Problems			Trees to Plant	
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	Erosion Hazard	Equip. Limit.	Seedling Mortality		
0-2%	3w2	Slash pine Loblolly p. Longleaf p.	80 80 70			None	Mod.	Moderate	Slash pine Loblolly p.

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac
	Acid flatwoods	

OTHER

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MAP SYMBOL

SOIL NAME

415

Onslow loamy fine sand

**SOIL SURVEY INTERPRETATIONS**

The Onslow series consists of moderately well and somewhat poorly drained acid soils on broad smooth interstream divides in the lower Coastal Plain. These soils have dark gray loamy fine sand surface horizons with Bh bodies, over brownish loamy Bt horizons. Slopes are less than 3 percent.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES <sup>1/</sup>

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-18	lfs, s	SP-SM,SM	A-2		100	60-85	5-30	-	NP	> 6.0	.07-.11	4.0-5.5	Low	
0-18	fsl	SM, ML	A-2,A-4		100	70-95	30-55	< 15	NP	2.0-6.0	.11-.15	4.0-5.5	Low	
18-43	scl	SM-SC,CL	A-4,A-6		100	80-95	36-55	< 30	5-12	.6-2.0	.12-.17	4.0-5.5	Low	
43-58	s1, scl	SM,SM-SC,CL	A-2,A-4		100	60-90	30-55	< 20	NP-10	.6-6.0	.12-.17	4.0-5.5	Low	
58-75	Too variable	to estimate												

Depth to rock: Rock free

Hydrologic group: B

Flood hazard: None

Wetness: Seasonal high water table is about 18 inches of the surface 2 to 4 months annually.

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

Topsoil	Poor - too sandy
Sand	Poor - improbable source
Gravel	Poor - improbable source
Roadfill	Fair - wet

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

Pond reservoir areas	Moderate:- permeability
Pond embankments	Moderate - permeability
Excavated ponds (aquifer fed)	Moderate - depth to permanent dry season water table below 4 feet
Corrosivity - Uncoated steel	High - drainage and texture
Corrosivity - Concrete	High - texture and reaction
Dwellings	Severe - depth to seasonal water table
Septic tank filter fields	Severe - depth to water table
Sewage lagoons	Severe - depth to water table
Local roads and streets	Moderate - wet
Light industries	Severe - wet
Sanitary landfills (both methods)	Severe - high water table

ONSLow SERIES 2/  
 DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT

Camp Areas	Moderate - wetness
Picnic Areas	Moderate - wetness
Playgrounds	Moderate - wetness
Paths and Trails	Moderate - wetness

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Corn	Soybeans	Tobacco	Peanuts	Co. Ber. tons	Co. Ber. (AUM)
		K	T						
All	IIw	.17	4	115	40	2700	3000	5.0	11.0

3/  
 WILDLIFE SUITABILITY

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
All	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor

4/  
 WOODLAND SUITABILITY

Phases of Series	Ord.	Potential Productivity				Woodland Management Problems			Trees to Plant
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	lbs/ac	Erosion Hazard	Equip. Limit.	Seedling Mortality	
All	2w8	Loblolly Pine Slash Pine Longleaf Pine	76 80 67	N/A	N/A	slight	slight	slight	Slash Pine Loblolly Pine

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac
		N/A

OTHER

	N/A
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- 1/ Interpretations based on "Guide for Interpreting Engineering Uses of Soils", Nov. 1971
- 2/ Soils Memo. 69
- 3/ Soils Memo. 74
- 4/ Soil Survey Interpretations for woodlands, "Progress Report W-16", January 1970

MAP SYMBOL

SOIL NAME

830

Rains sandy loam

SOIL SURVEY INTERPRETATIONS

The Rains series consists of poorly drained, moderately permeable, very strongly to strongly acid soils of the Coastal Plain. These soils have very dark gray sandy loam surface layers and gray sandy clay loam subsoils. These soils are on nearly level flats and depressions and around the heads of intermittent drains. They developed in loamy marine sediments. Slopes are commonly less than 2 percent.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES 1/

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-12"	sl, fsl	SM	A-4, A-2-4	-	-	100	90-95	20-50	20-40	2-10	2.0-6.3	.08-.12	4.5-5.5	Low
0-12"	ls, lfs	SM	A-2-4	-	-	100	80-95	20-35	NP-10	NP-8	6.3-20.0	.04-.08	4.5-5.5	Low
12-40"	sandy clay loam	SC or CL	A-4	-	-	100	80-95	35-55	20-35	0-10	.63-2.0	.10-.14	4.5-5.5	Low
40-52"	sandy clay loam	SC or CL	A-6	-	-	100	80-95	35-60	20-40	10-20	.63-2.0	.11-.15	4.5-5.5	Low

Depth to rock: Rock Free

Hydrologic group: B/D

Flood hazard: Frequent, mostly ponding

Wetness: Water table 0-15 inches 2 to 3 months in winter and spring

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL 2/

Topsoil	Fair - wetness
Sand	Improbable source
Gravel	Improbable source
Roadfill	Poor - Wetness

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE 2/

Pond reservoir areas	Moderate - Permeability
Pond embankments	Slight
Excavated ponds (aquifer fed)	Severe - Aquifer deeper than 6 feet
Corrosivity - Uncoated steel	High - Drainage and texture
Corrosivity - Concrete	Moderate to high - texture, acidity
Dwellings	Severe - Wetness, flooding
Septic tank filter fields	Severe - High Water Table - Flooding
Sewage lagoons	Moderate - Permeability
Local roads and streets	Severe - Wetness, flooding
Light industries	Severe - Wetness, flooding, corrosivity

