

WAIHOME

Aboveground Thinking for Challenging Topographies

James Roberts

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07 Hawaiʻi Market

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LACK OF TREATMENT AFFECTS GROUNDWATER AND NEARSHORE ECOSYSTEMS

UPGRADE IN HAWAI'I BY 2050

CESSPOOLS

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SEPTIC- LEACHFIELD

$20K - $100K



UPGRADEPROGRESS

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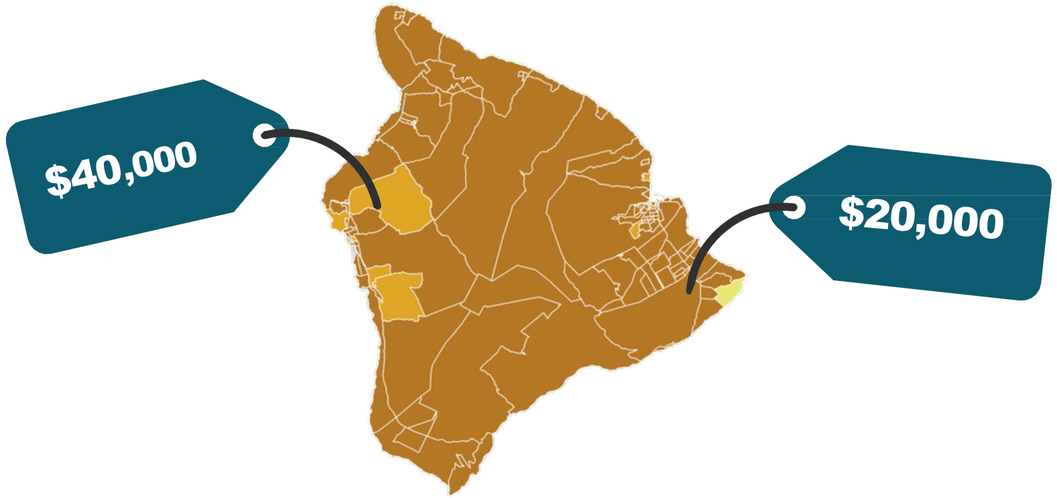




97%

UNAFFORDABLE FOR

OF HAWAIʻI HOMEOWNERS



UPGRADE COST

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$60,000

COASTAL



FLOODING



DENSITY



SLOPES



$120,000

WORKFORCE



BEDROCK



$40,000



$20,000

LOCAL CHALLENGES


WAIHOME
SMALL LOTS
WAIALUA,OAHU



HIGHGROUNDWATER

WAIALUA,OAHU

WaiHome



COASTALEXPOSURE

LAIE,OAHU

WaiHome

STEEP SLOPES

KAIMUKI,OAHU


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SHALLOW BEDROCK
HAWAIIAN PARADISE PARK, HAWAII



79%

DECLINED $20,000 IN ASSISTANCE

2023 CESSPOOL GRANT PILOT PROGRAM

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TO EXCAVATEOR NOT TO EXCAVATE

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Water Tanks



Propane Tanks



Air Conditioners

ABOVEGROUNDUTILITIES



LOCATION: **STOCKHOLM, SWEDEN**

CONSTRAINTS: **ROCKY, ACCESS**

SOLUTION: **SEPTIC +**



LOCATION: **SOMEWHERE NORTH**

CONSTRAINTS: **PERMAFROST**

SOLUTION: **LIFEWATER FIXED FILM AS**



LOCATION: **AUSTRALIA**

CONSTRAINTS: **FLOODING**

SOLUTION: **COERCO AS + BNR**

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2024 UNIFORM PLUMBING CODE®

CHAPTER 10
TRAPS AND INTERCEPTORS

1009.0 Interceptors (Clarifiers) and Separators.
1009.1 Where Required. Interceptors (clarifiers) (including grease, oil, sand, solid interceptors, etc.) shall be required by the Authority Having Jurisdiction where they are necessary for the proper handling of liquid wastes containing grease, flammable wastes, sand, solids, acid or alkaline substances, or other ingredients harmbul to the building drainage system, the public or private sewer, or to public or private sewage disposal. A list of acceptable interceptor standards is reference in Table 1009.1.

