Town of Ocean Ridge
Septic to Sewer Conversion

September 18, 2019

A Higher Standard of Excellence
engenuity group inc.
ENGINEERS • SURVEYORS • GIS MAPPERS

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Lou Aurigemma, P.E.

TOWN OF OCEAN RIDGE - FLORIDA - 1931

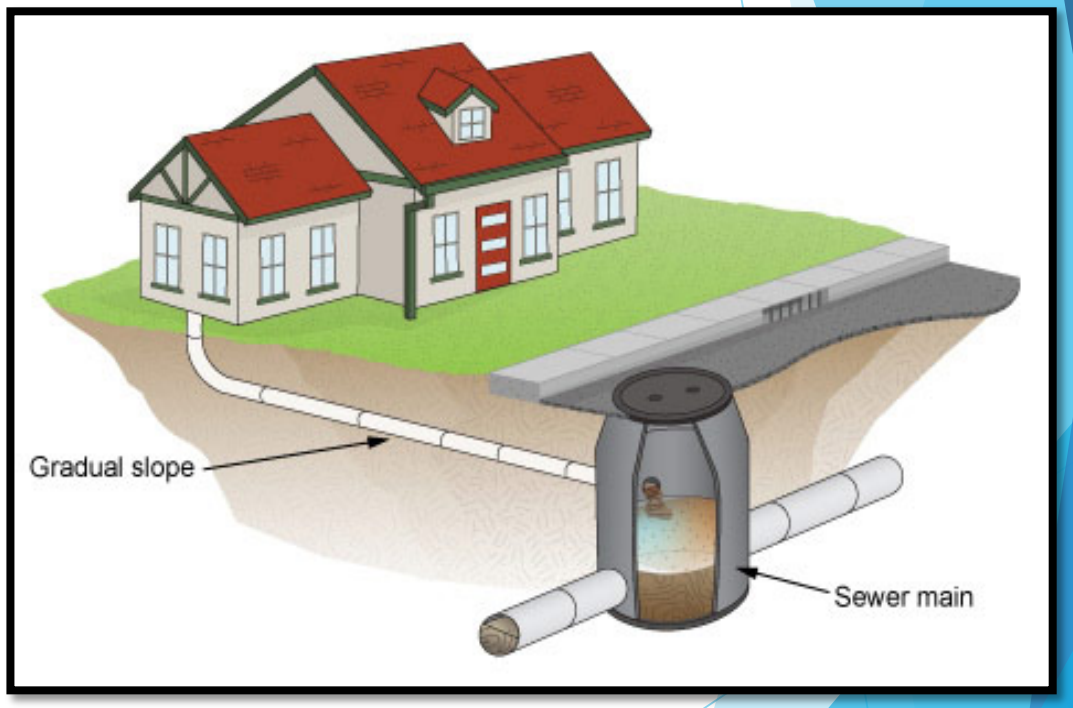
Existing Conditions

- Single Family Residences
  - There are approximately 728 single family houses
  - Single family homes privately maintain individual septic tanks and drainfields.
  - There have been virtually no complaints regarding the individual septic tanks

- Multi-Family Developments
  - There are approximately 873 multi-family units with approximately 15 "package plants"
  - Multifamily developments utilize small "package plants" that are privately owned, privately maintained and are mandated to be permitted through all applicable State and Local agencies.
  - Complaints of "package plants" being harder to maintain and harder to stay in permit compliance.

