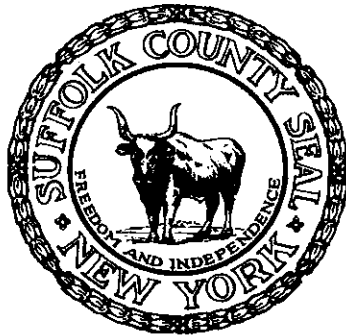


SUFFOLK COUNTY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SANITATION
INDUSTRIAL WASTE UNIT

PRETREATMENT UNIT DESIGN GUIDELINES



June 2010
Replaces August 1999 Edition

PRETREATMENT UNIT DESIGN GUIDELINES

INTRODUCTION

This booklet contains details and specifications for sewer access ports, and various types of pretreatment units to receive objectionable materials, before discharging wastewater to County sewers.

In certain circumstances, an engineering report will be required to document design criteria and proposed pretreatment. Applicant will usually be advised of this requirement upon the Industrial Waste Unit initial review of the submitted permit application.

You may call (631) 852-4160 with any questions regarding the information contained in these specifications.

Mention of trade names or commercial products does not constitute endorsement or recommendation for use. Specific application of products or technologies will be reviewed for each facility.



PRETREATMENT UNIT & SEWER ACCESS PORT DESIGN GUIDELINES

These guidelines have been prepared to provide engineers, contractors, and applicants for Special Permits with pretreatment unit and sewer access port design specifications. Any questions should be directed to the Suffolk County Department of Public Works, Industrial Waste Unit, 335 Yaphank Avenue, Yaphank, NY 11980 or by telephone (631) 852-4160.

I. SEWER ACCESS PORT-EXTERIOR

When deemed appropriate, by Department of Public Works, Division of Sanitation, an exterior sewer access port for waste strength surcharge sampling and/or surveillance of industrial/commercial waste discharges must be provided as required under the provisions of the Suffolk County Code Chapter 424 – “Sewers” in a location approved by the Department of Public Works, Division of Sanitation. Minimum size acceptable is 2 feet by 2 feet or 2 feet in diameter up to 4 feet deep. 4 feet by 4 feet if depth exceeds 4 feet. See Figures No. 1, 1A, 1B, & 1C for details.

II. GREASE TRAP REQUIREMENTS

1. General

All restaurants and/or food preparation establishments are required to install a grease trap for the kitchen or food preparation area. A grease trap is considered part of the equipment necessary to obtain a permit to operate a food establishment pursuant to Article 13 of the Suffolk County Sanitary Code. Grease traps should be cleaned and maintained on a regular basis in order to ensure proper functioning and overall performance.

2. Location

Grease traps shall be located below grade and outside the building preceding the sewer line. Only discharges from the kitchen or food preparation areas may be piped to grease traps. Grease traps shall be located in areas that are easily accessible for routine inspection, maintenance, and servicing.

3. Design Capacity/Configuration

The required capacity of grease traps shall be based on the kitchen design flow for a one day period: Less than 2,000 gallons per day requires an 8 ft. diameter -- 5 ft. minimum liquid depth; 2,000 to 3,000 gallons per day requires a 10 ft. diameter -- 5 ft. minimum liquid depth. The kitchen design flow can be calculated as follows:

Structure Use	Kitchen/Gray Load
Bar (in restaurant)	5 gpd/seat
Bar, Tavern, Disco (no fixed seating)	5 gpd/occupant ¹
Cafeteria (open to public)	2.5 gpd/seat
Cafeteria (not open to public)	2.5 gpd/seat
Catering Hall	2.5 gpd/seat
Outside Patio Dining	10 gpd/seat
Restaurant (full service or single services >16 seats) ²	20 gpd/seat
Wet store w/food (Deli/take-out with max 16 seats single service) ²	0.12 gpd/sf
Convenience store/Market	0.02 gpd/sf

1. Occupancy ratings can be determined using New York State Uniform Fire Prevention and Building Code-Table VII-765 as a guide.
2. Single Service means disposable plates, silverware & cups. Takeout seating is for waiting patrons and is not convertible to full seating at full service restaurants.

All grease traps shall be cylindrical with a minimum size of 1,800 gallons and meet the following criteria:

- a) **Single Unit Grease Trap**
 - i. The minimum outside diameter cylindrical grease trap shall be 8 feet and the maximum outside diameter shall be 10 feet.
 - ii. The liquid depth shall be a minimum of 5 feet and shall not exceed 7 feet depending upon diameter.
- b) **Multiple Unit Grease Trap**
 - i. The outside diameter cylindrical grease trap shall be 10 feet.
 - ii. The liquid working depth shall be a minimum of 5 feet and shall not exceed 7 feet depending upon diameter
 - iii. each unit shall have the same diameter.
 - iv. Units shall be connected in series by utilizing one 6 inch diameter drop tee pipe.

