



**MDE Maryland Department of the Environment**

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# **Southern Kent Island Sanitary Project**

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**Presented by**

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# Scope of the Sanitary Project

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- Serve 9 communities on Southern Kent Island bordering the Chesapeake Bay and Eastern Bay
- Provide public sewer to 1,518 existing homes
- Provide sewer to a maximum of 632 vacant lots
- Expected build-out of vacant lots is 560 homes
- SKI communities are not in Priority Funding Areas
- County is requesting a State Revolving Fund loan and Bay Restoration Fund grants

# Project Background

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- Legacy Problem – Before modern regulations
- Almost all of the septic trenches are in groundwater
- Lot sizes are small – Too small for replacement systems
- Pathogens are not being removed
- Trenches are contributing high nitrogen loads to the Chesapeake Bay

# Project Background

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- SKI areas were previously planned for service in the Water & Sewer Plan
- Capacity was reserved in the KNSG WWTP for the SKI communities
- This project will provide superior treatment of pathogens and a large reduction in nitrogen
- But providing sewers is very expensive and controversial

# Project Background

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- Maryland law requires that service be provided to vacant lots adjacent to a sewer line
- A limited amount of infill development will be included in this project
- State financial assistance ensures limited infill development
- This project strikes a balance between solving public health problems and allowing a limited amount of infill development

- Failing septic systems and
- Systems penetrating groundwater

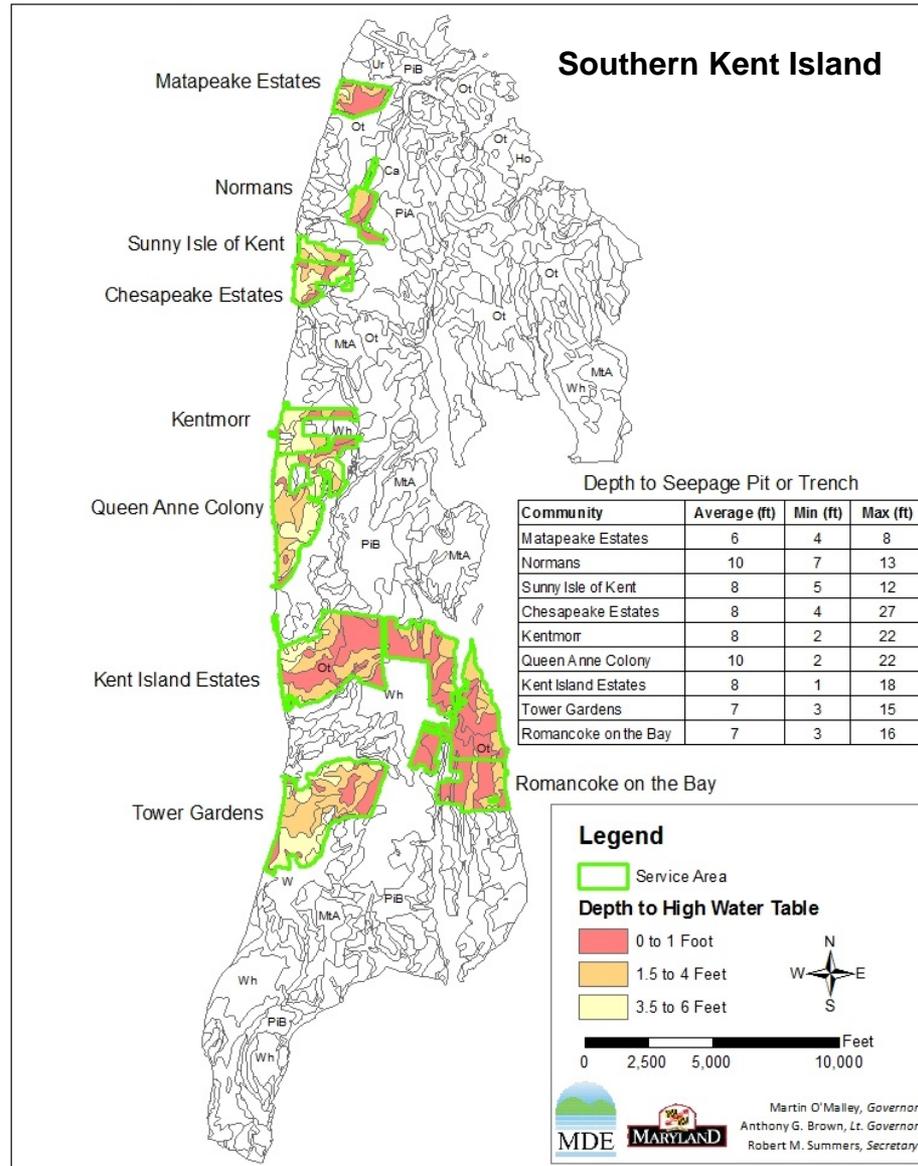
*Result in*

- Little or no treatment of pathogens (bacteria and viruses)
- High nitrogen loads to the Chesapeake Bay

