



Grease Trap and Grease Interceptor Standards

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Revision Approved:

I. PREFACE

Section 3.8 of the Greater Augusta Utility District (District) Sewer Use Ordinance states, "Grease, oil, and sand interceptors or traps shall be provided when, in the opinion of the General Manager, they are necessary for the proper handling of liquid wastes containing floatable oil or grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients, except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors or traps shall be of a type and capacity approved by the General Manager and shall be located so as to be readily and easily accessible for cleaning and inspections. Such interceptors shall be inspected and cleaned on a regular basis, and repaired by the User at their expense." This Section of the Ordinance was established to comply with federal law found in Title 40, *Code of Federal Regulations*, Section 403.5(B)(b)(3). Section 403.5(B)(b)(3) which states that " the following pollutants shall not be introduced into a Publicly Owned Treatment Works (POTW): *Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference.*"

It is the intent of these *GAUD Grease Trap and Grease Interceptor Standards* to provide specific standards for grease trap location, design, installation, construction, operation and maintenance of new and existing grease traps and interceptors so as to comply with applicable Federal, State and local discharge standards. It should be noted that failure to comply with these *Standards* shall be considered violations of applicable sections of the District's existing Sewer Use Ordinance and consequently, subject to applicable penalties and/or denial or discontinuance of water and/or sewer service. The District's Sewer Use Ordinance can be found on their website at:

http://greateraugustautilitydistrict.org/docs/Sewer_Use_Ordinance.pdf

II. DEFINITIONS

All definitions shall be as currently supplied in the District's existing Sewer Use Ordinance with the following additions:

1. **Food Service Establishment**

Any commercial facility discharging kitchen or food preparation (raw, pre-cooked, or cooked) wastewaters including but not limited to bakeries, restaurants, motels, hotels, cafeterias, hospitals, schools, bars, fish markets, coffee shops, and any other facility which, in the District's opinion, would require a grease trap or grease interceptor installation by virtue of its operation. Such definition normally includes any establishment which is required to have a State of Maine Department of Health and Human Services' food service license.

2. **Grease Trap/Grease Interceptor**

A grease trap/grease interceptor is the device utilized to effect the separation of grease and oils in wastewater effluents from food service establishments. Such traps or interceptors may be of the "outdoor" or below ground type normally referred to as large grease interceptors, or the "under-the-counter" package units normally referred to as smaller grease traps that are located under or near the sink. These units may also be installed in the floor. However, for the purposes of this Standard, the words "trap" and "interceptor" are generally used interchangeably.

3. **Passive Grease Interceptors**

Passive grease interceptors retain wastewater long enough to allow for cool down of the greasy liquid, thus promoting coagulation and separation of the grease from the water. As the grease cools down, it floats to the top of the interceptor. The remaining wastewater without the grease is then discharged into the public wastewater collection system.

III. ADMINISTRATIVE, GENERAL AND OPERATIONAL REQUIREMENTS

The following administrative, operational, and other general requirements are applicable to all food service establishments, new or existing.

1. All food service establishments are required to submit a Grease Trap/Interceptor Application (Form# GAUD001) to the District. Plans, specifications, plumbing diagrams, riser diagrams, etc. are to be submitted with the application. District approval is required before construction or installation can proceed. An approval letter for each new trap will be issued by the District prior to construction or installation. Likewise, the completed installation must be inspected and approved by the GAUD before the District writes-off approval of a user's submitted Plumbing Application.
2. All new and existing food service establishments are subject to periodic review, evaluation, and inspection by the District representatives at any time.
3. Each food service establishment shall be inspected by a District representative as determined necessary. Results of each inspection will be made available to facility owners, with overall ratings and requirements for corrections/improvements. An inspection fee is charged per inspection per trap/interceptor. Section VIII of this document provides a work-flow diagram of the inspection, approval and billing process.
4. Schedule of Fees:

\$25 Application Fee – Covers the administrative cost for processing grease trap application. The application will include a recommendation by a Maine licensed plumber for the size, type and location of the grease trap/interceptor to be installed. If this recommendation is modified from what is finally proposed to be installed, a new application and fee exhibiting the reason for this change must be submitted.

\$50 Inspection Fee – Covers the cost of labor, equipment and materials to perform grease trap inspection. For food service establishments operating more than one grease trap, a \$50 inspection fee will be applied to each additional trap. The inspection fees have been established to ensure compliance with these standards, and are to cover the cost of labor, equipment and materials to perform the grease trap inspection(s).

