

622-0619

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

PROPERTY ADDRESS

Town Or Plantation: Augusta

Street: Bond Brook Road

subdivision Lot #: Tax Map # 5 Lot # 63A

PROPERTY OWNERS NAME

Last: Arnold First: Walter & David

Applicant Name: phone 622-0619

Mailing Address of Owner/Applicant (if Different): R.F.D. # 4 Box 80 Augusta, Me. 04330

M5 L63A

AUGUSTA PERMIT # 1,072 TOWN COPY

Date Permit Issued: 6/17/87 \$ 100.00 FEE If Double Fee Charged

Local Plumbing Inspector Signature: [Signature] L.P.I. # [Signature]

Owner/Applicant Statement

I certify that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Local Plumbing Inspector to deny a Permit.

Signature of Owner Applicant: [Signature] Date: 4/2/87

Caution: Inspection Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules.

Local Plumbing Inspector Signature: [Signature] Date Approved: 7-20-87

PERMIT INFORMATION

THIS APPLICATION IS FOR:

- NEW SYSTEM
- REPLACEMENT SYSTEM
- EXPANDED SYSTEM
- SEASONAL CONVERSION
- EXPERIMENTAL SYSTEM

THIS APPLICATION REQUIRES:

- NO RULE VARIANCE REQUIRED
- NEW SYSTEM VARIANCE
Attach New System Variance Form
- REPLACEMENT SYSTEM VARIANCE
Attach Replacement System Variance Form
- Requires only Local Plumbing Inspector Approval
- Requires both State and Local Plumbing Inspector Approval

INSTALLATION IS COMPLETE SYSTEM

- NON-ENGINEERED SYSTEM
- PRIMITIVE SYSTEM (Includes Alternative Toilet)
- ENGINEERED (+ 2000 gpd)

INDIVIDUALLY INSTALLED COMPONENTS:

- TREATMENT TANK (ONLY)
- HOLDING TANK
- ALTERNATIVE TOILET (ONLY)
- NON-ENGINEERED DISPOSAL AREA (ONLY)
- ENGINEERED DISPOSAL AREA (ONLY)
- SEPARATED LAUNDRY SYSTEM

IF REPLACEMENT SYSTEM:

YEAR FAILING SYSTEM INSTALLED _____

THE FAILING SYSTEM IS:

- BED
- CHAMBER
- TRENCH
- OTHER _____

DISPOSAL SYSTEM TO SERVE:

- SINGLE FAMILY DWELLING
- MODULAR OR MOBILE HOME
- MULTIPLE FAMILY DWELLING
- OTHER _____ SPECIFY _____

SIZE OF PROPERTY

29369 sq ft

ZONING

TYPE OF WATER SUPPLY

Augusta Water Dist.

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

- SEPTIC: Regular Low Profile
- AEROBIC

SIZE: 1000 GALS.

WATER CONSERVATION

- NONE
- LOW VOLUME TOILET
- SEPARATED LAUNDRY SYSTEM
- ALTERNATIVE TOILET

SPECIFY: _____

PUMPING

- NOT REQUIRED
- MAY BE REQUIRED (DEPENDING ON TREATMENT TANK LOCATION AND ELEVATION)
- REQUIRED

DOSE: 100 GALS.

CRITERIA USED FOR DESIGN FLOW (BEDROOMS, SEATING, EMPLOYEES, WATER RECORDS, ETC.)

3 bedroom mobile home

DESIGN FLOW: 270 (GALLONS/DAY)

JUN 3 1987

SOIL CONDITIONS USED FOR DESIGN PURPOSES

PROFILE	CONDITION
6	B

DEPTH TO LIMITING FACTOR: see detailed report

SIZE RATINGS USED FOR DESIGN PURPOSES

- SMALL
- MEDIUM
- MEDIUM-LARGE
- LARGE
- EXTRA LARGE

DISPOSAL AREA TYPE/SIZE

- BED 900 Sq. Ft.
- CHAMBER _____ Sq. Ft.
- TRENCH _____ Linear Ft.
- OTHER: _____

REGULAR H-20

SITE EVALUATOR STATEMENT

On April 17, 1987 (date) I conducted a site evaluation for this project and certify that the data reported is accurate. The system I propose is in accordance with the Subsurface Wastewater Disposal Rules.

