

GREASE, OIL, AND SAND INTERCEPTORS

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5.01 GENERAL

Section 14.11.070 (C) (3) of the **Greeley Pretreatment Ordinance** prohibits solid or viscous substances in amounts that will obstruct the flow in the POTW, hinder POTW operations, or cause POTW Interference. **Section 14.11.070 (C) (4)** of the **Greeley Pretreatment Ordinance** states wastewaters containing sand or other inorganic particulate matter that will result in a settleable solids concentration greater than 25 milliliters per liter in the User's Discharge are prohibited. **Section 14.11.070 (C) (18)** of the **Greeley Pretreatment Ordinance** states Fats, oils, or greases of animal or vegetable origin in concentrations that cause blockages, flow obstructions, or Interference are prohibited. **Section 14.11.170 (C)** of the **Greeley Pretreatment Ordinance** requires grease, oil and sand interceptors when they are necessary for the proper handling of wastewater containing excessive amounts of grease, oil and sand and also requires that the User shall inspect, clean, maintain, and repair as needed, all interceptors at its expense. The User shall make available for inspection by the Director all cleaning and maintenance records for a minimum of three years.

These requirements are necessary to protect the environment and public health by preventing blockages in the public sanitary sewer system which may result in sanitary sewage overflows into the storm sewer system, and localized flooding of residential or commercial customer basements. All grease, oil and sand interceptor design shall be in accordance with the requirements of this section and the City of Greeley Standard Construction Specifications for Sanitary Sewer Construction.

5.02 DEFINITIONS AND ABBREVIATIONS

5.02.01 Domestic Waste

5.02.01.01 Liquid wastes from the non-commercial preparation, cooking and handling of food; and liquid wastes containing human excrement and similar matter from the sanitary conveyances of dwellings commercial buildings, industrial facilities, and institutions.

5.02.02 Fats, Oil and Grease

5.02.02.01 Any of various lipid based compounds composed of carbohydrates and proteins and that are derived from the living cells of animal or vegetable matter.

- 5.02.03 Food Service Establishment
 - 5.02.03.01 A commercial kitchen, restaurant, food processing facility, hospital, school, church, fraternal organization, daycare center or any other facility where liquid wastes containing fats, oil and grease of vegetable or animal origin are discharged directly or indirectly to the City's public sanitary sewer system. Residential dwellings are not included.
- 5.02.04 Grease Interceptor
 - 5.02.04.01 An interceptor of at least 600 gallon capacity to serve one or more fixtures, and which shall be remotely located.
- 5.02.05 Grease Trap
 - 5.02.05.01 A device designed to retain grease from one to a maximum of four fixtures.
- 5.02.06 Industrial waste
 - 5.02.06.01 Any and all liquid or waterborne waste from industrial or commercial processes, except domestic sewage
- 5.02.07 Interceptor
 - 5.02.07.01 A device designed and installed so as to separate and retain deleterious, hazardous, or undesirable matter from normal wastes and permit normal sewage or liquid wastes to discharge into the outlet terminal by gravity.
- 5.02.08 Liquid wastes
 - 5.02.08.01 The discharge from any fixture, appliance, or appurtenance in connection with a plumbing system that does not receive fecal matter.
- 5.02.09 Transportation Service Establishment

5.02.09.01 An automotive, truck, or heavy machinery repair and/or maintenance shop, car or truck wash, truck terminal, commercial or industrial transportation equipment manufacturing or maintenance facilities that have tanks, wash racks or any other sand and oily liquid waste discharges indirectly or directly to the City's public sanitary sewer system.

5.02.10 Waste Hauler

5.02.10.01 The person that transports and disposes of grease interceptor wastes, and or industrial wastes

5.02.11 Abbreviations

5.02.11.01 FOG Fats, Oils and Grease

5.02.11.02 UPC Uniform Plumbing Code

5.03 APPLICABILITY

5.03.01 Fats, Oils and Grease

5.03.01.01 Grease interceptors are required for all food service establishments that contribute fats, oil and greases to the public sanitary sewer system.