- v. There shall be a 6 inch drop between the inlet and outlet pipes of each unit. Each succeeding unit shall have a liquid depth of 6 inches less than the preceding unit.

4. Design and Construction Details – See Figure 2

- a) All grease trap components (i.e. slabs, domes, covers, etc.) shall be constructed of precast reinforced concrete and designed to be traffic bearing to meet the requirements of AASHTO H-20 loading.
- b) All units shall be provided with two openings with a minimum diameter of 20 inches positioned over the inlet and outlet pipes. A traffic-bearing watertight cast iron frame and cover shall be installed at grade over each opening.
- c) Extension Collars (chimneys) may be used for the purpose of bringing the cast iron covers to grade provided that they are firmly affixed in place. The extension collar (chimney) shall be of reinforced precast concrete at least 24 inches in diameter and shall not exceed 12 inches in height.
- d) The top slab or dome of the grease trap shall be located a maximum of 1.5 feet below grade.
- e) There shall be a minimum 1 foot air space measured from the outlet invert(s) to the bottom of the grease trap top slab or dome.
- f) The sidewalls and bottom slab of all units shall be monolithically cast.
- g) The outlet pipe(s) from each grease trap unit to the sewer main shall be a minimum of 6 inches in diameter. Each outlet shall be provided with a 6 inch diameter drop tee extending to 1 foot above the bottom of the tank and extend 1 foot above flow line. The outlet(s) shall be braced as required and located at the maximum distance (180°) from the inlet and beneath the second cover opening.
- h) All sewer pipes shall penetrate the vertical sidewall of the grease trap(s) and shall be sealed with flexible watertight boots, Kor-n-seal or equal. There shall be no penetrations within domes.
- i) Whenever practical, grease traps shall not be located in groundwater. For installations that are placed in groundwater, the department of Public Works, Division of Sanitation, may require, at its discretion, that the grease traps be waterproofed up to 18 inches above the highest recorded groundwater elevation and leak tested to ensure tightness prior to operation. Maximum permissible leak rate is ¼ inch in 8 hours.

NO SANITARY WASTES MAY BE DISCHARGED INTO ANY INTERCEPTOR.

III. OIL SEPARATORS – EXTERIOR AND INTERIOR

The Suffolk County Code Chapter 424 – “Sewers” requires all industrial/commercial waste discharges containing free mineral, vegetable, petroleum oils or emulsified oils over 50 mg/l receive effective oil separation with adequate holding facilities for the separated oil. See Figures No. 3 (exterior) & 3A (interior).

IV. LINT INTERCEPTORS – EXTERIOR

Effective lint interception must be provided for any waste discharge containing fibrous suspended solids commonly known as lint. Laundromats, commercial laundries, or any facility which generates wastewater containing lint, will be required to provide effective lint removal. Separation Type, Exterior, In-Ground Lint Interceptors with a baffle wall are required. These interceptors are similar in design to a septic tank. See Figure No. 4.

Size Requirements are as follows:

1. Up to 8,000 gallons per day discharge – Eight (8’) feet diameter.
2. 8,000 or more gallons per day discharged – Ten (10’) feet diameter.

V. SEDIMENT INTERCEPTORS – EXTERIOR

Any facility discharging wastewater which contains sand, silt or similar settleable solids, as determined by the Department of Public Works, Division of Sanitation, must provide a sediment interceptor prior to connection to any sanitary waste sewer connection. Facilities such as, but not limited to, car, truck and bus washes, shellfish washing operations, vehicle parts rebuilding, and stone monument manufacturing are examples where sediment interceptors are required.

Circular or rectangular reinforced concrete sediment interceptors with a baffle wall are acceptable based upon the following criteria:

Circular (See Figure No. 5)