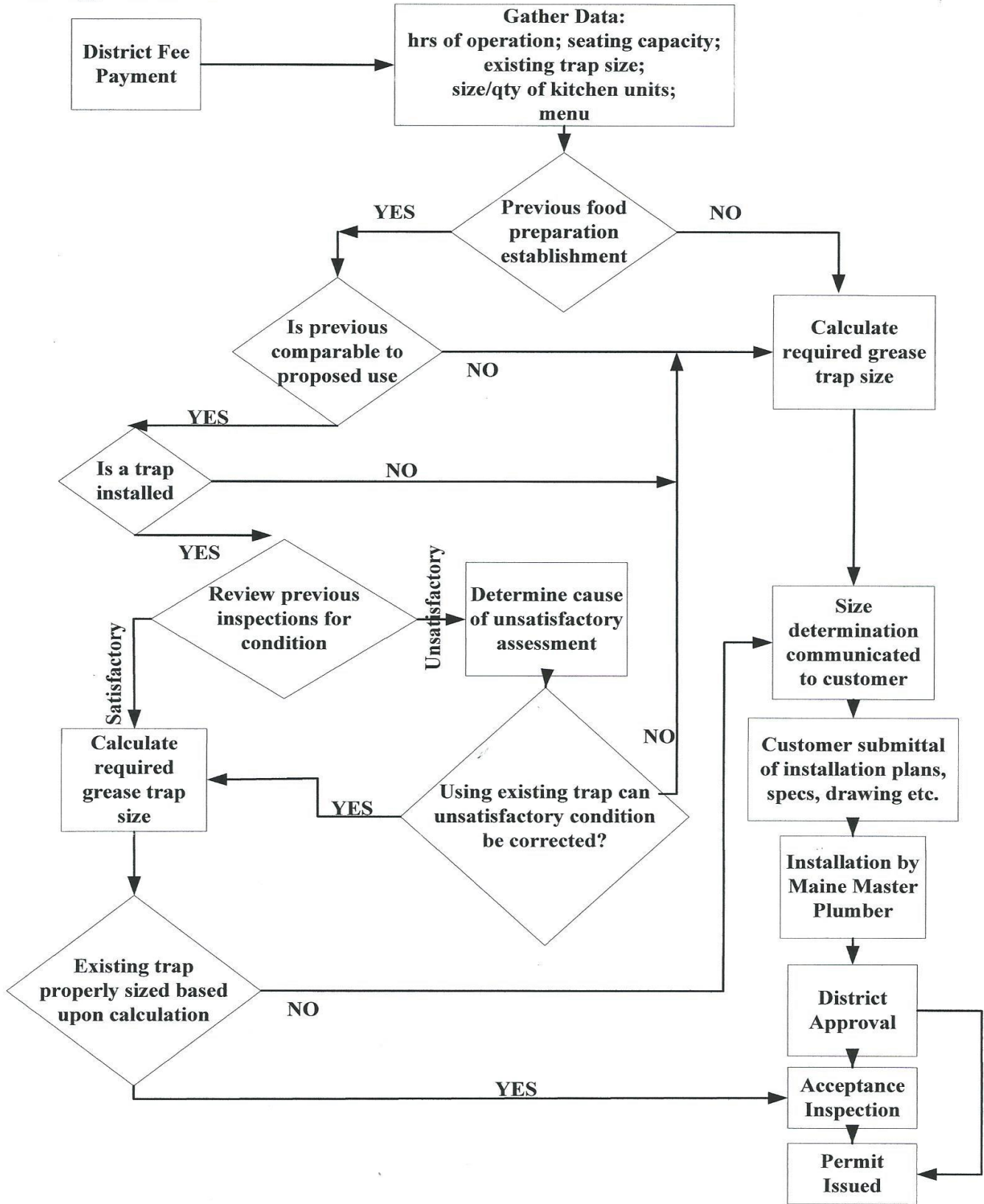
\$75 Re-Inspection Fee – Grease traps that are found to be unsatisfactory during an inspection will be required to be re-inspected. The District will charge a re-inspection fee to any establishment that has a trap, or traps that need to be cleaned, or are not accessible during the initial inspection. Additionally, the

District reserves the right to charge a re-inspection fee to establishments that are found not to be in compliance with the grease trap standards as outlined in this document.