SOLIDWASTE INTERCEPTORS

IAPMO/ANSI/CAN Z1167-2023

Solid Waste Containment Interceptors

“

SOLIDWASTECONTAINMEN
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ANDCONTAIN ANY SOLID
MATERIALS THAT EN
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SEWER SY
STEM.

”

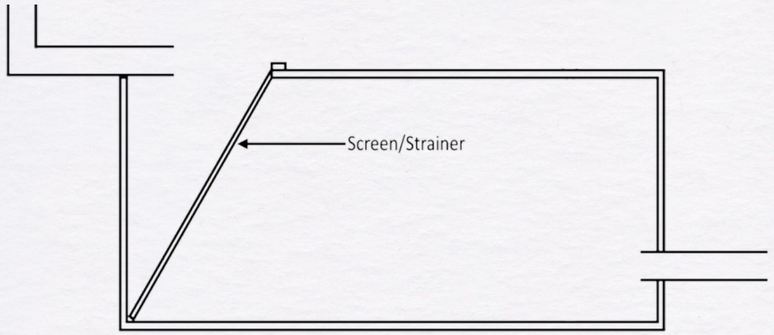
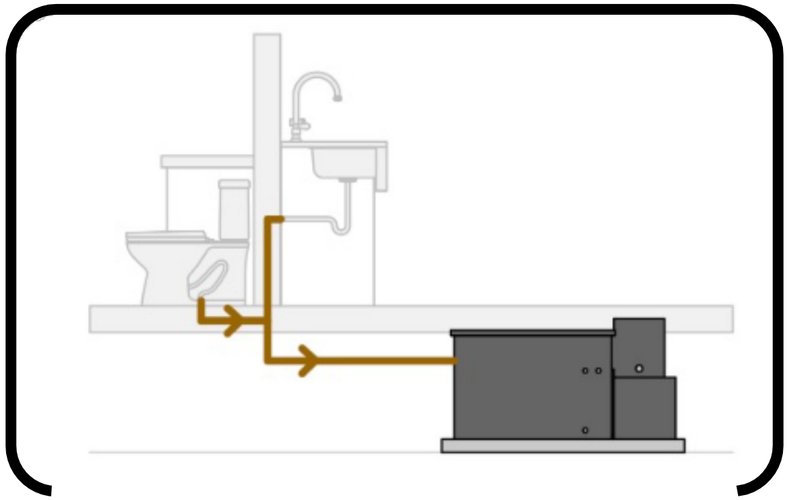
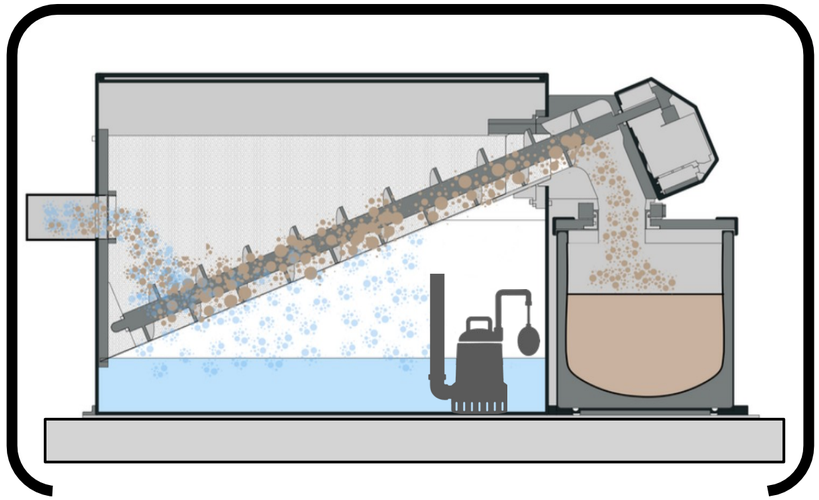