5.03.01.02 Grease traps and alternative grease removal devices are prohibited for new food service establishments, except for those facilities where:

5.03.01.02.01 Inadequate space is available for the installation of a grease interceptor, and approval from the City is received.

5.03.01.02.02 Interior grease traps or alternative removal devices servicing grease removal devices servicing grease discharge points such as the primary pot-washing sinks, the pre-rinse sink at dishwashing, the wok range station or the wet-type ventilation canopy in the cooking area, are used as inside isolation and containment devices to supplement a grease interceptor that is located outside.

- 5.03.01.03 Food service establishments that are newly proposed or constructed, or existing facilities that will be expanded or renovated to include a food service establishment, where such facility did not exist, are required to install, operate and maintain an approved grease interceptor or grease trap. Grease interceptors or grease traps must be installed prior to issuance of a certificate of occupancy.
- 5.03.01.04 Food service establishments existing within the City prior to the effective date of this policy are not required to upgrade or replace their existing grease interceptors or grease traps provided their grease interceptors or grease traps are in effective operating condition.
- 5.03.01.05 Existing undersized, inoperable, or defective grease interceptors or grease traps may be required to be replaced, or repaired.
- 5.03.01.06 Existing food service facilities that do not have a grease interceptor or grease trap will be required to install, operate and maintain a new grease interceptor when one or more of the following conditions exist:
 - 5.03.01.06.01 The food service establishment is found to be contributing fats, oils and greases in quantities sufficient to hinder the natural flow of wastewater in the public sanitary sewer, or necessitate increased maintenance on the wastewater collection system.
 - 5.03.01.06.02 Remodeling of the food preparation or kitchen waste plumbing system is performed which requires a building permit to be issued by the City of Greeley.
 - 5.03.01.06.03 The existing facility is sold or undergoes a change of ownership.
- 5.03.01.07 Alternate grease removal devices and technologies shall be subject to written approval by the City.

Approval of the device shall be based on demonstrated (proven) removal efficiencies and reliability of operation. The City shall approve these devices depending on manufacturer's specifications on a case-by-case basis.

5.03.02 Sand and Oil

5.03.02.01 Sand and oil interceptors or traps are required for all transportation service establishments that contribute sand and oil to the public sanitary sewer system.

5.03.02.02 Transportation service establishments that are newly proposed or constructed, or existing facilities that will be expanded or renovated to include a transportation service establishment, where such facility did not exist, are required to install, operate and maintain an approved sand and oil interceptor. Sand and oil interceptors must be installed prior to issuance of a certificate of occupancy.

5.03.02.03 Transportation service establishments existing within the City prior to the effective date of this policy are not required to upgrade or replace their existing sand and oil interceptors provided their sand and oil interceptors are in effective operating condition.

5.03.02.04 Existing undersized, inoperable, or defective sand and oil interceptors may be required to be replaced, repaired or added.

5.03.02.05 Existing transportation service facilities that do not have a sand and oil interceptor will be required to install, operate and maintain a new sand and oil interceptor when one or more of the following conditions exist:

5.03.02.05.01 The transportation service establishment is found to be contributing sand, and oils in quantities sufficient to hinder the natural flow of wastewater in the public sanitary sewer, necessitate increased maintenance on the

wastewater collection system, or interfere with treatment processes.

5.03.02.05.02 Remodeling of the transportation facility plumbing system is performed which requires a building permit to be issued by the City Of Greeley.

5.03.02.05.03 The existing facility is sold or undergoes a change of ownership.

5.04 DESIGN CRITERIA

5.04.01 Grease Traps

5.04.01.01 Grease traps shall be designed, constructed and installed in accordance with the UPC standards.

5.04.01.02 Grease traps shall not receive liquid waste from a dishwasher, or a waste disposal unit (garbage disposal, grinder, ect).

5.04.01.03 Grease traps shall be installed in strict accordance with the manufacturer's instructions. Grease traps shall be equipped with a cover and a mechanism for secure closure.

5.04.01.04 Grease traps shall be installed such that they are easily accessible for inspection, cleaning and removal of FOG and solid material.

5.04.01.05 The edge of the grease trap shall be flush with the edge of an overhead obstruction. The overhead clearance shall be at least equal to the overall depth of the grease trap.