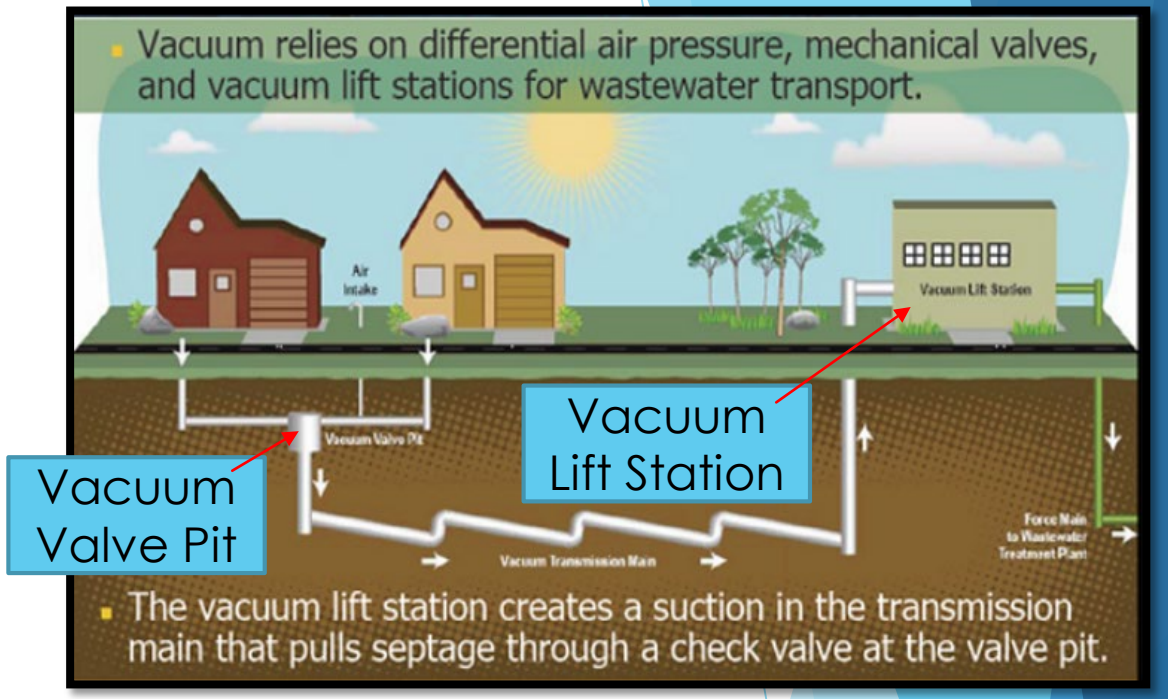
Gravity Sewer System

- System of underground trunk mains that transport sewage from homes to sewage treatment facilities
  - Consists of pipes, manholes, lift stations, and force mains.
- Lift stations and force mains are required when gravity sewers are serving areas with elevations lower than the treatment plant.
- In Ocean Ridge, the gravity system for single family homes would not have any mechanical parts located on the individual property and has minimal long term maintenance for the homeowner.
- For the multi-family areas within the Town, gravity systems already exist. The existing on-site piping would remain and a lift station will then replace the existing package plants.



Vacuum Sewer System

- System of below ground pipe network and above ground vacuum station collection vessel that returns negative air pressure while closing and opening valves to clear sewage.
- In Ocean Ridge, an on-site vacuum valve pit would need to be shared between two single family homes. The vacuum lines would be constructed in the municipal right-of-way eventually leading to an above ground vacuum lift station which can be as large as a single family house (2,000 SF).
- For the multi-family areas within the Town, gravity systems already exist. The package plants would be converted to buffer tanks which then flow into vacuum pressure pipes.