Signature of Site Evaluator: [Signature]

Site Evaluator or Professional Engineer's Signature

42 1928 SE# / PE#

April 22, 1987 Date

* Local Plumbing Inspectors Signature if a Local Site Evaluation Waiver under a Local Option

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Human Services
Division of Health Engineering
Owners Name

Town, City, Plantation

Street, Road, Subdivision

Augusta

Bond Brook Road

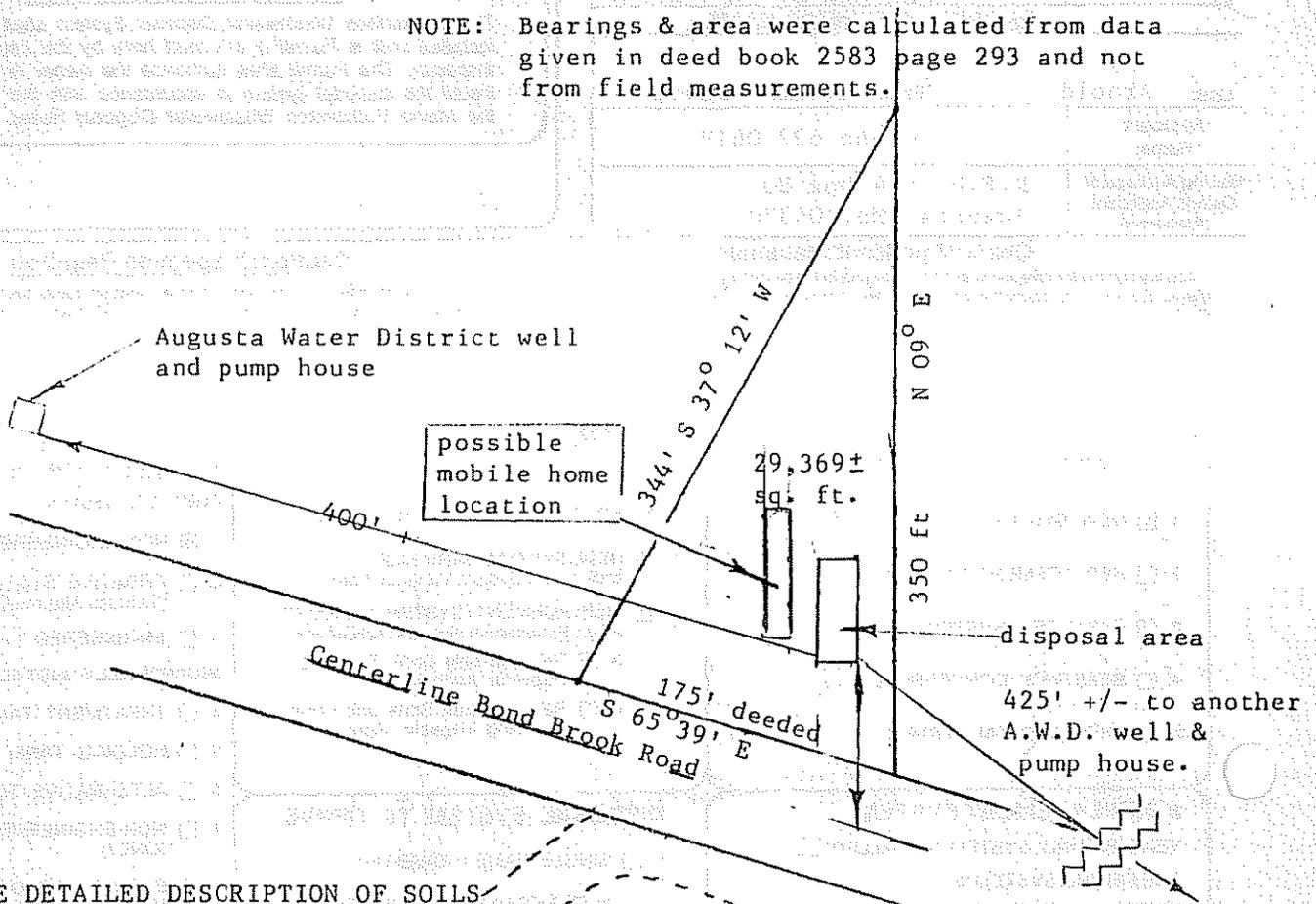
Walter & David Arnold

SITE PLAN

Scale 1" = 100 FL

SITE LOCATION PLAN (Attach Map from Maine Atlas for New System Variance)

NOTE: Bearings & area were calculated from data given in deed book 2583 page 293 and not from field measurements.



NOTE: SEE DETAILED DESCRIPTION OF SOILS

SOIL DESCRIPTION AND CLASSIFICATION

(Location of Observation Holes Shown Above)

Observation Hole 1		<input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring	
0" " Depth of Organic Horizon Above Mineral Soil			
Texture	Consistency	Color	Mottling
23" gravelly silty fill	23" friable to firm	23" olive to olive gray to gray	see detailed report
25" gravel	25" loose	25" reddish brown	
Soil Profile 6	Classification B	Slope 3 %	Limiting Factor none
<input type="checkbox"/> Ground Water <input type="checkbox"/> Restrictive Layer <input type="checkbox"/> Bedrock			

Observation Hole		<input type="checkbox"/> Test Pit <input type="checkbox"/> Boring	
" Depth of Organic Horizon Above Mineral Soil			
Texture	Consistency	Color	Mottling
This is a disturbed profile because of the two high volume wells close by. additional restrictive measures are proposed to minimize the transportation of pollutants to the ground water table.			
At a site review May 29, 1987 David Roque examined several other pits. Closer to the road there is more fill and the pits have much more silty material farther from the road there is less cover over the gravel and the gravel is much more compact. The last pit just beyond the bed is showing poor colors.			
Soil Profile	Classification	Slope %	Limiting Factor
<input type="checkbox"/> Ground Water <input type="checkbox"/> Restrictive Layer <input type="checkbox"/> Bedrock			

