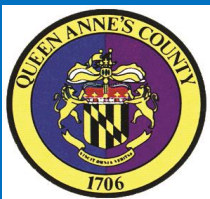


Southern Kent Island (SKI) Sanitary Project



Tower Gardens HOA Meeting
April 22, 2017



www.skisewer.com

Southern Kent Island Sanitary Project

- Project Overview
- Problems & Challenges Faced
- Smart Growth Considerations
- Project System
- Phasing & Construction Status

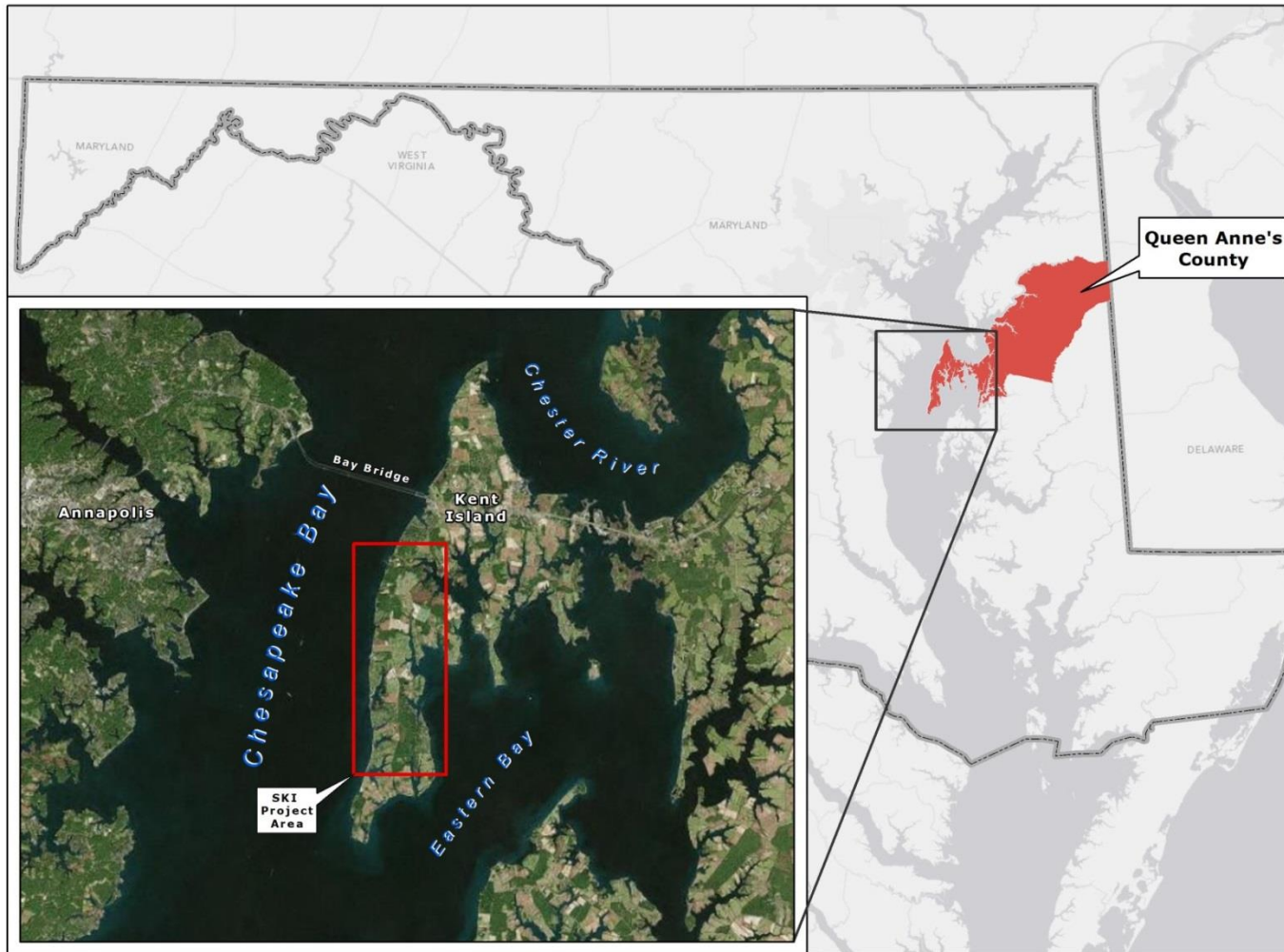
Southern Kent Island Sanitary Project Goal