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT 3/

Camp Areas	Severe - Wetness, flooding
Picnic Areas	Severe - Wetness, flooding
Playgrounds	Severe - Wetness, flooding
Paths and Trails	Severe - Wetness, flooding

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Cotton lbs.	Corn bu	Soybean bu	Oats bu	Tobacco lbs	Fescue Clover AUM	Bahia AUM
		K	T							
(drained)	IIIw	-	-	450	80	35	70	2200	8	10
(undrained)	Vw	-	-	-	-	-	-	-	-	-

WILDLIFE SUITABILITY

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water level	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
								Drained-Suited	Suited	Well suited
								Undrained -Poorly suited		

WOODLAND SUITABILITY 4/

Phases of Series	Ord.	Potential Productivity				Woodland Management Problems			Trees to Plant
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	lbs/ac	Erosion Hazard	Equip. Limit.	Seedling Mortality	
All	2w3	Loblolly pine	94			Slight	Severe	Severe	Loblolly pine Slash pine Sweetgum Sycamore
		Slash pine	91						
		Sweetgum	90						

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac

OTHER

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1/ Data based on test data by Bureau of Public Roads  
 2/ Draft of Soil Survey Interpretations, Com. IV, Southern Regional Work Planning Conference  
 3/ Soils Memo 69  
 4/ Soils Memo 26

# 52 Seabrook loamy fine sand

Seabrook Series

## SOIL SURVEY INTERPRETATIONS

MLRA -153

CME,RDW,HFL: 3-5-70

The Seabrook series consists of moderately well drained, rapidly permeable, very strongly acid soils of the Coastal Plain. These soils have very dark grayish brown loamy fine sand surface layers and dark brown to brownish yellow loamy fine sand subsurface layers mottled with yellowish red, brown, and gray. These soils occur on nearly level upland areas at low elevations along the Atlantic coast. They developed in sandy marine sediments. Slopes are less than 2 percent.

### ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

General Soil Profile (inches)	Classification			% of Material Passing Sieve No.				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink Swell Potential
	USDA Texture	Unified	AASHO	#4	#10	#40	#200						
0-9	Loamy fine sand, sand, fine sand	SM,SP-SM	A-2	100	90-100	90-100	10-20	NP	NP	2.0-6.3	.05-.08	5.1-6.0	Low
9-54	Loamy fine sand	SP-SM SM	A-2, A-3	100	90-100	90-100	8-20	NP	NP	6.3-20.0	.05-.08	4.5-5.5	Low

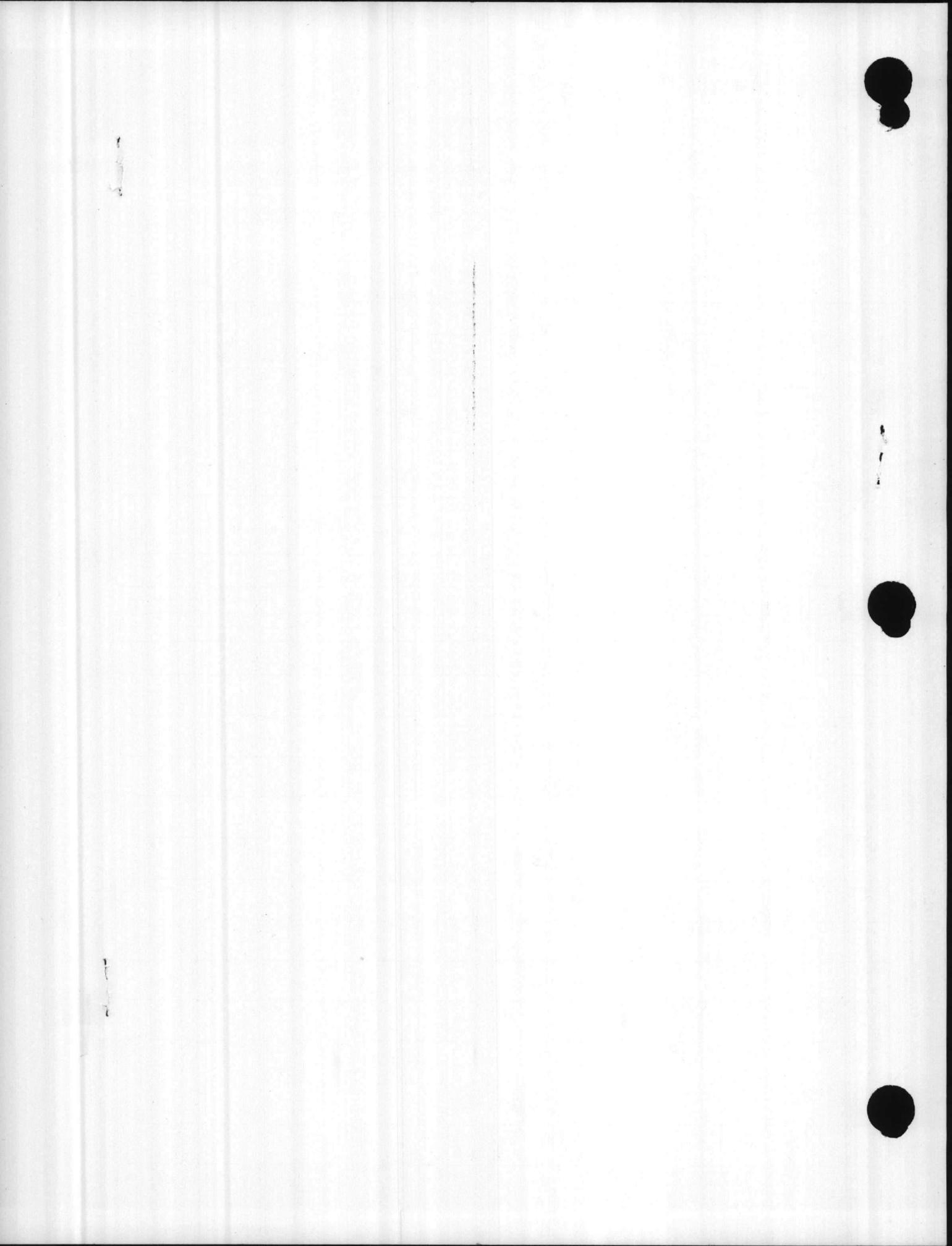
Flood hazard: Infrequent, brief at for Depth to rock: Rock Free  
 Wetness: Water table 2 to 3 feet/more than 2 months during spring and winter. Hydrologic group: A

### SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL 2/

Soil	Poor - Texture
Subsoil	Fair - Contains excessive fines
Level	Poor - none available
Roadfill	Good

### DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE 2/

Highway location	Moderate - Wetness
Pond reservoir areas	Severe - Permeability
Pond embankments	Slope stability, resistance to piping and Moderate - erosion
Excavated ponds Aquifer fed	Severe - Depth to dry season water table
Corrosivity - Uncoated steel	Low
Corrosivity - Concrete	High - texture and reaction
Foundations for low buildings	Moderate - wetness
Septic tank filter fields	Severe - Permeability
Sewage lagoons	Severe - Permeability
Streets and low-cost roads	Moderate - wetness
Light Industries	Moderate - wetness





Seabrook Series DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT 3/

Camp Areas	Moderate - Wetness, flooding
Picnic Areas	Moderate - Wetness, flooding
Playgrounds	Moderate - Wetness, flooding
Paths and Trails	Slight

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Soybeans bu.	Cabbage bu.	Snapbeans bu.	Cucumber bu.	Tomatoes bu.	Coastal Bermuda AUM
		K	T						
0-2 percent	IIIw	.17	5	30	6	210	400	310	10

WOODLAND SUITABILITY

Phases of Series	Ord.	Potential Productivity		Seedling Mortality	Erosion Hazard	Equip. Limit.	Trees to Plant	Grazing Potential
		Important Trees	S. I. Class					
All	2w8	Loblolly pine	90	Mod.	Slight	Mod.	Loblolly pine	-
		Slash pine	90				Slash	
		Longleaf pine	69					

WILDLIFE SUITABILITY

Openland Wildlife	Suited
Woodland Wildlife	Suited
Wetland Wildlife	Unsuited

RANGE

Site name and kinds and amounts of vegetation under potential (or climax) cover.

OTHER


1/ Data based on test data by S. C. State Highway Department  
 2/ Draft of Soil Survey Interpretations, Com. IV, Southern Regional Work Planning Conference  
 3/ Soils Memo-69  
 4/ Soils Memo-26

722 Wando fine sand

WANDO SERIES

SOIL SURVEY INTERPRETATIONS

MLRA 153  
CME, RDWHFL: 6-71

The Wando series consists of excessively drained, rapidly permeable, soils of the Coastal Plain. These soils have dark brown loamy fine sand surface layers which overlie brown loamy fine sand subsurface layers. These soils are on nearly level to gently sloping uplands at low elevations along the Atlantic coast. They formed in sandy marine sediments. Slopes range from 1 to 4 percent.

ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES 1/

Major Soil Horizons (inches)	Classification			Coarse Fract. >3 in. %	Percentage Less Than 3 Inches Passing Sieve No.--				LL	PI	Permeability in/hr.	Avail. Water Cap. in/in.	Soil Reaction	Shrink-Swell Potential
	USDA Texture	Unified	AASHO		4	10	40	200						
0-51	loamy fine sand	SM	A-2	0	96-100	95-100	60-98	12-30	NP	NP	6.3-20.0	.05-.08	5.6-7.3	Low
51-60	fine sand	SM, SP-SM	A-2, A-3	0	98-100	98-100	51-98	5-20	NP	NP	6.3-20.0	.03-.08	5.6-7.3	Low