5. Food service establishments whose operations cause or allow excessive grease or solids to discharge or accumulate in the sewer collection system are liable to the District for service costs related but not limited to line blockages, line cleaning, line and pump repairs, and property damages. This includes all labor, materials, equipment, and overhead costs. Failure to pay all service-related charges may also be grounds for water and/or sewer service discontinuance.
6. Any facility receiving three (3) consecutive unsatisfactory inspections whether concurrent or not shall be subject to penalties/restrictions as provided for in the District's Sewer Use Ordinance (SUO) for non-compliance with the SUO requirements. This includes up to discontinuance of water and/or sewer service.
7. Any establishment whose effluent is suspected by the District to contain a concentration of greater than 100 mg/l of oil and grease may be required to routinely sample their grease trap effluent on a schedule and location to be determined by the District, have it analyzed for oil and grease at the expense of the owner, and furnish a copy of each analysis to the District. Additionally, the GAUD reserves the right to collect samples and bill the customer for incurred sampling costs.
8. All grease traps/interceptors shall be designed, installed and located in accordance with this Standard to allow for complete access for inspection and maintenance.
9. All grease traps/interceptors must be installed by properly licensed plumbing contractors and inspected by the District or their designee during the installation process.
10. The District will not accept or allow any grease traps/interceptors that have a removable baffle wall.
11. Installation of all grease traps/interceptors shall be approved by the District or their designee.
12. The volumetric capacity criteria for grease interceptors shall be in accordance with Environmental Protection Agency (EPA) Guidance Document, "On-site Wastewater Treatment and Disposal Systems," (EPA 625/1-80-012) and as referenced in Section 5 of this document. An example of an underground grease trap is attached to this standard. This attached example is for information purposes only and will vary according to site and capacity requirements.

13. Upon arrival of the District's inspector, it is the owner's responsibility to provide personnel to access and open the trap/interceptor for inspection and to close it upon completion of the inspection. Failure to open the trap/interceptor for inspection results in an unsatisfactory initial inspection rating and results in a re-inspection fee..
14. Single below-ground grease interceptors, and those installed in series, must be directly accessible from the surface. The minimum access opening dimensions shall be 18 inches x 18 inches or a minimum of 24 inches in diameter. The two (2) access openings (inlet and outlet) to below-ground traps are required and should be removable with ease by one person. Concrete slabs, metal plates, and wedge tops are not considered easy access if the weight of the access cover is greater than 75 pounds. If the access cover is greater than 75 pounds, the owner must provide personnel to open/close the trap for inspection. The two-chambered single tank must be fitted with an extended outlet sanitary tee that terminates 8 inches to 12 inches above the tank floor for both chambers.
15. "Under-the-Counter" or "On the Floor"
 - Approved flow controls to prevent overloading and allow for proper operation must be installed on the inlet.
 - Must be located as close to the source of the grease generating fixture as physically possible, while remaining accessible for maintenance.
16. All traps/interceptors are to be installed with "grab sample" capability.
17. Dishwashers, steamer units, other high temperature sources, and garbage grinders shall not be piped directly to "under-the-counter" or below ground-type grease traps.
18. Solids separation is required on all traps less than 500 gallons total volume.
19. Each establishment is required to have a trap/interceptor installation. Multiple establishments manifolded to one (1) trap/interceptor are not allowed.

IV. Approval Process



V. SIZE CALCULATION METHODS

A. Below-Ground Traps/Interceptors (EPA Design Manual, "Onsite Wastewater Treatment and Disposal Systems," EPA 625/1-80-012)

- EPA Method #1
(For Restaurants and Food Service Establishments w/ Fixed Seating)

$$\text{Size} = D \times GL \times SF \times (HR/2) \times LF$$

- D = Number of seats in dining area
- GL = Typically 5 gallons of wastewater per meal
- SF = Storage capacity factor
 - 1.7: for single service kitchen
 - 2.5: for fully equipped commercial kitchen
- Hr = Number of hours open
- LF = Loading factor
 - 1.25: locations adjacent interstate freeways
 - 1.00: other freeways, recreational areas
 - 0.80: main highways
 - 0.50: other highways

- EPA Method #2
(For Catering, Hospitals, Nursing Homes & Other types of Commercial Kitchens w/ Varied Seating Capacity and Room Service)

$$\text{Size} = M \times GL \times SF \times 2.5 \times LF$$

- M = Number of meals per day
- GL = Typically 4.5 gallons of wastewater per meal
- SF = Storage capacity factor
 - 1.7: minimum or
 - 2.5: on site disposal
- LF = Loading factor
 - 1.25: garbage disposal & dishwashing
 - 1.00: w/o disposal
 - 0.75: w/o dishwashing
 - 0.50: w/o disposal & dishwashing