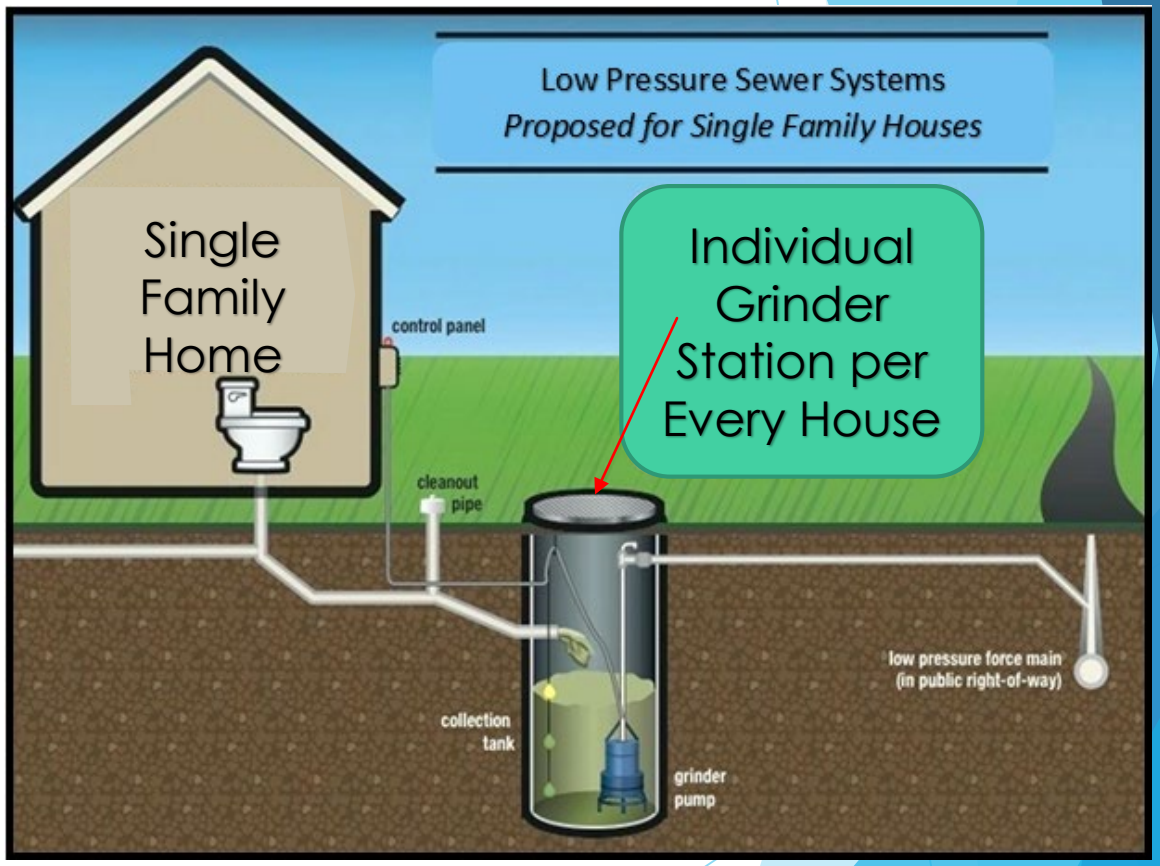




3243 Lillian Road, Palm Springs, Florida

Low Pressure Sewer System

- System of individual grinder stations located at each house which is then fed into a low pressure force main to be transported to a treatment facility.
- In Ocean Ridge, only the single family homes would be applicable for this system. Typically training and education is needed to properly maintain this system.
- Low pressure force main system costs were not evaluated in this report for it did not appear to be a reasonable option or one that Boynton Beach Utilities is proposing to maintain in the future.



City of Boynton Beach Current Utility Rates

Utility	Class	Charge	2019 Rate
Water	Residential	Base Monthly Charge	$12.65
Water	Residential	Tier 1 (0-9 kgal/month)	$1.69
Water	Residential	Tier 2 (9-30 kgal/month)	$3.03
Water	Residential	Tier 3(30-50 kgal/month)	$4.05
Water	Residential	Tier 4 (>50 kgal/month)	$4.99

Utility	Class	Charge	2019 Rate
Wastewater	Both	Accounts with No Water Meter	$34.59
Wastewater	Both	Base Monthly Charge	$19.16
Wastewater	Both	Sewer Commodity (based on metered water)	$2.20

Conceptual Gravity Sewer System



NOTE:
PLANS ARE CONCEPTUAL AND SHALL NOT BE CONSTRUED AS A CONSTRUCTION SET OF PLANS. SOME INFORMATION WAS SUPPLIED BY BOYNTON BEACH UTILITIES.

LEGEND:

- MUNICIPAL LIMIT
- PROPOSED GRAVITY SEWER
- PROPOSED GRAVITY MANHOLE
- 6"FM — PROPOSED FORCEMAIN WITH SIZE OF PIPE
- MS LIFT STA — PROPOSED MASTER LIFT STATION
- LIFT STA — PROPOSED LIFT STATION
- LIFT STA — EXISTING PACKAGE PLANT TO BE CONVERTED TO LIFT STATION

CONCEPTUAL GRAVITY SEWER AND MANHOLES

(1 OF 4)