revised June 1, 1987 after site review by David Roque of Health Engineering

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Town, City, Plantation

Street, Road, Subdivision

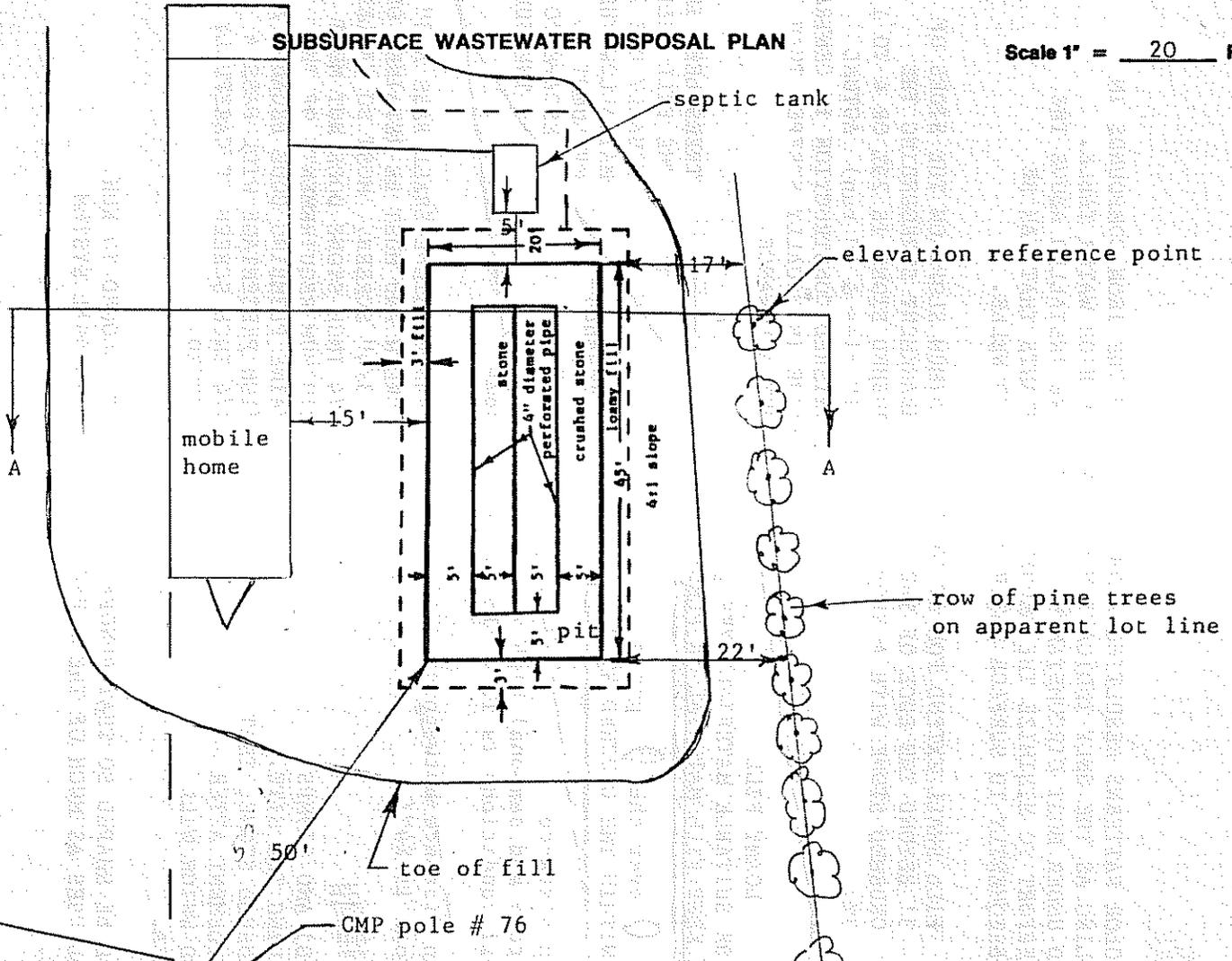
Department of Human Services

Division of Health Engineering

Owners Name

SUBSURFACE WASTEWATER DISPOSAL PLAN

Scale 1" = 20 Ft.



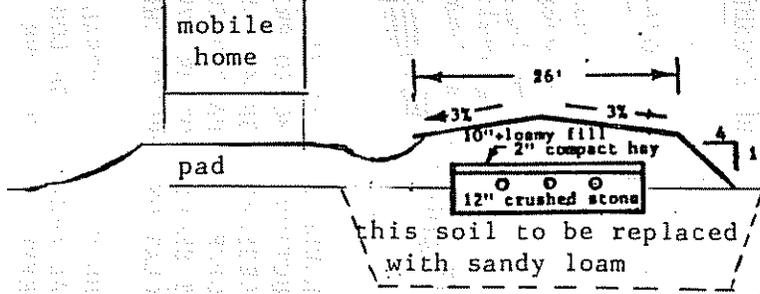
FILL REQUIREMENTS
 Depth of Fill (Upslope) 18"
 Depth of Fill (Downslope) 28"

CONSTRUCTION ELEVATIONS

Reference Elevation is	0
Bottom of Disposal Area	-33"
Top of Distribution Lines or Chambers	-22"

ELEVATION REFERENCE POINT LOCATION & DESCRIPTION
 60d nail 35" above ground in 3" dbh pine
 Scale:
 Vertical: 1 inch = 5 FL
 Horizontal: 1 inch = 20 FL

DISPOSAL AREA CROSS SECTION



There will be a minimum of 24" of sandy loam placed under the crushed stone.

NOTE: Should the water district write a note stating that the added sandy loam under the system is of no significance in the water quality at their wells, this feature may be eliminated with the agreement of the plumbing inspector.

