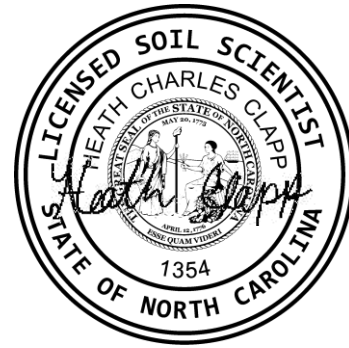




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**Soil Suitability for Domestic Sewage Treatment and Disposal Systems
2808 Durham Rd, Wake Forest NC 27587 (Wake County)**

PREPARED FOR: Tim Keith

PREPARED BY: Heath Clapp, L.S.S.
Senior Soil Scientist
Jordan Harris
Associate Soil Scientist

DATE: July 6, 2026

Soil suitability for domestic sewage treatment and disposal systems was evaluated on July 1, 2026, for property located on 2808 Durham Rd, Wake Forest NC 27587. Jordan Harris of Agri-Waste Technology, Inc. (AWT) conducted the soil evaluation. The detailed soil evaluation of the land area will follow. A property reference map is in Attachment 1.

The total property area evaluated was approximately 0.8 acres. The evaluation areas were wooded. There is an existing house being served by an existing well and septic system currently on the property. There are several drainage features with moderate slopes on the properties (Attachment 2).

Soil Suitability for Domestic Sewage Treatment and Disposal Systems

The aerial map in Attachment 2 details the approximate property boundaries, soil boring locations, soil types, and soil areas for septic systems. Approximately 4 soil borings were advanced within the evaluation areas on the properties (Attachment 2). A portion of the properties contained drainage features, complex topography, and/or unsuitable soils and, thus, are unsuitable for septic systems. However, this evaluation was merely a preliminary review to determine what potential this land might have for domestic sewage treatment and disposal systems. Therefore, specific types of septic systems, exact locations of future drainfields and repair areas, plus buffers from property lines (current and potential future lot lines), building foundations, wells, etc. are not fully considered. These things will need to be more fully considered as the plans develop for the potential future of this site. It is possible that additional soil evaluations will be required once lot layouts are considered and developed for this property so that septic

system types and the location of a septic drainfield can be more fully and appropriately considered.

One area (see map in Attachment 2) exhibited soil characteristics and soil depths (24" or greater) that are suitable for conventional, shallow conventional, or at grade low-profile chamber trench septic systems. The total approximate suitable area is approximately 5,369 ft².

Typical profile descriptions of the suitable soil for these properties are in Attachment 3. One distinct soil profile was observed in the soil borings on the property: a deep red clay subsoil.

The suitable soil borings had the following characteristics. No restrictive horizons were found in any suitable soil borings within 24" of the soil surface. Soil texture was suitable and was estimated to be sandy loam near the soil surface (A horizons) and sandy clay loam to clay in the subsoil (B horizons). Soil structure was suitable and was estimated to be granular near the soil surface (A horizons) and subangular blocky in the subsoil (B horizons). Clay mineralogy was suitable with friable to firm moist soil consistence and non-sticky to sticky and non-plastic to plastic wet soil consistence.

The major soil types mapped on these properties are Cecil sandy loam (map symbol CeB). The Wake County Soil Survey indicates that moderate limitations exist for septic systems installed in these soil types (Attachment 4).

The land area required for a conventional, shallow conventional, or low-profile chamber septic system is calculated based on the size of the proposed home and the Long-Term Acceptance Rate (LTAR) of the soil. The LTAR range for the suitable soils on this property is 0.1 – 0.4 GPD/ft² based on the most restrictive soil texture in the subsoil. The LTAR suggested by AWT for a majority of the suitable soil is 0.275 GPD/ft². The final LTAR for specific septic system types and septic drainfield locations will be set by the permitting entity (AOWE, EOP, or Wake County Department of Environmental Services). The detailed computations are in Attachment 5.

Conclusions

Based on the results of this evaluation, the installation of conventional, shallow conventional, or at grade low-profile chamber septic systems seems very probable on this property in the Areas designated on the maps in Attachment 2. Due to the limited space, a site layout may be required to ensure a septic system and adequate repair area will fit on the property with future improvements.

We appreciate the opportunity to assist you in this matter. Please contact us with any questions, concerns, or comments.

ATTACHMENT 1: Property Reference Map



Keith Durham Rd GIS Map



0 25 50 100 ft
1 inch equals 50 feet

Disclaimer
iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.

**ATTACHMENT 2: Property Map Detailing Soil Suitability
for Septic Systems and Soil Types**



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Preliminary Soil Evaluation

Tim Keith
Wake Co., NC
PIN: 1811325476

GIS Acres: ~0.8



Area for Septic:

~5,369 sq. ft.