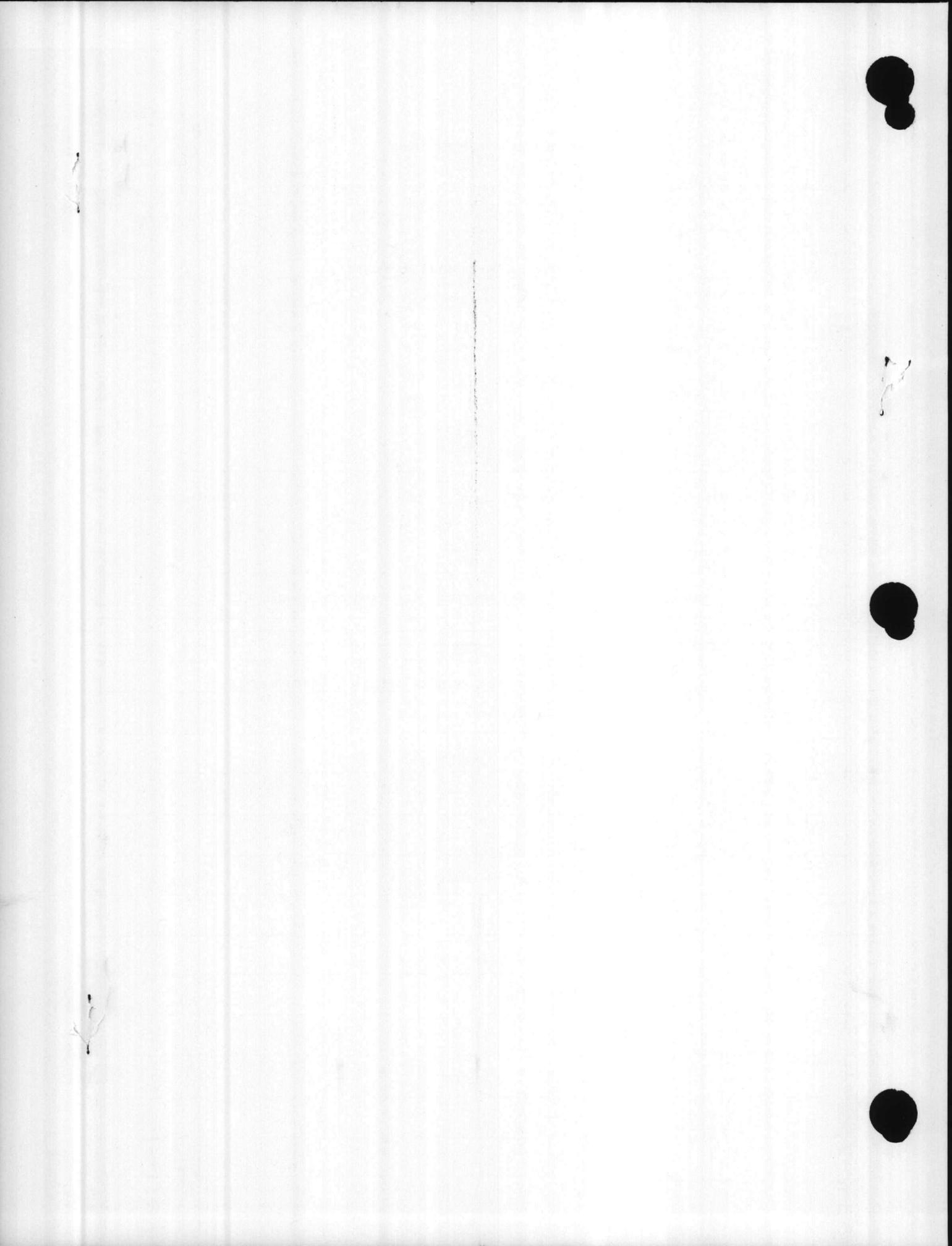
Depth to rock: Rock Free  
 Flood hazard: None  
 Wetness: Excessively drained  
 Hydrologic group: A

SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL 2/

Topsoil	Poor - Texture
Subsoil	Fair - Excessive fines
Gravel	Poor - Improbable source
Roadfill	Good

DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE 2/

Pond reservoir areas	Severe - Rapid permeability when compacted
Pond embankments	Moderate - Poor resistance to piping and erosion
Excavated ponds (aquifer fed)	Severe - Depth to aquifer
Corrosivity - Uncoated steel	Very low
Corrosivity - Concrete	Low to moderate - Texture and acidity
Dwellings	Slight
Septic tank filter fields	Severe - Rapid permeability, inadequate filtration
Sewage lagoons	Severe - Rapid Permeability
Local roads and streets	Slight
Light industries	Slight





DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION DEVELOPMENT 3/

Camp Areas	Moderate - Surface soil texture
Picnic Areas	Moderate - Surface soil texture
Playgrounds	Moderate - Surface soil texture
Paths and Trails	Moderate - Surface soil texture

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS--(High Level Management)

Phases of Series	Capability	Soil Loss		Corn bu	Soybeans bu	Cucumbers bu	Snapbeans bu	Tomatoes bu	Coastal Bermuda AUM
		K	T						
1-4%	IIIS	.17	5	50	20	275	180	200	8

WILDLIFE SUITABILITY 2/

Phases of Series	Potential for Habitat Elements							Potential as Habitat For--		
	Grain and seed crops	Grasses, legumes	Wild herbaceous plants	Hardwood trees and shrubs	Low conifer. plants	Wetland food and cover	Shallow water devel.	Openland Wildlife	Woodland Wildlife	Wetland Wildlife
1-4%	poorly suited	poorly suited	poorly suited	poorly suited	suited	unsuited	unsuited	poorly suited	poorly suited	unsuited

WOODLAND SUITABILITY 4/

Phases of Series	Ord.	Potential Productivity			Woodland Management Problems			Trees to Plant	
		Important Trees	Site Index	Important Understory Veg. (Med. canopy)	lbs/ac	Erosion Hazard	Equip. Limit.		Seedling Mortality
1-4%	3s2	Longleaf pine	70±1			Slight	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine

RANGE

Phases of Series	Range Site Name	Potential productivity (climax) of important species--lbs/ac

OTHER

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- 1/ Estimated.
- 2/ Draft of Soil Survey Interpretations, Com. IV, Southern Regional Work Planning Conference.
- 3/ Soils Memo 69.
- 4/ Soils Memo 26.

## HOW TO USE THIS SPECIAL REPORT

This special report contains information that can be applied in managing farms, ranches, and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in judging the suitability or limitations of tracts of land for farming, industry, and recreation.

### Locating Soils

All the soils of this area are shown on the soil map in this special report. On the soil map, map units are outlined and are identified by symbols. All areas marked with the same symbol in this survey area are the same kind of soil.

### Using the Soil Legend to Find Soil Interpretations and Information

The "soil legend" can be used to find the soil interpretation sheet for a specific kind of soil. The "soil legend" lists in alphabetical order all of the soils and their symbols that are on the soil map. Use the symbol in the area of your interest on the soil map to determine the soil name. If you are interested in an area of land that is mapped with the symbol 365, go from the soil map to the "soil legend" and find the name of the soil that is shown by the symbol 365. In this example, the soil is Norfolk loamy sand. Then, turn to the soil interpretation sheets that are arranged alphabetically and find the interpretation sheet for the Norfolk series. If a series has more than one phase, the interpretations are shown for each phase on the interpretation sheet.