SECTION A - A

Lloyd Crowe
 Site Evaluator Signature

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SE#

re-drawn June 1, 1987

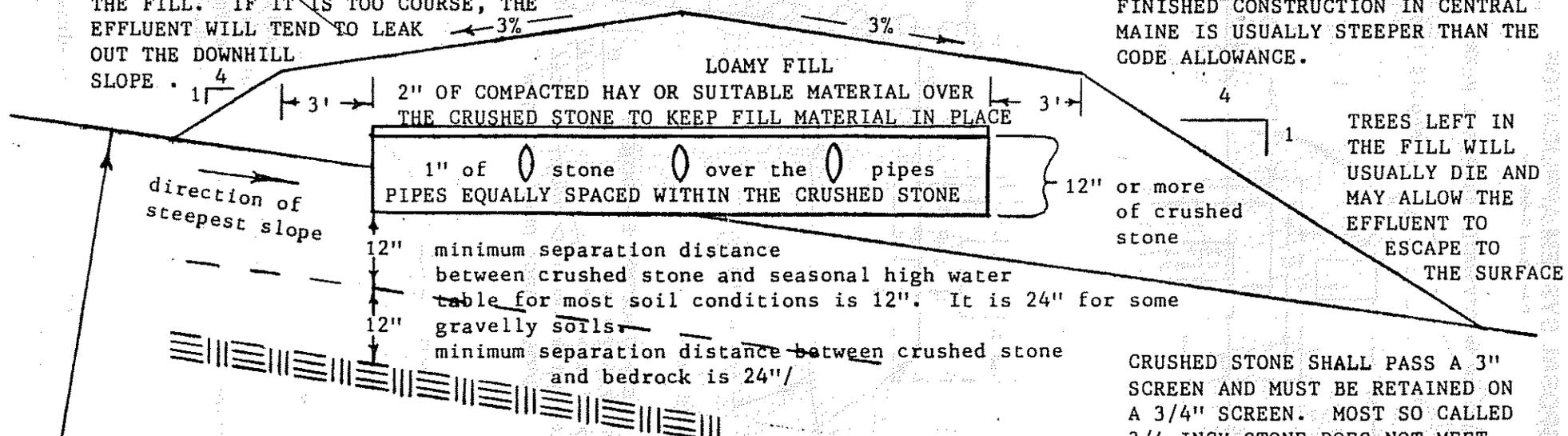
Date

MOTTLING IS A PARTICULAR CONDITION OF SOIL COLOR PATTERNS RESULTING FROM CHANGES IN THE IRON COMPOUNDS IN THE SOIL. THE MAINE PLUMBING CODE USES MOTTLING AS THE ONLY INDICATION OF SEASONAL HIGH WATER TABLE. TRUE WATER TABLE CANNOT BE READILY DETERMINED UNDER MOST CIRCUMSTANCES. SYSTEMS ARE INSTALLED ABOVE THE GROUND WATER TABLE, AND ABOVE BEDROCK IN AN EFFORT TO MINIMIZE THE AMOUNT OF POLLUTANTS THAT CAN BE TRANSPORTED TO THE GROUND WATER TABLE AND SUBSEQUENTLY TO SURFACE WATER BODIES OR TO WELLS.

FILL MATERIAL MUST BE CAREFULLY SELECTED AND COMPACTED IN PLACE. IF THE SOIL IS TOO FINE GRAINED (HAS TOO MUCH CLAY) IT WILL TEND TO POND THE EFFLUENT WITHIN THE FILL. IF IT IS TOO COARSE, THE EFFLUENT WILL TEND TO LEAK OUT THE DOWNHILL

FILL SHALL EXTEND FOR AT LEAST 3' BEYOND THE EDGE OF THE CRUSHED STONE WITH A SLOPE OF 3%.

MINIMUM SLOPE ON THE SIDES OF EMBANKMENT SURROUNDING THE CRUSHED STONE IS 25% OR 4 TO 1 (1" rise & 4" run) ACTUAL FINISHED CONSTRUCTION IN CENTRAL MAINE IS USUALLY STEEPER THAN THE CODE ALLOWANCE.



