Existing On-Site Wastewater System Field Inspection Report

Owner's Name: _____ Telephone #: _____

Mailing Address: _____ Septic Permit #: _____

_____ Tax Map #: _____

Property Location: _____ Inspection Date: _____

Subdivision: _____ Inspection Time: _____

GENERAL INFORMATION

Site Condition: _____ Weather: _____ Permit: yes no

Age of Structure: _____ Age of System: _____ # Bedrooms: _____ # Bathrooms: _____

Occupied: yes no Length of vacancy: _____ weeks _____ months

# of Occupants presently: _____ # of Occupants of potential buyer, if known: _____

Example

Is this a second opinion inspection? **( ) yes ( ) no**
Is there evidence that sewage has backed up into the structure? ( ) yes ( ) no
Does gray water discharge somewhere other than the septic system? **( ) yes ( ) no ( ) Unk**
Do trees or tree roots interfere with the system? ( ) yes ( ) no ( ) Unk
Is there evidence or documentation of wastewater surfacing? **( ) yes ( ) no**
Is there a water treatment system discharging into the system? ( ) yes ( ) no

Date of last pumping: _____ Pumping frequency: _____

Have there been any repairs to the system? _____

System Maintainer: _____

( ) Single Family Dwelling ( ) Duplex ( ) Multi-Family ( ) Community/Large ( ) Commercial

Summary of System Component Inspections

	Satisfactory	Satisfactory w/concerns	Unsatisfactory
Treatment Tank(s)	( )	( )	( )
Distribution System(s)	**( )**	**( )**	**( )**
Absorption Facility(ies)	( )	( )	( )

Inspector's Name: _____ Inspector's License #: _____

Signature: _____ Date: _____ Phone #: _____

SYSTEM COMPONENTS

Treatment Tank(s)

Tank Type:	Capacity (gal)*	# of Compartments	Material (Concrete, Metal, other)
( ) Septic Tank (tank 1)	_____	_____	_____
( ) Septic Tank (tank 2)	_____	_____	_____
( ) Aerobic	_____	_____	_____
( ) Cesspool	_____	_____	_____
( ) Other _____	_____	_____	_____

* Round: D" X D"/ 292.5 X H" Rectangular: L" X W"/ 231 X H"

Condition of:	**Satisfactory**	**Satisfactory w/concerns**	**Unsatisfactory**
Tank	( )	( )	( )
Top and Lids	**( )**	**( )**	**( )**
Inlet Baffle	( )	( )	( )
Outlet Baffle	**( )**	**( )**	**( )**
Liquid Level	( )	( )	( )
Effluent Filter ( ) N/A	**( )**	**( )**	**( )**
Distribution Box, if exposed	( )	( )	( )

If exposed, does the distribution box need to be leveled?		**( ) yes**	**( ) no** ( ) N/A
If exposed, is effluent above the lateral inverts in the distribution box?		( ) yes	( ) no ( ) N/A
Was/were the treatment tank(s) pumped during this inspection?		**( ) yes**	**( ) no**
Does effluent from the absorption facility run back to the treatment tank?		( ) yes	( ) no ( ) N/A
Portions of the treatment tank(s) below a deck, driveway, walkway, etc.?		**( ) yes**	**( ) no**
Is there evidence of effluent surfacing above the treatment tank(s)?		( ) yes	( ) no
Are there any overflow lines?		**( ) yes**	**( ) no**

Holding/Lift/Dosing Tank

Size: ____ X ____ X ____ Gallons: _____ Material: _____

Condition of:	**Satisfactory**	**Satisfactory w/concerns**	**Unsatisfactory**
Tank and Lid	( )	( )	( )
Pump/Siphon operational	**( )**	**( )**	**( )**
Alarm	( )	( )	( )
Timer	**( )**	**( )**	**( )**
Electrical Connections	( )	( )	( )
Check Valve & Purge Hole	**( )**	**( )**	**( )**
Pump elevated off tank floor	( )	( )	( )

Accumulated solids found in pump tank? **( ) yes ( ) no** **Infiltration of surface waters?** **( ) yes ( ) no**

Is alarm on a separate circuit? ( ) yes ( ) no

Absorption Facility

Located: ( ) yes ( ) no

Is there more than one absorption facility? ( ) yes ( ) no How many? _____ Total Sq. Ft: _____

Type:

( ) Bed _____ X _____ (approx. size)
( ) Trenches _____ X _____ (approx. size) **How many? _____**
( ) Sand Mound _____ X _____ (approx size)
( ) Seepage Pit _____ X _____ (approx. size)
( ) Micro-Irrigation "Drip" _____ X _____ (approx. size)
( ) Other (describe) _____

Are there any overflow lines?	( ) yes ( ) no
Portion of absorption facility below a deck, driveway, walkway, etc.?	**( ) yes ( ) no**
Are there signs of previous absorption facility failure?	( ) yes ( ) no
Does gray water discharge somewhere other than the septic system?	**( ) yes ( ) no**