1. Up to 5,000 gallons per day – 8’ diameter
2. 5,000 – 7,500 gallons per day – 10’ diameter

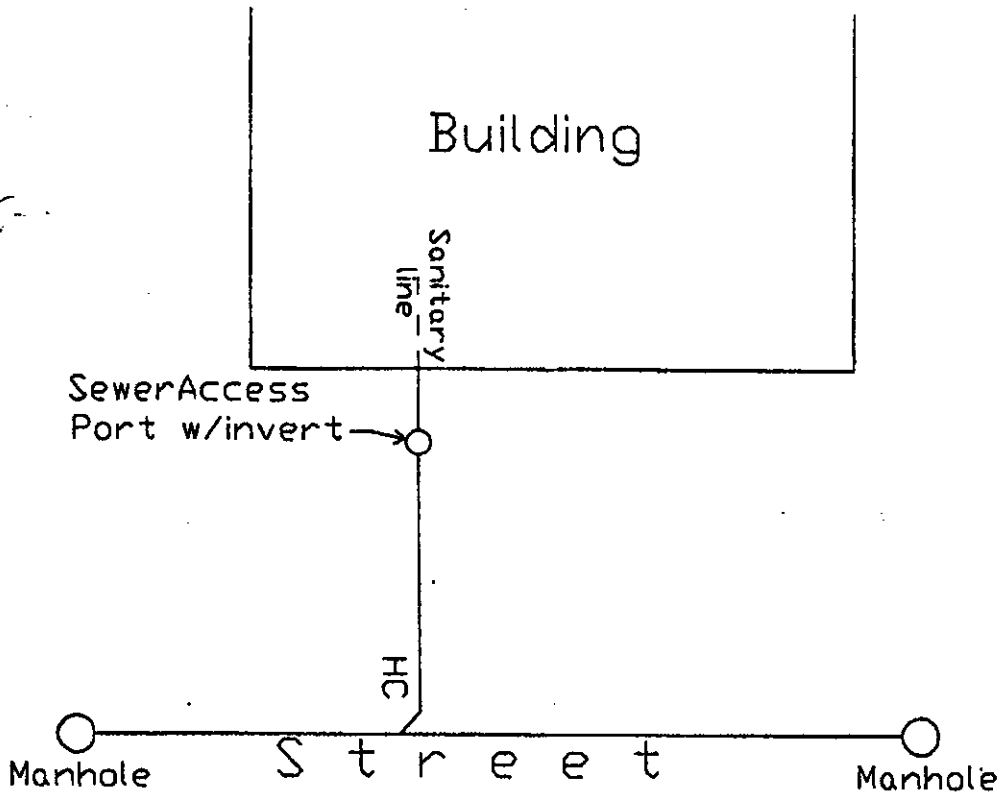
Note: Smaller diameter units in parallel may be approved in lieu of large diameter unit. Minimum effective liquid depth is to be four (4) feet.

Pretreatment units will perform satisfactorily if, and only if, they are cleaned and maintained at proper intervals in accordance with the Manufacturer’s, Engineer’s, or Supplier’s recommendations.

SECTION # 1

SEWER ACCESS PORTS

Dry Commercial/Industrial
Single and separate

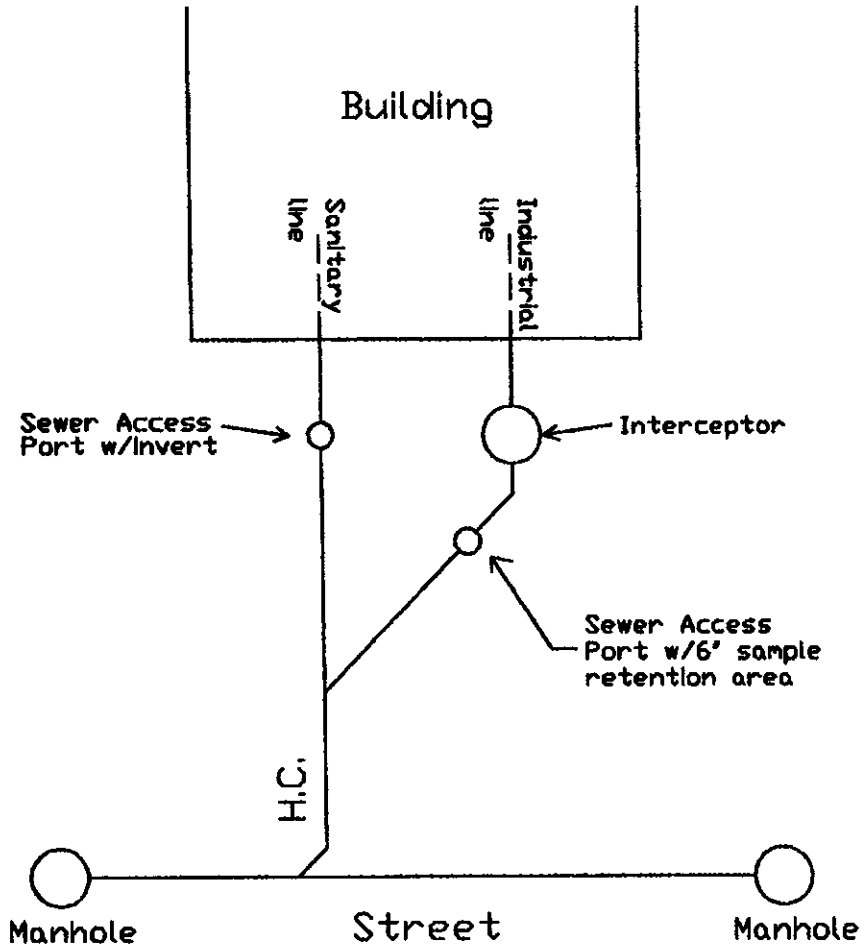


Notes:

- 1) All pipe 6 inches
Sewer Access Ports & interceptors
to be monolithic w/boots.
- 2) All pipe lengths to be noted.
- 3) Water service to be shown.
- 4) Indicate slopes and inverts
- 5) All drawings and/or sketches
to be neat and legible.