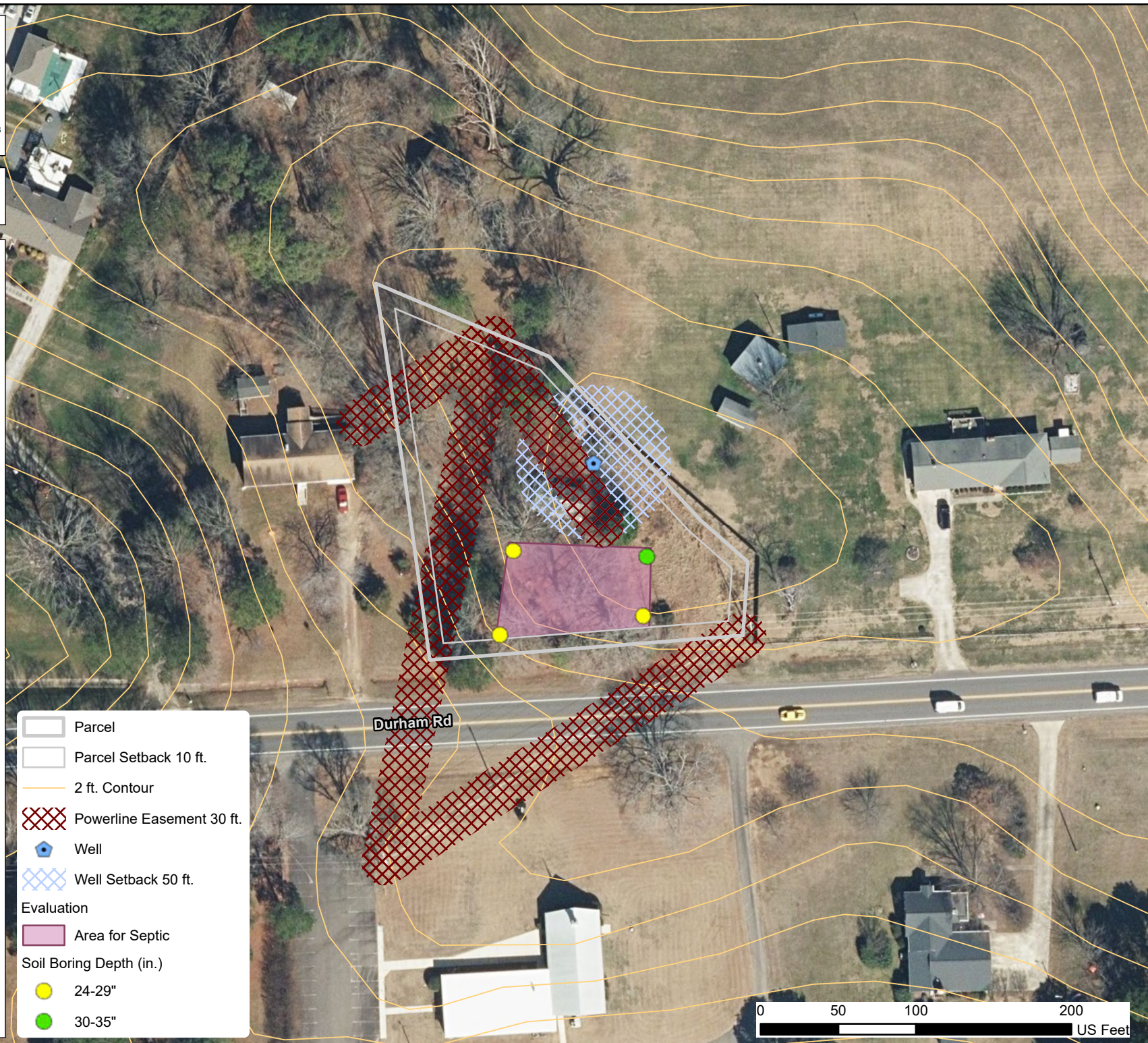
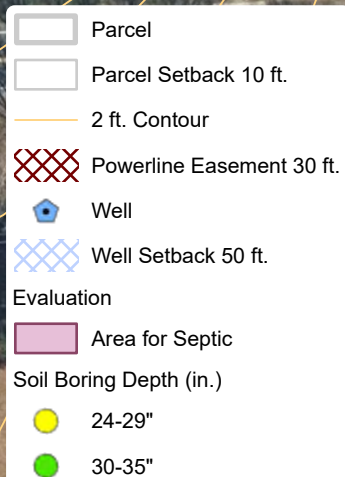
Soil Types:

CeB: Cecil sandy loam

Notes:

No USGS/Soil Survey Waters
No mapped NWI Wetlands
In Neuse Riparian Buffer

Drawn by: William Snoeyink
Reviewed by: Jordan Harris
Date: 7/6/2026





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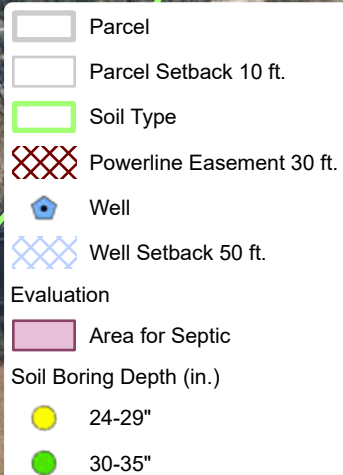
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Notes:

No USGS/Soil Survey Waters
No mapped NWI Wetlands
In Neuse Riparian Buffer

Drawn by: William Snoeyink
Reviewed by: Jordan Harris
Date: 7/6/2026



**ATTACHMENT 3: Typical Profile Descriptions of
Provisionally Suitable Soil**

County: Wake.

SOIL/SITE EVALUATION FOR ON-SITE WASTEWATER SYSTEM

Wake Forest NC 27587

Property Size: Approximately 0.8 acres evaluated

Location Site: 2808 Durham Rd, Wake Forest NC 27587

Water Supply: On Site Well X Comm. Well__ Public__ Other__

Evaluation Method: Auger Boring X Pit Cut

TYPICAL PROFILE #1

Comments: Auger refusal was noted around 24-26 inches.
--

LEGEND OF ABBREVIATIONS FOR SITE EVALUATION FORM

<u>LANDSCAPE POSITION</u>	<u>TEXTURE GROUP</u>	<u>TEXTURE CLASS</u>	<u>.0509 LTAR</u> (gal/day/sqft)
CC - Concave Slope	I	S - Sand	1.2 - .08
CV - Convex Slope		LS - Loamy Sand	
DS - Debris Slump	II	SL - Sandy Loam	0.8 - 0.6
D - Depression		L - Loam	
DW - Drainage Way	III	SCL - Sandy Clay Loam	0.6 - 0.3
FP - Flood Plain		CL - Clay Loam	
FS - Foot Slope		SiL - Silt Loam	
H - Head Slope		Si - Silt	
I - Interflueve		SiCL - Silt Clay Loam	
L - Linear Slope	IV	SC - Sandy Clay	0.4 - 0.1
N - Nose Slope		C - Clay	
P - Pocosin		SiC - Silty Clay	
R - Ridge		O - Organic	
S - Shoulder			
T - Terrace			
<u>STRUCTURE</u>	<u>MOIST CONSISTENCE</u>	<u>MOTTLES</u>	<u>WET CONSISTENCE</u>
G - Single Grain	Vfr - Very Friable	1 - Few	NS - Non Sticky
M - Massive	Fr - Friable	2 - Common	SS - Slightly Sticky
CR - Crumb	Fi - Firm	3 - Many	S - Sticky
GR - Granular	Vfi - Very Firm	F - Faint	VS - Very Sticky
SBK - Subgranular Blocky	Efi - Extremely Firm	D - Distinct	NP - Non Plastic
ABK - Angular Blocky		P - Prominent	SP - Slightly Plastic
PL - Platy		f - Fine	P - Plastic
PR - Prismatic		m - Medium	VP - Very Plastic
		c - Coarse	

ATTACHMENT 4: Soil Survey Information

TABLE 6.—*Engineering*

[Dashed lines indicate that information is not available, or that the practice is not applicable. Miscellaneous land types Gullied land