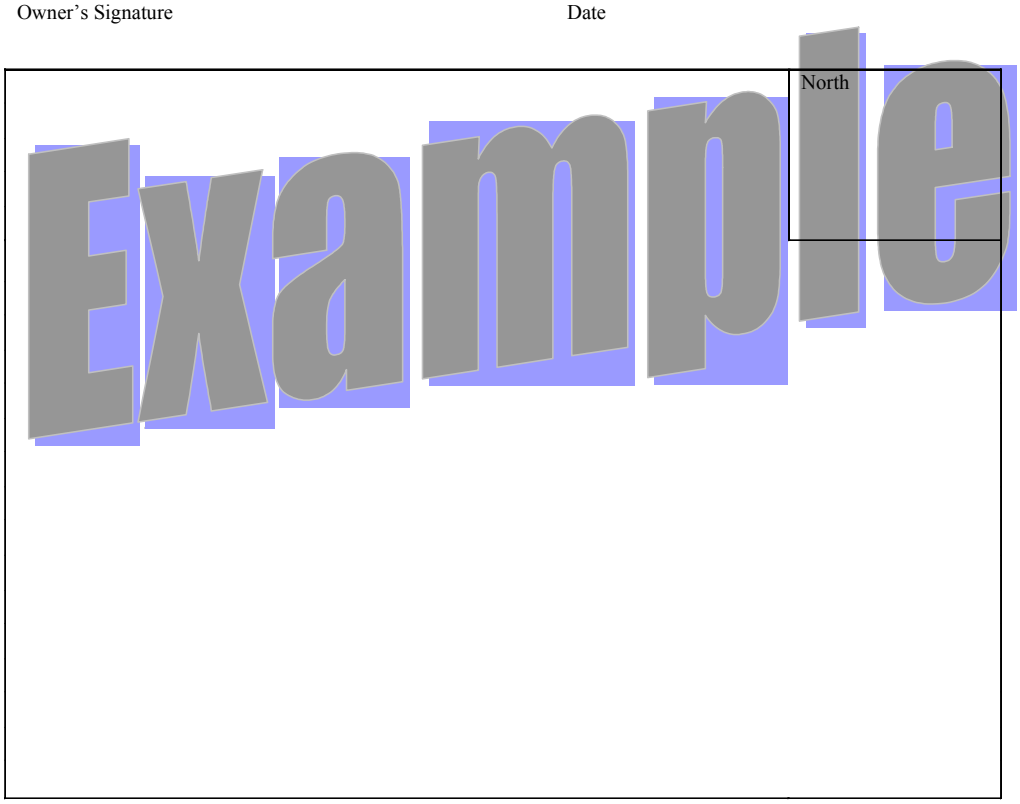
Example

Overall Comments & Concerns: _____

_____
_____
_____
_____
_____
_____
_____
_____

I attest the information I have provided is true and accurate to the best of my knowledge.

_____ _____
Owner's Signature Date



Sketch of On-Site Wastewater Treatment and Disposal System Location

Identify **each** wastewater treatment and disposal system component. Mark distances to fixed reference points. Print clearly and draw to the best of your ability. Inspector may attach a copy of the permit indicating either no change or clearly marking changes on permit drawing.

Guidelines for Completing the Inspection Report

Page 1

Self-explanatory down to the Summary of System Component Inspections

Satisfactory

System components are in good shape, functioning properly, no damage

Satisfactory w/concerns

Possible areas include; broken lids, leaking risers/lids, cracked transmission lines, unleveled distribution box, minor repairs needed to rectify problem, cesspools and seepage pits that are functioning but are out-dated on-site wastewater disposal technology.

Unsatisfactory

Not limited to obvious signs of system malfunction such as; overland flow, direct discharge to surface waters, ditches, ground surface, leaking tank(s), broken distribution box, broken transmission lines, advanced treatment units not operating properly, metal tanks, separate gray water lines not connected to the system, etc.

Page 2

Conditions of tanks, any electrical devices and associated parts may require the tank(s) to be pumped first. **NOTE:** You should log the liquid depths, heights, scum layer thickness, sludge thickness, etc., prior to pumping the tank as well running the pump, if applicable.

If you encounter something not specifically covered on the inspection report or any situation or condition you feel needs to be addressed, note it in the comment section on page 3. Things like; garbage disposals, grease traps, home-made contraptions, components being bypassed, etc.