Figure 2
Examples of Non-trap Interceptors
(See Section 1.1.2)

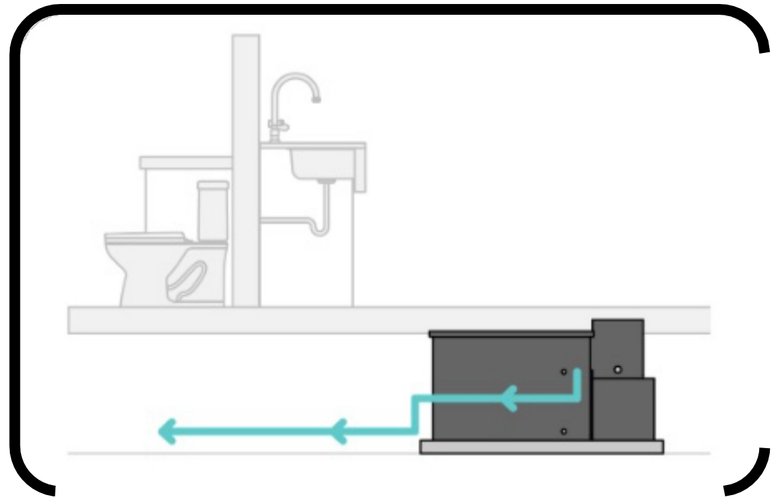
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Connect to Existing 3" Sewer



Separate Solids



Liquid Disposal

HOW IT WORKS

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Mata	- 90% Sus. Solids	- 87% BOD	- 23% Nitrogen
Septic Tank	- 70% Sus. Solids	- 40% BOD	- 0% Nitrogen