Figure No. 1C
Revised 2009

Suffolk County DPW Permits
Wet Commercial / Industrial
Single and Separate



Notes:

- 1) All pipe 6 inches
Sewer Access Ports & Interceptors
to be monolithic w/ boots.
- 2) All pipe lengths to be noted.
- 3) Water service to be shown.
- 4) Indicate slopes and inverts.
- 5) All drawings and/or sketches
to be neat and legible.
- 6) Multiple occupant building requires
a separate sanitary line, industrial
line, interceptor, and access port
for each unit within.

SECTION # 2

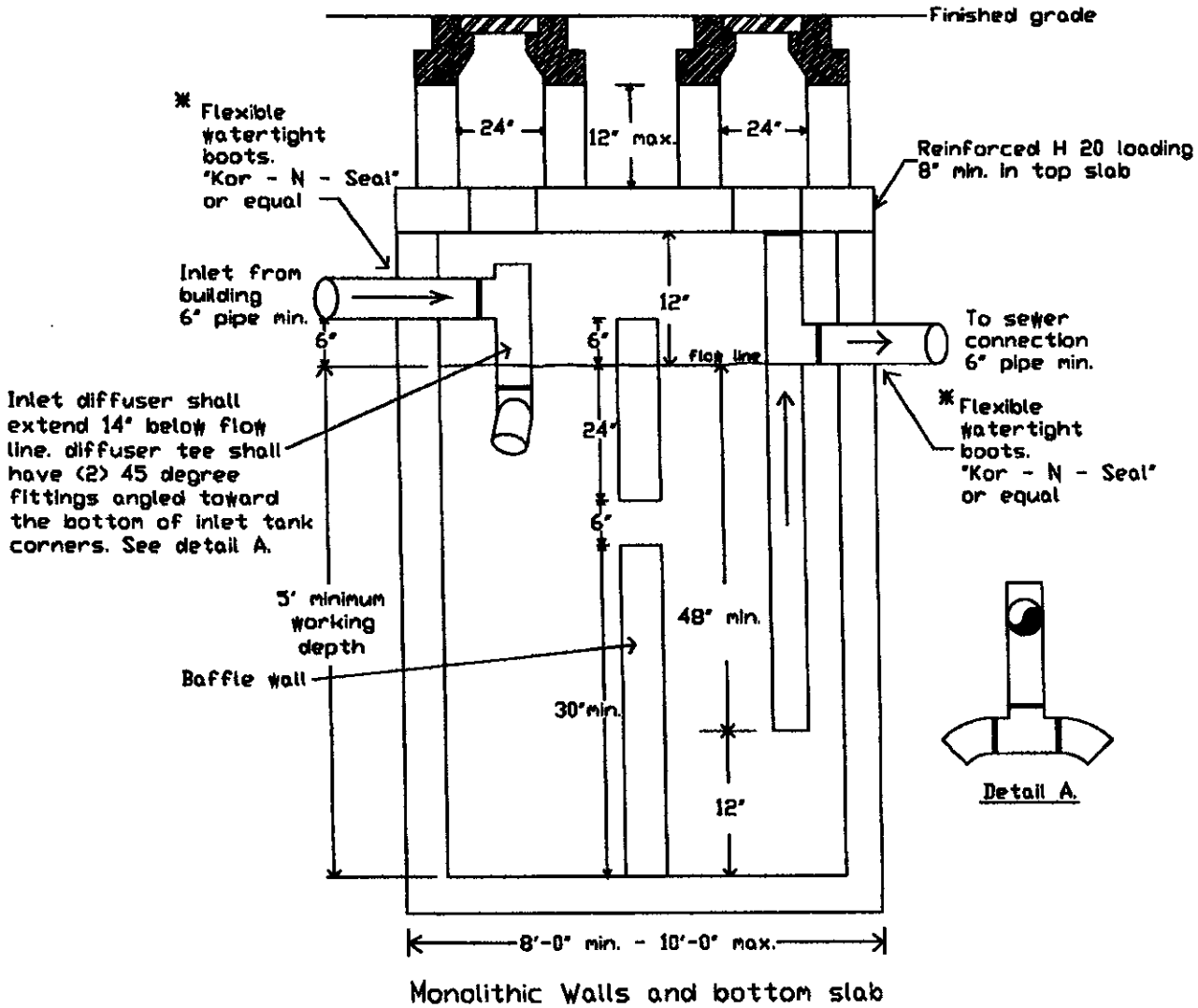
EXTERIOR GREASE INTERCEPTOR

Figure No. 2
Revised 2010

Suffolk County DPW Permits
Exterior **GREASE** Interceptor

Approved cast iron frame
and cover to grade
(2 openings must be used)