Page 3

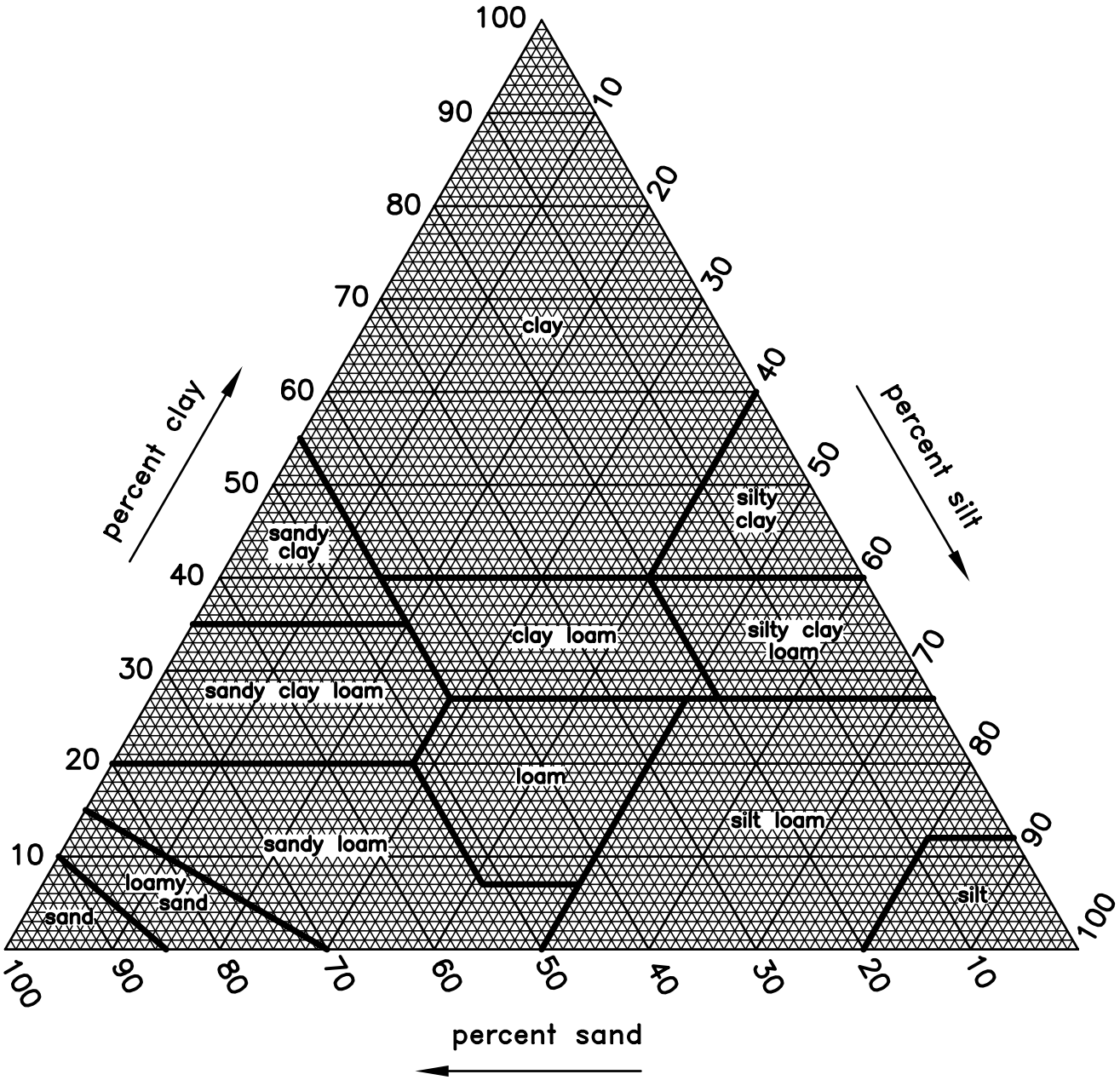
Overall Comments & Concerns

Provide any information that will help determine the operational status of the system and abnormalities or questions regarding any component(s). This area is for further explanation of concerns found or to better explain why/how a problem was noted. This is good place to record depth and thickness of scum and sludge layers to help determine previous maintenance practices. **NOTE:** If needed, site evaluation, repair permit required for any repair work to be performed, new permit for replacement system.

The sketch should be as accurate as possible with distances to fixed reference points recorded. If the area provided is not large enough to accomplish this please attach another 8 ½" X 11" sheet to report. If a permit is found that accurately depicts the overall system area it may be substituted instead of redrawing the system area.

If all else fails do not hesitate to call the Department for further guidance.

GUIDE FOR TEXTURAL CLASSIFICATION



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

TEXTURAL TRIANGLE
FOR
SOIL CLASSIFICATION

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - B

MINIMUM ISOLATION DISTANCES (FEET)

Components	Well	Water Supply Pressure Line	Watercourse	Dwellings and Property Lines	Other active on-lot systems	Natural or man-made Slope >25%
Septic tank	50	10	25	10 (f)	--	--
Grease trap	50	10	25	10	--	--
Distibution box	50	10	25	10	--	--
Dosing chamber	50	10	25	10	--	--
Disposal area (c) (h) (i) (j)	100 (a)(d)(e)	10	100 (b)	10 (g)	10	15
Diversion valve or box	50	10	25	10	--	--

Notes:

a) Approval of a lesser distance to a minimum isolation distance of fifty (50) feet may be approved by the Department as per the Delaware Regulations Governing the Construction and Use of Wells, adopted February 6, 1997. The applicant shall provide documentation regarding well distances, depths, and construction to the Department upon request.

b) Approval of a lesser distance to a minimum isolation of fifty (50) feet may be approved by the Department if the watercourse has not been designated for use as a public water supply or shellfish. There is no setback from an ephemeral watercourse. It is the sole responsibility of the Class D site evaluator to determine whether a watercourse, by definition, is ephemeral.

c) For elevated sand mound and capping fill systems, distances shall be measured from the outer edge of the stone or gravel-less chamber.

d) For public or industrial wells the minimum isolation distance shall be 150 feet. **NOTE:** Paragraph 8.03 (c) of Regulations Governing the Use of Water Resources and Public Subaqueous Lands states, "Every new or replacement well shall be located at least 150 feet from septic tanks, tile fields (absorption facility), and seepage pits."

e) For replacement systems on lots that were created by plat or deed and recorded prior to April 8, 1984, an isolation distance of fifty (50) feet between domestic and commercial wells and absorption facility may be considered by the Department where the lot size will not allow an isolation distance of 100 feet. The well must be cased to a depth of forty (40) feet, exclusive of the screen, and pressure-grouted with either concrete or bentonite clay to a minimum depth of forty (40) feet. The applicant shall provide documentation regarding well distances, depths, and construction to the Department upon request.

f) Except in the case of a septic tank for a central sewer system where the absorption facility is not located on the same lot as the septic tank, in which case the distance shall be five (5) feet from the interior lot or easement lines within a recorded subdivision.

g) Except in the case of a central sewer system where the absorption facility can be five (5) feet from an interior lot or easement lines within a recorded subdivision.

h) For replacement systems, if an additional twelve (12) inches of suitable soil exists below the required separation distance the well isolation distance may then be reduced from 100 feet to 50 feet. (ie. 36 inches separation for gravity systems to 48 inch separation for well isolation reduction).

i) If advanced treatment is incorporated the Department may reduce the well isolation distance from 100 feet to 50 feet.

j) The Department may reduce the isolation distance for agricultural wells from 100 feet to 50 feet.

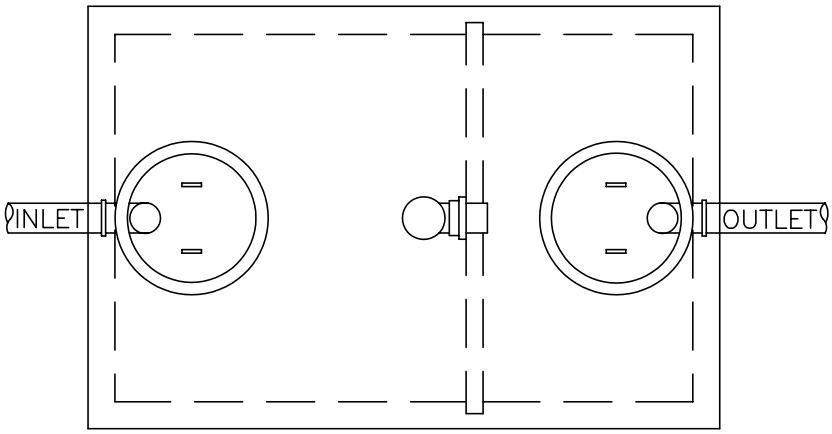
TYPE OF ESTABLISHMENT	UNIT	GALLONS/UNIT/DAY
Airport	Person	5
Assembly Hall, Auditoriums, Indoor Theaters	Seat	3
Banquet Halls	Seat	15
With bar & food		30
Barber Shop	Chair	50
Bar with minimum food prep	Seat	20
Bath House	Person	10
Beauty Shop	Chair	125
Boarding or rooming houses	Person	50
Staff	Person	10
Bowling Alley with no bar or restaurant	Lane	100
With bar or restaurant	Lane	200
Camps		
Work	Person	40
Summer	Person	40
Trailer without sewer hook-up	Site	50
Trailer with sewer hook-up	Site	125
Churches	Seat	5
Country Clubs	Person	100
Day Care	Child	10
Dentist Office	Chair	200
Office Staff add	Person	20
Factories	Person	25
with shower	Person	35
Hospitals	Bed	250+
Hotels	Room	120
Laundromat	Machine	500

