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# ALASKA CONSULTING AND ENVIRONMENTAL ENGINEERING

RECEIVED W

ARNE K. TIKKA, P.E.  
P.O. Box 2324 Soldotna, Alaska 99669  
(907) 262-3197 FAX 262-9013

JUN 01 2007

ADEC  
Kenai Area Office

Project No. 27040

May 14, 2007

Sean Cude  
P.O. Box 2198  
Kenai, Alaska 99611

Subject: Mackey Lake Subdivision Addn. 1 Part 2, Lot 17, Block 4  
Onsite Wastewater System Installation Report

Sean:

At your request, on May 4-6, 2007, we observed the excavation of two test holes and completed soils evaluation and on May 10-12, 2007, we observed the installation of a private replacement wastewater disposal system on subject property. The system was installed, by S & R Enterprises under our observation, in general accordance with Alaska Department of Environmental Conservation (ADEC) Wastewater Disposal Regulations, 18 AAC 72.

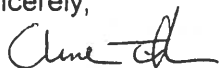
A 1500 gallon, two-compartment, steel septic tank previously installed in 2004 was partially exposed and appears to be in good condition. A new deep trench type soil absorption system (SAS) was installed. The SAS was sized suitable for a five-bedroom residence and consists of four deep trenches, with a total combined length of 165 feet, with five feet effective sewer rock depth. Soils in the usable zone of the SAS consist of mostly silt with some sand and gravel with occasional sandy silt/silty sand with some gravel (test hole log attached). No groundwater tables were encountered to four feet and no impermeable soils were encountered to a depth of six feet below the bottom of the new soil absorption system (SAS). Two percolation tests were completed at depths of 8.5-9.0 and 12.0-12.5 feet resulting in rates of 32 and 60 minutes per inch, respectively (field data attached).

At the time of our inspection there were no private wells or surface waters within 100 feet, and no public wells within 200 feet, of subject wastewater system.

This report and attachments are provided as record documentation of our construction observation of subject wastewater system. We make no representation or guarantee regarding future performance or life of the private wastewater system. The Alaska Department of Environmental Conservation no longer issues health authority approvals for most private onsite systems.

Please call if you have any questions or need additional information.

Sincerely,



Arne Tikka, P.E.

Attachments: Documentation of Construction Form  
Percolation Test Data  
Test Hole Log

cc ADEC



**STATE OF ALASKA**  
**DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**DOCUMENTATION OF CONSTRUCTION**

18 AAC 72.035(d) allows conventional onsite wastewater treatment and disposal systems that serve a single family home, a duplex or a small commercial facility to be installed without prior plan approval by the Department, if the system is installed by a certified installer or under the direction of a registered engineer. Approved Homeowners may install conventional onsite systems serving their own home or duplex, provided they meet certain requirements. For those systems installed under 72.035(d), this form must be completed and submitted to the Department within 90 days of completing construction. In addition to this form, other information must be submitted

**Additional submission requirements for all installations:**

1. A copy of the asbuilt survey (if available);
2. A well log (if available);
3. Testhole log and percolation test results if a percolation test is required because of soil type;
4. Sand liner material approval if a sand liner was installed.

**Additional submittal requirements for Certified Installers:**

1. Minimum of four photographs of the installation in accordance with page 3 of the Installer's Manual.

**Additional submittal requirements for Approved Homeowners:**

1. Minimum of four photographs of the installation in accordance with Page 3 of the Installer's Manual.
2. Record of a soil classification from a soil testing lab or a letter from a registered engineer who rated the receiving soil.
3. Copy of letter from ADEC confirming that the installer has attended the required Department training.

**Additional submittal requirements for systems with construction observation by an engineer.**

1. Record drawings in accordance with 18 AAC 72.010(c)(1).
2. The Documentation of Construction Form must be sealed and signed by the observing engineer.

**This construction documentation form with the applicable attachments should be submitted to the nearest local office of the Department of Environmental Conservation at the address listed below.**

Notification lines shown below are for certified installers use to notify ADEC of a planned installation.