*literature



UNIVERSITY TEST RESULTS



HIGHGROUNDWATER TABLE



SMALLOT



COASTALEXPOSURE

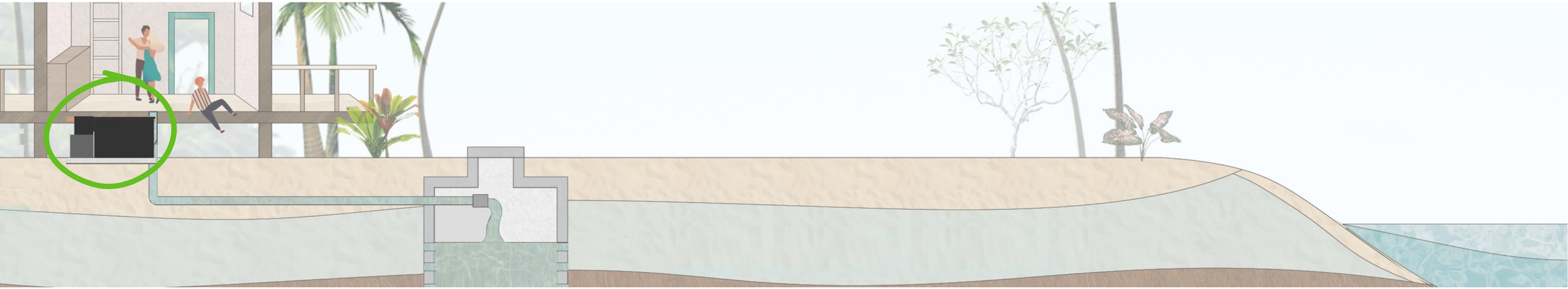


STEEPSLOPES



SHALLOWBEDROCK





ABOVEGROUNDINSTALLATION ✓

2'X4' FOOTPRINT ✓

PRIMARYPLUSTN REMOVAL ✓

IAPMOZ1167CERTIFIED ✓

ZEROEXPENSIVEEXCAVATION ✓

ABOVEGROUNDTREATMENTTO EXISTINGCESSPOOL

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MONITORING