5.04.02.06 Flow control devices shall be required where the water flow through the trap may exceed its rated flow.

5.04.02 Grease Interceptors

5.04.02.01 Grease interceptors shall be designed, constructed and installed in accordance with the UPC standards

- 5.04.02.02 Grease interceptors must capture liquid waste from dishwashers, pre-rinse/pre-wash sinks or sinks in dishwashing areas, compartment sinks, wok stoves, self cleaning ventilation hoods, kitchen floor drains, floor sinks, mop sinks, food prep sinks, and hand sinks.
- 5.04.02.03 Grease interceptors shall have a minimum of two compartments with fittings designed for grease retention.
- 5.04.02.04 Grease interceptors shall have a manhole for each compartment to provide access for cleaning all areas of the interceptor. Manhole covers shall be gas tight in construction having a minimum opening dimension of 20 inches
- 5.04.02.05 In areas where vehicle traffic may exist the interceptor shall be designed for adequate load bearing capacity.
- 5.04.02.06 Grease interceptors shall be installed such that they are easily accessible for inspection, cleaning and removal of FOG and solid material.
- 5.04.02.07 A grease interceptor may not be installed in any part of a building where food is handled.
- 5.04.02.08 Each food service establishment for which a grease interceptor is required shall have a separate interceptor to serve only that establishment.
- 5.04.02.09 Flow control devices shall be required where the water flow through the interceptor may exceed its rated flow.

5.04.03 Sand and Oil Interceptors

- 5.04.03.01 Sand and oil interceptors shall be designed constructed and installed in accordance with the UPC standards.
- 5.04.03.02 Sand and oil interceptors shall have a manhole for each compartment to provide access for cleaning all areas of the interceptor. Manhole covers shall be

gas tight in construction having a minimum opening dimension of 20 inches.

5.04.03.03 In areas where vehicle traffic may exist the interceptor shall be designed for adequate load bearing capacity.

5.04.03.04 Sand and oil interceptors shall be installed such that they are easily accessible for inspection, cleaning and removal of FOG and solid material.

5.05 SIZING CRITERIA

5.05.01 Grease Traps

5.05.01.01 Grease traps shall be sized as required by Appendix H of the 1997 Uniform Plumbing Code.

5.05.02 Grease Interceptors

5.05.02.01 Grease interceptors shall be sized as required by Appendix H of the 1997 Uniform Plumbing Code.

5.05.03 Sand and Oil Interceptors

5.05.03.01 Sand and Oil Interceptors shall be sized as required by Appendix H of the 1997 Uniform Plumbing Code.

5.06 MAINTENANCE FREQUENCY

5.06.01 Grease Traps:

5.06.01.01 The maintenance frequency of small grease traps depends on business/management practices, size and wastestream characteristics. Typically, manufacturer design specifications list a material storage capacity (usually in pounds). This capacity represents when 25% of the overall liquid depth consists of fats, oil or grease **and** settled solids. The range of maintenance frequency could be daily to weekly.

5.06.02 Grease Interceptors

5.06.02.01 The maintenance frequency of grease interceptors depends on business/management practices, size and wastestream characteristics. Typically, manufacturer design specifications list a material storage capacity. This capacity represents when 25% of the overall liquid depth consists of fats, oil or grease **and** settled solids. The range of maintenance frequency could be weekly to semiannually.

5.06.03 Sand and Oil Interceptors

5.06.03.01 The maintenance frequency of sand and oil interceptors depends on business/management practices, size and wastestream characteristics. Typically, manufacturer design specifications list a material storage capacity. This capacity represents when 25% of the overall liquid depth consists of either floating oil **and** settled solids. The range of maintenance frequency could be monthly to annually.

5.07 MAINTENANCE PROCEDURES

5.07.01 Grease Traps

5.07.01.01 Grease trap maintenance performed by a liquid waste hauler consists of removing the FOG, solids and water from the trap and properly disposing of the material in accordance with all Federal, State and local laws.