The interpretation sheets are the key source of information in this special report. Each of the interpretation sheets gives a brief description of the soil. This is followed by a section on the estimated physical and chemical properties of the soil. The soils are rated as to their suitability as resource material, as to their degree of limitation for several selected uses, such as dwellings, septic tank filter fields, etc., and for recreation. The major features affecting the soil for these uses are also shown. Other information and interpretations given are the capability, soil loss factors, and potential yields for the soil, wildlife suitability, woodland suitability, etc.

The degree of limitation for specific uses include septic tank absorption fields, sewage lagoons, shallow excavations, dwellings without basements, sanitary landfill, and local roads and streets. In these columns, degree of limitation is expressed as slight, moderate, or severe, and in some instances very severe, and give restrictive features if degree of limitation is more than slight.

Slight soil limitation is the rating given soils that have properties favorable for the rated use. The degree of limitation is minor and can be overcome easily. Good performance and low maintenance can be expected.

Moderate soil limitation is the rating given soils that have properties moderately favorable for the rated use. This degree of limitation can be overcome or modified by special planning, design, or maintenance. During some part of the year the performance of the

structure or other planned use is somewhat less desirable than for soils rated slight. Some soils rated moderate require treatment such as artificial drainage, runoff control to reduce erosion, extended sewage absorption fields, extra excavation, or some modification of certain features through manipulation of the soil. For these soils, modification is needed for those construction plans generally used for soils of slight limitation. Modification may include special foundations, extra reinforcement of structures, sump pumps, and the like.

Severe soil limitation is the rating given soils that have one or more properties unfavorable for the rated use, such as steep slopes, bedrock near the surface, flooding hazard, high shrink-swell potential, a seasonal high water table, or low bearing strength. This degree of limitation generally requires major soil reclamation, special design, or intensive maintenance. Some of these soils, however, can be improved by reducing or removing the soil feature that limits use, but in most situations it is difficult and costly to alter the soil or to design a structure so as to compensate for a severe degree of limitation.

A rating of very severe must be a subdivision of the severe rating and the criteria used to separate moderate and severe must stand. A soil rated very severe has one or more features so unfavorable for the rated use that the limitation is very difficult and expensive to overcome. Reclamation would be extremely difficult, requiring the soil material to be removed, replaced, or completely modified. Very shallow soils over hard rock or deep, wet organic soil material, for example, have very severe limitations for houses with basements or for onsite sewage disposal. A rating of very severe is confined to soils that require extreme alteration and that, for the most part, are not used for the purposes being rated.



## PREPARING INTERPRETIVE MAPS FROM THE SOIL MAPS

Individual maps showing the relative limitations of soils for many specific purposes can be developed by using the soil map and the interpretations. Ratings can be shown visually by coloring soil maps or transparent overlays according to the traffic-light color connotations to point up the limitations for a particular use. A map or overlay can be made in this manner for septic tank filter fields, dwellings, or for any of the uses for which the soils are rated. For example, soil areas that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, those with a severe limitation colored red, and those with a very severe limitation colored brown or purple to contrast with the traffic light colors. When the interpretive map is complete, the patterns of soil limitations are readily apparent. The user can quickly select areas that have potential for a particular type of development and at the same time identify the areas of severe limitations.

## USE AND EXPLANATION OF SOIL INTERPRETATION SHEETS

The interpretation sheets provide information about the physical and chemical properties of soils, the suitability and major features affecting soils as resource material, the capability, soil loss factors, and potential yields of soils, and where applicable, information on the use of soils for range. Ratings as to the soils degree of limitations for selected uses and the major soil features affecting each of these uses are provided, and in addition the soils are rated as to their suitability for wildlife and suitability for woodland.

The interpretations will not eliminate the need for on-site sampling, testing, and study of specific sites for design and construction of engineering works and various uses. The interpretation sheets should be used primarily to plan more detailed field investigations to determine the conditions of the soil at the proposed site for the intended use.

The interpretation sheets should be used only with soil surveys of medium or detailed intensity, that have been prepared according to standard procedures of the National Cooperative Soil Survey. It is not intended that they be used with "Land-Type Surveys," low intensity surveys, or general soil maps. The interpretations are for soils in their natural state and not for disturbed areas that are altered by cut or fill operations.

When the interpretation sheets are used in connection with delineated soil areas on soil maps, the information pertains to the dominant soil for which the soil area is named. Other soils, too small in area to map out, may occur within the soil map area. The interpretations ordinarily do not apply to the included soils. More detailed studies are required if small, specific sites are to be developed or used within a given soil area. For example, a soil map bearing the name Enon loam, 2 to 6 percent slopes, also can include small unmappable areas of other soils such as Iredell or Lignum. The interpretations apply to Enon portions of the delineated area and not to the entire soil area.

#### ESTIMATED PHYSICAL AND CHEMICAL PROPERTIES

The interpretation sheet has the map symbol and soil name across the top for identification of the one to be used for each soil that is on the map. A short description is designed to give the user a mental picture of the soil. Following this, the "estimated physical and chemical properties" are shown in table form. These properties are given for specific soil series. Although the soils bearing the same name are similar between counties and states, the physical and chemical properties of these soils may vary somewhat from one county to another and one state to another,

but the properties should still be within the range shown in the table. For some soils some of the physical and chemical properties are based on test data; in others these properties are estimates using the best available data.

#### EXPLANATION OF ITEMS

Major Soil Horizons - The depth in inches of the major soil horizons that have similar properties are given in this column.

USDA Texture - The USDA texture is based on the relative amounts of sand, silt, and clay in a soil, giving rise to textural classes such as sand, sandy loam, loam, clay loam, and clay. (USDA Handbook No. 18, SOIL SURVEY MANUAL).