Correct a longstanding public health problem within existing 1950's & 60's era communities that were developed before modern public health and land use regulations.

- Affordably
- Growth Limits
- Permanent
- Robust



Location Map



Environmentally Challenging Area!

Southern Kent Island Sanitary Project

Problem

Failing Onsite Septic Systems

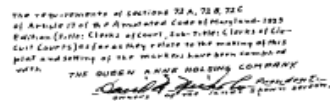
- 1,518 existing homes
- 1,600 Vacant Lots of Record

80% of existing homes discharging directly into groundwater

Communities situated miles away from public Sewer Service Area

Concerns about Growth from a public sewer line extension

Environmentally Sensitive Region – 70% of project within Chesapeake Bay Critical Area

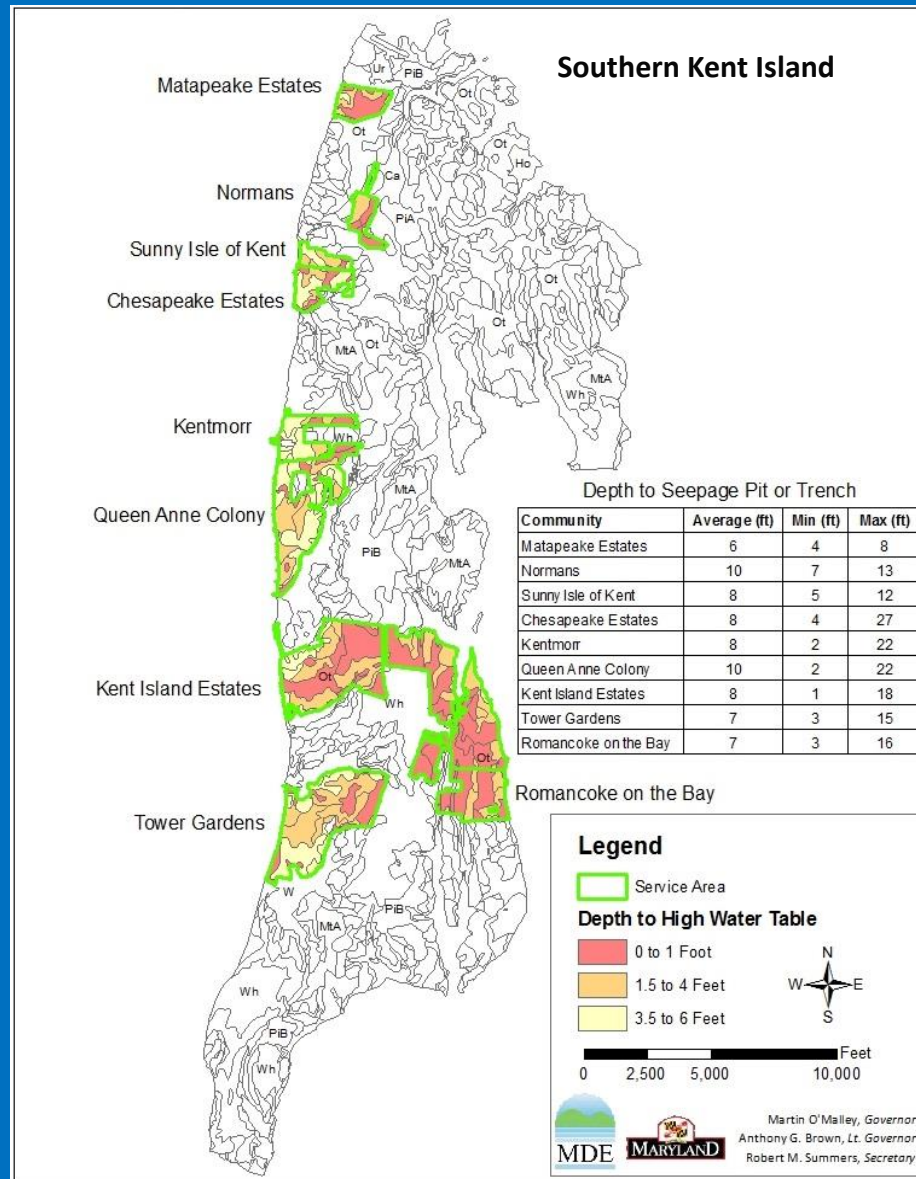


QUEEN ANNE COUNTY, STATE OF MARYLAND
Scale 1" = 800' Feb., 1981.
A DISTRICT OF 67.6[±] SQUARE METERS.

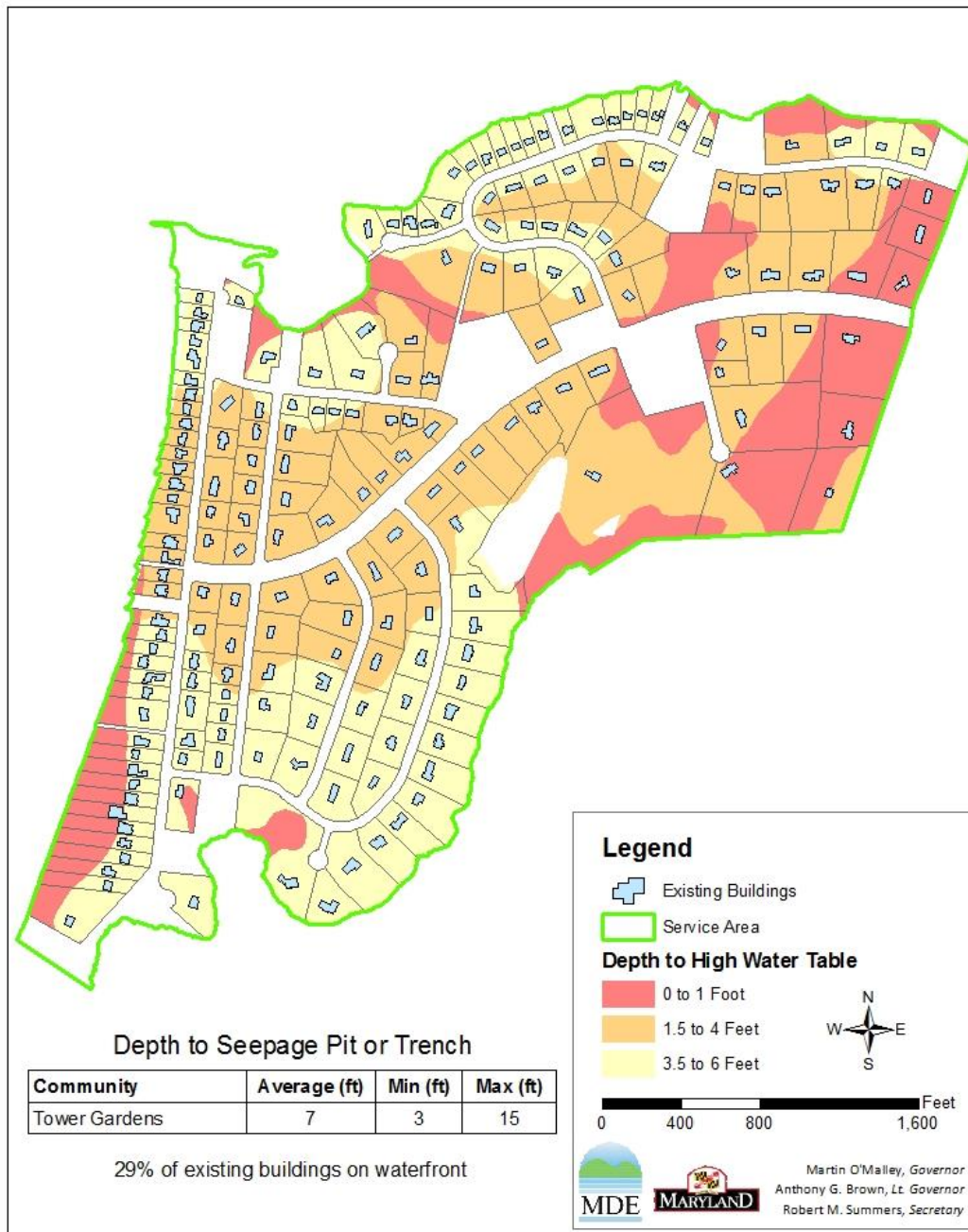
Fig. 1. *Diagram illustrating the structure of the model.*