5.07.01.02 Grease trap maintenance includes evacuating the entire contents in the following manner:

5.07.01.02.01 Evacuate floatable FOG material;

5.07.01.02.02 Evacuate settled solids;

5.07.01.02.03 Evacuate remaining FOG/solids and water (i.e. pump in full).

5.07.01.03 Skimming of grease trap FOG may be approved on a case-by-case basis if the food service establishment is in full compliance with this policy

and is incorporating effective, reliable solids handling and management.

5.07.01.04 The food service establishment may perform self maintenance provided that proper on-site waste material storage and disposal of the material is conducted in accordance with all Federal, State and local laws.

5.07.01.05 Introducing emulsifying agents, solvents or enzymes either directly or indirectly into a grease trap is strictly prohibited. Bioremediation may be used in addition to a regular maintenance program provided that grease does not pass through the trap and cause blockages in the public sanitary sewer system.

5.07.02 Grease Interceptors

5.07.02.01 Grease interceptor maintenance performed by a liquid waste hauler consists of removing the FOG, solids and water from the interceptor and properly disposing of the material in accordance with all Federal, State and local laws.

5.07.02.02 Grease interceptor maintenance includes evacuating the entire contents in the following manner:

5.07.02.02.01 Evacuate floatable FOG material;

5.07.02.02.02 Evacuate settled solids;

5.07.02.02.03 Remove and scrape baffles/baffle slots, scrape interior walls

5.07.02.02.04 Evacuate remaining FOG/solids and water (i.e. pump in full).

5.07.02.02.05 Reinstall all grease interceptor components removed during the cleaning process

5.07.02.03 Skimming of grease interceptor FOG may be approved on a case-by-case basis if the food service establishment is in full compliance with this policy

and is incorporating effective, reliable solids handling and management.

5.07.02.04 The food service establishment is liable for the condition of its pretreatment devices. A food service establishment representative should witness all cleaning/maintenance activities to ensure that grease interceptor is properly serviced.

5.07.02.05 Introducing emulsifying agents, solvents or enzymes either directly or indirectly into a grease trap is strictly prohibited. Bioremediation may be used in addition to a regular maintenance program provided that grease does not pass through the trap and cause blockages in the public sanitary sewer system.

5.07.03 Sand and Oil Interceptors

5.07.03.01 Sand and oil interceptor maintenance performed by a liquid waste hauler consists of removing the oil, solids and water from the trap and properly disposing of the material in accordance with all Federal, State and local laws.

5.08 RECORD KEEPING

5.08.01 Grease Traps

5.08.01.01 Grease Trap maintenance records must be retained on site by the food service facility for a minimum of three years.

5.08.01.02 A grease trap maintenance log must be maintained for each device. The maintenance log shall include:

5.08.01.02.01 Grease trap location and volume

5.08.01.02.02 Maintenance date

5.08.01.02.03 Volume removed (gallons)

5.08.01.02.04 Name, address, phone number of Company and person performing maintenance.

5.08.01.02.05 Disposal methods

5.08.02 Grease Interceptors

5.08.02.01 Grease interceptor maintenance records must be retained on site by the food service facility for a minimum of three years.

5.08.02.02 A grease interceptor maintenance log must be maintained for each device. The maintenance log shall include:

5.08.02.02.01 Grease interceptor location and volume

5.08.02.02.02 Maintenance date

5.08.02.02.03 Volume removed (gallons)

5.08.02.02.04 Name, address, phone number of Company and person performing maintenance.

5.08.02.02.05 Disposal methods

5.08.03 Sand and Oil Interceptors

5.08.03.01 Sand and oil interceptor maintenance records must be retained on site by the transportation service facility for a minimum of three years.

5.08.03.02 A sand and oil interceptor maintenance log must be maintained for each device. The maintenance log shall include:

5.08.03.02.01 Sand and oil interceptor location and volume

5.08.03.02.02 Maintenance date

5.08.03.02.03 Volume removed (gallons)

5.08.03.02.04 Name of Company and person performing maintenance

5.08.03.02.05 Disposal methods

5.09 ENFORCEMENT

5.09.01 Enforcement remedies

5.09.01.01 Any person violating sections 14.12.250 (b)(13) or 14.12.344 of the Sewer Use Ordinance will be issued any of the enforcement remedies as outlined in section 14.12.432.