TYPE OF ESTABLISHMENT	UNIT	GALLONS/UNIT/DAY
Marinas	Boat Slip	10
Marinas with restrooms	Boat Slip	30
Motels	Room	100
with kitchen	Room	150
Medical office buildings and clinics	Persons	
Doctors, nurses and medical staff		70
Office staff		20
Patients		7
Offices	Employee	20
Outdoor sporting facilities	Persons per day	5
Parks with beaches		
Lavatory waste only	Person	5
Bath house, showers, lavatories	Person	13
Picnic Grounds, Public Swimming Pools		
Picnic with toilets only	Person	5
Picnic with lavatories and showers	Person	11
Swimming Pools and Beaches with lavatories and showers	Person	13
Residential Dwellings	Bedroom	120
Restaurants	Seat	
24 hour service		40
18 hour service		30
12 hour service		20
Add for bars & cocktail lounges		5
Rest/Nursing Homes	Bed	125

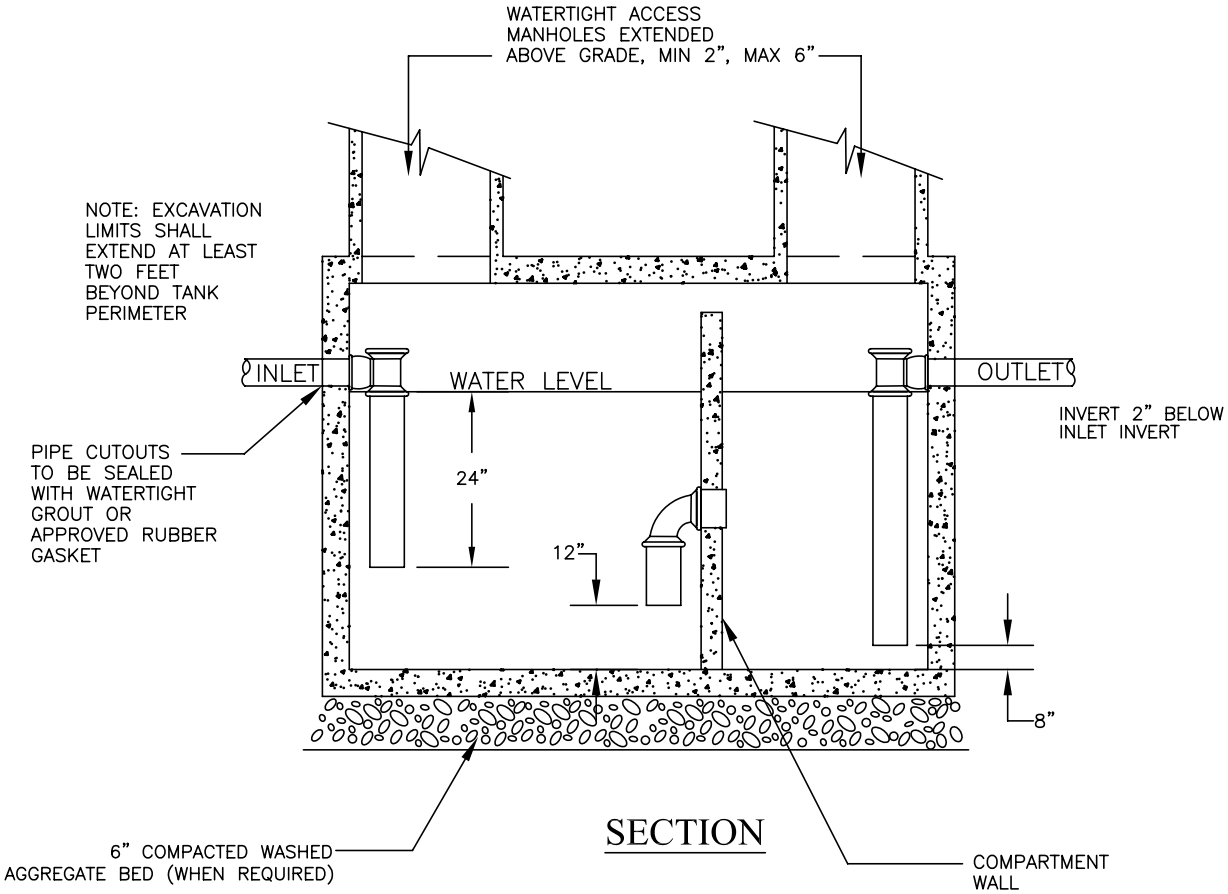
TYPE OF ESTABLISHMENT	UNIT	GALLONS/UNIT/DAY
Schools	Student	10
with gym, showers, cafeteria	Student	25
with cafeteria	Student	15
Boarding	Student	75
Non-resident staff	Staff	15
Service Station	Pump	50
with convenience store	ft^2	0.1
Stores (Retail)	ft^2	0.1
Theaters		
Drive-in	Space	10
Movie Theaters	Seat	4

GREASE TRAP DESIGN CAPACITIES

TYPE OF FIXTURE	FLOW RATE (GPM)	GREASE RETENTION CAPACITY (LB)	REQUIRED CAPACITY PER FIXTURE CONNECTED TO TRAP (GAL)
Restaurant kitchen sink	15	30	50
Single-compartment sink	20	40	50
Double-compartment sink	25	50	62.5
Triple-compartment sink	30	60	75
2 single-compartment sinks	25	50	62.5
2 triple-compartment sinks	40	80	100
Dishwasher for restaurants			
Up to 30 gallons of water	15	30	50
Up to 50 gallons of water	25	50	62.5
50 to 100 gallons of water	40	80	100



PLAN



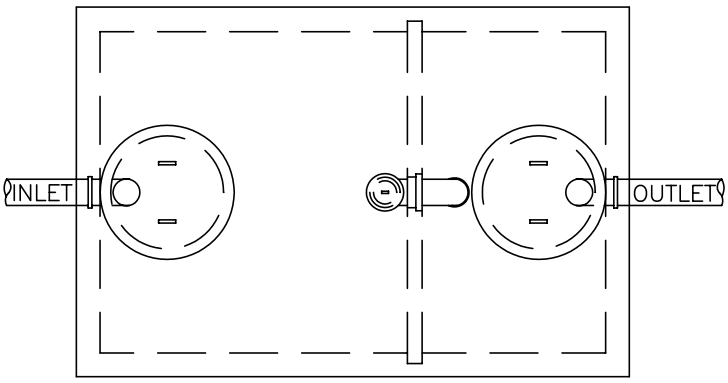
SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