MSA SSU 1251-837 TSP/1, P4

High Groundwater

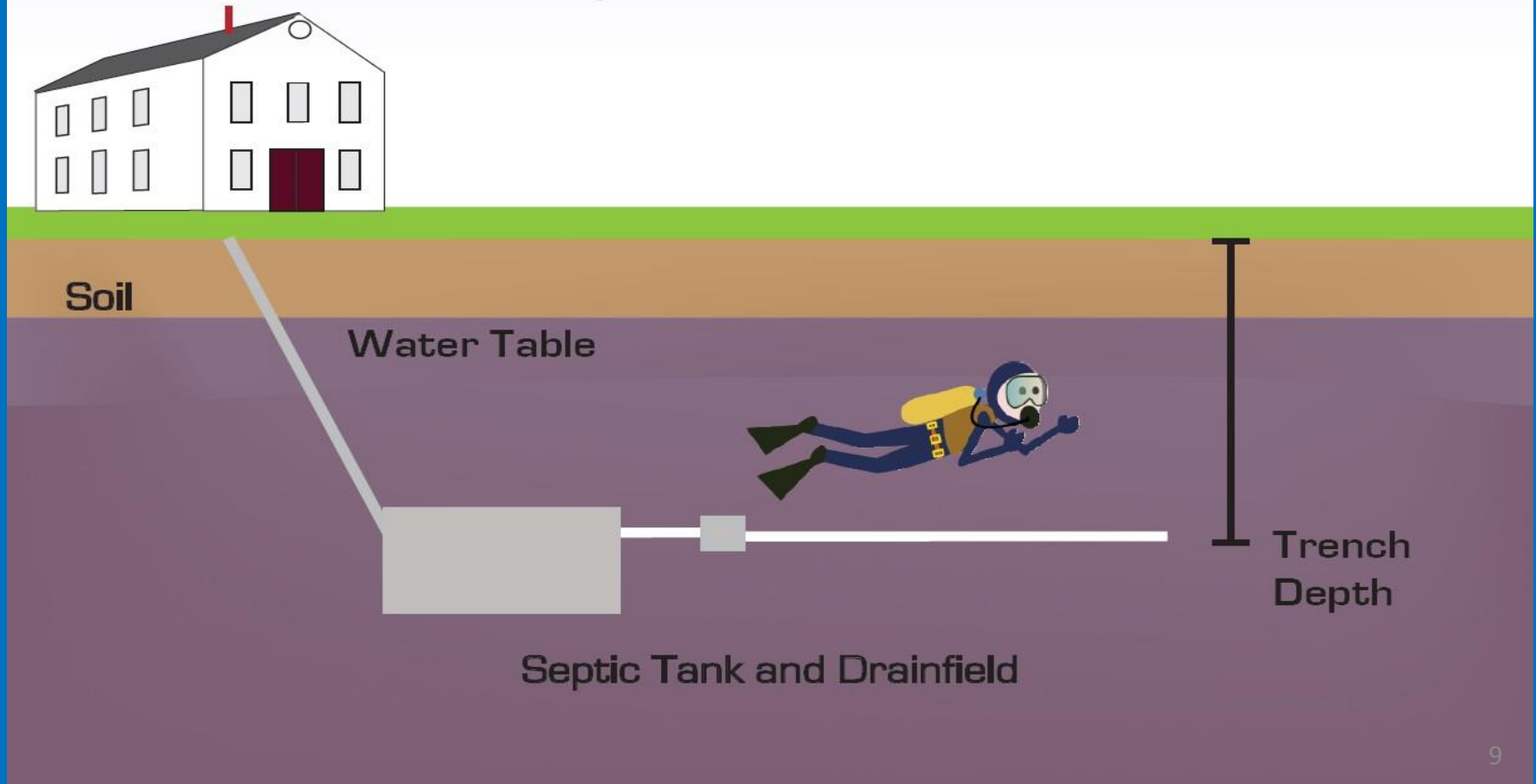


Map 9b: Improved lots for Tower Gardens



High Groundwater and Septic Trenches

Illustration of Typical Water Table and Trench Depths on Southern Kent



Poorly Drained Soils



Historical County Efforts

1975 - SKI Communities identified as areas to be served by public sewer in Water & Sewer Plan

1989 - 216 Previously Approved “Perc” tests over-turned

2004 - Reserved 500,000 gallons of ENR treatment capacity

2005 – Attorney General Opinion affirmed specific Service Area Boundaries could be established

2007 - Nationally recognized de-centralized waste disposal expert, Dr. Robert Rubin, concluded “extension of public sewer as most cost effective solution and best for Nutrient reduction”

Historical County Efforts

2008 - Retained engineering/planning firm, JMT to evaluate options for a public sewer system to serve South Kent Island

2010 - Comprehensive Plan adopted reflecting future public sewer service to SKI Communities

2011 – Local Advisory Board concludes that “public sewer collection and treatment is warranted.”

- Limit Infill
- Establish an Economic Benefit Premium (EBP)
- Obtain State Grants

State & County Efforts - Planning

Began regular meetings with MDE & MDP to craft a plan to balance infill development with project financing and costs to residents

- Bay Restoration Fund
- State Revolving Loans

Local Health Department adopts “Holding Tank Policy” for failed septic system areas

- 7 homes and 2 businesses currently on holding tanks
- 500+ additional homes identified for holding tanks



Avoid Holding Tanks

Average House

\$200 - \$240 per Pump Out

\$7,200 - \$8,640 per Year

about \$600 per month

County Efforts - Planning

Introduced Lot Consolidation Ordinance #13-24

- Merged adjacent lots under common ownership
- Must conform with existing zoning district NC-20

Final Project Service Area Boundaries established

- Authorizing denied access force main
- Only offer service to vacant interspersed lots
- Vacant Lot Inventory Reduced - 1,600 down to 632

Appraisal to set EBP range and Introduced Special Benefit Resolution #14-07 to levy project cost