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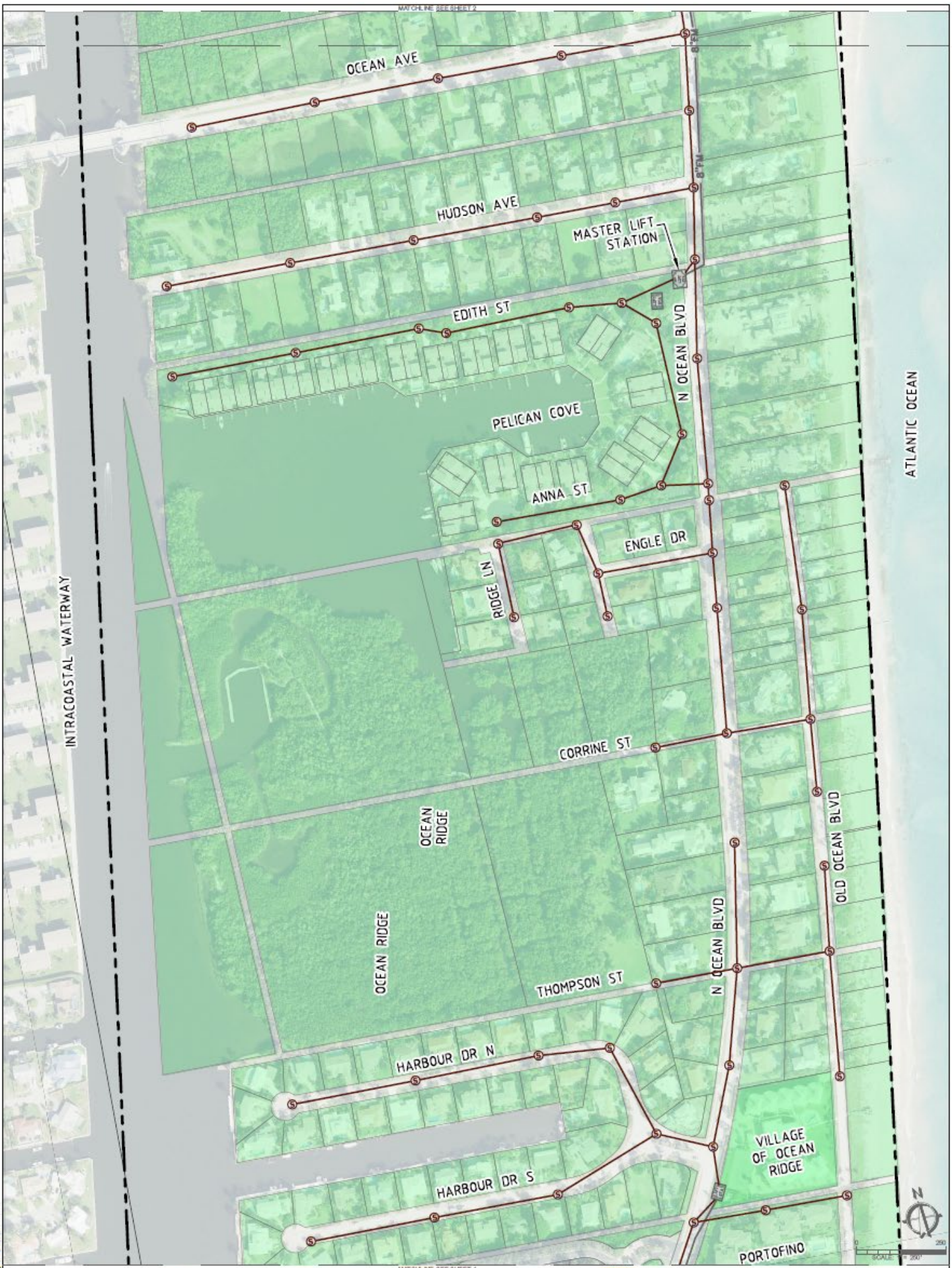
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CONCEPTUAL GRAVITY SEWER AND MANHOLES

(2 OF 4)

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CONCEPTUAL GRAVITY SEWER AND MANHOLES

(3 OF 4)