V. SIZE CALCULATION METHODS (cont'd)

B. "Under-the-Counter" or "On-the-Floor" Traps/Interceptors

These types of traps/interceptors are only permissible for food service establishments with limited to no seating. Examples of these food service establishments are: Takeout exclusive establishments, Candy/Chocolate Shops, Coffee Shops. The capacity (sizing) of "Under the Counter" or "On the Floor" traps/interceptors will be calculated by multiplying its **trap retention time** by its **flow capacity**. The components of this calculation are as follows:

- 1) The ***flow capacity*** – (gallons per minute (gpm)) of the trap is calculated by determining the volume of each fixture that will be connected to the grease trap. Typically, this will be done by multiplying the fixture's width by its length by its depth. The volumes of each fixture will be added to one another to arrive at an overall volume of all of the fixtures discharging to the grease trap. Next, the volume must be converted to gallons and divided by an unloading rate of two (2) minutes.
- 2) The **trap retention time** (min) shall be a minimum of two (2) minutes, to a maximum of ten (10) minutes, and will vary in accordance with the table found below:

Trap Retention Times	
Type of Food Establishment	Retention Time (min)
Coffee or Beverage Shops (serving no food)	2
Establishments w/o Fryers such as: Sandwich Shops, Coffee Shops (serving food), Ice Cream/Yogurt/Gelato Shops, and Candy/Chocolate Shops	4
Pizza Parlors and Food Establishments Using Baking Sheets/Pans	6
Food Establishments that have Some Fried Items on Menu	8
Food Establishments that Primarily Serve Fried Food	10

V. SIZE CALCULATION METHODS (cont'd)

Example

Takeout Sandwich Shop

Trap Volume:

Fixture 1 (triple sink): $24'' \times 24'' \times 18'' \times 3 = 31,104 \text{ cu. in.} \times 0.00433 \text{ gal/cu. in.} = 135 \text{ gal}$

Fixture 2 (pre-rinse sink): $24'' \times 24'' \times 18'' = 31,104 \text{ cu. in.} \times 0.00433 \text{ gal/cu. in.} = 45 \text{ gal}$

Total Volume: 180 gal

Unloading Rate = 2 min

Total Flow: $180 \text{ gal}/2 \text{ min} = 90 \text{ gpm}$

Retention time = 4 min

Required trap size: $90 \text{ gpm} \times 4 \text{ min} = \underline{\underline{360 \text{ gal}}}$

C. Schools

The minimum grease trap size for all schools shall be 2,000 gallon capacity.

D. The minimum grease trap size for bakeries of any type shall be 250 gallon capacity.

E. When required, an appropriately sized flow control device must be installed by a licensed plumber.

F. Solids Separator

When required, a solids separator shall have a volume that is 5% of that of the grease trap.

Example

Grease trap size: 500 gal

Solids separator size: $5\% \times 500 \text{ gal} = 25 \text{ gal}$

Note: Not required when multiple interceptors are installed in series.

VI. MAINTENANCE

Grease trap maintenance is critical to proper separation of fats, oils and grease. Consequently, maintenance of grease traps/interceptors must include thorough pump-out and/or cleaning at a minimum frequency of four (4) times per year, or at a greater frequency as determined by the District's Inspector. The owner(s) shall be responsible for the proper removal and disposal by appropriate means. The captured material and cleanouts are to be kept and recorded on Maintenance Log (Form# District002), for each trap/interceptor. Failure to maintain a log or perform the required quantity of cleanouts is an unsatisfactory inspection rating. Any removal and hauling of the collected materials, not performed by the owner(s) personnel, must be performed by a Maine DEP-licensed nonhazardous waste disposal firm. Maintenance contracts will be required to be submitted to the District's Water Quality Coordinator, Greater Augusta Utility District, 12 Williams St. Augusta, ME 04330..

The grease mat plus settled out solids shall not exceed one-third (1/3) the normal fluid level depth of the trap. For example, if the fluid level depth is 48", the grease mat plus settled solids must not exceed 16" (48" x 1/3).

Maintenance logs must be posted in a conspicuous, visible, and easily accessible location for the District's inspection. Failure to comply may result in fines/penalties.