Juneau  
410 Willoughby Avenue  
Juneau, Alaska 99803  
907-465-5350

Ketchikan  
540 Water Street  
Ketchikan, Alaska 99901  
907-225-6200

Fairbanks  
610 University Avenue  
Fairbanks, Alaska 99709  
907-451-2360  
Notification Line 907-451-2184

Kenai  
35390 K-Beach Road  
Soldotna, Alaska 99669  
907-262-5210  
Notification Line 907-262-5210 Ext 252

Mat-Su Valley  
P.O. Box 871064  
Wasilla, Alaska 99687  
907-376-5038  
Notification Line 907-376-5139

Anchorage  
555 Cordova  
Anchorage, Alaska 99501  
907-269-7500  
Notification Line 907-269-7517

Chapter 72, Wastewater Treatment and Disposal Regulations, the Installer's Manual and this form may be found on the Department's Home Page at <http://www.state.ak.us/dec/deh/water/ci.htm>

Date Received

RECEIVED

JUN 01 2007

ADEC

Kenai Area Office

STATE OF ALASKA  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DOCUMENTATION OF CONSTRUCTION

I. GENERAL INFORMATION

Legal Description of the Location

MACKEY LAKE SUBD. ADDN. 1 PART 2  
LOT 17, BLOCK 4

Submitted by: (Check one)

- Certified Installer
- Approved Homeowner
- Registered Engineer

Installer Name:

PAUL KEEN / S + R ENTERPRISES

Onsite Wastewater System Serves:

- Single Family. Number of Bedrooms 5
- Duplex. Number of Bedrooms \_\_\_\_\_
- Small Commercial Facility With Estimated Design Flow of less than 500 GPD.

Mailing Address

P.O. BOX 88

KENAI, AK 99611

II. WATER SUPPLY SYSTEM

(SECTION II IS OPTIONAL) **NOT COMPLETED AT THIS TIME**

Source of Water and Containment (Check all that Apply)

- Well (Drilled or Driven)
- Roof Catchment
- Holding Tank
- Surface (Identify) \_\_\_\_\_
- Other (Identify) \_\_\_\_\_

Type of Water Supply System

- SF/Duplex
- Public

Treatment of Water (Check all that Apply)

- None
- Filtration
- Other: \_\_\_\_\_
- Chlorination
- Mineral Removal

Well Data

Is the height of the well casing more the 12" above the ground?

Yes  No

Is a sanitary seal or well cap installed on the well casing?

Yes  No

Is drainage directed away from or around the casing within a radius of 10 feet of the well casing?

Yes  No

Is well wire enclosed in conduit?

Yes  No

Date Drilled

Depth of Well (Feet)

Static Water Level (Feet)

Yield (If available)

Pump Rate (If available)

Separation Distance from the Well Casing to each of the Following Sources of Contamination:

Septic/Holding Tank on Lot

Feet

Sewer Lines on Lot

Feet

Absorption Area on Lot

Feet

Closest Septic/Holding Tank on Adjacent Lot

Feet

Closest Sewer Lines on Adjacent Lot

Feet

Closest Edge of an Absorption Area on Adjacent Lot:

Feet

Indicate separation distance from toxic materials including fuel tanks, paints, lubricants and other petroleum based materials, pesticides, fungicides or herbicides to well casing:

On Lot

Feet

On Adjacent Lot

Feet

Water Sample Taken by: (Name)

Sampler is:

- Buyer
- Engineer
- Banker
- Government Official

Address

Water Sample Results:

Attach Copy

Satisfactory - Date

Unsatisfactory - Date

Comments/Recommendations:

I certify that the above information, and that provided in Section IV, is correct:

Signature

Typed/Printed Name

Title

Date

Note: 1. This section should be signed by a Certified Installer, Professional Engineer, DEC staff, or Owner/Builder

2. All public water systems must receive ADEC plan approval prior to construction. See 18 AAC 80 State of Alaska Drinking Water Regulations for specific requirements.