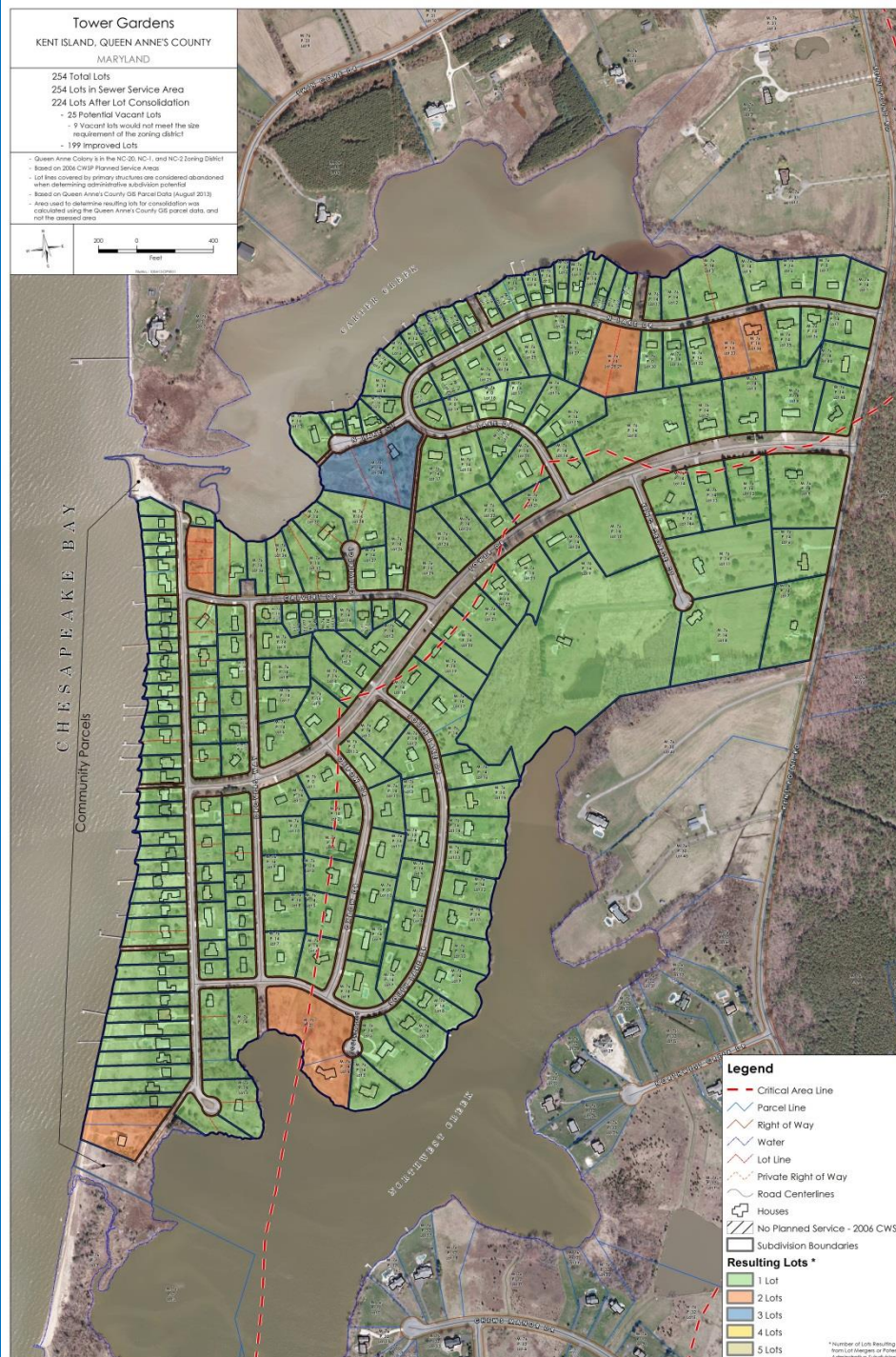
Kent Island Estates and Romancoke Sewerage Public Health Areas of Concern



Tower Gardens
KENT ISLAND, QUEEN ANNE'S COUNTY
MARYLAND

254 Total Lots
 254 Lots in Sewer Service Area
 224 Lots After Lot Consolidation
 - 25 Potential Vacant Lots
 - 9 Vacant lots would not meet the size requirement of the zoning district
 - 199 Improved Lots