Soil series and map symbols	Suitability as source of—		Degree of limitation for—		
	Topsoil	Road fill	Homebuilding sites	Septic tank absorption fields	Recreation
					Campsites
Altavista (AfA)-----	Fair-----	Fair-----	Severe: flooding-----	Severe: flooding-----	Moderate: flooding; fair trafficability.
Appling: (AgB, AgB2)-----	Fair-----	Fair-----	Moderate: coarse fragments.	Moderate: medium percolation rate.	Moderate: coarse fragments.
(AgC, AgC2)-----	Fair-----	Fair-----	Moderate: coarse fragments.	Moderate: medium percolation rate.	Moderate: coarse fragments; slopes of 6 to 10 percent.
(ApB, ApB2, AsB, AsB2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Slight-----
(ApC, ApC2, AsC, AsC2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Moderate: slopes of 6 to 10 percent.
(ApD)-----	Fair-----	Fair-----	Moderate: slopes greater than 10 percent.	Moderate: medium percolation rate; slopes greater than 10 percent.	Severe: slopes greater than 10 percent.
Augusta (Au)-----	Poor-----	Poor-----	Severe: flooding; high water table.	Severe: flooding; high water table.	Severe: flooding; high water table.
Bibb (Mapped only in an undifferentiated unit with Wehadkee soils).	Poor-----	Fair-----	Severe: flooding; high water table.	Severe: flooding; high water table.	Severe: flooding; high water table; poor trafficability.
Buncombe (Bu)-----	Poor-----	Good-----	Severe: flooding-----	Severe: flooding-----	Severe: flooding-----
Cecil: (CeB, CeB2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Slight-----
(CeC, CeC2)-----	Fair-----	Fair-----	Slight-----	Moderate: medium percolation rate.	Moderate: slopes of 6 to 10 percent.
(CeD)-----	Fair-----	Fair-----	Moderate: slopes of 10 to 15 percent.	Moderate: medium percolation rate; slopes of 10 to 15 percent.	Severe: slopes greater than 10 percent.
(CeF)-----	Fair-----	Fair-----	Moderate to severe: slopes of 15 to 45 percent.	Severe: slopes greater than 15 percent.	Severe: slopes greater than 15 percent.
(CgB, CgB2, CgC, CgC2)-----	Fair-----	Fair-----	Moderate: coarse fragments.	Moderate: medium percolation rate.	Moderate: coarse fragments.
(CIB3, CIC3)-----	Poor-----	Fair-----	Moderate: clayey surface layer.	Moderate: medium percolation rate.	Moderate: clayey surface layer.
(CIE3)-----	Poor-----	Fair-----	Moderate: clayey surface layer; slopes of 10 to 20 percent.	Moderate to severe: medium percolation rate; slopes of 10 to 20 percent.	Severe: slopes greater than 10 percent.

**ATTACHMENT 5: Septic System Area Computation
Spreadsheets**

Conventional Septic System Area ComputationCreated by: JH
Created on: 7/6/2026

Client Name: Keith
Number Bedrooms: 3
Design Flow (gal/day): 360 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.275
Trench Bottom Area (ft²): 1309.091 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 436.3636 (Conventional - Pipe & Gravel)

Minimum Field Area Required (ft²): 3927.273 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 2945.455 (25% reduction)
Minimum Field Area Required (Panel Block) (ft²): 1963.636 (50% reduction)
Total Field Area Required (ft²)⁽¹⁾: 9818.182 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 7363.636 (25% reduction from above)
Total Field Area Required (Panel Block) (ft²)⁽¹⁾: 4909.091 (50% reduction)
Total Field Area Required (ft²)⁽¹⁾: 11781.82 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 8836.364 (25% reduction from above)
Total Field Area Required (Panel Block) (ft²)⁽¹⁾: 5890.909 (50% reduction)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: Keith
Number Bedrooms: 4
Design Flow (gal/day): 480 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.275
Trench Bottom Area (ft²): 1745.455 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 581.8182 (Conventional - Pipe & Gravel)

Minimum Field Area Required (ft²): 5236.364 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 3927.273 (25% reduction from above)
Minimum Field Area Required (Panel Block) (ft²): 2618.182 (50% reduction)
Total Field Area Required (ft²)⁽¹⁾: 13090.91 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 9818.182 (25% reduction from above)
Total Field Area Required (Panel Block) (ft²)⁽¹⁾: 6545.455 (50% reduction)
Total Field Area Required (ft²)⁽¹⁾: 15709.09 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 11781.82 (25% reduction from above)
Total Field Area Required (Panel Block) (ft²)⁽¹⁾: 7854.545 (50% reduction)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.

Client Name: Keith
Number Bedrooms: 5
Design Flow (gal/day): 600 (120 gal/day/bedroom, minimum 240 gal/day/dwelling)
LTAR (gal/day/ft²): 0.275
Trench Bottom Area (ft²): 2181.818 (Design flow/LTAR)
Trench Width (ft): 3
On-center distance between trenches (ft): 9
Trench Bottom Length (ft): 727.2727 (Conventional - Pipe & Gravel)

Minimum Field Area Required (ft²): 6545.455 (Trench Bottom Length*Trench on-center distance)
Minimum Field Area Required (Innovative) (ft²): 4909.091 (25% reduction from above)
Minimum Field Area Required (Panel Block) (ft²): 3272.727 (50% reduction)
Total Field Area Required (ft²)⁽¹⁾: 16363.64 (Minimum field area*2.5)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 12272.73 (25% reduction from above)
Total Field Area Required (Panel Block) (ft²)⁽¹⁾: 8181.818 (50% reduction)
Total Field Area Required (ft²)⁽¹⁾: 19636.36 (Minimum field area*3)
Total Field Area Required (Innovative) (ft²)⁽¹⁾: 14727.27 (25% reduction from above)
Total Field Area Required (Panel Block) (ft²)⁽¹⁾: 9818.182 (50% reduction)

(1) Provides for reserve area and soil irregularity, 2.5 to 3 is multiplier.