TYPICAL GREASE TRAP
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - F



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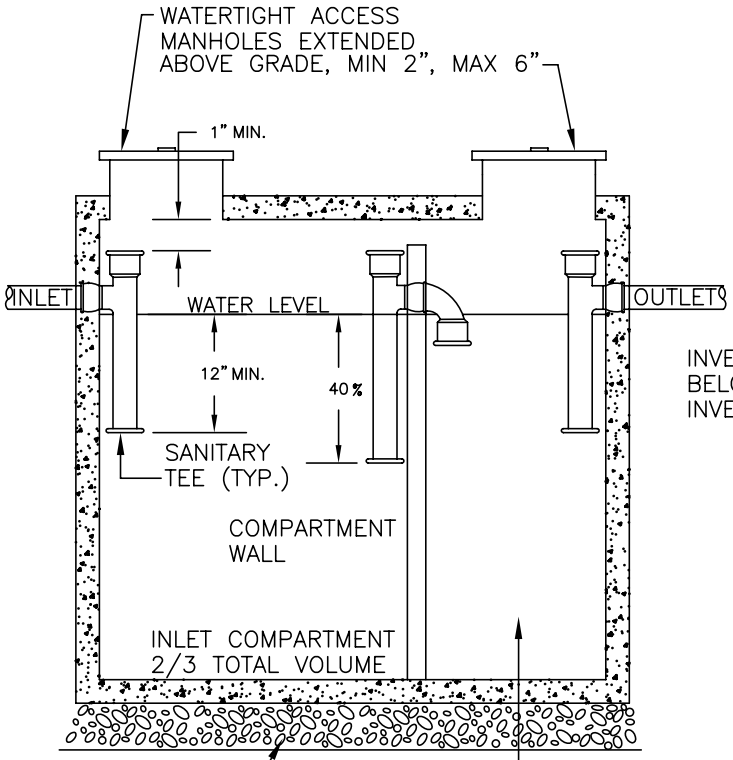


SECTION

NOTES:

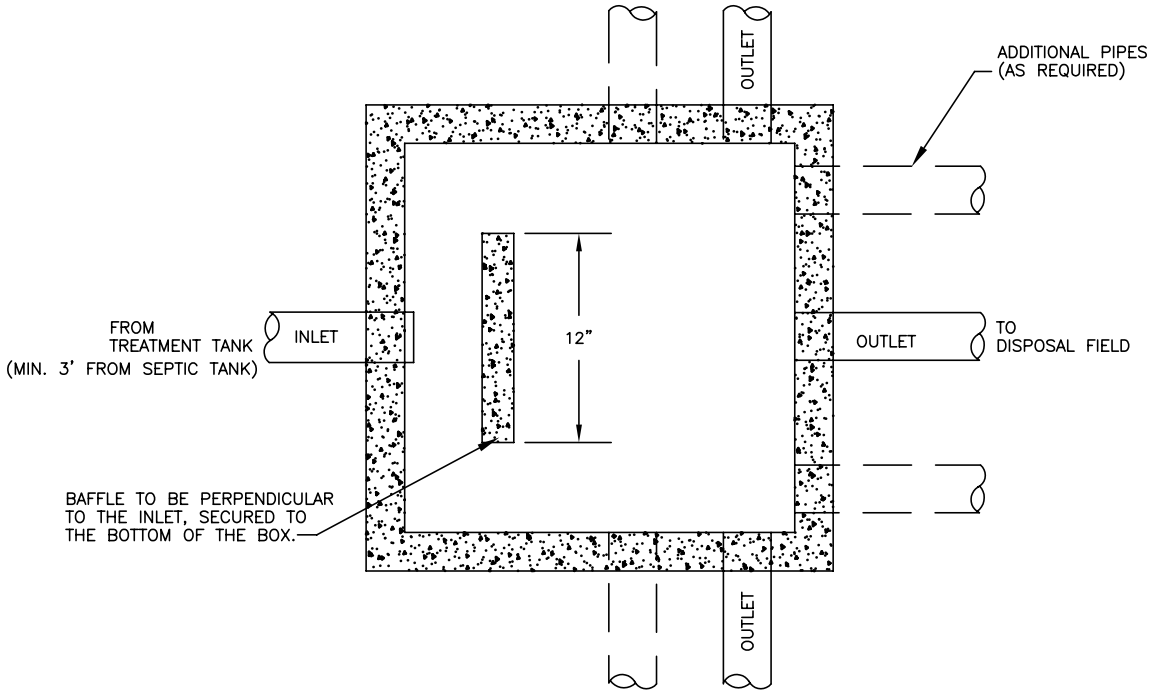
1. ALLOW 2' CLEARANCE IN EXCAVATION AROUND TANK FOR TAMPING.
2. ALL PIPE CUTOUTS TO BE SEALED WITH WATERTIGHT GROUT OR APPROVED RUBBER GASKET.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