X

III. WASTEWATER DISPOSAL	Legal Description: <b>MACKEY LAKE SUBD. ADDN 1, PT. 2, LOT 17, BLK 4</b>
Type of Wastewater System:	
<input checked="" type="checkbox"/> Septic Tank with Conventional Soil Absorption System	<input type="checkbox"/> Package Treatment Plant (requires engineered design)
<input type="checkbox"/> Holding Tank: Material Type: _____ Size in Gallons: _____ Manufacturer: _____	
<input type="checkbox"/> Other - Specify Type _____	<input type="checkbox"/> Alternate Onsite (requires engineered design)
<input type="checkbox"/> Small Commercial System (< 500 GPD) With Estimated Daily Wastewater Flow of: _____ Gallons Per Day (GPD)	
Criteria Used to Estimate Daily Wastewater Quantity: _____	

<input checked="" type="checkbox"/> NEW SYSTEM	<input type="checkbox"/> REPAIR TO EXISTING SYSTEM	Certified Installer Installation Notification Date:
Name of Installer: <b>PAUL KEEN SR ENTERPRISES</b>		Date Installed: <b>5-10-07 → 5-12-07</b>

System Installed:	<input type="checkbox"/> By a Registered Engineer	<input checked="" type="checkbox"/> With Inspection by a Registered Engineer
<input type="checkbox"/> By Approved Homeowner (attach copy of approval letter)	<input type="checkbox"/> By a Certified Installer/Installer Number _____	

Septic Tank: Material: <b>STEEL</b>	Manufacturer: <b>D+W</b>	Size (Gallons): <b>1500</b>	Number of Compartments: <b>2</b> *
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Type of Soil Absorption System:	<input checked="" type="checkbox"/> Deep Trench	<input type="checkbox"/> Shallow Trench	<input type="checkbox"/> Seepage Pit	<input type="checkbox"/> Bed
	<input type="checkbox"/> Mound	<input type="checkbox"/> Other, Specify _____		

Soil Classification: <b>ML</b>	Soil Rating: <b>330 sq ft./bdm</b>	Dimensions/Size of Absorption Area: <b>4 TRENCHES / 165 FT. TOTAL LENGTH</b>
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Grading/Size of Distribution Rock: <b>1 1/2 - 3" DIAM.</b>	Thickness/Depth of Distribution Rock: <b>5' EFF. DEPTH</b>
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Percolation Test Results, Attach Copy of Report:	Percolation Test Performed by: <b>ARNE TIKKA, P.E.</b>
<b>32 + 60</b> Minutes per Inch <b>330</b> Sq. ft. per bedroom	percolation test results must be sealed/signed by a registered engineer

List ground cover in feet over:	Septic Tank <b>4'</b>	Absorption Area <b>4'</b>	Sewer Pipes <b>4'</b> **
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Cleanout Pipes/Caps Installed:	Foundation Cleanout: <b>YES</b>	Septic Tank: <b>YES</b>	Monitor Tubes: <b>YES</b>
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Indicate separation distances from septic tank or absorption area, whichever is closest, to all nearby:

Public drinking water sources within 200 feet: <b>NONE</b>	Private drinking water sources within 100 feet: <b>NONE</b>
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Nearest water bodies (see 18 AAC 72.020(b)): <b>&gt; 100 ft.</b>	Lot line: <b>10 ft.</b>
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Separation Distance from Onlot Sewer Lines to:	Public Drinking Water Sources: <b>&gt; 200 ft.</b>	Private Sources: <b>&gt; 50 ft.</b>
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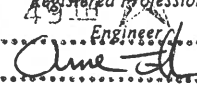
Separation Distance From Bottom of Distribution Rock to:	Groundwater Table: <b>&gt; 4'</b>	Bedrock: <b>&gt; 6'</b>
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Separation Distance from Absorption Area to Slope exceeding 25%: <b>&gt; 50 ft.</b>
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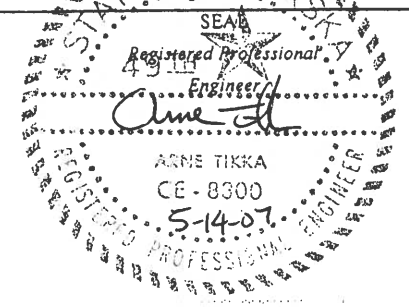
Comments/Recommendations

\* EXISTING SEPTIC TANK PARTIALLY EXPOSED AND IN GOOD CONDITION.  
 \*\* ENTIRE SEPTIC SYSTEM INSULATED W/ 2" INSULFOAM II, 2' WIDE CENTERED OVER PIPE.