- Queen Anne Colony is in the NC-30, NC-1, and NC-2 Zoning District
- Based on 2006 CWSP Planned Service Area
- Lot lines covered by primary structures are considered abandoned when determining administrative subdivision potential
- Based on Queen Anne's County GIS Parcel Data (August 2013)
- Areas used to determine resulting lots for consolidation were calculated using the Queen Anne's County GIS parcel data, and not the covered areas



Legend

- Critical Area Line
- Parcel Line
- Right of Way
- Water
- Lot Line
- Private Right of Way
- Road Centerlines
- Houses
- No Planned Service - 2006 CWSP
- Subdivision Boundaries

Resulting Lots *

- 1 Lot
- 2 Lots
- 3 Lots
- 4 Lots
- 5 Lots

*Number of Lots Resulting from Consolidation of Potential Administrative Subdivisions

State & County Efforts - Planning

Researched and Developed public sewer system design concept using Septic Tank Effluent Pumping “STEP”

- Best suited for areas with limited topography

- Simple and efficient design technology

- Low pressure system

- Easy to retrofill

MDE sponsored legislation HB 11 to change state law which made BRF funds eligible for the project

THE

1799-2014



STAR

DEMOCRAT

June 4, 2014

SERVING THE MID-SHORE FOR 214 YEARS

EASTON, MARYLAND \$1.00

QA's OKs south KI sewer project

By ANGELA PRICE

baytimes@kibaytimes.com

STEVENSVILLE — Queen Anne's County Commissioners approved the \$53.1 million plan to extend public sewer service to communities with failing septic systems on southern Kent Island in a 4-1 vote May 27, with Commissioner Dave Olds opposing.

The commissioners previously voted to address the three measures related to the project together: the sewer project as a whole; a resolution by the county commissioners, sitting as the Sanitary Commission,

Existing homeowners will see a \$100 a month fee for the next 20 years, while owners of buildable vacant lots would pay \$216 a month under the current economic benefit projections.

to establish a South Kent Island Wastewater Subdistrict, defining its boundaries and financing a public sewage collection and transmission system for it; and County Ordinance 13-24, regarding the use and merger of substandard lots in the neighborhood conservation district. And they voted on

them as one block.

Under Ordinance 13-24, owners of adjoining lots zoned NC-20 (neighborhood conservation) will be required to merge substandard lots, identified as lots consisting of less than 20,000 square feet. The nine communities targeted for sewer expansion, Mata-

peake Estates, Normans, Sunny Isle of Kent, Chesapeake Estates, Kentmorr, Queen Anne Colony, Kent Island Estates, Tower Gardens and Romancoke on the Bay, are all zoned NC-20.

The plan received a favorable recommendation from the planning commission Dec. 12 after more than three hours of discussion and the stated understanding that the ordinance was a necessary first step in the county's long-term goal of obtaining Bay Restoration Fund dollars from the state.

The planning commission recommended final approval of Ordinance 13-24

be delayed until the county commissioners are satisfied that state funding for the extension of sewer for southern Kent Island has been authorized by all relevant state agencies.

The passage of House Bill 11, signed April 8 by Gov. Martin O'Malley, opened the way for the project to obtain state funding. The new law allows specified fee revenue collected for the Bay Restoration Fund to pay specified debt issued by a local government for the cost of connecting

See **SEWER**

Page A13 19

State Smart Growth Committee

Approval of SKI Sewer Extension and eligibility for use of BRF Funds and SRL Grants

1. Limited to 1518 existing homes and max of 632 infill vacant lots
2. Report new connections annually to MDP
3. Limit treatment capacity to 500,000 gpd
4. No increased capacity for existing non-residential uses
5. Denial of service for any future connection outside of SKI service area
6. Adopt MD model floodplain ordinance -2 foot freeboard
7. Evaluate climate change vulnerability and outline strategies to enhance resilience

