



# Standard for Pretreatment of Sanitary Waste Effluent Containing Fats, Oils and Grease

## Section 1: Intent of standard

The intent of this standard is to apply and enforce provisions of existing *City Code* and other regulatory rules to minimize the amount of fats, oil, grease and wax entering the City of Bloomington’s wastewater collection system. Any new development proposal for a facility that includes commercial food preparation and/or serving shall install and maintain an **exterior** grease interceptor conforming to *Section 5* of this standard. Existing facilities performing commercial food preparation or serving shall operate and maintain any grease removal devices currently in place, and shall follow Best Management Practices (BMPs) to eliminate discharge of wastewater laden with fats, oils or grease to City of Bloomington’s collection system. Remodeling or expansion of an existing facility *may* require the installation of an exterior grease interceptor, subject to plan review. In any case, the discharge of wastewater from food preparation activities into the public sewers shall be subject to the following local, regional and federal regulations.

## Section 2: Bloomington City Code, Chapter 11.31 (b)

- (6) No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer unless such person has obtained a permit from the City Engineer specifically authorizing the discharge of such water or waste and unless the conditions, if any, set forth in the permit have been and are complied with by such person:
  - (A) Any waters or other liquid or vapor having a temperature higher than 150F°.
  - (B) Any waters or wastes containing fats, wax, grease, or oils, whether emulsified or not, in excess of 100 milligrams per liter or containing substances which may solidify or become viscous at temperatures between 32 and 150F°.
- (7) Where pretreatment or flow-equalization facilities and/or where grease, oil, or sand interceptors are provided for any waters or wastes, such facilities and/or interceptors shall be maintained continuously in satisfactory and effective operation by the user thereof and at no expense to the City.

## Section 3: Metropolitan Council Environmental Services – Waste Discharge Rules §406.00

### Prohibited Waste Discharges

No person, except as authorized in a permit, shall discharge or cause to be discharged into public sewers any of the following materials:

**406.04** Any wastewater containing fat, wax, tallow, grease, or oil of animal or vegetable origin excess of 100 milligrams per liter, that is likely to solidify, become viscous, or become water insoluble, and likely to cause obstruction to the flow in public sewers or cause interference or pass-through.

**406.05** Any solid or viscous material in amount which are likely to cause obstruction to the flow in a public sewer or interference with the operation of public sewers.

**406.22** Any material discharged to public sewers which is likely to cause interference, pass-through, or operational problems at any Metropolitan Council treatment plant, or which violates applicable state or federal laws or requirements.

*The above rules are supported by authority granted to the Council by Minnesota Statutes 473.504 subd 4, 473.511 subd 2, 473.515, and 473.5155.*

## Section 4: EPA National Pretreatment Program (40 Cfr 403) controlling fats, oils, and grease discharges from food service establishments

**Section 403.5** of 40 CFR prescribes National pretreatment standards and defines prohibited discharges to Publicly Owned Treatment Works (POTW). More specifically, the Pretreatment Program regulations at **40 CFR 403.5(b)(3)** in part prohibits “solid or viscous pollutants in amounts which will cause obstruction” in the POTW and its collection system.

## Section 5: Design and structural criteria for exterior interceptors

- (A) All grease interceptor plans and specifications shall conform to Minnesota Rule 4715.1115 (*State Plumbing Code*) and be submitted for approval by the City prior to installation. Grease interceptor shall receive flow from kitchen/food preparation fixtures and dish-washing machines only; flow from bathroom, locker room, or food waste grinder fixtures is prohibited.
- (B) Interceptor must allow for a 30 minute retention time under actual peak flow as determined by fixture capacity served by grease interceptor.
- (C) New in-ground grease interceptors shall not be less than 1,000 gallons total capacity unless otherwise approved by the Utilities Superintendent.
- (D) Interceptor must have interior baffles to distribute flow. Baffle wall must be located a distance from inlet wall of two-thirds to three-quarters the total length of the structure.
- (E) Interceptor must have a minimum 2:1 length to width ratio.
- (F) There must be a minimum of six (6) inches of freeboard at grease interceptor top.
- (G) Each grease interceptor shall have inlet and outlet tees, or baffles isolating the flow in to and out of the interceptor. The inlet tee or baffle shall extend at least 25 percent into the liquid depth. The outlet tee or baffle shall extend at least 50 percent into the liquid depth. Inlet and outlet tees must be a minimum of four (4) inches in diameter and constructed of plastic. Baffles must have an open area at the top and bottom equal to or greater than 12.5 square inches, and be constructed of plastic or stainless steel.
- (H) Each interceptor shall have an access opening over the inlet and outlet (each compartment) within the structure. Each opening shall be at least 24 inches in diameter and be secured in place. All covers shall be constructed of cast iron or equivalent traffic bearing material. Manholes/covers shall extend to finished grade and installed to prevent the inflow of surface or storm water into the interceptor.
- (I) Cleanouts shall be installed on the inlet and outlet sides of the interceptor and extended to finished grade, and shall be a minimum of four (4) inches in diameter.
- (J) Structure shall have a minimum concrete compressive strength of 3,500 psi.
- (K) Grease interceptors must meet a minimum structural design of 150 pounds per square foot for non-traffic installations. For vehicular traffic conditions the grease interceptor shall be designed to withstand an H-20 wheel load.
- (L) Grease interceptors shall meet the following standards: ASTM C-1227 for Septic Tanks, ASTM C-913 for Precast Water and Wastewater Structures, ACI-318 for Design and ASTM C-890 for establishing Minimum Structural Design Loading.