TREES LEFT IN THE FILL WILL USUALLY DIE AND MAY ALLOW THE EFFLUENT TO ESCAPE TO THE SURFACE

CRUSHED STONE SHALL PASS A 3" SCREEN AND MUST BE RETAINED ON A 3/4" SCREEN. MOST SO CALLED 3/4 INCH STONE DOES NOT MEET MINIMUM REQUIREMENTS OF THE MAINE PLUMBING CODE BECAUSE A HIGH PERCENTAGE WILL PASS A 3/4 INCH SCREEN IF CAREFULLY TESTED.

ORIGINAL SOIL SHOULD BE SCARIFIED (CULTIVATED) AND STUMPS AND OTHER OBSTRUCTIONS REMOVED PRIOR TO LEVELING THE SITE. WHEN FILL IS NECESSARY (SHIM) UNDER THE CRUSHED STONE, THAT FILL MUST BE PROPERLY COMPACTED TO AVOID SETTLEMENT AFTER CONSTRUCTED, BUT SHOULD NOT BE OVER COMPACTED WHICH WILL REDUCE THE PERCOLATION THROUGH THE FILLED AREA.

THE AREA SURROUNDING THE DISPOSAL AREA SHOULD BE SHAPED SO THAT RUNOFF WATER IS NOT ALLOWED TO RUN ONTO THE DISPOSAL AREA. A GALLON OF RAINFALL USES AS MUCH OF THE CAPACITY OF THE DISPOSAL SYSTEM AS A GALLON OF EFFLUENT FROM THE SEPTIC TANK.

SYSTEMS ARE USUALLY LAID OUT WITH THE LONGEST DIMENSION ON A CONTOUR LINE AND THE SHORTEST DIMENSION DIRECTLY DOWNHILL. THIS CONFIGURATION RESULTS IN THE LEAST AMOUNT OF FILL MATERIAL.

6/2/87

ROWE & WENDELL

**179 Main Street
Waterville, Maine 04901**

Mr and Mrs Walter Arnold
R.F.D. # 1 Box 80
Augusta, Me. 04330

Dear Mr. and Mrs. Arnold,

The enclosed papers are not a plumbing permit. Construction of the sewage system should not be started until after the permit is issued by the local plumbing inspector. Additional fees may be levied by the plumbing inspector for violations.

Occasionally, for various reasons, the original design is not approved by the inspector or by the Health Engineering Division of the Department of Human Services. If construction has already started, it is very expensive to change the system to something that will meet approval of the permitting authorities.

Occasionally there may be an error or omission from the HHE 200 Form. Should this happen, or, if you have questions about the report, contact me at your earliest convenience for clarification or corrections. There is no additional charge for short consultations.

This test and papers are good as long as your plumbing inspector will issue a permit based on them. The Maine Plumbing Code does change nearly every year, but there is no general ruling on validity of tests performed before the changes were made.

The lot lines shown on this plan are estimates only. There are no monuments at the corner, so they can't be shown. My measurements were taken from the road and from the row of small pines at or near the southeast lot line.

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The soils on this lot do not fit the code. Most of the soils in the area are alluvial soils formed as part of the flood plane of Bond Brook, or they are gravel soils with a clay overburden as part of the larger deposit found along the Kennebec River watershed. The lot does not appear to be within a 10 year flood plane, but might be within the 100 year flood plane. The city of Augusta has very good flood maps which we used extensively to examine your mobile home park on the other side of Bond Brook. The area examined has a disturbed soil profile which does not match any of the typical soil descriptions of the Maine plumbing code. The silty surface has no plow layer, or any "B" horizon development. The entire zone has apparently been filled. It is also very possible that some or all of the underlying gravel is fill since gravel and "clay" are the most plentiful and cheapest fill available in the area. Water stands on the surface of the fill because of relatively slow infiltration and percolation in the surface fill. I recommend that the entire area be excavated to the toes of the proposed fill. That material may be used for grading around the mobile home site. Good sandy loam fill should be lightly compacted in place of the silty material and some of the gravel that will also be removed in the upper end of the system. I recommend the system be elevated and have at least 2 feet of sandy loam material below the crushed stone because of the two high capacity wells which the Augusta Water District operates near the proposed site. The drawdown cone of the two wells would be so great that some of the subsurface water from your lot probably flows to those wells.