Project System

Sepic Iank Effluent Pumping



Project System

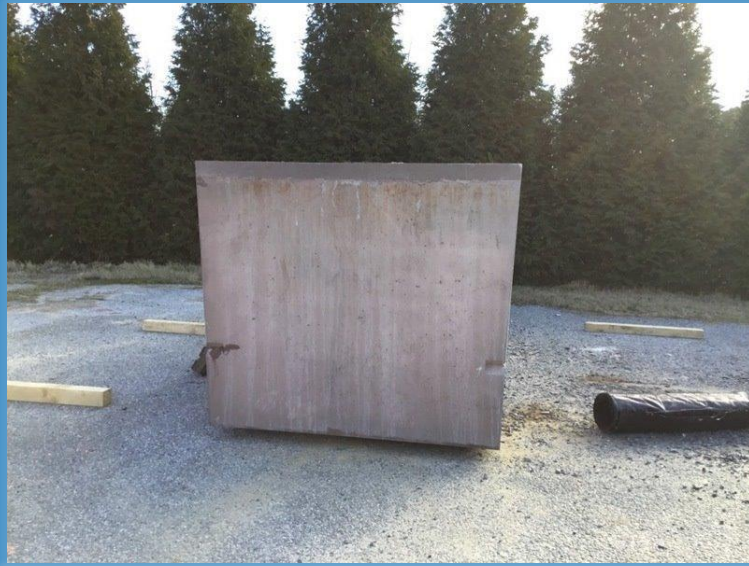
STEP System Advantages

- Uses directional drill technology (HDD)
- Closed system minimizes I & I
- Eliminates need for intermediate pump stations
- Provides emergency storage during power outages
- Service call issues are minor (isolated to individual home vs. hundreds of homes)
- Easy to pinpoint and correct problems
- Pumps are economical yet robust
- Use of Seamless Concrete Tanks

Proposed Project System in Virtual Utility

Red — 16" Dia.
Purple — 12" Dia.
Brown — 10" Dia.
Dark Blue — 8" Dia.
Light Blue — 6" Dia.
Pink — 4" Dia.
Yellow — 3" Dia.
Green — 2" Dia.





Seamless Concrete Tanks

STEP BioTube & Pump Assembly





Typical STEP Tank Install



SKI Current Status

Phase 1 - Kent Island Estates & Romancoke

Construction Contracts Awarded August 2016

Construction is Now Underway!

- STEP Systems Contract #16-01
- Transmission Main Contract #16-02
- Community Mains Contract #16-03

Community Public Outreach Continuing



Southern Kent Island Service Area

Queen Anne's County
MARYLAND

| Phase | Design Phase | Construction Phase |
|---------|--------------|--------------------|
| Phase 1 | 2015 | 2016 - 2022 |
| Phase 2 | 2019 | 2022 - 2023 |
| Phase 3 | 2020 | 2023 - 2024 |
| Phase 4 | 2021 | 2024 - 2025 |

MATAPEAKE ESTATES

PHASE 4

NORMANS

SUNNY ISLE OF KENT

CHESAPEAKE ESTATES

PHASE 3

KENTMORR

QUEEN ANNE COLONY

PHASE 1

KENT ISLAND ESTATES

PHASE 2

TOWER GARDENS

ROMANCOKE
ON THE BAY

Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

FileNo.: 040716-DPW01

Construction In Progress!



Final STEP Tank Install



Construction In Progress!



HDD Under Us 50

Construction In Progress!



HDD Under US 50

Construction In Progress!



HDD Under US 50

Financial Parameters

- Estimated total cost of Infrastructure \$50 million
- Phase 1 cost is \$ 32 million
- State Revolving Loan with 30-year term
- Assessments will be levied as work is completed
- BRF Offsets expense to existing homes @ \$10,000 per home
- Vacant Lots Pay EBP charge \$25,600
- Final Cost to Homeowners – \$100 month
- Final Cost to Vacant Lot Owners – \$159 month + allocation fee with an option to defer for up to 10-years



Queen Anne's County Department of Public Works
Todd R. Mohn, PE
Director

tmohn@qac.org
www.skisewer.com