LOCAL CONTROL

CLOUD CONNECTIVITY

TRUSTED BRAND

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RUN MATA FO
R1-12
WEEKS

REMOVE BIN WIT
HAGED SOLIDS

WITHDRAW AGED SOLID
SFOR DISPOSAL

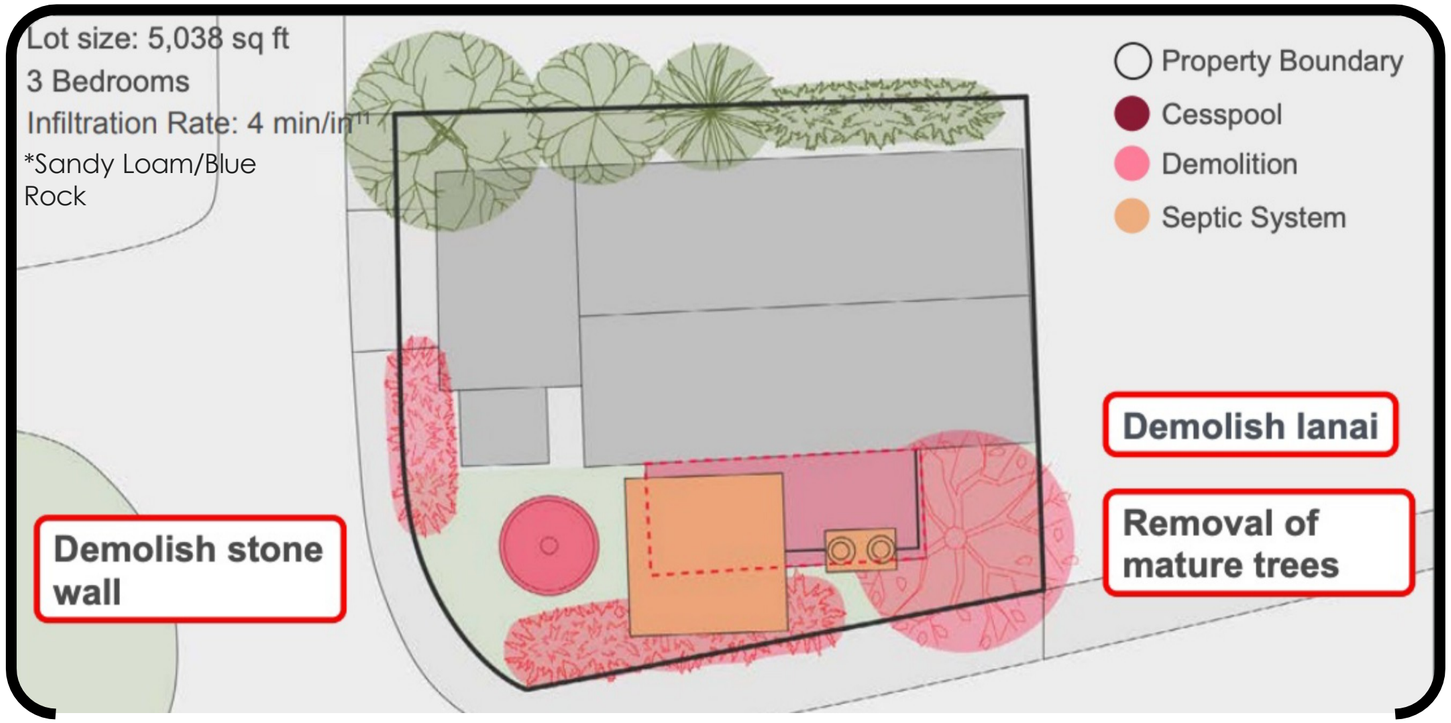
INSERT NEW
SOLIDS BA
G

REPLACE FILLING BI
N WITH EMPTY BI
N

MAINTENANC
E