Unified Classification - In the Unified system, soils are classified according to particle size distribution, plasticity, liquid limit, and organic matter. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes are designated by symbols for both classes; for example, SP-SM.

AASHO Classification - The AASHO system is used to classify soils according to those properties that affect use in highway construction and maintenance. In this system, a soil is placed in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. In group A-1 are gravelly soils of high bearing strength, or the best soils for subgrade (foundation). At the other extreme, in group A-7, are clay soils that have low strength when wet and that are the poorest soils for subgrade. The A-1, A-2, and A-7 groups can be further divided as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6.

#### Coarse Fraction, Percentage of Material Greater Than 3 Inches -

Most soils in North Carolina do not have material this coarse. Soils that have a high content of shell may have a small percentage of shells larger than 3 inches. Soils in North Carolina that contain pebbles larger than 3 inches are rare.

Percentage Less Than 3 Inches Passing Sieve No. - The measured or estimated percentages of materials passing the numbers 4, 10, 40, and 200 sieves are given for each major horizon. The percent passing the 200 sieve approximates the amount of silt and clay, but does include some very fine sand. A range is listed because of the variability for a given soil.

Liquid Limit and Plasticity Index - These indicate the effect of water on the strength and consistence of soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from semisolid to a plastic state. If the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material changes from the semisolid to plastic state and the liquid limit from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

Permeability - That quality of a soil that enables it to transmit water or air. Values listed are estimates of the range in rate and time it takes for downward movement of water in the major soil layers when saturated, but allowed to drain freely. The estimates are based on soil texture, soil structure, available data on permeability and infiltration tests, and drainage observations of the water movement through soils. On a given soil, percolation through the surface layer varies according to land use and management as well as with initial moisture content.

Available Water Capacity - the ability of soils to hold water for use by most plants. The available water capacity is given in inches per inch of soil for the major horizons. It is commonly defined as the difference between field capacity (1/3 atmosphere) and the wilting percentage (15 atmospheres) times bulk density times the thickness in inches of the soil. The water retention by soil is related to the particle size and to the arrangement and size of soil pores. Fine-textured soils tend to have higher water retention due to small pores than do sandy soils with large pores. Estimates of the available water capacity for soils with normally high water tables may appear meaningless until one considers the possibility of artificial drainage or the natural lowering of the water table during dry seasons, or late summer or fall. Soils of the same series vary from place to place. Therefore, values can deviate considerably from those listed.

Soil Reaction - is the degree of acidity or alkalinity of a soil.

It is expressed in pH -- the logarithm of the reciprocal of the H-ion concentration. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. In words, the degrees of acidity or alkalinity are expressed thus:

	<u>pH</u>
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Shrink-swell Potential - is the relative change in volume to be expected of soil material with changes in moisture content; that is, the extent to which the soil shrinks as it dries or swells when it is wet. Extent of shrinking and swelling is influenced by the amount and kind of clay in the soil.

Shrinking and swelling of soils cause much damage to building

foundations, roads and other structures. A high shrink-swell potential indicates a hazard to maintenance of structures built in, on, or with material having this rating.

Depth to Rock - Unless otherwise specified, this refers to the depth to hard bedrock. Many soils in North Carolina are designated as being rock free; in these soils the bedrock is so deep that reasonably accurate estimates of actual depth cannot be made.

Flood Hazard - This refers to water standing above the soil surface for some length of time. In North Carolina this is most common in depressions or low areas without outlets. Soils next to or near streams that overflow also have a flood hazard. Soils that have a water table at the surface and standing water on the surface only 2 to 3 inches deep for short periods are not described as having a flood hazard.

Wetness - The wetness is described in terms of the depth to seasonal high water table. This is the highest level that ground water reaches in the soil in most years.

Hydrologic Group - Soils are grouped into four hydrologic soil groups, A through D. These groups are used mostly in watershed planning to estimate runoff from rainfall. Soil properties were considered that influence the minimum rate

of infiltration obtained for a bare soil after prolonged wetting. These properties are: depth to seasonal high water table, intake rate and permeability after prolonged wetting, and depth to a layer or layers that slow or impede water movement.

Dual hydrologic groups are given for wet soils rated D in their natural condition that can be adequately drained. It is considered that drainage is feasible and practical and that drainage improves the hydrologic group by at least two classes (from D to A or B). The first letter applies to the drained condition.

Hydrologic Group A - (Low runoff potential) Soils that have infiltration rates even when thoroughly wetted and a high rate of water transmission.

Hydrologic group B - (Moderately low runoff potential) Soils that have moderate infiltration rates when thoroughly wetted and a moderate rate of water transmission.

Hydrologic group C - (Moderately high runoff potential) Soils that have slow infiltration rates when thoroughly wetted and a slow rate of water transmission.

Hydrologic group D - (High runoff potential) Soils having very slow infiltration rates when thoroughly wetted and a very slow rate of water transmission.

## SUITABILITY AND MAJOR FEATURES AFFECTING SOIL AS RESOURCE MATERIAL

### EXPLANATION OF ITEMS

Topsoil - as used here refers to soil material to spread over barren surfaces, usually made barren by construction, so as to improve soil conditions for re-establishment and maintenance of adapted vegetation; and to improve soil conditions on lawns, gardens, and flower beds where vegetation already may exist. Good topsoil has physical, chemical and biological characteristics favorable for the establishment and growth of adapted plants. It is friable and easy to handle and spread. A high content of plant nutrients in good balance is desirable, but it is less important that responsiveness to fertilization, and to liming, too, if pH adjustments are necessary. Usually only the surface layer is rated, but if the subsoil is better than the surface soil it is rated. The reclaimability of the remaining soil is considered in the rating. The rating terms used are: GOOD, FAIR and POOR.