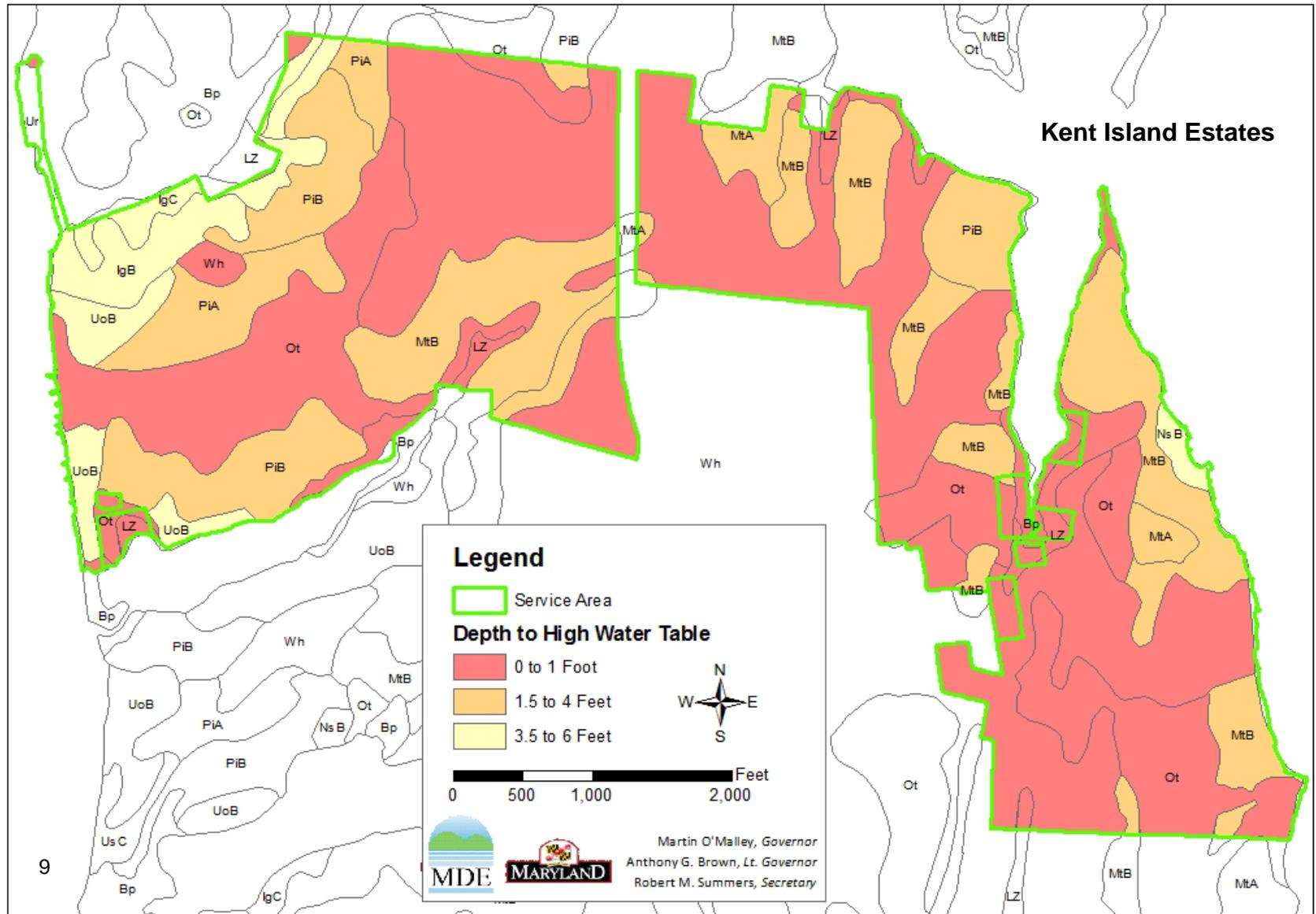
- High groundwater
- Soils with poor permeability
- Small lot sizes