Second opening must be
over outlet drop tee



* - See attached Kor-N-Seal sheets

SECTION # 3

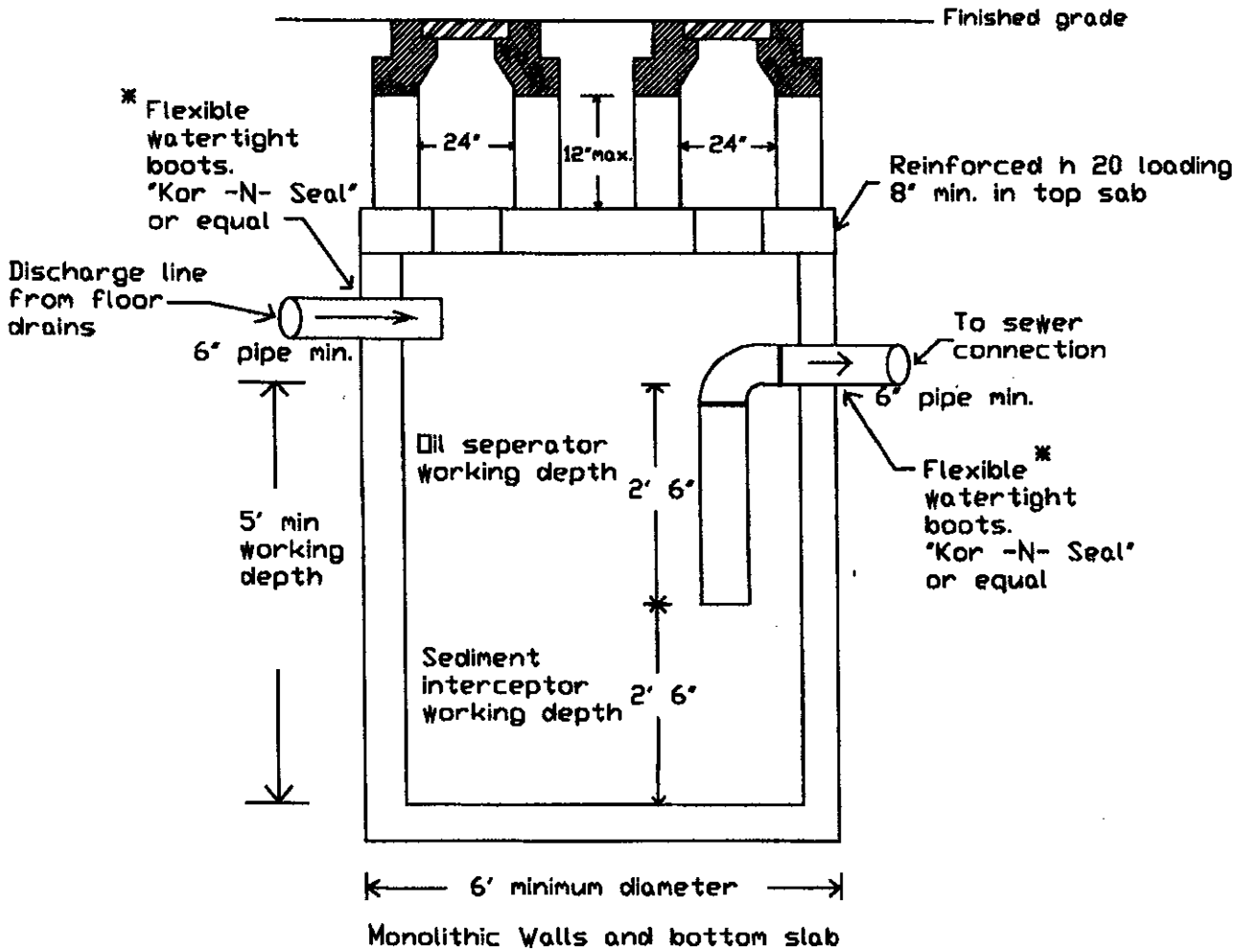
OIL / WATER INTERCEPTORS

Figure No. 3
Revised 2010

Suffolk County DPW Permits
Exterior **OIL/WATER** Interceptor
Oil Interceptor

Approved cast iron frame
and cover to grade
(1 or 2 openings may be used)