Sand and Gravel - The ratings provide guidance about where to look for probable sources. A soil rated as a good or fair source of sand or gravel generally has a layer at least 3 feet thick, the top of which is within a depth of 6 feet. The ratings do not take into account thickness of overburden,

location of the water table, or other factors that affect mining of the materials, and neither do they indicate quality of the deposit. The soils are rated good or fair if they are considered a probable source, and they are rated poor or unsuited if considered an improbable source.

Roadfill - is soil material used in embankments for roads. The suitability ratings reflect (1) the predicted performance of soil after it has been placed in an embankment that has been properly compacted and provided with adequate drainage, and (2) the relative ease of excavating the material at borrow areas. In North Carolina depth to the water table is not considered in rating the soils for roadfill. This would eliminate too many soils that make good roadfill and that are commonly used for this purpose. It is noted, however, that a high water table may be a hazard to its use. The rating terms used are: GOOD, FAIR and POOR.

#### DEGREE OF LIMITATIONS AND MAJOR SOIL FEATURES AFFECTING SELECTED USE

This part of the soil interpretation sheet lists the degree of limitations and factors affecting use of the soil for some selected uses. The evaluation of the soils, expressed in terms of degree of limitation, are predictions of the behavior of soils

under defined conditions. The interpretations apply to the soils in their natural state and not for areas that are altered by cut or fill operations.

Soil limitations are indicated by the ratings slight, moderate and severe.

Slight - soil properties generally favorable for the rated use, or in other words, limitations that are minor and easily overcome or modified by special planning and design.

Moderate - soil properties are moderately favorable for the rated use; limitations can be overcome by careful planning and design or by special maintenance.

Severe - soil properties so unfavorable and so difficult to correct or overcome as to require major soil reclamation, special designs, or intensive maintenance. For some uses, the rating of severe is divided to obtain ratings of severe and very severe.

Very severe - properties so unfavorable for a particular use that overcoming the limitations is most difficult and costly.

The interpretations will not eliminate the need for on-site study, testing, and planning of specific sites for the design and construction for specific uses. The interpretations can be used as a guide to planning more detailed investigations and for avoiding

undesirable sites for an intended use. By using the soil map and interpretations, it is possible to select sites that have the least limitations for an intended use.

Many soils that have a high water table have severe or very severe limitations in their natural condition. These same soils, when drained artificially, may only have a slight limitation. Modern equipment and knowledge make it possible to overcome most of the limitations of soils for many urban and recreational uses. The degree of the limitation and the location of the soil will determine the practicability of developing the soil for the intended use. No consideration was given in these interpretations to the size and shape of soil areas, nor to the pattern they form with other soils on the landscape. For example, some very desirable soil areas are too small in size or too irregular in shape, or their occurrence with less desirable soils forms a pattern too complex to be utilized for the intended use. Although not considered in the interpretations, these items should influence the final selection of a site.

#### EXPLANATION OF SPECIFIC USES

Pond Reservoir Areas - hold water behind a dam or embankment.

Soils suitable for pond reservoir areas have low seepage, which is related to their permeability and depth to fractured or permeable bedrock or other permeable material.

Pond Embankments - are raised structures of soil material constructed across drainageways in order to impound water. These embankments are generally less than 20 feet high, are constructed of "homogeneous" soil material and compacted to medium density. Embankments having core and shell type construction are not rated in this table. Embankment foundation, reservoir area and slope are assumed to be suitable for pond construction. Soil properties are considered that affect the embankment and the availability of borrow material. The best soils have good slope stability, low permeability, slight compressibility under load, and good resistance to piping and erosion. The best borrow material is free of stones or rocks and thick enough for easy excavation.

Excavated Ponds (aquifer fed) - a body of water created by excavating a pit or dugout into a groundwater aquifer. Excluded are ponds fed by runoff and also embankment-type ponds where the depth of water impounded against the embankment exceeds three feet. The assumption is made that the pond is properly designed, located and constructed, and that the water is of good quality. Properties affecting aquifer-fed ponds are the existence of a permanent water table, permeability of the aquifer, and properties that interfere with excavation--stoniness and rockiness.

Corrosivity - Uncoated Steel - This refers to the potential for corrosion of uncoated steel pipe buried in the soil. The soils are rated as follows: VERY LOW (noncorrosive), LOW (slightly corrosive), MODERATE (moderately corrosive), HIGH (severely corrosive), and VERY HIGH (very severely corrosive). Corrosion of uncoated steel pipe is a physical-biochemical process converting iron into its ions. Soil moisture is needed to form solutions with soluble salts before the process can operate. The corrosivity is estimated by electrical resistivity or resistance to flow of current, total acidity, soil drainage and soil texture.

Corrosivity - Concrete - This refers to the potential for deterioration of concrete placed in soil materials. Deterioration is caused by a chemical reaction between the concrete (a base) and the soil solution (potential weak acid). Special cements and methods of manufacturing may be used to reduce rate of deterioration in soils of high corrosivity. Some of the soil properties that affect the rate of deterioration are soil texture and acidity, the amount of sodium or magnesium present in the soil singly or in combination, and amount of sodium chloride in the soil. The presence of sodium chloride in the soil indicates the presence of sea water. Sea water contains sulphates which is one of the principal corrosive agents.

Dwellings - as rated in the interpretation sheet, are not more than three stories high and are supported by foundation footings placed in undisturbed soil. The features that affect the rating of a soil for dwellings are those that relate to capacity to support load and resist settlement under load, and those that relate to ease of excavation. Soil properties that affect capacity to support load are wetness, susceptibility to flooding, density, plasticity, texture, and shrink-swell potential. Those that affect excavation are wetness, slope, depth to bedrock, and content of stones and rocks. Unless otherwise stated, the soils are rated for dwellings without basements.