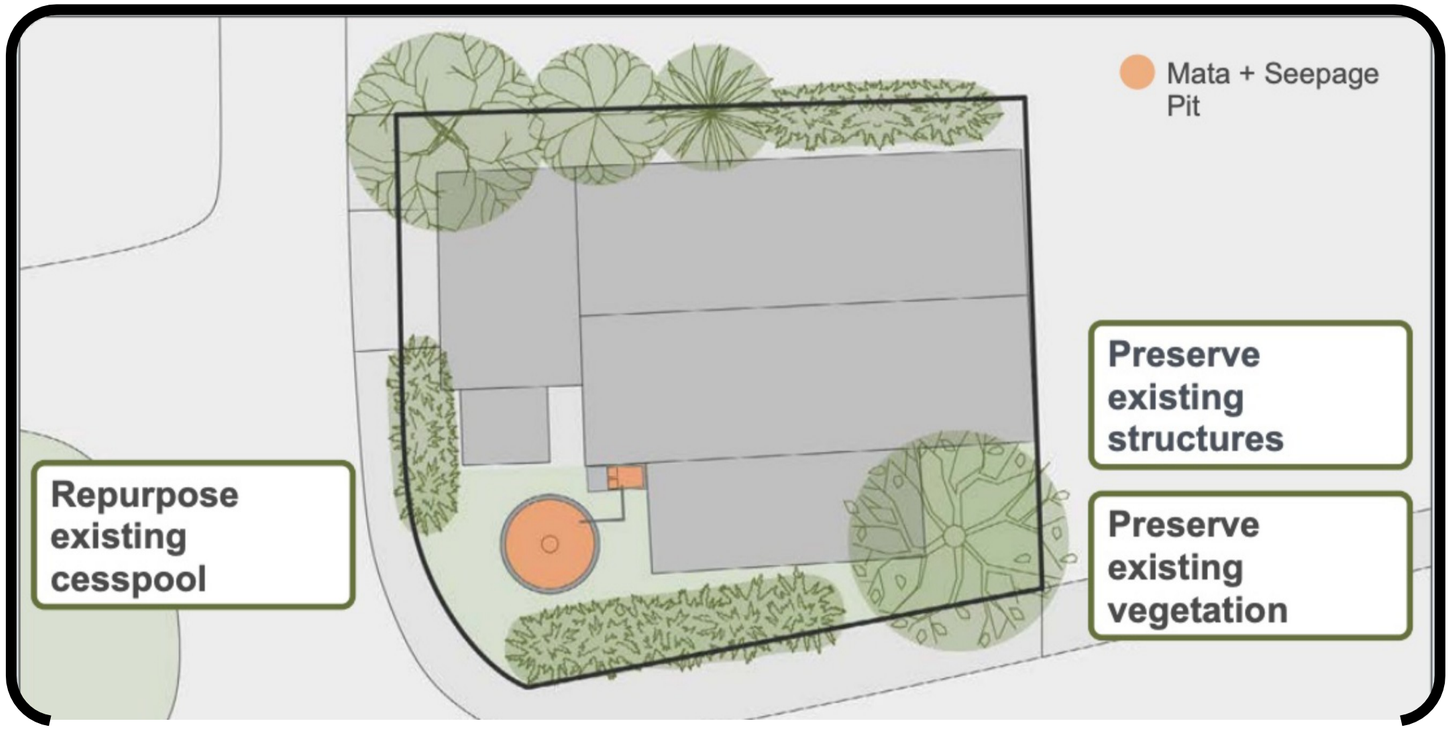
SEPTIC+ LEACHFIELD

$40,000 - $60,000

12% TN Removal

CASE STUDY- SMALLOT





MATA + SEEPAGEPIT

$15,000

23% TN Removal

CASE STUDY - SMALLOT



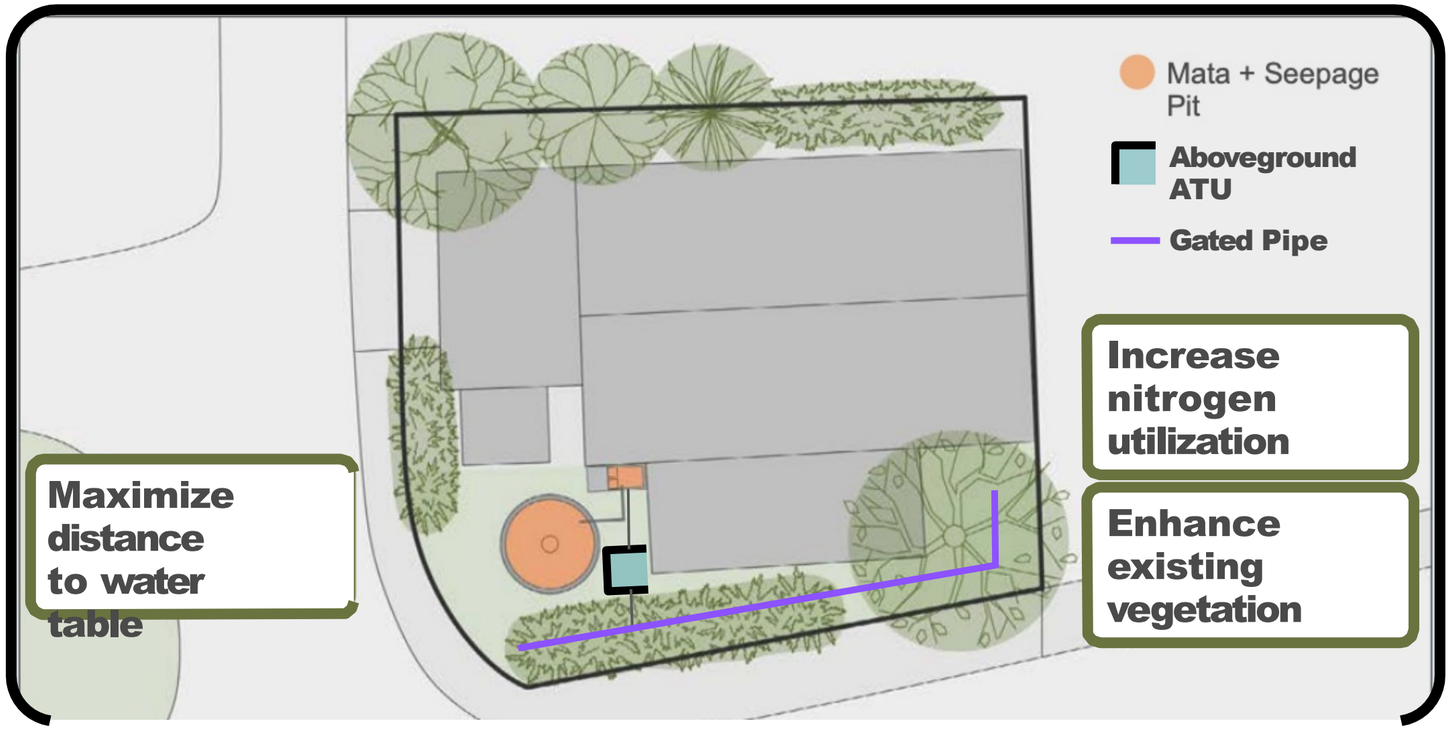
DOH WILL ALLOW AN EXISTING CESSPOOL TO CONVERT TO A SEEPAGE PIT WITHOUT FOLLOWING THE HAR 11 - 62 SIZING REQUIREMENT OR MEETING SEEPAGE PIT RESTRICTIONS IF:

1. **STRUCTURAL LINING IS PRESENT**
2. **INJECTION TEST AT 100 % DAILY FLOW IS PASSED**
3. **EXISTING CESSPOOL CANNOT HAVE ANY FAILURE HISTORY**
4. **EXISTING CESSPOOL MEETS ALL SETBACKS**

CESSPOOL TO SEEPAGE PIT

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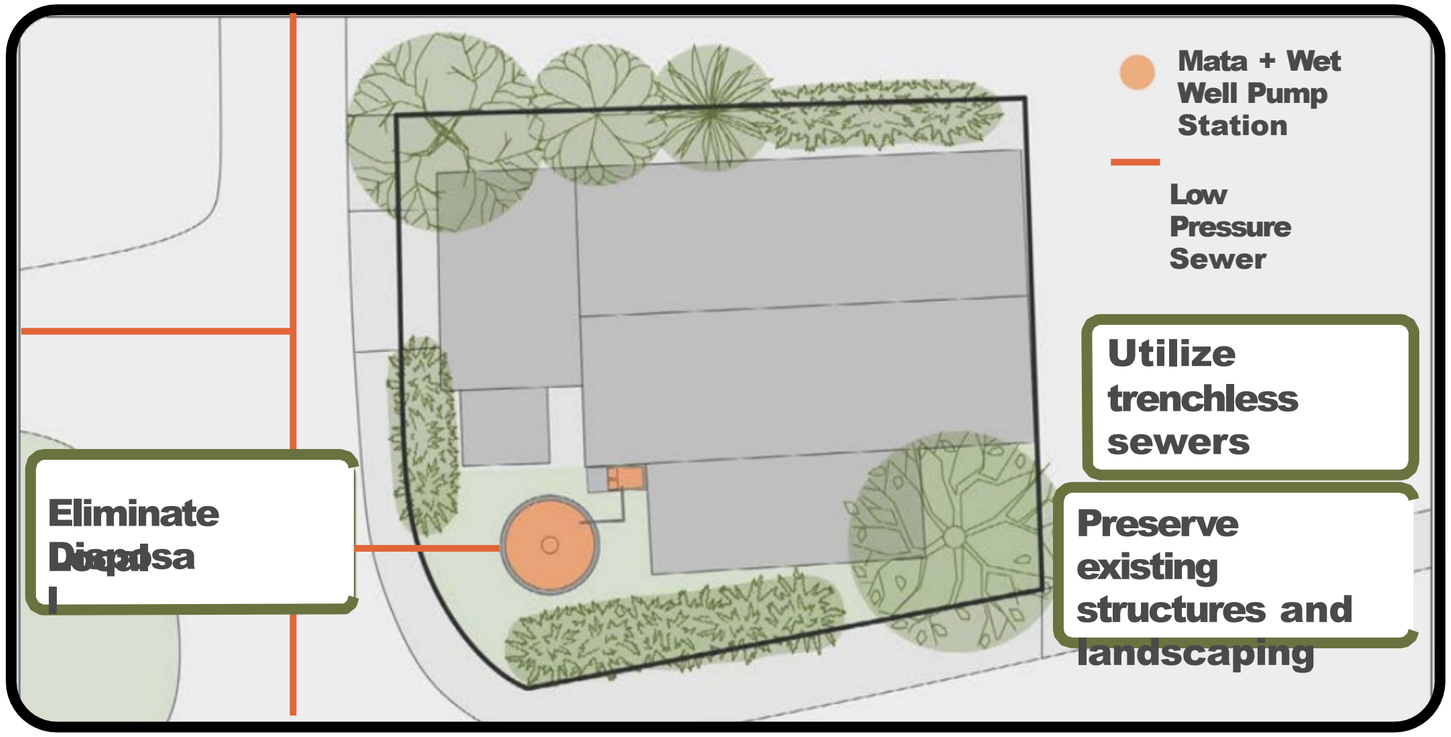
CASE STUDY- HIGH GROUNDWATER