## Section 6: City approval and acceptance

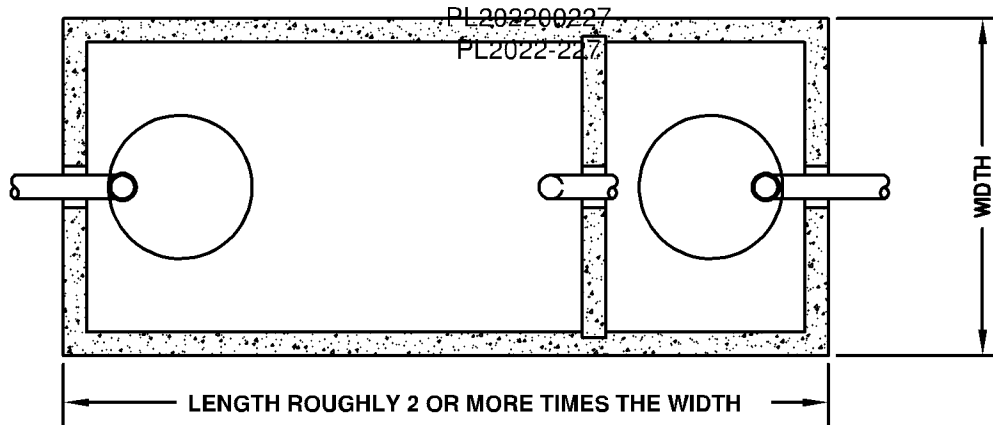
By approving a development proposal that includes a grease interceptor design, the City assumes no liability for the failure of a system to adequately pretreat wastewater to achieve effluent quality requirements that conform to *Bloomington City Code*, *Metropolitan Council Waste Discharge Rules*, and *40 CFR 403*. It is the responsibility of the owner and design professional to ensure the appropriate level of pretreatment needed to comply with *City Code* and *State Plumbing Code* requirements.

## Section 7: Ongoing maintenance of grease interceptors

The owner/operator of any grease interceptor installed in the city of Bloomington shall, as provided for in *Bloomington City Code*, Ch. 11.31 (b)(7), continuously maintain the grease interceptor to ensure effective operation through an inspection interval not to exceed once every three (3) months, (M.R. 4715.1115, Subp.3.) and complete pumpout at an interval not to exceed 12 months. Actual pumpout interval may be more frequent depending on use. At the time application is made for connection to the sanitary sewer system, the owner/operator of the grease interceptor structure shall enter into an agreement to properly maintain said interceptor, and retain maintenance records at the premises for a period of three (3) years. Inspection and pumpout records must be made available to City of Bloomington staff upon request.

## Utilities Customer Service Contacts

**Customer Service** ..... 952-563-8777



PLAN VIEW

24" DIA. ACCESS OPENINGS INSTALLED OVER BOTH INLET & OUTLET COMPARTMENTS. CAST IRON COVERS OR EQUIVALENT TRAFFIC BEARING MATERIAL. SELF-SEALING, LOCKING MANHOLES/COVERS SHALL HAVE PICK SLOTS/BARS, EXTEND TO FINISHED GRADE AND BE INSTALLED TO PREVENT SURFACE WATER INFLOW.