Septic tank filter fields - are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material from a depth of 18 inches to 6 feet is evaluated. The soil properties considered are those that affect both absorption of effluent and construction and operation of the system. Properties that affect absorption are permeability, depth to water table or rock, and susceptibility to flooding. Slope is a soil property that affects difficulty of layout and construction and also the risk of soil erosion, lateral seepage, and down-slope flow of effluent. Large rocks or boulders increase construction costs.

Sewage Lagoons - are shallow ponds constructed to hold seepage within a depth of 2 to 5 feet long enough for bacteria to decompose the solids. A lagoon has a nearly level floor, and sides, or embankments, of compacted soil material. The assumption is made that the embankment is compacted to medium density and the pond is protected from flooding. Properties are considered that affect the pond floor and the embankment. Those that affect the pond floor are permeability, organic matter, and slope; and if the floor needs to be leveled, depth to bedrock becomes important. The soil properties that affect the embankment are the engineering properties of the embankment material as interpreted from the Unified Soil Classification and the amounts of stones, if any, that influence the ease of excavation and compaction of the embankment material.

Local roads and streets - as rated in the interpretation sheet, have an all-weather surface expected to carry automobile traffic all year. They have a subgrade of underlying soil material; a base consisting of gravel, crushed rock, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. These roads are graded to shed water and have ordinary provisions for

drainage. They are built mainly from soil at hand, and most cuts and fills are less than 6 feet deep.

Soil properties that most affect design and construction of roads and streets are load supporting capacity and stability of the subgrade, and the workability and quantity of cut and fill material available. The AASHO and Unified classifications of the soil material, and also the shrink-swell potential, indicate load supporting capacity. Wetness and flooding affect stability of the material. Slope, depth to hard rock, content of stones and rocks, and wetness affect ease of excavation and amount of cut and fill needed to reach an even grade.

Light industries - ratings are for the undisturbed soils that are used to support building foundations. Emphasis is on foundations, ease of excavation for underground utilities, and corrosion potential of uncoated steel pipe. The undisturbed soil is rated for spread footing foundations for buildings less than three stories high or foundation loads not in excess of that weight. Properties affecting load-supporting capacity and settlement under load are wetness, flooding, texture, plasticity, density, and shrink-swell behavior. Properties affecting excavation are wetness, flooding, slope, and depth to bedrock. Properties affecting corrosion of buried uncoated steel pipe are wetness, texture, total acidity, and electrical resistivity.

Sanitary landfill (trench type) - is a method of disposing of refuse in dug trenches. The waste is spread in thin layers, compacted, and covered with soil throughout the disposal period. Landfill areas are subject to heavy vehicular traffic. Some soil properties that affect suitability for landfill are ease of excavation, hazard of polluting groundwater, and trafficability. The best soils have moderately slow permeability, withstand heavy traffic, and are friable and easy to excavate. The ratings apply only to a depth of about 6 feet, and therefore, limitation ratings of slight or moderate may not be valid if trenches are to be much deeper than that. For some soils, reliable predictions can be made to a depth of 10 or 15 feet, but regardless of that, every site should be investigated before it is selected.

Sanitary landfill (area type) - in this method of landfill operations, refuse is placed in successive layers on the surface of the soil. Daily and final cover material must be imported because no trenches are dug unless it is for the purpose of obtaining cover material. A final cover of soil material at least two feet thick is placed over the fill when it is completed. Some of the soil properties that affect the suitability are wetness and depth to seasonal high water table, flood hazard, permeability, and slope.

DEGREE OF SOIL LIMITATIONS AND MAJOR FEATURES AFFECTING RECREATION  
DEVELOPMENT

Camp areas - ratings apply to areas for tent and camp trailer sites and the accompanying activities for outdoor living. Desirable areas should require little site preparation and should be suitable for unsurfaced parking for cars and camp trailers and heavy foot traffic. The assumption is made that good vegetative cover can be established and maintained. The best soils have mild slopes, good drainage, a surface free of rocks and coarse fragments, freedom of flooding during heavy periods of use, and a surface texture that is firm even after rains, but not dusty when dry. Information regarding limitations of access roads, septic tank disposal fields, and artificial drainage can be obtained from the front side of the soil interpretation sheet.

Picnic areas - ratings apply to areas to be used for picnic areas and extensive play areas. Ratings are based on soil features only and do not include other features such as presence of trees or ponds, which affect the desirability of a site. The most desirable soils have nearly level to gently sloping topography, good drainage, freedom from flooding, a texture and consistence that provide a firm surface when wet, and ability to support good vegetative cover. They also should be free of coarse fragments and rock outcrops.

Playgrounds - ratings apply to areas to be used for playgrounds, athletic fields, and organized games such as badminton and volleyball. All areas are subject to heavy foot traffic. The assumption is made that good vegetative cover can be established and maintained. The best soils for playgrounds have a nearly level surface free of coarse fragments and rock outcrops, good drainage, freedom from flooding, and a surface texture that is firm even after rains and is not dusty when dry. Areas should be free of coarse fragments and rock outcrops.

Paths and trails - ratings apply to areas that are to be used for trails, cross-country hiking, bridle paths, and other intensive uses that require the movement of people. It is assumed that these areas will be used as they occur in nature and that little soil will be moved to provide this use. Consideration should be given to placement of paths and trails on sloping relief on the contour to reduce the erosion hazard. Soil properties considered in making the ratings are those that affect foot-traffic such as wetness, surface texture, and coarse fragments and those that affect design, construction, and maintenance such as slope, rockiness, or stoniness.