I certify that the above information, and that provided in Section IV, is correct:

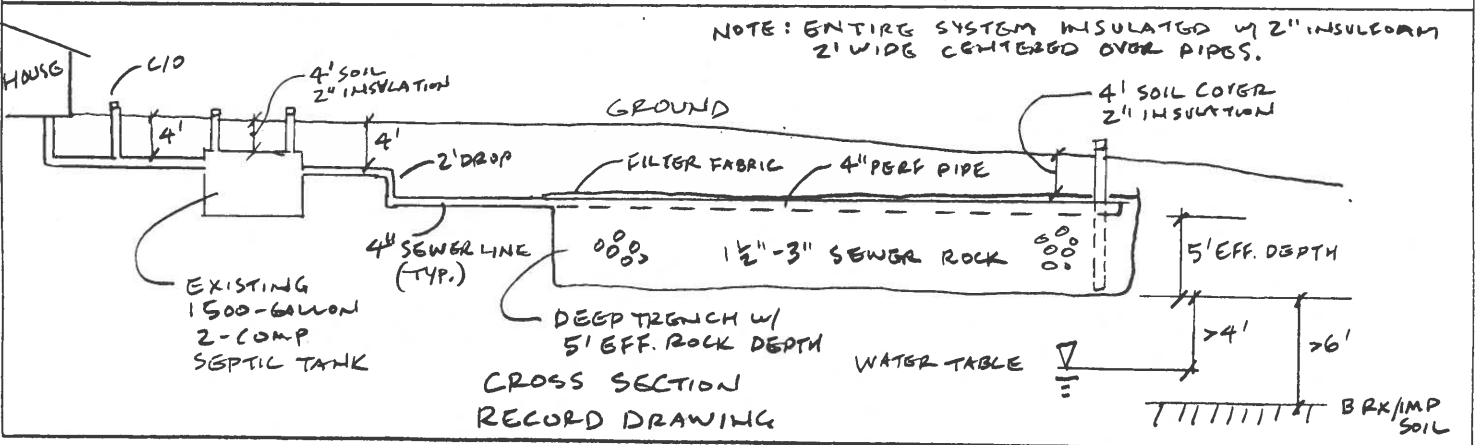
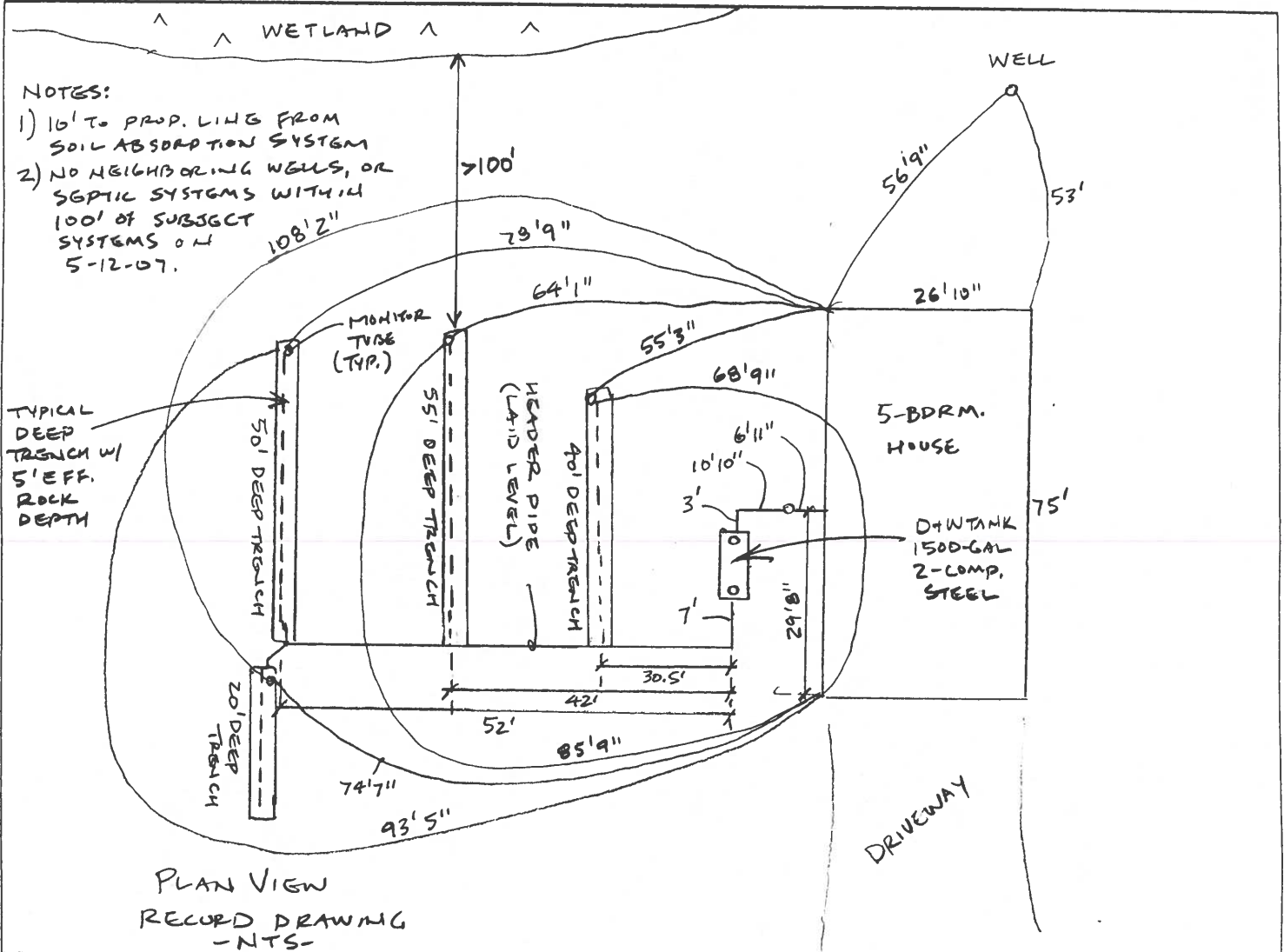
Signature	Typed/Printed Name	Title, Reg./Cert No., Inst. No.	Date
	<b>ARNE TIKKA</b>	<b>CE 8300</b>	<b>5-14-07</b>