***3 Strikes and You're Out!***

# High Groundwater



# High Groundwater





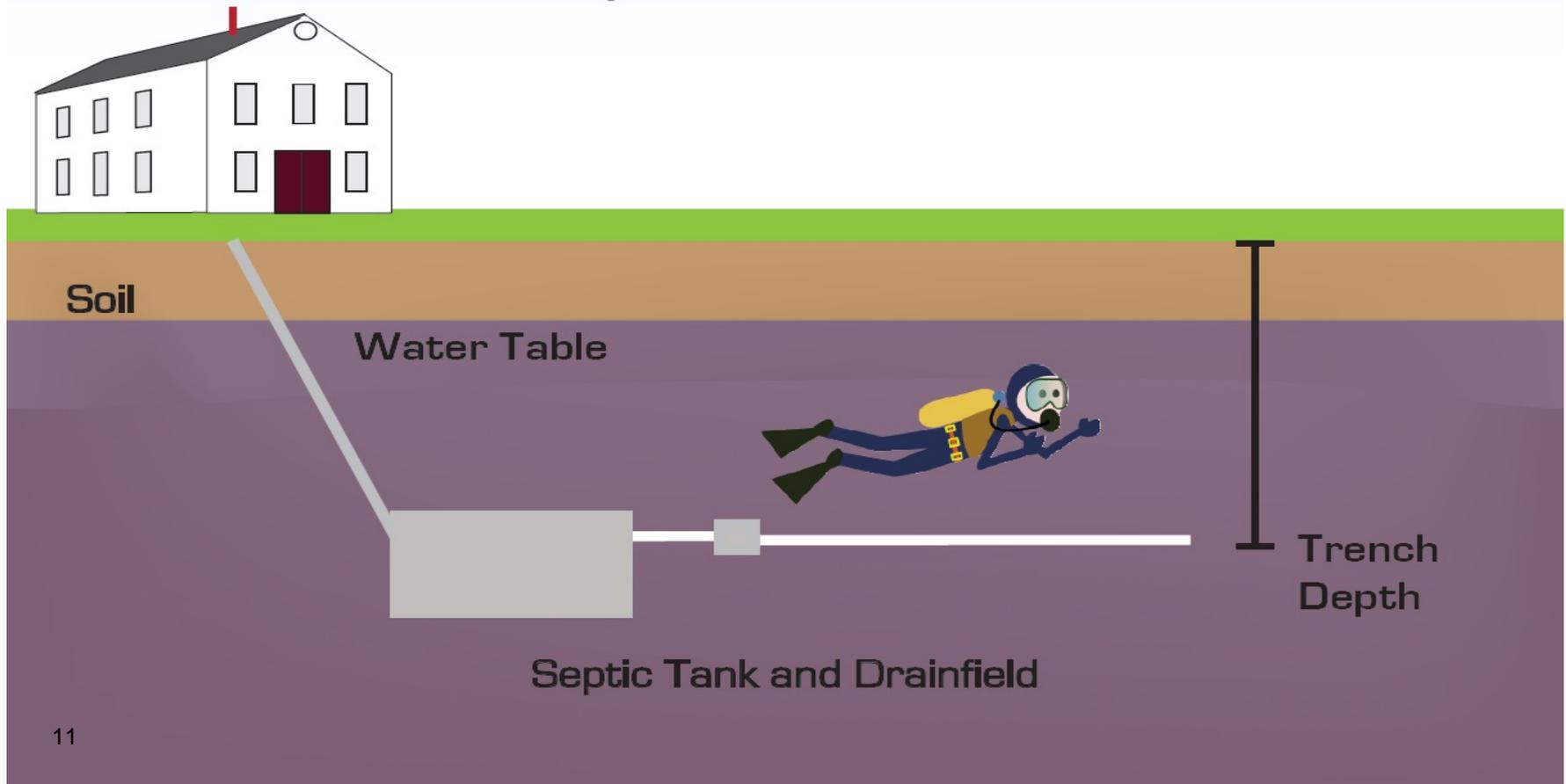
# Septic Trenches Penetrate Groundwater

## Depth to Seepage Pit or Trench

Community	Average (ft)	Min (ft)	Max (ft)
Matapeake Estates	6	4	8
Normans	10	7	13
Sunny Isle of Kent	8	5	12
Chesapeake Estates	8	4	27
Kentmorr	8	2	22
Queen Anne Colony	10	2	22
Kent Island Estates	8	1	18
Tower Gardens	7	3	15
Romancoke on the Bay	7	3	16