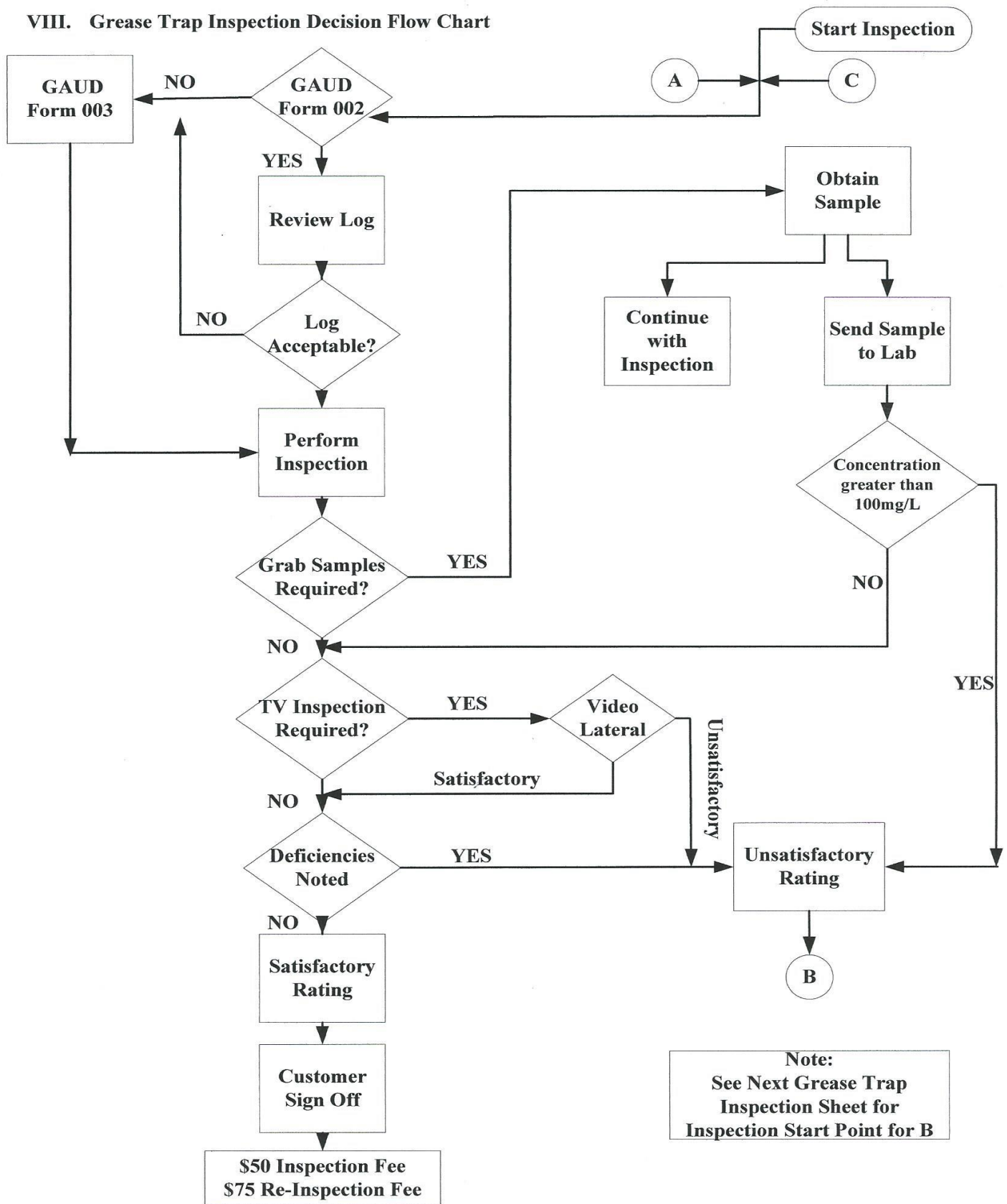
The use of so-called, "grease-consuming bacteria," enzymes, or other grease solvents or emulsifiers, in lieu of physical cleaning, is not approved for grease trap maintenance.