4" POLYSTYRENE INSULATION OVER PIPE AND STRUCTURE AT ALL LOCATIONS WITH LESS THAN 7 FEET OF COVER

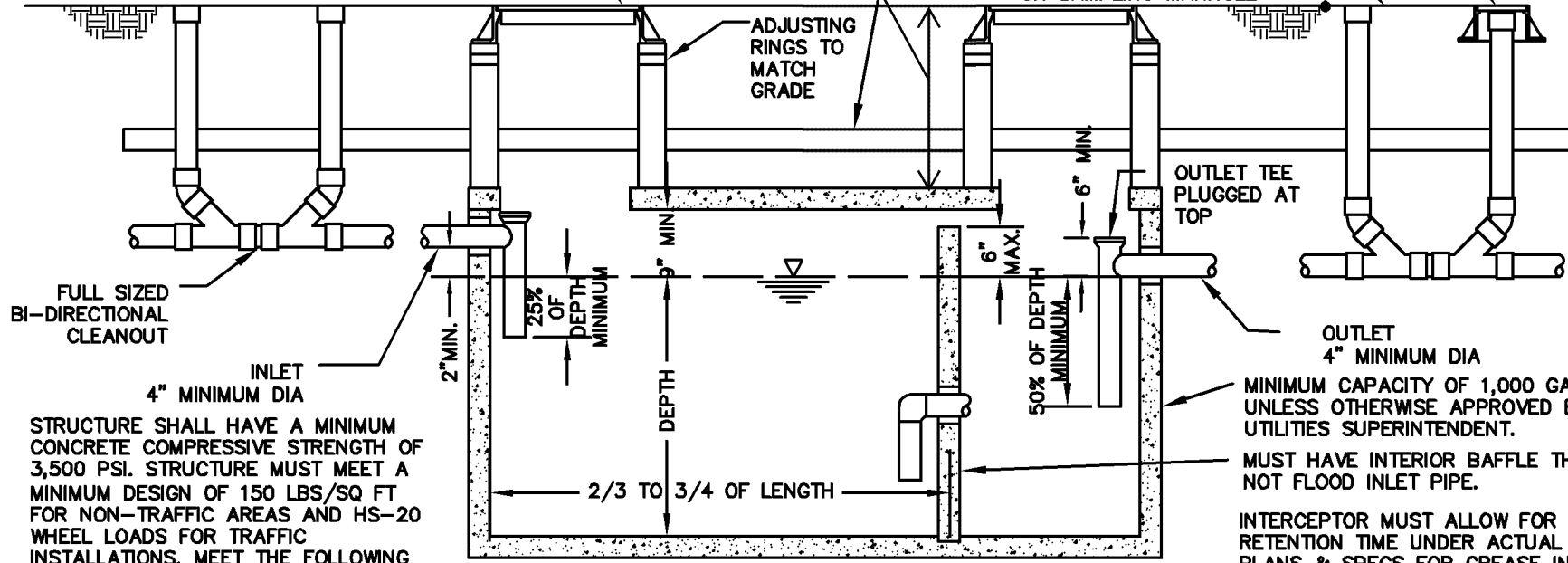
USE LAMPHOLE FRAME IN TRAFFIC AREAS EQUAL TO NEENAH R-1975

MIN DEPTH OF 3'  
MAX DEPTH OF 7'

FULL SIZED BI-DIRECTIONAL CLEANOUT OR SAMPLING MANHOLE

ADJUSTING RINGS TO MATCH GRADE

OUTLET TEE PLUGGED AT TOP



PROFILE VIEW

STRUCTURE SHALL HAVE A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,500 PSI. STRUCTURE MUST MEET A MINIMUM DESIGN OF 150 LBS/SQ FT FOR NON-TRAFFIC AREAS AND HS-20 WHEEL LOADS FOR TRAFFIC INSTALLATIONS. MEET THE FOLLOWING STANDARDS: ASTM C-1227, ASTM C-913, ASTM C-890 & ACI-318.

MINIMUM CAPACITY OF 1,000 GALLONS UNLESS OTHERWISE APPROVED BY THE UTILITIES SUPERINTENDENT.

MUST HAVE INTERIOR BAFFLE THAT DOES NOT FLOOD INLET PIPE.

INTERCEPTOR MUST ALLOW FOR A 30 MINUTE RETENTION TIME UNDER ACTUAL PEAK FLOW. PLANS & SPECS FOR GREASE INTERCEPTORS SHALL BE SUBMITTED AND APPROVED BY THE CITY OF BLOOMINGTON PRIOR TO INSTALLATION. PLANS SHOULD INCLUDE INTERIOR GREASE PIPING SHOWING ALL CONNECTED FIXTURES. PRESSURE OR VACUUM TEST TO BE WITNESSED BY CITY.

PLACE DURABLE WARNING SIGNS IN ACCESSWAYS: "GREASE INTERCEPTOR-DO NOT ENTER WITHOUT PROPER SAFETY EQUIPMENT"

**GREASE INTERCEPTOR EXAMPLE**  
FOR INFORMATIONAL PURPOSES ONLY

## **GREASE INTERCEPTOR MAINTENANCE AGREEMENT**

This Agreement for maintenance of a wastewater structure is made this \_\_\_\_\_ day of <Month, Year>, by <Property Owner Name>, the owner (the "Owner") of <Legal Description>, Hennepin County, Minnesota (the "Property").

On <Date>, the City Council of the City of Bloomington approved a <Type of Approval (Preliminary and Final Development Plan, Final Site and Building Plan, CUP, etc)> for <development description and location>.

Conditions <X & Y> of the development plan approval required that plans for grading, drainage, utility and erosion control plans be approved by the City Engineer and that grease interceptor facilities be maintained in an effective and functional condition.