# High Groundwater and Septic Trenches

## Illustration of Typical Water Table and Trench Depths on Southern Kent



# Soils with Poor Permeability

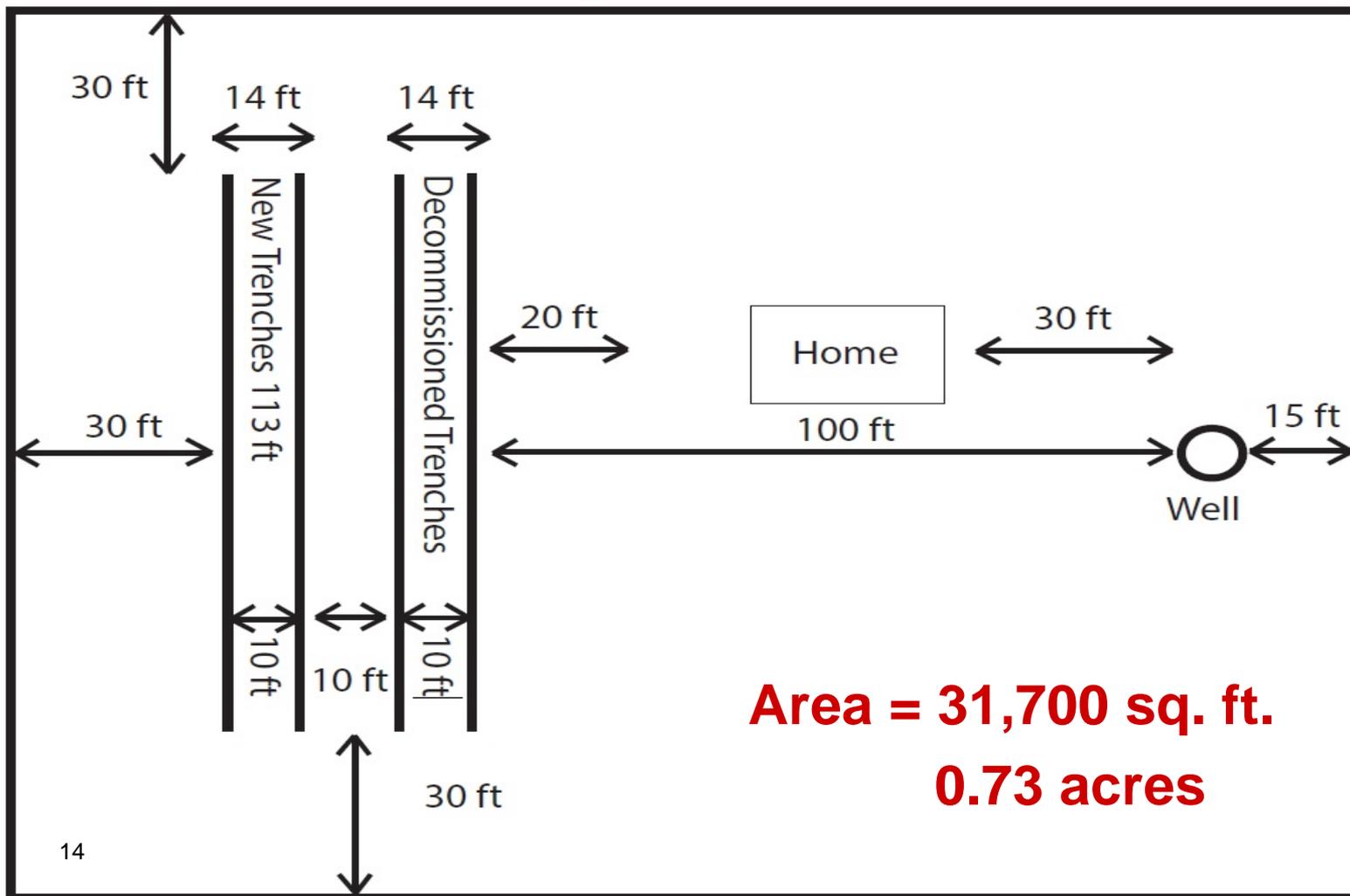


# Small Lot Sizes

<b><u>Subdivision</u></b>	<b><u>Average Lot Size (sq ft)</u></b>
Matapeake Estates	Various lot sizes
Normans	Various lot sizes
Sunny Isle of Kent	9,000
Chesapeake Estates	14,500 - 15,000
Kentmorr	5,000
Queen Anne Colony	20,000 - 25,000
Kent Island Estates	10,000 - 12,000
Romancoke on the Bay	10,000 - 20,000
Tower Gardens	15,000 to 1+ acre