Opening must be over
outlet drop tee



* See attached Kor-N-Seal spec. sheets

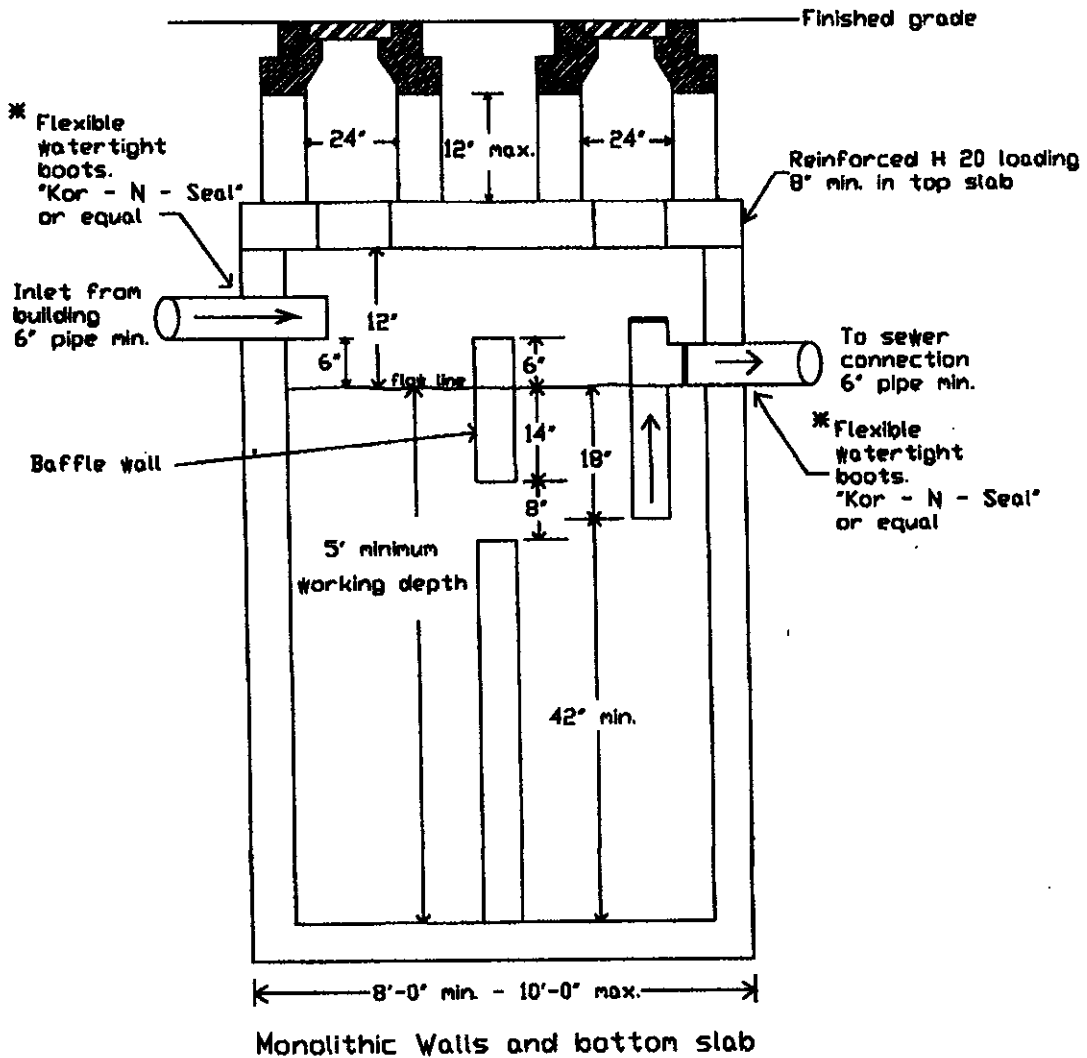
SECTION # 4

LINT INTERCEPTORS

Suffolk County DPW Permits
Exterior **LINT** Interceptor

Approved cast iron frame
and cover to grade
(2 openings must be used)