SECTION 2733

GREASE INTERCEPTORS

PART 1 – GENERAL

1.1 SCOPE

- A. This section addresses grease interceptors and includes the acceptable materials, and construction practices that may be used in the construction and installation of grease interceptors
- B. Grease interceptors shall be designed to remove grease from food service establishment wastewater. Grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor.

1.2 QUALITY ASSURANCE

- A. Standards (as applicable)
 - 1. ASTM A185-85, Specification for Steel Welded Wire Fabric, Plain, latest revision.
 - 2. ASTM A 615, Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement, latest revision.
 - 3. ASTM C 150, Standard Specification for Portland Cement, latest revision.
 - 4. ASTM C 260-86, Specification for air entraining Admixtures for concrete.
 - 5. ASTM C 33-86, Specification for Concrete Aggregates.
 - 6. ASTM C 94-86, Specification for Ready Mix Concrete.
 - 7. ASTM C 618-85, Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Grease interceptors shall be handled, stored, and protected in such a manner as to prevent damage to materials.

PART 2 – PRODUCTS

2.1 PRECAST INTERCEPTORS

- A. Precast interceptors shall be manufactured in accordance with this Section.

2.2 MORTAR

- A. Mortar shall be Sand-Cement grout, using the following ratio of ingredients:
1. One part Portland Cement; Conforming to ASTM C150, Type I/II.
 2. Two parts sand; conforming to ASTM C144.
 3. One-half part hydrated lime; conforming to ASTM C207, Type S.

2.3 GROUT

- A. Grout shall be one of the following:
1. Pre-mixed nonmetallic grout; the acceptable types and manufacturers of which are listed below:
 - a. Master Builders; “Embeco Mortar”.
 - b. Sonneborn; “Ferrolith G-D.S. Redi-Mixed”.
 - c. Or approved equivalent
 2. Job mixed grout, using the following ratio of ingredients:
 - a. One part Portland cement; conforming to ASTM C207, Type I/II.

- b. One part sand; conforming to ASTM C144.
- c. One part shrinkage correcting aggregate; the acceptable types and manufacturers are:
 - 1. Master Builders; “Embeco Aggregate”.
 - 2. Sonneborn; “Ferrolith G-D.S”.
 - 3. Or approved equivalent.

2.4 PIPE SEAL

- A. All inlet, outlet, and vent pipes shall be sealed using the following products:
 - 1. Four inch inlet and outlet pipes:
 - a. PSI; “Link-Seal, Model No. LS-300”, 10 links.
 - b. stainless steel bolts.
 - c. Six inch cored hole
 - 2. Two inch vent pipe(s):
 - a. PSI; “Link-Seal, Model No. LS-300”, 6 links.
 - b. stainless steel bolts.
 - c. four inch cored hole

PART 3-EXECUTION

3.1 DIMENSIONS AND TOLERANCES

- A. Grease interceptors shall have two compartments. The inlet compartment shall be two-thirds ($2/3$) of the total capacity of the interceptor, shall have a minimum liquid capacity of 600 gallons and in all cases shall be longer than the maximum inside width of the interceptor. The outlet compartment shall have a minimum capacity of one-third ($1/3$) of the total interceptor capacity. The

liquid depth shall not be less than two feet six inches (2'6") nor more than six feet (6').

- B. All grease interceptors shall have at least one square foot of surface area for every 45 gallons of liquid capacity.
- C. Access to each grease interceptor shall be provided by a manhole over the inlet and a manhole over the outlet. There shall also be an access manhole for each ten feet of length for interceptors over 20 feet long. Each such access opening shall have a leak resistant closure that cannot slide, rotate or flip, exposing the opening when properly installed and which does not require the use of mechanical fasteners. Manholes shall extend to grade, have a minimum size of 20" diameter or 20" x 20" square, and shall have a gasketed cover at grade
- D. The inlet and outlet shall have a baffle tee or similar flow device with a minimum cross sectional area equal to the required cross sectional area of the inlet. Each baffle shall extend from at least four inches above the liquid level to within 12 inches of the inside floor of the interceptor.
- E. Adequate partitions or baffles of sound durable material shall be constructed between compartments of the grease interceptor and shall extend at least six inches above the liquid level. Flow from inlet compartment to outlet compartment shall be through a 12 inch gap between the baffle and the inside floor. Wooden baffles are prohibited.
- F. Inlet, outlet and main baffles shall have a free vent area equal to the required cross sectional area of inlet pipe.
- G. The inside cover of the grease interceptor shall be a minimum of nine inches above the liquid level over the entire surface area of the interceptor. The airspace shall have a minimum capacity equal to 12-1/2% of the grease interceptor's liquid volume.