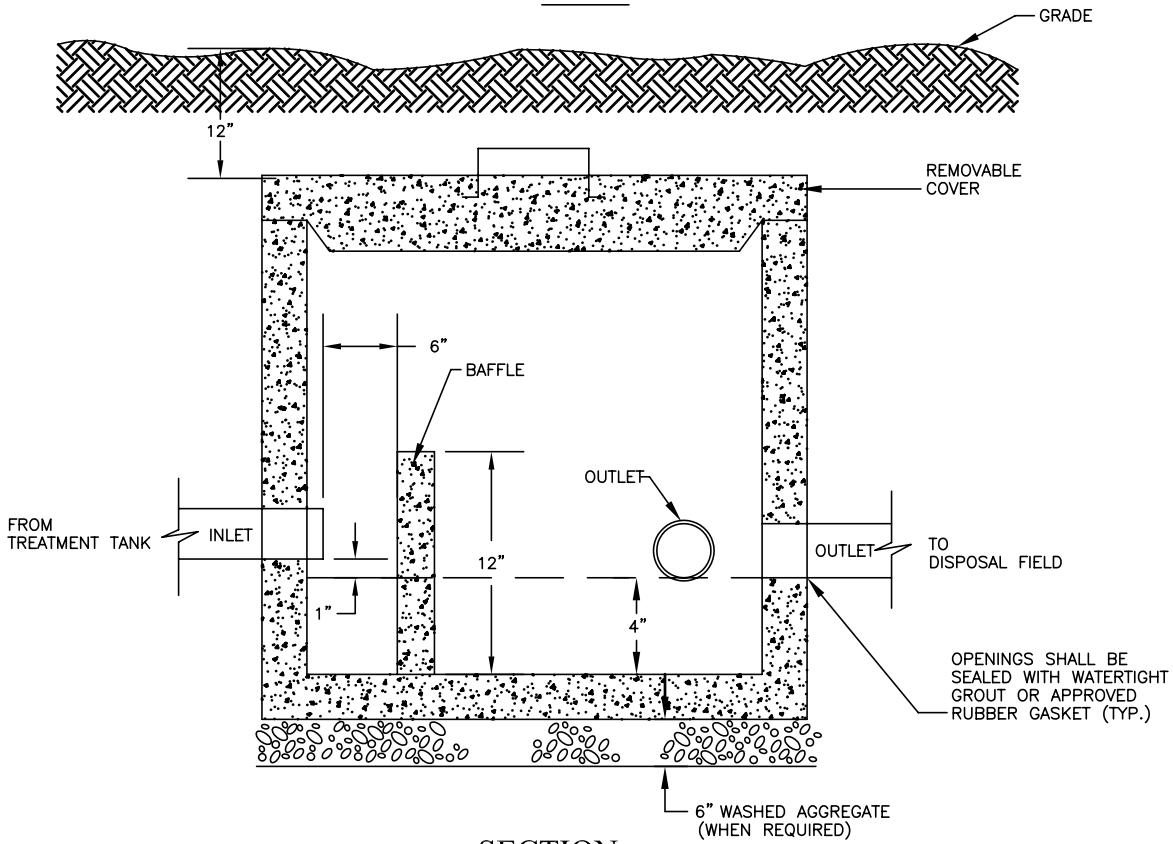
TYPICAL TWO-COMPARTMENT SEPTIC TANK

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - G



PLAN



SECTION

STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

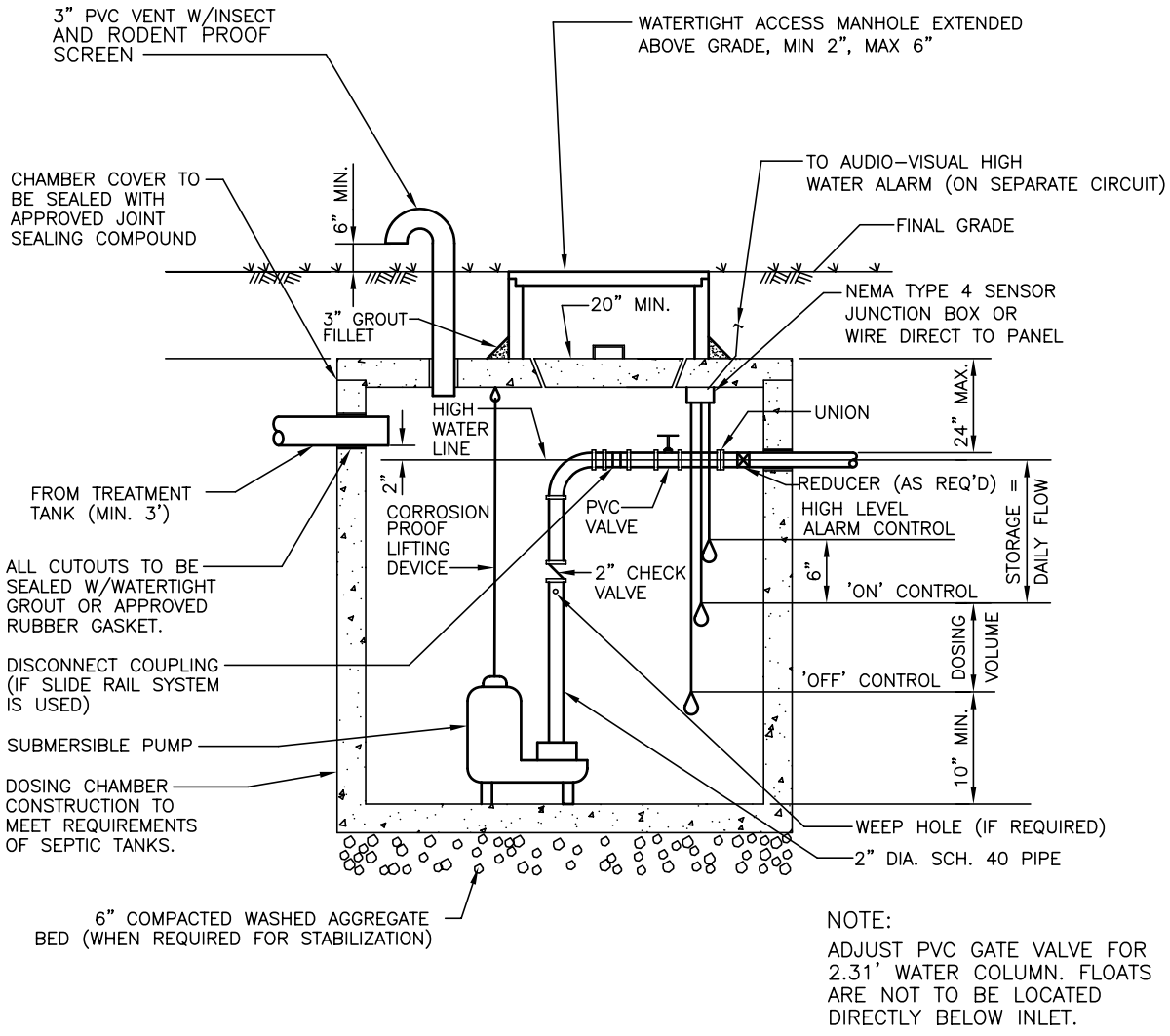
TYPICAL CONCRETE DISTRIBUTION BOX

(NOT TO SCALE)

ISSUED: JANUARY 1985

REVISED: APRIL 2004

EXHIBIT - H



NOTE:
ADJUST PVC GATE VALVE FOR 2.31' WATER COLUMN. FLOATS ARE NOT TO BE LOCATED DIRECTLY BELOW INLET.