Second opening must be
over outlet drop tee



* - See attached Kor-N-Seal sheets

SECTION # 5

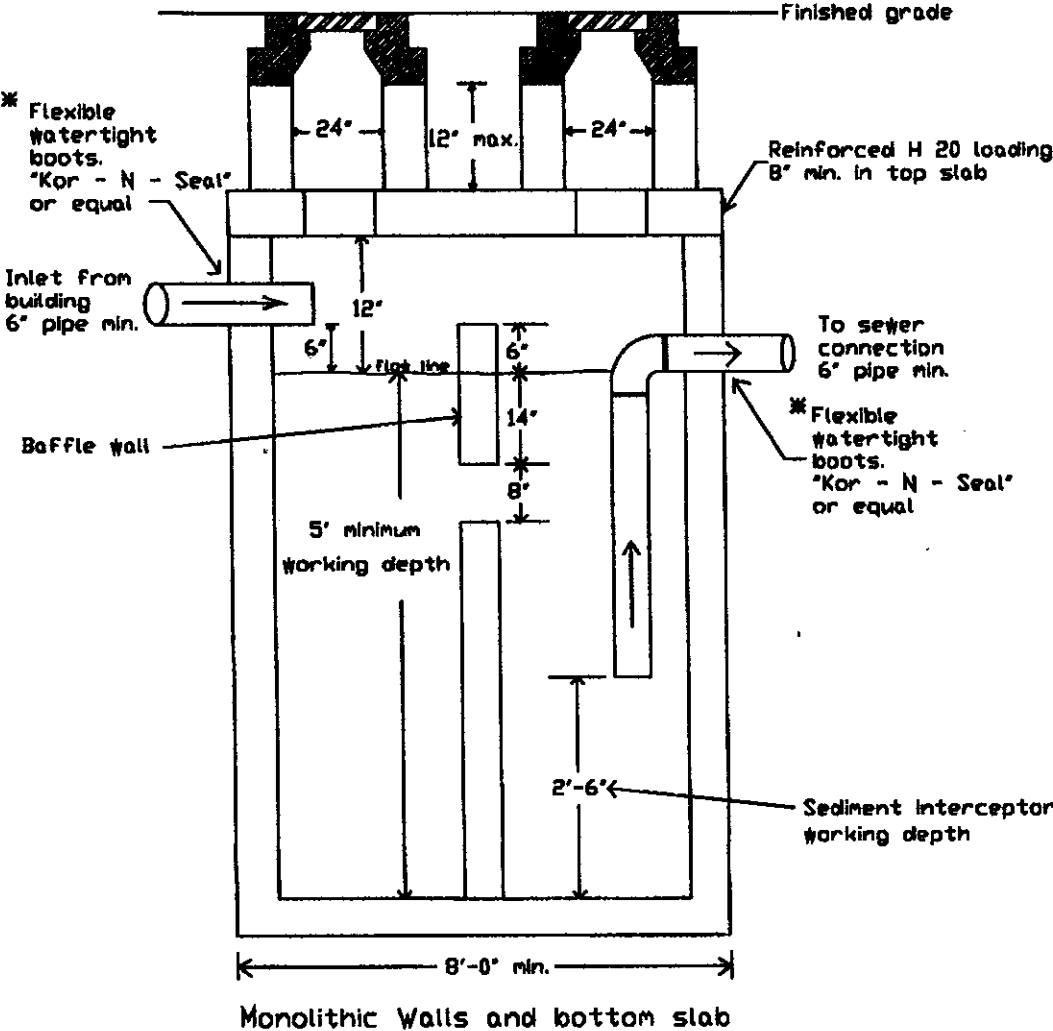
SEDIMENT INTERCEPTOR

**Suffolk County DPW Permits
Exterior Sediment Interceptor**

Figure No. 5
Revised 2010

Approved cast iron frame
and cover to grade
(2 openings must be used)

Second opening must be
over outlet drop tee



* - See attached Kor-N-Seal sheets

SECTION # 6

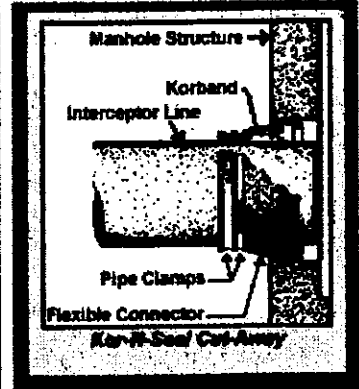
FLEXIBLE PIPE TO MANHOLE

CONNECTORS

(KOR-N-SEAL)



FLEXIBLE PIPE-TO-MANHOLE CONNECTOR



The heavy-duty KOR-N-SEAL II Connector is ideally suited for large diameter pipe-to-manhole connections. Installation is simple and can be completed in minutes. Detailed Recommended Installation Procedures are included with every shipment.

Note: Wedge type tighteners are not permitted.

- Installs easily in the plant or in the field and can be retorqued at any time.
- Accommodates both angular and lateral misalignment.
- Provides a flexible, vibration absorbing joint.
- Allows for variations in pipe diameter tolerances.
- Allows for changes in pipe material.
- Can be easily replaced if necessary.
- Ensures trouble-free, efficient installations.
- Conforms to ASTM C923 specifications.
- Accommodates ground movement & prevents shear.