VII. DISCHARGE STANDARD

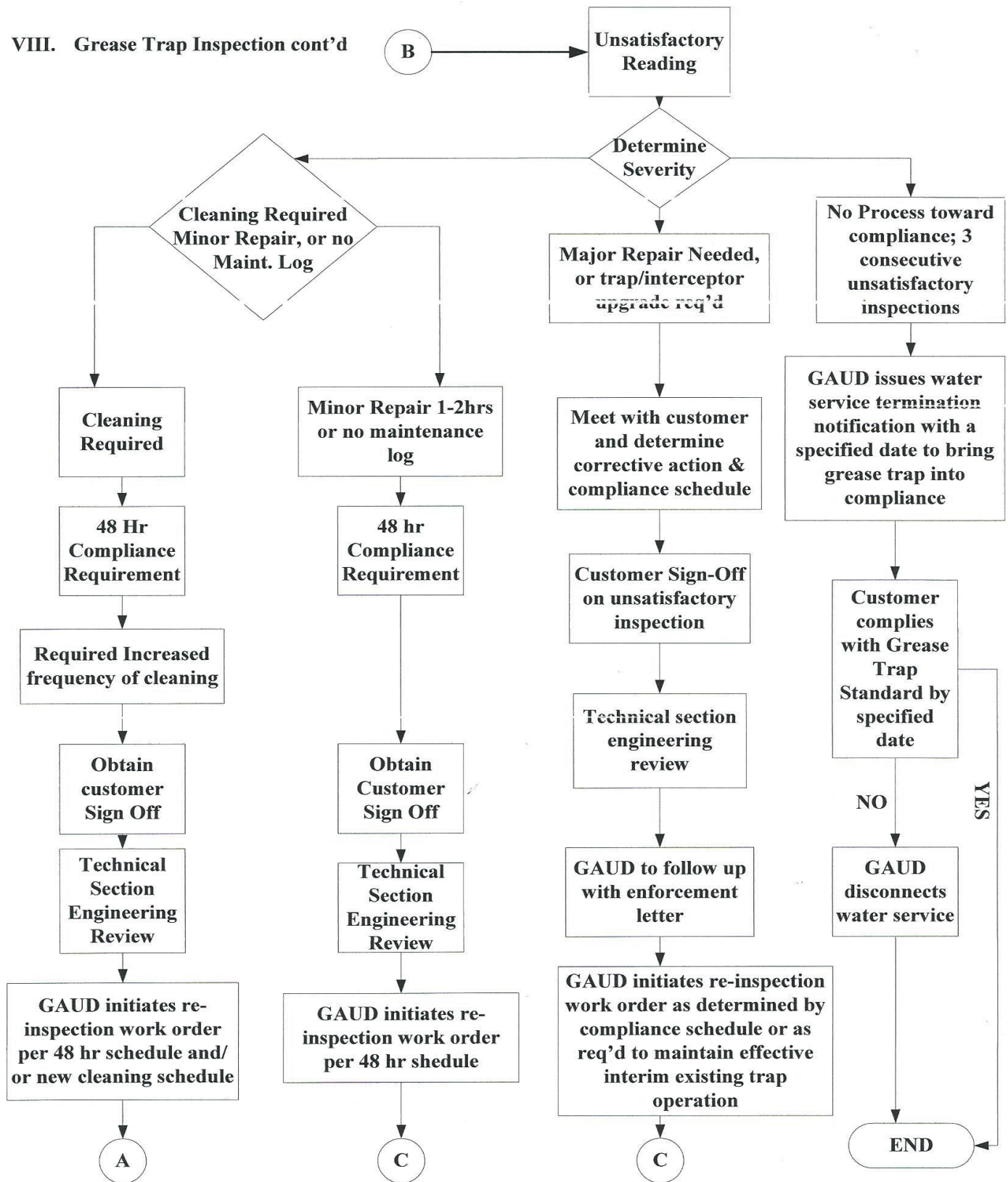
Section 3.1Q of the District's Sewer Use Ordinance prohibits the discharge to GAUD's sewer collection system of "any water or wastes containing floating oil, fats, wax, greases or oils, whether emulsified or not, in excess of one hundred (100) mg/L." The maximum temperature of discharged wastewater into passive type grease interceptors must not exceed 104° F. The chart below indicates the melting points and densities of commonly used cooking products.