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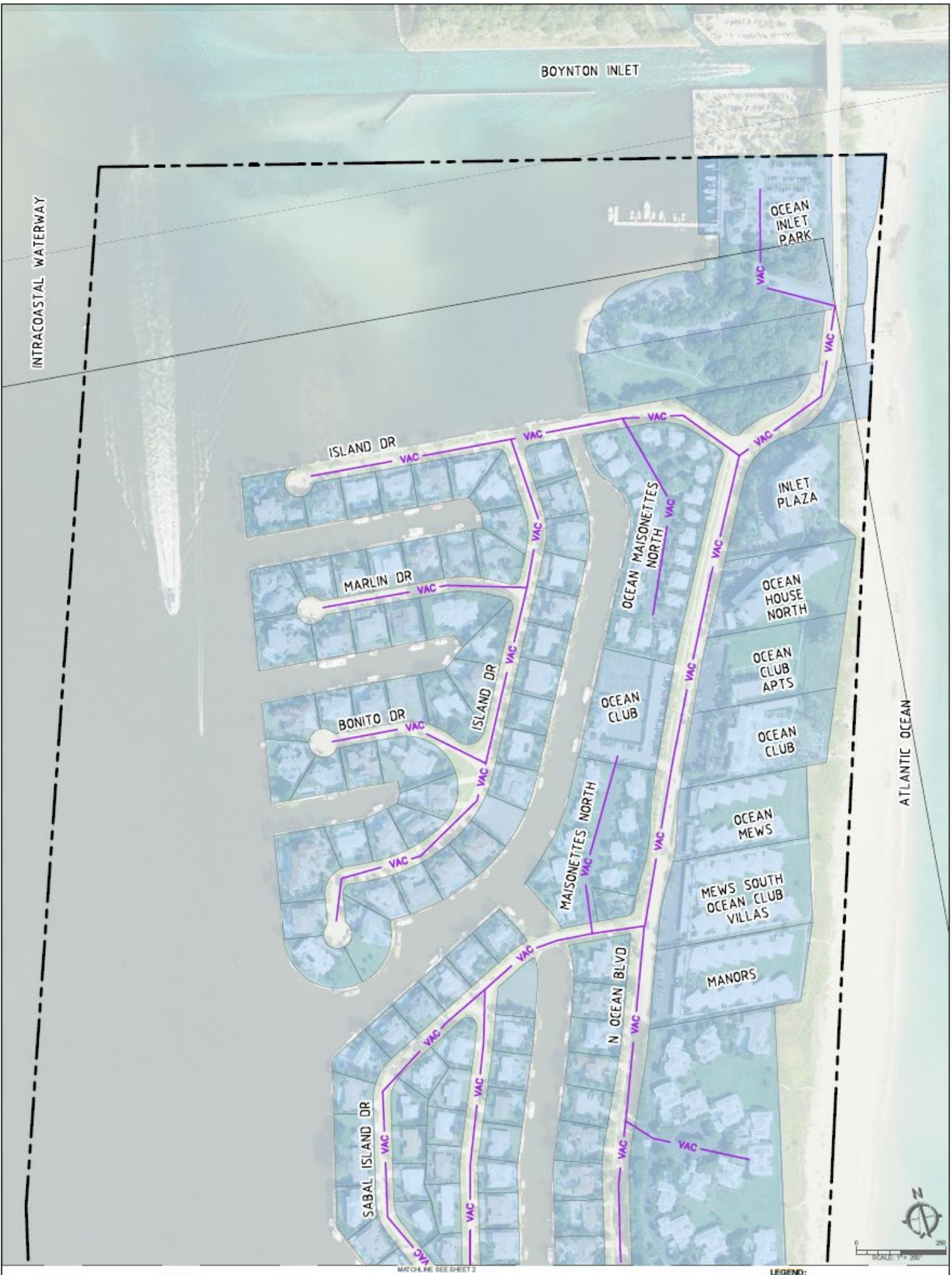
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CONCEPTUAL GRAVITY SEWER AND MANHOLES

(4 OF 4)

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Conceptual Vacuum Sewer System



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LEGEND:

- MUNICIPAL LIMIT
- VAC — PROPOSED VACUUM SYSTEM
- FM — PROPOSED FORCEMAIN
- PROPOSED VACUUM HOUSING

CONCEPTUAL VACUUM SYSTEM

(1 OF 4)