On May 29, 1987 a site review was performed by David Roque of Health Engineering. Additional pits were excavated. The overall soils didn't change, but the fill material closer to the road has more silt and clay in the lower levels. There is less clay over the gravel near the upper end of the system as re-designed. The last pit just beyond the end of the system shows signs of concentrations of water at some time in the geologic past. Part of the gravel is very firm and has a characteristic

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dark rusty color in areas. As a result of the site review, the disposal system was changed, expanded, and redesigned. There should be no difficulty with obtaining a permit for this system as changed.

Longevity of the system is unpredictable. Factors affecting longevity are:

QUALITY OF CONSTRUCTION:

1. The vegetation shall be removed from the ground surface under the disposal and fill area.
2. Surface areas under the bed and fill extension should be scarified or tilled to minimize soil glazing of the original soil.
3. Wastewater from a treatment tank or distribution box shall be discharged to the bed by means of gravity with a watertight pipe at least 4' in diameter with a pitch of at least 1/16" per foot.
4. The distribution lines shall consist of perforated pipe, wooden vee plank or agricultural tile meeting the requirements of the Maine Plumbing Code.
5. The distribution system shall be designed to equally distribute wastewater in the disposal area. Distribution lines shall be equally spaced in the disposal area. The lines shall be no farther than 5' from the sidewall and a maximum of 5.0' apart. A bed width 15'-20' requires 3 pipes.
6. The bottom of the stone and the distribution lines shall be level.
7. A minimum total of 12 inches of stone free of fines, dust, ashes, or clay or other similar durable and insoluble material of uniform size, 1 1/4 to 3 inches shall be used on the bottom of

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the bed disposal area. The distribution system shall be installed totally within the stone. **The system is designed oversized because of the silty (clay) material over the gravel and the sandy loam material that will be used under the crushed stone.**

8. The stone shall be completely covered with at least 2" layer of compressed hay or straw to prevent sifting of backfill material into the stone. One layer of Dupont "Tygar (4 oz.) or 2" of fiberglass insulation may be used in lieu of hay or straw. I like this stuff, but it is expensive.
9. Between 8" -12" of clean sandy loam back fill shall be carefully placed over the hay or straw or tygar.
10. Clean fill is to be placed in 8" layers and then thoroughly compacted as it is placed.
11. The surface of fill shall extend from the disposal area a minimum distance of 3' at a 3 percent slope, then sloped on a uniform grade no greater than 25% (4:1) to meet the original ground.
12. The perimeter of the disposal area and fill extension shall be graded and diversion ditches installed to divert ground and surface waters when necessary.
13. The disposal area and fill shall be stabilized to prevent erosion.
14. The septic tank can be located as necessary near the home, but may be moved from the location shown on the plans should some logical need arise.

USE AND MAINTENANCE OF THE SYSTEM

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1. This system is designed for 270+ gallons per day of domestic sewage. Under those conditions, the septic tank should be cleaned every 2 to 5 years. Failure to have the tank cleaned on a timely basis can result in reconstructing the entire disposal area. The use of less water than the design figure will result in a much longer life span of the system it will also obviously cost more. The use of significantly more water over short periods of time should have little impact. Using more water over an extended time will result in premature system failure due to inadequate disposal area in the soil.

New systems should last between 10 and 25 years if they are properly designed, constructed and maintained. However, this design and document does not give a guarantee for longevity of the system. There are so many other variables that contribute to the longevity of a system, that any problems must be resolved with the owner, contractor, plumbing inspector, designer, and possibly the Division of Health Engineering, Department of Human Services, State of Maine.

Lloyd C. Rowe