The Owner's approved grading, drainage, utility and erosion control plans contemplate in part the installation and operation of pretreatment structure for removal of fats, oil, and grease on the Property.

This Agreement is given to evidence the Owner's promises and representations with respect to the maintenance of that pretreatment structure, in satisfaction of the conditions of the development plan approval.

NOW, THEREFORE, the Owner agrees to:

1. Install on the Property a pretreatment structure for removal of fats, oil, and grease.
2. Inspect and clean said structure continuously to provide satisfactory and effective pretreatment of kitchen wastewater flow. Inspection and maintenance will be performed as recommended by the manufacturer of the grease interceptor.
3. Keep a plan identifying the location of the grease interceptor on the site and a log listing the date of maintenance and condition of the structure at the time of maintenance.
4. Keep a copy of this signed agreement, the grease interceptor manufacturer's operation and maintenance manual, and continuous maintenance records for the previous twelve (12) months on site and available to the City of Bloomington staff for review.

This Agreement shall be binding upon the Owner's successors and assigns.

OWNER:

<OWNER NAME>

\_\_\_\_\_  
By:  
Title:

STATE OF MINNESOTA            )  
  ) ss.  
COUNTY OF \_\_\_\_\_ )

This instrument was acknowledged before me on <Month \_\_\_\_\_, Year> by <Owner's representative>, <Representative's Title> of <Owner>, on behalf of the <limited liability> company.

\_\_\_\_\_  
Notary Public

This Instrument Was Drafted By:  
City of Bloomington (JD)  
1800 West Old Shakopee Road  
Bloomington, MN 55431

# Gravity Grease Interceptor Sizing Calculation Sheet

Name of Project: \_\_\_\_\_ Date: \_\_\_\_\_  
 Project Address: \_\_\_\_\_ Contact Number: \_\_\_\_\_  
 Contact Name: \_\_\_\_\_ Contact E-mail: \_\_\_\_\_

**Step 1: Determine the total number of Drainage Fixture Units (DFUs) for the Food Service Facility. If the fixture is known, use "Fixture" column to determine DFU value. If the fixture is not known or listed, use the "Other Contributors" column to determine DFU value based on trap size or flow, as applicable. Total all DFUs to determine the "Total Drainage Fixture Unit Value" for the facility.**

Drainage Fixture Unit Values (DFU)							
QTY	Fixture	DFU	Total	QTY	Other Contributors	DFU	Total
	Commercial Sink with Food Waste	3			1¼ inch trap and trap arm	1	
	Kitchen Sink	2			1½ inch trap and trap arm	3	
	Bar Sink	2			2 inch trap and trap arm	4	
	Wash Sink	2			3 inch trap and trap arm	6	
	Service or Mop Sink	3			4 inch trap and trap arm	8	
	Food Waste Grinder	3			Flow of 1.0 to 7.5 gpm	1	
	Dishwasher (domestic)	2			Flow of 7.6 to 15 gpm	2	
	Floor Drain	2			Flow of 15.1 to 30 gpm	4	
	Drinking Fountain or Water Cooler	0.5			Flow of 30.1 to 50 gpm	6	

Drainage Fixture Unit Values (DFUs) are derived from the 2015 Uniform Plumbing Code, Tables 702.1, 702.2(a), and 702.2(b).

**Step 2: Select the appropriately sized gravity grease interceptor based on the Total Drainage Fixture Unit Value determined in Step 1. Round up to next size available grease interceptor size (e.g. 45 DFUs would require a 1,250 gallon interceptor).**

Gravity Grease Interceptor Sizing	
DFUs	Interceptor Sizing (gallons)
8	500
21	750
35	1,000
90	1,250
172	1,500
216	2,000
307	2,500
342	3,000
428	4,000
576	5,000
720	7,500
2112	10,000
2640	15,000

Minimum Required Gravity  
Grease Interceptor Size:

1,000 gallons

**Proposed Gravity Grease  
Interceptor Size:** \_\_\_\_\_

**gallons**

If an FSE demonstrates to the satisfaction of the Utilities Division that installation of a gravity grease interceptor is not feasible, the Utility Division may grant an exception allowing such owner to install Hydromechanical grease interceptor, and adequately control the City's requirements for Fats Oils and Grease Policy for the discharge of FOG from the FSE or the structure into the wastewater system. It should also be noted that; the FSE bears the burden of demonstrating that the installation of a grease interceptor is not feasible.

Minimum Hydromechanical  
Grease Interceptor Size:

GB 250 gallons

**Proposed Hydromechanical  
Grease Interceptor Size:** \_\_\_\_\_

**gallons**

Gravity Grease Interceptor Sizing derived from the 2015 Uniform Plumbing Code, Table 1014.3.6 and is based on a 30-minute retention time.