NOTE: Must be signed by a Certified Installer, Professional Engineer, DEC staff, or Approved Homeowner. If engineering seal bears printed name, registration number, and is signed, those blocks need not be completed for engineered submittals.



IV. DIAGRAM OF SYSTEM(S)  
INSTRUCTIONS FOR DIAGRAM

- In a plan view, locate and identify each of the following:
  - a) Well
  - b) All Structures
  - c) Septic Tank
  - d) Soil Absorption System (Include dimensions)
  - e) Surface Water
  - f) Sources of contamination
  - g) Property Line
  - i) Closest septic tank on an adjacent property
  - k) All cleanouts and monitor tubes
  - h) Closest well on adjacent property
  - j) Closest edge of an absorption field on adjacent property
- Show distances between the well and each of the sources of contamination listed in 1.
- Show distances between water bodies and each part of the onsite system listed in 1.
- In a cross section view of the soil absorption area, identify each component and show the depth (thickness) of the following:
  - a) Soil Cover
  - b) Absorption Material
  - c) Water Table
  - d) Bedrock
  - e) Discharge pipes
  - f) Insulation



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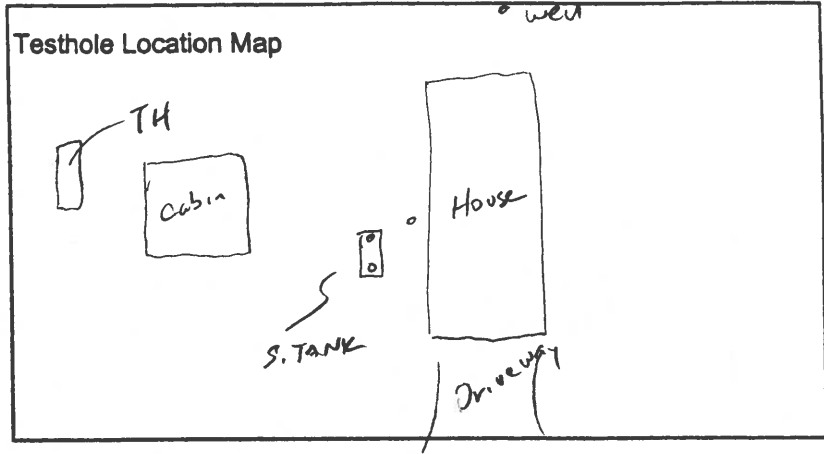
P.O. Box 2324 Soldotna, Alaska 99669  
(907) 262-3197 FAX 262-9013

## TESTHOLE LOG

Legal Description: MACKEY LK ADDN. 1 PT 2  
LOT 17, BLK. 4  
Inspected By: A.T.