Substance	Melting Point		Density	
	°F	°C	Lbs/gal	Kg/l
Tallow	108	42	7.88	0.945
Palm Oil	95	35	7.63	0.915
Cocoa Butter	93	34	8.04	0.964
Coconut Oil	77	25	7.67	0.920
Palm Kernel Oil	75	24	7.70	0.923
Peanut Oil	37	3	7.62	0.914
Cotton Seed Oil	30	-1	7.65	0.917
Olive Oil	21	-6	7.66	0.918
Poppy Seed Oil	5	-15	7.71	0.925
Sesame Oil	3	-16	7.66	0.919
Soybean Oil	3	-16	7.73	0.927
Corn Oil	-4	-20	7.69	0.922

VIII. Grease Trap Inspection Decision Flow Chart



VIII. Grease Trap Inspection cont'd



Note:
See previous sheet for A & C start points.

IX. ENFORCEMENT

Enforcement of this Standard shall be in accordance with the provisions of the District's most current Sewer Use Ordinance. Failure to comply with this Standard or any facility receiving three (3) consecutive unsatisfactory evaluations shall be grounds for penalty imposition and/or discontinuance of water and/or wastewater service. Additionally, failure to comply may result in notification to the Maine Department of Health and Human Services for request of enforcement action, which may lead to revocation of food service permits.

The District may elect to request from the appropriate building official that certificates of occupancy be withheld until compliance with the District's requirements, including grease trap compliance, is fully met.

In the event a food service establishment's grease-handling facilities are either-under-designed, substandard, or poorly operated/maintained, the owner(s) will be notified, in writing, of the required improvements and given a compliance deadline not to exceed three (3) months to conform to the requirements of this Grease Standard. An extended deadline may be granted by the District upon review and determination that adequate and timely progress is being made by the customer to comply with the Discharge Standard.

X. ATTACHMENTS

District Form# GAUD001 Application to Install Grease Interceptor

District Form# GAUD002 Grease Trap Interceptor Maintenance Log

District Form# GAUD003 Grease Trap Inspection

Example of a typical Underground Grease Trap



Application to Install a Grease Interceptor
 District Form# GAUD001 – Attach to Plumbing Application

Establishment Name: _____

Address: _____ Phone #: _____

Name of Applicant / Restaurant Owner: _____

Address: _____ Phone #: _____

Seating Capacity: _____ Hrs/Day of Operation: _____

Expected Servings/Day: _____ Proposed Menu: _____

Servings/Peak Hr: _____ Bldg Square Footage: _____

Size of Existing Trap: _____ Bldg Former Use: _____

Size/Number of Kitchen Units Served by Interceptor:

<u>Size/Number</u> (L x W x D)	<u>Type of Unit</u>	<u>Size/Number</u> (L x W x D)	<u>Type of Unit</u>
___/___/___	Single compartment scullery sink	___/___/___	Oven (ex: wok)
___/___/___	Double compartment scullery sink	___/___/___	Other (attach to application)
___/___/___	Triple compartment scullery sink		

Note: Any sink, etc. discharging into the sanitary sewer used for cleaning and/or food preparation **must** be connected to a grease interceptor. Dishwashers, garbage disposals, and mop sinks **shall not** be tied into grease interceptor.

Comments: _____

- I certify that the above information is correct to the best of my knowledge. Also, I understand that a \$25 grease trap origination fee will be charged for processing this application; and a \$50 inspection fee per trap will be charged for each maintenance inspection conducted.
- I understand that wastewater change-in-use (impact) fees will need to be assessed by the Greater Augusta Utility District and paid by the customer. Please contact the Greater Augusta Utility District's Water Quality Coordinator at (207) 623-4633 ext. 4270 for an assessment of this potential fee.
- I have read, understand, and comply with the Greater Augusta Utility District's *Grease Trap and Grease Interceptor Standards*.
- I understand the limit for fats, oils, and grease is 100 milligrams per liter in water discharged to the Greater Augusta Utility District's wastewater collection system.

Date: _____ **Signature:** _____

Please submit this application with plans and specs or a riser/plumbing diagram to:
 Greater Augusta Utility District, c/o Brian Tarbuck, 12 Williams Street, Augusta, ME 04330

Form # GAUD001

GREASE TRAP INTERCEPTOR MAINTENANCE LOG

District Form# GAUD002

Please **PRINT** Legibly

Establishment Name: _____

Contact Name: _____ Phone #: _____

Trap No.: _____ Trap Location: _____

Cleaning Date	Name of Vendor/Employee Performing Cleaning	Initials of Employee	Disposal Method

Note: GAUD reserves the right to have copies of these maintenance logs.
1 Log Sheet Per Each Trap/Interceptor.
Each Log Must be Conspicuously Posted for GAUD Review.