MATA + ATU + R3 REUSE GATED PIPE (SEEPAGE PIT BACKUP)

$25,000

50%+ TN Removal

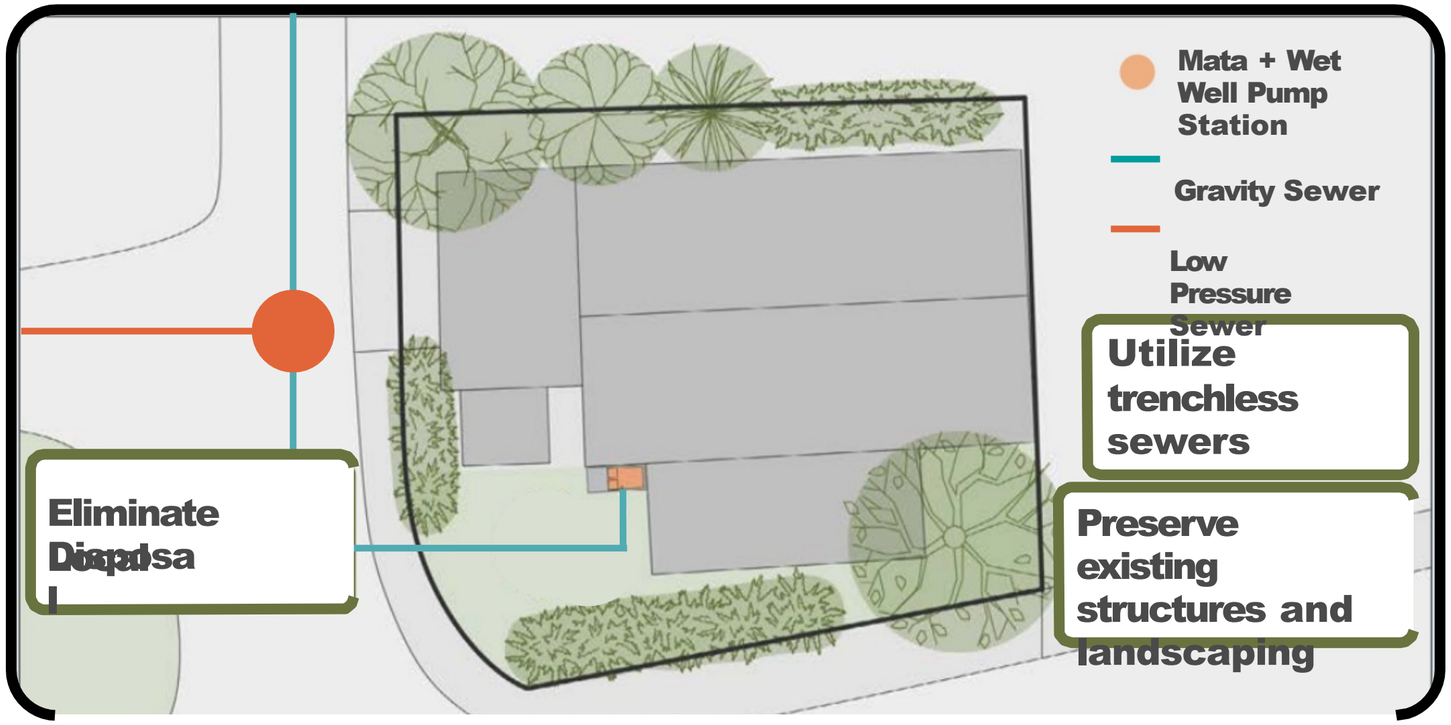




MATA + LOW PRESSUREPIPE

CASE STUDY- POORSOILS





MATA + GRAVITY TO COMMUNITY PUMP STATION

CASE STUDY - UNUSABLE CES SPOOL

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RAINWATER



PROPANE



REUSEWATER


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QUESTIONS
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