# Replacement System Under Ideal Conditions

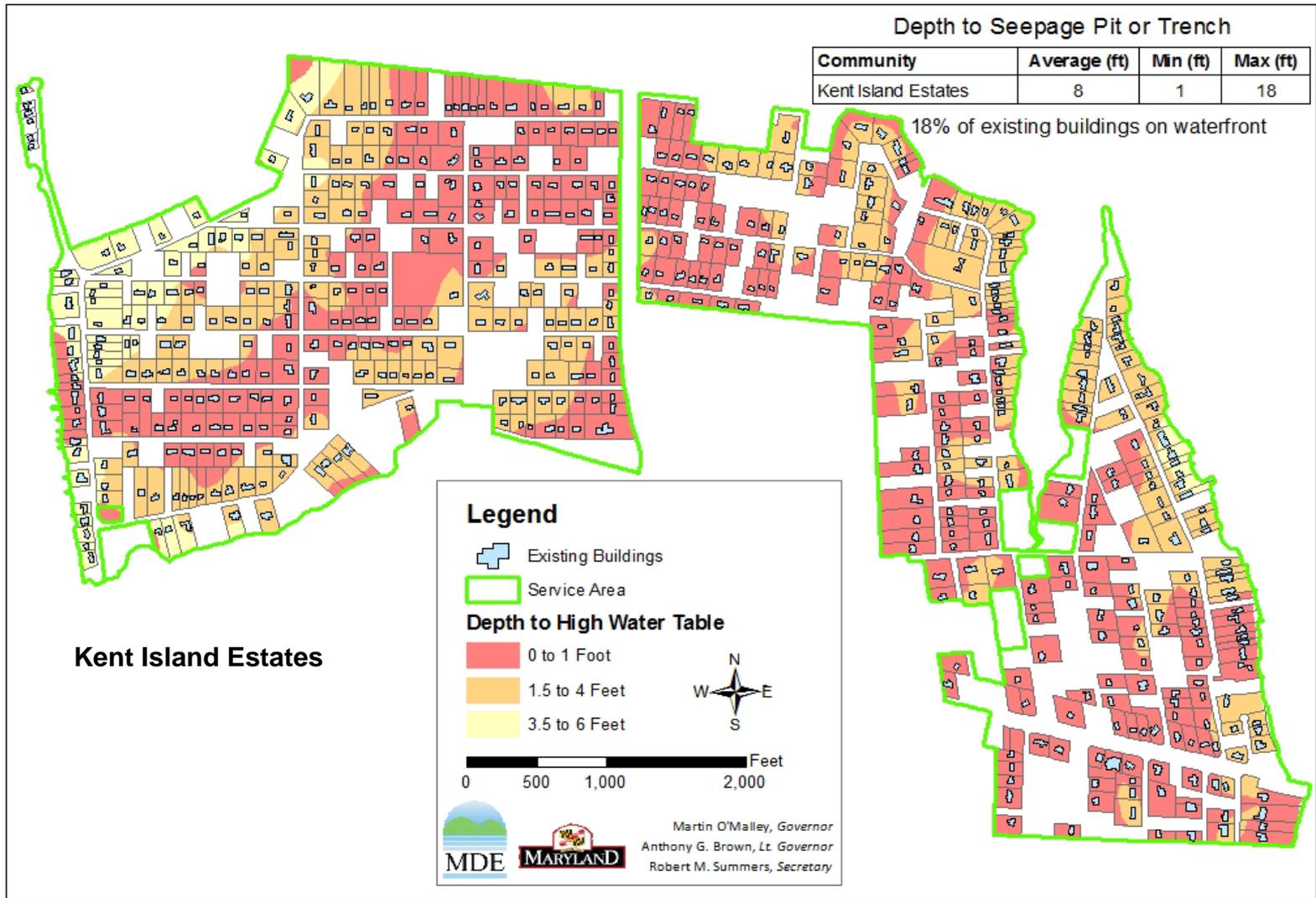
Minimum lot size approximation for the replacement of a sand-lined trench system on Southern Kent Island



# Replacement Systems and Lot Sizes

- The minimum area needed for a replacement system under ideal conditions is **31,700 square feet**
- Most lots on SKI range from 5,000 to 25,000 square feet
- Replacement systems are not an option for SKI

# High Groundwater and Small Lot Sizes



- High groundwater
- Soils with poor permeability
- Small lot sizes

***3 Strikes and You're Out!***

Innovative systems:

- Do not eliminate pathogens
- Do not eliminate the liquid component of the sewage
- Do not reduce nitrogen loads as much as an ENR WWTP



# Best Alternative for SKI

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Serving the 9 communities at SKI with the sanitary project will:

- Help prevent future growth
- Provide a cost-effective solution
- Eliminate pathogens
- Provide superior reduction in nitrogen loads



# Nitrogen Loads - Existing

## EXISTING CONDITIONS – Septic Systems

## NITROGEN LOAD - LBS/YEAR

### Septic Systems

940 homes - Critical Area	17,446
113 homes - near a stream	1,311
465 homes beyond the Critical Area	3,236
vacant lots	0

### Non-point

1,518 homes - 878 acres	6,895
vacant lots - 327 acres	<u>1,528</u>

**About 30,400 lbs/yr TOTAL**



# Nitrogen Loads - Future

## FUTURE CONDITIONS – Connect to WWTP

## NITROGEN LOAD - LBS/YEAR

### ENR

1,518 existing homes on ENR and

560 new homes on ENR

4,987

### Non-point

1,518 existing homes - 878 acres and

560 new homes - 327 acres

8,158

**About 13,100 lbs/yr TOTAL**



# Reduction in Nitrogen Loads

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Existing septic and non-point N loads      30,400 lbs/yr

Future ENR and non-point N loads      - 13,100 lbs/yr

**Reduction in Nitrogen Loads      17,300 lbs/yr**





## State Revolving Fund (SRF) Loan:

- Request is for about \$37 million in capital costs for the sanitary project
- 1.5% to 2.0% interest rate
- 20 year term
- Assessment on all lots
- Vacant lots will pay an economic premium



## Bay Restoration Fund (BRF) Grants:

- County will receive about \$1 million per year through 2030
- County can use a portion of the grant to offset the connection fee of \$7,750 for existing homes
- The County plans to use about \$9 million in BRF grants over time

# House Bill 11 of 2014

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- HB11 - *Bay Restoration Fund (BRF) – Authorized Uses*
- Departmental bill sponsored by MDE
- Recommendation of the Septics Task Force
- Supported by:
  - MACo (AACo, PGCo, Charles Co, Kent Co, Worc Co)
  - Queen Anne's County
  - Maryland Municipal League
  - Chesapeake Bay Commission
  - Chesapeake Bay Foundation
  - MD Coastal Bays Commission

# House Bill 11 of 2014 (cont'd)

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- Builds on legislation passed in 2011 (Chapters 492 & 493)
  - Expanded uses of the BRF Septics Account to include providing grants for connecting septic systems to a WWTP achieving ENR
  - Each individual homeowner could use their septic grant and apply it toward the cost to connect to public sewer
  - Funding could only be provided if 5 conditions were met

## HB11 - Bay Restoration Fund (BRF) – Authorized Uses

- Provides Financial Flexibility - BRF septic funds can be used for repayment of the eligible debt principle amount in cases where septic grant funds are insufficient to finance the entire project in cash.
- Expands the eligibility for funding for a sewer connection project outside of a PFA under the following conditions (conditions 1-4 also apply to a project inside a PFA):
  - 1) Environmental impact of the septic systems is documented;
  - 2) More cost-effective for nitrogen removal than upgrading the individual systems or individual replacement of the systems is not feasible;
  - 3) Consistent with the county's comp plan and W&S master plan;
  - 4) Septic system was installed as of October 1, 2008;
  - 5) Granted a PFA exception by the SGCC; and
  - 6) Consistent with a public health area of concern.
- The project must ensure denial of access for any future connections that are not included in the project's service area.

## HB11 - Bay Restoration Fund (BRF) – Authorized Uses

- Requires MDE, as part of its review of a project, to consider:
  - 1) The public health issues;
  - 2) The potential infill development;
  - 3) Measures taken to mitigate the potential impacts of new growth; and
  - 4) Total nitrogen reduction from the project, including loading from new growth.
- Requires MDE to adopt regulations establishing procedures for the review of projects outside of a PFA, including opportunity to request a public hearing.
- The regulations do not apply to a project:
  - 1) That will be served by an existing ENR WWTP;
  - 2) For which an application for funding was submitted by 2/15/14;
  - 3) That was the subject of a public notification process initiated by 2/15/14;
  - 4) That, after 2/15/14, was the subject of a public hearing held by the county where the project will be located; and
  - 5) That has been approved by a majority of the members of the governing body.



# Questions?

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