Date: 5-5/5-6-07

Ground level	
1ft	NO R
2ft	[Diagonal hatching]
3ft	[Diagonal hatching]
4ft	[Diagonal hatching]
5ft	[Diagonal hatching]
6ft	[Diagonal hatching]
7ft	[Diagonal hatching]
8ft	[Diagonal hatching]
9ft	[Diagonal hatching]
10ft	[Diagonal hatching]
11ft	[Diagonal hatching]
12ft	[Diagonal hatching]
13ft	[Diagonal hatching]
14ft	[Diagonal hatching]
15ft	[Diagonal hatching]
16ft	[Diagonal hatching]
17ft	[Diagonal hatching]
18ft	TD
19ft	
20ft	



**Comments:**

- 0-1.0' GRAVEL w/ SM. SAND + SILT (FILL)
- 1.0-2.5' SILT LOAM
- 2.5-6.0' SILT w/ TR. SAND + GRAVEL
- 6.0-17.0' SILT w/ SM SAND + GRAVEL
- w/ OLL LENSIS OF SANDY SILT/SILTY SAND

Total Depth of Testhole 17 ft.

Groundwater/Seeps Encountered? (Y) N At 17 ft.

Impermeable Soil (Silt/Clay/Bedrock) Encountered? (Y) N At 17 ft.

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P.O. Box 2324 Soldotna, Alaska 99669

(907) 262-3197 FAX 262-9013

5-6-07



PERC TESTING  
MACKEY LAKE

TH-2      PT-1      8.5-9.0'      SANDY SILT

<u>TIME</u>	<u>MGAS.</u>	<u>Δ H<sub>2</sub>O LEVEL</u>	<u>PERC</u>
1416	2.1"	START / 6" H <sub>2</sub> O	
1436	2.8"		
1446	3.0"	0.9" / 30 min ⇒	33 min/inch
1448	2.1"	START	
1503	2.65"		
1518	3.0"	0.9" / 30 min ⇒	33 min/inch
1520	2.1"	START	
1535	2.7"		
1550	3.05	0.95" / 30 min ⇒	32 min/inch

TH-2      PT-2      12.0-12.5'      SILT w/ tr & sm. SAND

<u>TIME</u>	<u>MGAS.</u>	<u>Δ H<sub>2</sub>O LEVEL</u>	<u>PERC</u>
1417	2.4"	START / 6" H <sub>2</sub> O	
1437	2.8"		
1447	2.9"	0.5" / 30 min ⇒	60 min/inch
1449	2.4"	START	
1504	2.65"		
1519	2.90"	0.5" / 30 min ⇒	60 min/inch
1522	2.4"	START	
1537	2.7"		
1552	2.9"	0.5" / 30 min ⇒	60 min/inch

**CHECKLIST - DOCUMENTATION OF CONSTRUCTION**

Date reviewed: 6/25/07

Installer: Paul Keen / Anne Tikka

Legal Description: Maakoy Lake Sub Addn 1 Part 2  
Block 4 Lot 17

YES  NO 24-hour notice called in  
 YES  NO Photographs attached and labeled *If No or incomplete, what is missing:* \_\_\_\_\_

YES  NO Testhole information attached *If No or incomplete, what is missing:* \_\_\_\_\_

YES  NO Section I. General Information complete *If No or incomplete, what is missing:* \_\_\_\_\_

YES  NO Section III. Wastewater Disposal complete *If No or incomplete, what is missing:* \_\_\_\_\_

YES  NO Section IV. Diagram of system(s) complete *If No or incomplete, what is missing:* \_\_\_\_\_

YES  NO Documentation submitted within 90 days. *If no when submitted* \_\_\_\_\_

YES  NO Documentation returned to installer.

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

No Action Required – DOC approved

**ACTION(S) REQUIRED:**

- Submit required information within 10 days
- Contact our office within 10 days to discuss this issue
- Other: \_\_\_\_\_

Signature of reviewer: Jade Gamble