3.2

STRUCTURAL REQUIREMENTS

- A. Grease interceptors and covers shall be designed for an earth load of not less than 500 pounds per square foot when the maximum coverage does not exceed three feet. Each interceptor and cover shall be structurally designed to withstand all anticipated earth or other loads and to be installed level and on solid bed. Wood covers are prohibited. Grease interceptors in traffic areas shall be

designed to withstand an AASHTO H20-44 wheel load, an additional three foot earth load with an assumed soil weight of 100 pound per square foot and thirty pounds per square foot fluid equivalent sidewall pressure.

- B. Independent laboratory tests and engineering calculations certifying the grease interceptor capacity and structural stability shall be provided.

3.3

MATERIAL REQUIREMENTS

- A. Concrete shall have a minimum compressive strength of 4000 pounds per square inch, and shall be made with type II/V low-alkali portland cement conforming to ASTM C 150. Concrete shall have a maximum water/cementing materials ratio of six gallons/sack of cement. Complying with the following ASTM designations: ASTM C 260-86, Specification for air entraining Admixtures for concrete; ASTM C 33-86, Specification for Concrete Aggregates; ASTM C 94-86, Specification for Ready Mix Concrete; ASTM C 618-85, Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement.
- B. Walls shall have a thickness of at least three inches, except where engineering analysis and production methods can justify a lesser thickness.
- C. The minimum area of steel reinforcement (in both directions) of the structural elements shall be 0.0015 times the gross cross-sectional area of the reinforced section, if of bars; and not less than three-fourths as much if of welded wire fabric. All reinforcement shall be protected with a minimum of one inch of concrete and shall comply with ASTM A 185-85, Specification for Steel Welded Wire Fabric, Plain for Concrete Reinforcement and ASTM A 615, Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement. Tanks shall be of sufficient strength to resist stresses caused during handling and installation without structural cracking.
- D. If repairs are necessary, they shall be carried out in accordance with the established practices of the manufacturer in a manner that insures that the repaired interceptor meets the requirements of this section.

3.4 WATER TIGHT TESTING

- A. A sampling from each manufacturer's production run shall be water tested. One sample should be tested for each size interceptor manufactured. Sample interceptors shall be assembled per manufacturer's instructions, set level, and water raised to the flow-line of the outlet fitting. Interceptors shall show no sign of leakage from any seams, pinholes, or other imperfections. Any leakage is cause for rejection. When leakage occurs additional water testing shall be made from new samples after correcting measures in production or installation have been completed. Test reports shall show total number of interceptors tested, number passing, number failing, location and cause of leakage. When leakage occurs corrective actions taken shall be reported.

3.5 MARKING AND IDENTIFICATION

- A. Grease interceptors shall be permanently and legibly marked with the following:
 - 1) Manufacturer's name of trademark;
 - 2) Model number;
 - 3) Products listed by IAPMO that are covered by this section shall be marked the the UPC certification mark with registration to show compliance with the UPC.
 - 4) Any other marking required by law.

3.6 EFFLUENT SAMPLING

- A. An effluent sampling box on grease interceptors may be required by the City Of Greeley.

3.7 PREPARATION

- A. Reference section 02221, Trenching, Backfilling. and Compaction

3.8

ABANDONED GREASE INTERCEPTORS

- A. Abandoned grease interceptors shall be pumped and filled as required for abandoned sewers and sewage disposal facilities.