SECTION

NOTES:

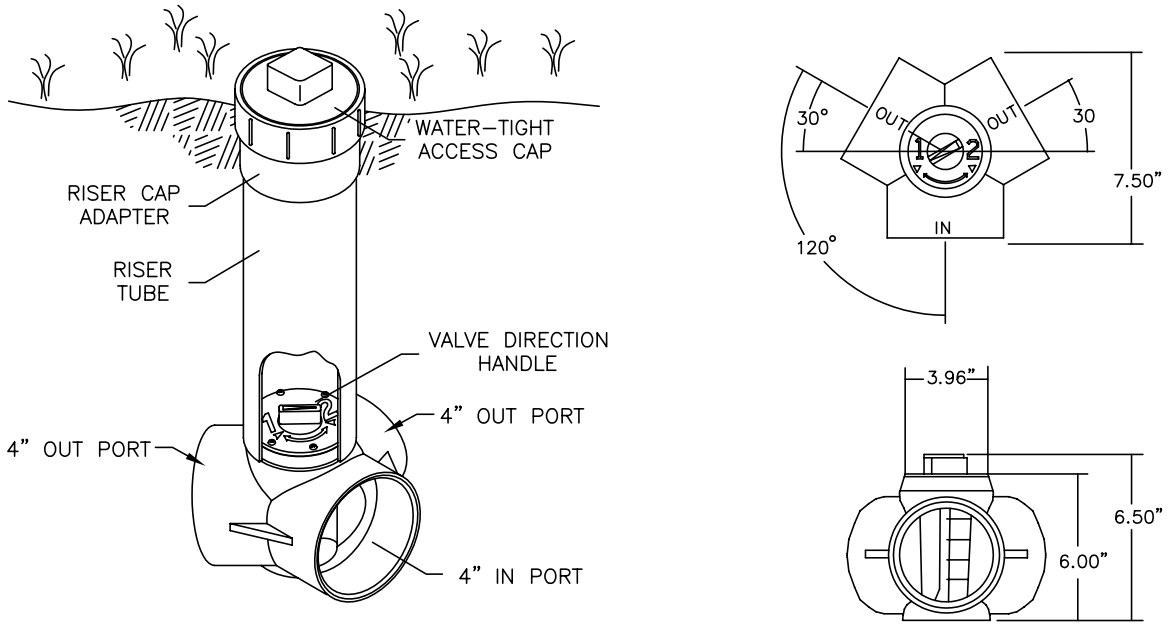
1. MAXIMUM DEPTH FROM GRADE TO INVERT OF DOSING CHAMBER TO BE 9'-0".
2. EXCAVATION LIMITS SHALL EXTEND AT LEAST 2 FEET BEYOND TANK PERIMETER.
3. ALL PIPE TO BE PVC SCHEDULE 40 OR SDR 26.
4. CHAMBER TO BE SIZED ACCORDING TO REQUIREMENTS OF DOSING VOLUME AND STORAGE.
5. ALL DOSING CHAMBER COMPONENTS SHALL BE FIELD TESTED TO ENSURE ACCURACY, WATER TIGHTNESS, AND PROPER OPERATION OF ALL PUMPS AND ALARM CONTROLS.
6. ALL ELECTRICAL CONNECTIONS SHALL BE WATERPROOF, CORROSION-RESISTANT AND EXPLOSION-PROOF. (IF INSIDE TANK)
7. WHERE POSSIBLE, PUT ALL ELECTRICAL CONNECTIONS OUTSIDE OF THE TANK.
8. RAIN TIGHT (3R) BOXES ARE REQUIRED OUTSIDE OF THE TANK: NOT EXPLOSION PROOF.
9. THE REDUCER, IF USED, CAN BE INSTALLED INSIDE OF THE TANK.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

TYPICAL PUMP DOSING CHAMBER
(NOT TO SCALE)

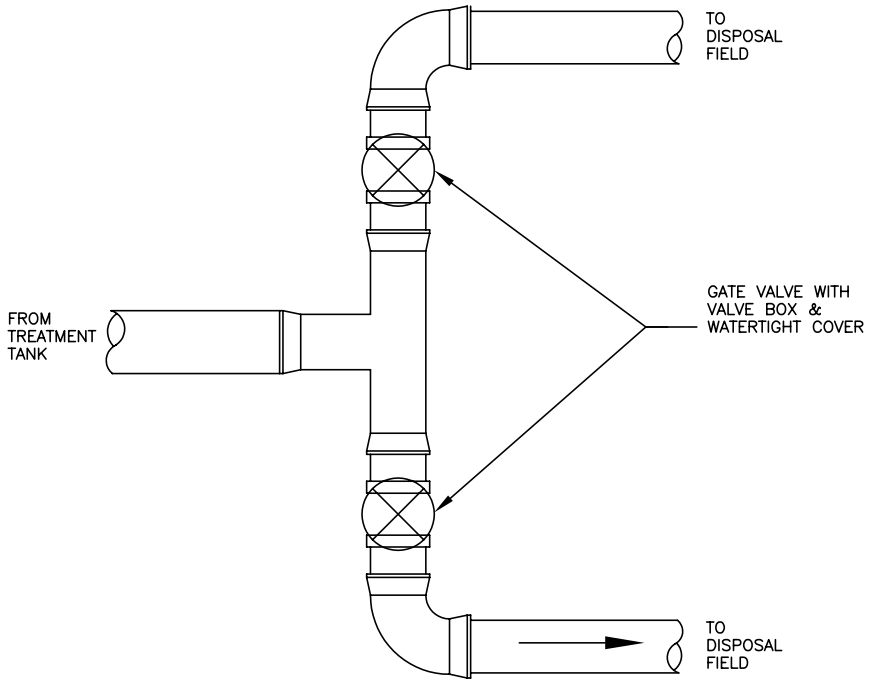
ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - I



BULL RUN VALVE- (TYPICAL)

(FOR GRAVITY FLOW ONLY)



DIVERSION VALVES- (TYPICAL)