FLEXIBLE PIPE-TO-MANHOLE CONNECTOR

A flexible Pipe-to-Manhole connector shall be employed in the connection of the sanitary and drain sewer pipe to precast manholes.

The connector shall be **KOR-N-SEAL®** as manufactured by NPC Inc., Milford, New Hampshire, or equal.

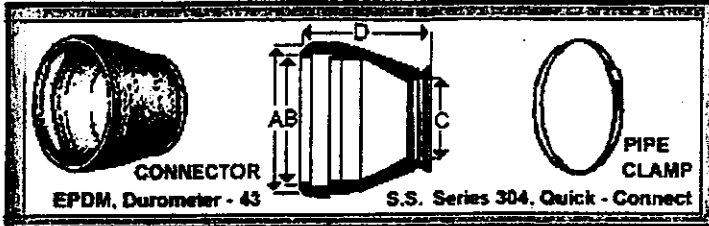
The connector shall be the sole element relied on to assure a flexible watertight seal of the pipe to the manhole. No adhesives or lubricants shall be employed in the installation of the connector into the manhole. The rubber for the connector shall comply with **ASTM C923** and consist of **EPDM** and elastomers designed to be resistant to ozone, weather elements, chemicals, including acids, alkalis, animal and vegetable fats, oils and petroleum products from spills.

All stainless steel elements of the connector shall be totally non-magnetic Series 304 Stainless, excluding the worm screw for tightening the steel band around the pipe which shall be Series 305 Stainless. The worm screw for tightening the steel band shall be torqued by a break-away torque wrench available from the precast manhole supplier, and set for 60 - 70 inch/lbs.

The connector shall be installed in the manhole wall by activating the expanding mechanism in strict accordance with the recommendation of the connector manufacturer.

The connector shall be of a size specifically designed for the pipe material and size being utilized on the project.

Rubber seals used in concrete sewer pipe and culvert joints must meet the requirements given in **ASTM Specification C923**.



KOR-N-SEAL - S106 SERIES (Wall Thickness .375 Inch)

Connector P/N	Suggested Pipe O.D. Range (Inches)	Hole Size Range (Inches)	Connector Dimensions (Inches)			Pipe Clamp P/N
			A	B	C	
S106-12BWP	5.75 to 7.00	12.00 to 12.20	10.70	6.50	8	M-128
S106-12AWP	7.00 to 8.50	12.00 to 12.20	10.70	8.00	8	M-180
S106-12WP	8.25 to 9.75	12.00 to 12.20	10.70	9.25	8	M-180
S106-14AWP	9.50 to 11.25	14.00 to 14.20	12.70	10.50	8	M-192
S106-16BWP	9.50 to 11.25	15.95 to 16.15	14.70	10.50	8	M-192
S106-16AWP	11.25 to 13.00	15.95 to 16.15	14.70	12.25	8	M-240
S106-16WP	13.00 to 14.50	15.95 to 16.15	14.70	14.00	8	M-240
S106-20BWP	14.00 to 15.50	19.95 to 20.10	18.70	15.00	8	M-304
S106-20AWP	15.50 to 17.00	19.95 to 20.10	18.70	16.50	8	M-304
S106-20WP	17.00 to 18.50	19.95 to 20.20	18.70	18.00	8	M-304
S106-22WP	17.75 to 19.25	21.95 to 22.10	20.60	18.75	8	M-368
S106-24WP	19.80 to 21.10	23.95 to 24.10	22.70	20.60	8	M-368

FLEXIBLE PIPE-TO-MANHOLE CONNECTORS



Kor-N-Seal® connectors provide a flexible, watertight, environmentally safe joint that exceeds **ASTM C-923** specifications. A specially formulated rubber compound offers superior resistance to weather, ozone, oils, acids, alkalis, and animal/vegetable fats. Both the Korband and Pipe Clamp are non-magnetic, series 304, stainless steel to achieve maximum corrosion resistance.

ENGINEERS —

Allows project flexibility...

- Grade adjustments
- Location changes
- Pipe size modifications

PRODUCERS —

**Provides efficient,
cost-effective manufacturing...**

- Stock blank manholes
- Core to contractor specifications
- Easily install Kor-N-Seal Connectors
- Ready for delivery in less than 1 hour

CONTRACTORS —

Easier to cope with...

- Wet trenches
- Extreme weather conditions
- Close tolerances
- Precise grade alignments
- Immediate backfilling requirements

**Simple, efficient installation
procedures save...**

- Man hours
- Equipment costs



Call today for more information: 800-626-2180