Form #GAUD002



Grease Trap Inspection Form District Form# GAUD003

ESTABLISHMENT: _____

LOCATION: _____

MANAGER'S NAME: _____

OWNER'S NAME: _____

BUSINESS PHONE NUMBER: _____

CELL PHONE OR ALTERNATIVE NUMBER: _____

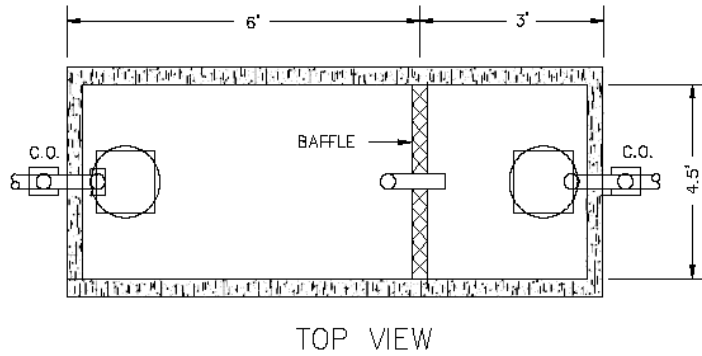
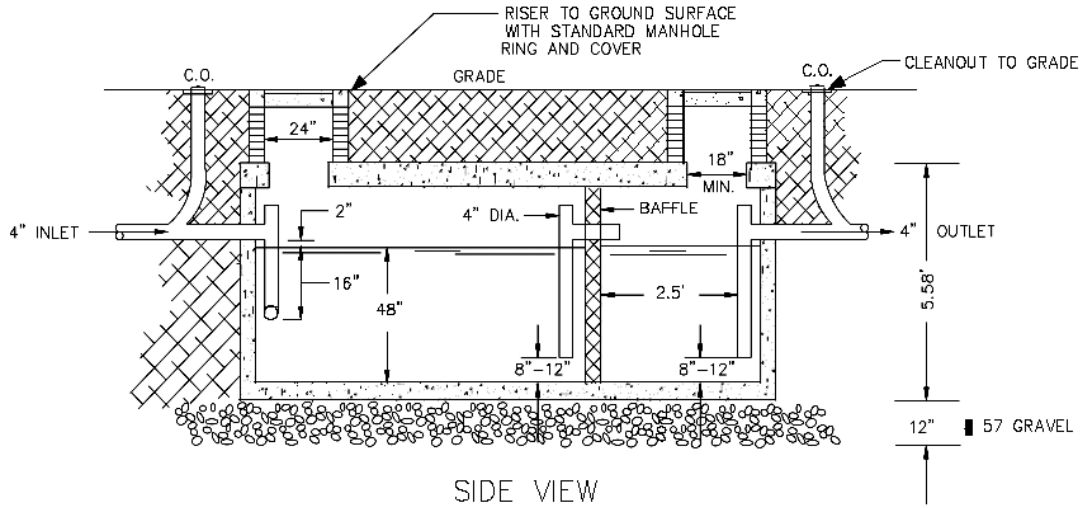
Trap Information	
Trap No.: _____	
Last Maintenance Date: _____	Frequency: _____
Next Approx. Inspection Date: _____	Cleaning Performed By: _____

Overall Rating (circle 1):	Satisfactory (1)	Unsatisfactory (2)
Reason for Unsatisfactory Rating (check boxes that apply)		
Circle all that apply.		
A. Broken/Missing Access Cover/Heavy B. Access Point Below Grade C. Baffle Wall/Screen Missing D. Not Accessible for Maint. or Inspection E. Non-Approved Grease Interceptor F. No Grease Trap Installed (Send Letter) G. Inlet/Outlet "T" Defective H. Trap Temp .GT. 104 F ₀ I. Trap Sample Required J. Trap Sample GT 100mg/l K. No Grab Sample Port	L. Dishwasher Tied Into Trap M. Dirty (Needs Pump Out) N. Defective Grease Trap O. Broken/Missing Gasket P. No Maintenance Log Q. Not Properly Located or Installed R. Grease mat depth of ____ exceeds limit. S. Visible Grease Discharge T. Trap Needs Upgrade; Incorrect Size U. Not Cleaned Per Req'd Frequency V. No Flow Control	
Comments: _____		

GAUD Inspector: _____ Initials _____ Date _____		

Form# GAUD003

Example of an Underground Grease Trap



TYPICAL UNDERGROUND GREASE TRAP