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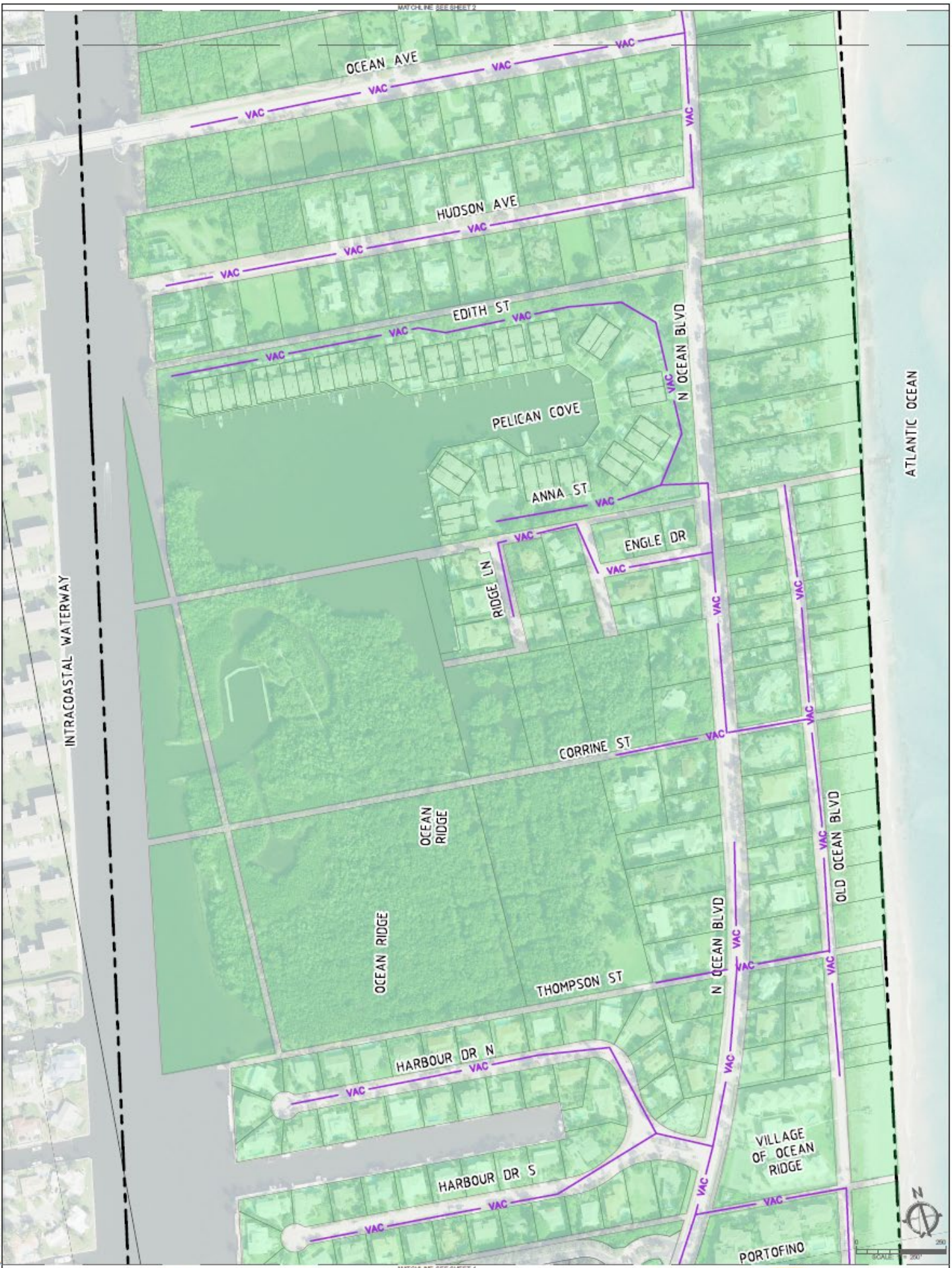
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- FM — PROPOSED FORCE MAIN
- PROPOSED VACUUM HOUSING

CONCEPTUAL VACUUM SYSTEM

(2 OF 4)

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CONCEPTUAL VACUUM SYSTEM

(3 OF 4)

TOWN OF OCEAN RIDGE FLORIDA 1931

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CONCEPTUAL VACUUM SYSTEM

(4 OF 4)