3.9

DRAWINGS AND DETAILS

- A. Reference City Standard Drawings

SECTION 2734

SAND AND OIL INTERCEPTORS

PART 1 – GENERAL

1.1 SCOPE

- A. This section addresses sand and oil interceptors and includes the acceptable materials, and construction practices that may be used in the construction and installation of sand and oil interceptors
- B. Sand and oil interceptors shall be designed to remove sand, garbage, grease, oil and flammable wastes from transportation service establishment wastewater. Sand and oil interceptors shall also be designed to retain sand, garbage, grease, oil and flammable wastes until accumulations can be removed by pumping the interceptor.

1.2 QUALITY ASSURANCE

- A. Standards (as applicable)
 - 1. ASTM A185-85, Specification for Steel Welded Wire Fabric, Plain, latest revision.
 - 2. ASTM A 615, Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement, latest revision.
 - 3. ASTM C 150, Standard Specification for Portland Cement, latest revision.
 - 4. ASTM C 260-86, Specification for air entraining Admixtures for concrete.
 - 5. ASTM C 33-86, Specification for Concrete Aggregates.
 - 6. ASTM C 94-86, Specification for Ready Mix Concrete.
 - 7. ASTM C 618-85, Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Sand and oil interceptors shall be handled, stored, and protected in such manner as to prevent damage to materials.

PART 2 – PRODUCTS

2.1 PRECAST INTERCEPTORS

- A. Precast interceptors shall be manufactured in accordance with this Section.

2.2 MORTAR

- A. Mortar shall be Sand-Cement grout, using the following ratio of ingredients:
 - 1. One part Portland Cement; Conforming to ASTM C150, Type I/II.
 - 2. Two parts sand; conforming to ASTM C144.
 - 3. One-half part hydrated lime; conforming to ASTM C207, Type S.

2.3 GROUT

- A. Grout shall be one of the following:
 - 1. Pre-mixed nonmetallic grout; the acceptable types and manufacturers of which are listed below:
 - a. Master Builders; “Embeco Mortar”.
 - b. Sonneborn; “Ferrolith G-D.S. Redi-Mixed”.
 - c. Or approved equivalent
 - 2. Job mixed grout, using the following ratio of ingredients:
 - A. One part Portland cement; conforming to ASTM C207, Type I/II.

- B. One part sand; conforming to ASTM C144.
- C. One part shrinkage correcting aggregate; the acceptable types and manufacturers are:
 - 1. Master Builders; “Embeco Aggregate”.
 - 2. Sonneborn; “Ferrolith G-D.S”.
 - 3. Or approved equivalent.

2.4 PIPE SEAL

- A. All inlet, outlet, and vent pipes shall be sealed using the following products:
 - 1. Four inch inlet and outlet pipes:
 - a. PSI; “Link-Seal, Model No. LS-300”, 10 links.
 - b. stainless steel bolts.
 - c. Six inch cored hole
 - 2. Two inch vent pipe(s):
 - a. PSI; “Link-Seal, Model No. LS-300”, 6 links.
 - b. stainless steel bolts.
 - c. four inch cored hole

PART 3-EXECUTION

3.1 DIMENSIONS AND TOLERANCES

- A. Sand and oil interceptors shall have two compartments. The interceptor shall have an interior baffle for full separation of the interceptor. For each five gallons per minute flow or fraction thereof over 20 gallons per minute, the area of the sand and oil interceptor inlet section is to be increased by one square foot.

- B. All sand and oil interceptors shall have a minimum dimension of two square feet for the net free opening of the inlet section and a minimum depth under the invert of the outlet pipe of two feet.
- C. Access to each sand and oil interceptor shall be provided by a manhole over the inlet and a manhole over the outlet. There shall also be an access manhole for each ten feet of length for interceptors over 20 feet long. Each such access opening shall have a leak resistant closure that cannot slide, rotate or flip, exposing the opening when properly installed and which does not require the use of mechanical fasteners. Manholes shall extend to grade, have a minimum size of 20" diameter or 20" x 20" square, and shall have a gasketed cover at grade
- D. The inlet and outlet pipes shall be the same size shall have a baffle tee or similar flow device
- E. Adequate partitions or baffles of sound durable material shall be constructed between compartments of the sand and oil interceptor and shall extend at least six inches above the liquid level. Flow from the inlet compartment to the outlet compartment shall be through two four inch diameter openings in the baffle at the same invert as the outlet pipe. The openings shall be staggered so that there cannot be a straight line of flow between the inlet pipe and the outlet pipe. Wooden baffles are prohibited.
- F. Inlet ,outlet and main baffles shall have a free vent area equal to the required cross sectional area of inlet pipe.
- G. The inside cover of the sand and oil interceptor shall be a minimum of nine inches above the liquid level over the entire surface area of the interceptor. The airspace shall have a minimum capacity equal to 12-1/2% of the sand and oil interceptor's liquid volume.

3.2 STRUCTURAL REQUIREMENTS

- A. Sand and oil interceptors and covers shall be designed for an earth load of not less than 500 pounds per square foot when the maximum coverage does not exceed three feet. Each interceptor and cover shall be structurally designed to withstand all anticipated earth or other loads and to be installed level and on solid bed. Wood covers are prohibited. Sand and oil interceptors in traffic areas shall be designed to withstand an AASHTO H20-44 wheel load, an additional three foot earth load with an assumed soil

weight of 100 pound per square foot and thirty pounds per square foot fluid equivalent sidewall pressure.

- B. Independent laboratory tests and engineering calculations certifying the Sand and oil interceptor capacity and structural stability shall be provided.

3.3

MATERIAL REQUIREMENTS

- A. Concrete shall have a minimum compressive strength of 4000 pounds per square inch, and shall be made with type II/V low-alkali portland cement conforming to ASTM C 150. Concrete shall have a maximum water/cementing materials ratio of six gallons/sack of cement. Complying with the following ASTM designations: ASTM C 260-86, Specification for air entraining Admixtures for concrete; ASTM C 33-86, Specification for Concrete Aggregates; ASTM C 94-86, Specification for Ready Mix Concrete; ASTM C 618-85, Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement.
- B. Walls shall have a thickness of at least three inches, except where engineering analysis and production methods can justify a lesser thickness.
- C. The minimum area of steel reinforcement (in both directions) of the structural elements shall be 0.0015 times the gross cross-sectional area of the reinforced section, if of bars; and not less than three-fourths as much if of welded wire fabric. All reinforcement shall be protected with a minimum of one inch of concrete and shall comply with ASTM A 185-85, Specification for Steel Welded Wire Fabric, Plain for Concrete Reinforcement and ASTM A 615, Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement. Tanks shall be of sufficient strength to resist stresses caused during handling and installation without structural cracking.
- D. If repairs are necessary, they shall be carried out in accordance with the established practices of the manufacturer in a manner that insures that the repaired interceptor meets the requirements of this section.

3.4 WATER TIGHT TESTING

- A. A sampling from each manufacturer's production run shall be water tested. One sample should be tested for each size interceptor manufactured. Sample interceptors shall be assembled per manufacturer's instructions, set level, and water raised to the flow-line of the outlet fitting. Interceptors shall show no sign of leakage from any seams, pinholes, or other imperfections. Any leakage is cause for rejection. When leakage occurs additional water testing shall be made from new samples after correcting measures in production or installation have been completed. Test reports shall show total number of interceptors tested, number passing, number failing, location and cause of leakage. When leakage occurs corrective actions taken shall be reported.

3.5 MARKING AND IDENTIFICATION

- A. Sand and oil interceptors shall be permanently and legibly marked with the following:
 - 5) Manufacturer's name of trademark;
 - 6) Model number;
 - 7) Products listed by IAPMO that are covered by this section shall be marked the the UPC certification mark with registration to show compliance with the UPC.
 - 8) Any other marking required by law.

3.6 EFFLUENT SAMPLING

- A. An effluent sampling box on sand and oil interceptors may be required by the City Of Greeley.

3.7 PREPARATION

- A. Reference section 02221, Trenching, Backfilling. and Compaction

3.8

ABANDONED SAND AND OIL INTERCEPTORS

- A. Abandoned sand and oil interceptors shall be pumped and filled as required for abandoned sewers and sewage disposal facilities.

3.9

DRAWINGS AND DETAILS

- A. Reference City Standard Drawings

May 1, 2002