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Possible Funding Options



- Clean Water State Revolving Fund (CWSRF)
  - Low interest loan program funded by the Environmental Protection Agency (EPA) for various water infrastructure projects.
  - The Town of Ocean Ridge has received approximately $7 million for the stormwater improvements of the South and Hudson Phases.
- The Florida Section 319(h) Nonpoint Source Grant Program (319 Grant Funds)
  - Grant program aimed towards reducing nonpoint source pollution from land use activities with a focus on septic to sewer conversions.
  - There is no grant funding available at the time of this report.
- Bonds

Existing Conditions Summary

	Conceptual Construction Cost*	Disruption During Construction	Maintenance Obligation On-Site	Above/Below Stations or Systems	Homeowner On-Site Mechanical Systems	Utility Experience	Current Challenges	Future Challenges
Existing Single Family Septic (728 Units)	N/A	N/A	Homeowner	Below	No	N/A	Routine maintenance	Sea level rise, possible mandates
Existing Multi-Family Package Plant (873 Units)	N/A	N/A	Association/ Property Manager	Below	Yes, in common areas	N/A	Maintenance repair, replacement issues, permit compliance	Sea level rise, more mandates

* Cost does not include abandonment of existing septic system and re-routing of homeowner on-site sewer lines. In addition, Boynton Beach Utility may impose fees per Boynton Beach Code of Ordinances "*Sec. 26-34 Capital facilities charges and connection charges*". These costs could total anywhere from $5,000 to $20,000 per unit.

Summary of Proposed Alternatives

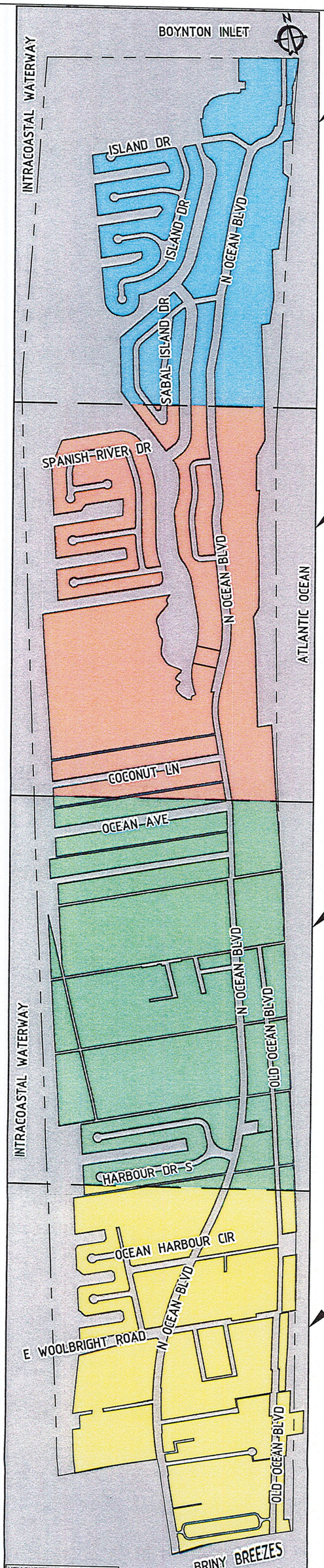
	Conceptual Construction Cost*	Disruption During Construction	Maintenance Obligation On-Site	Above/Below Stations or Systems	Homeowner On-Site Mechanical Systems	Boynton Beach Utility Experience with Proposed System	Current Challenges	Future Challenges to Homeowner
Proposed Gravity System	$29,500,000 – $37,000,000	High	Homeowner on site	Below	No	Yes	N/A	None
Proposed Vacuum System	$25,000,000 – $31,500,000	Moderate	Boynton Beach Utilities	Above, vacuum pump station "houses"	Shared vacuum pit	No	N/A	Possible shared system issues
Proposed Low Pressure System	Not evaluated in this report	Moderate	Boynton Beach Utilities	Small grinders at house with above ground equipment	Individual grinder station	No, but planning system on Bamboo and Palmer in Boynton Beach	N/A	Utility personnel access up to house where station is located

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Thank You!

Questions?





SHEET 1 OF 4

SHEET 2 OF 4

SHEET 3 OF 4

SHEET 4 OF 4

TOWN OF OCEAN RIDGE FLORIDA 1931

OCEAN RIDGE
SEPTIC TO SEWER FEASIBILITY

KEY SHEET MAP

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