(FOR GRAVITY OR PRESSURE SYSTEM)

STATE OF DELAWARE

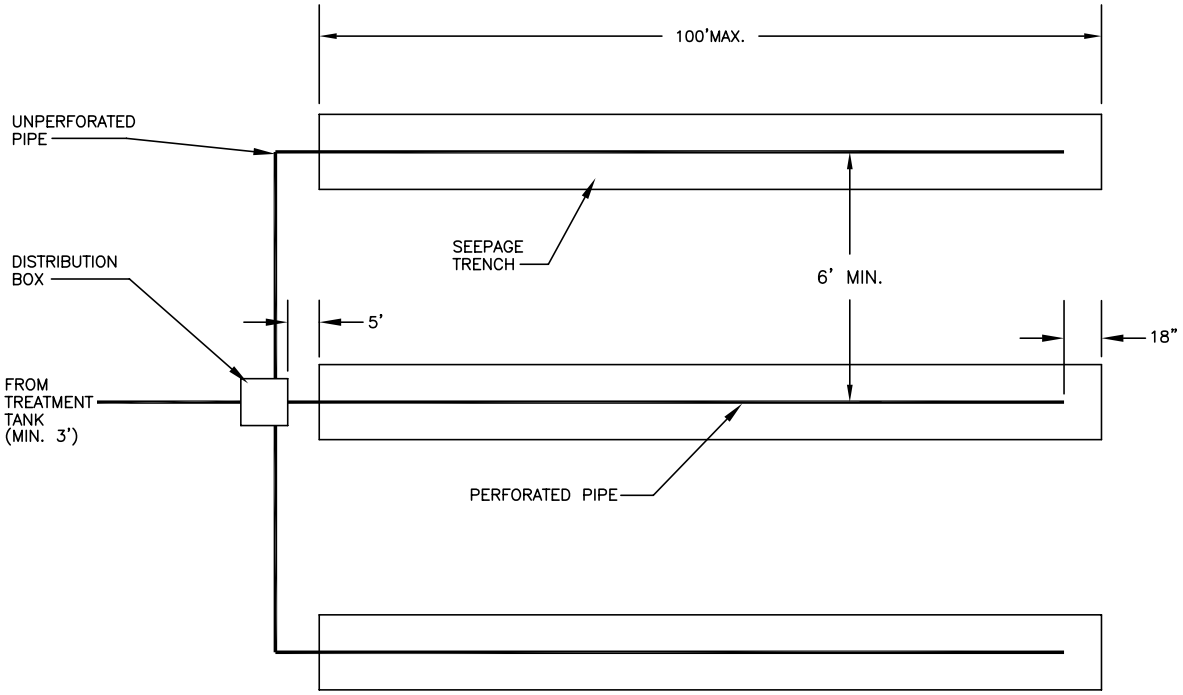
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

DIVERSION EQUIPMENT FOR
DUAL FIELDS
(NOT TO SCALE)

ISSUED: JANUARY 1985

REVISED: APRIL 2004

EXHIBIT - J



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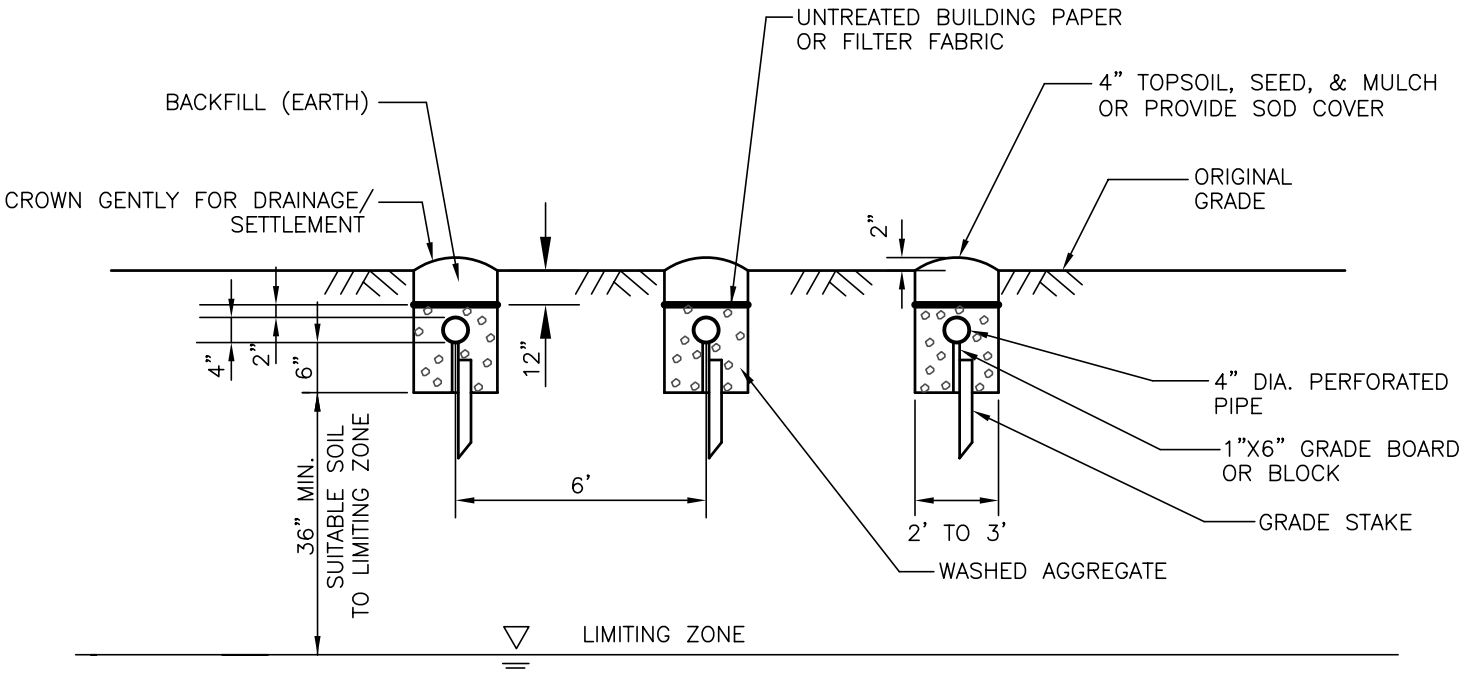


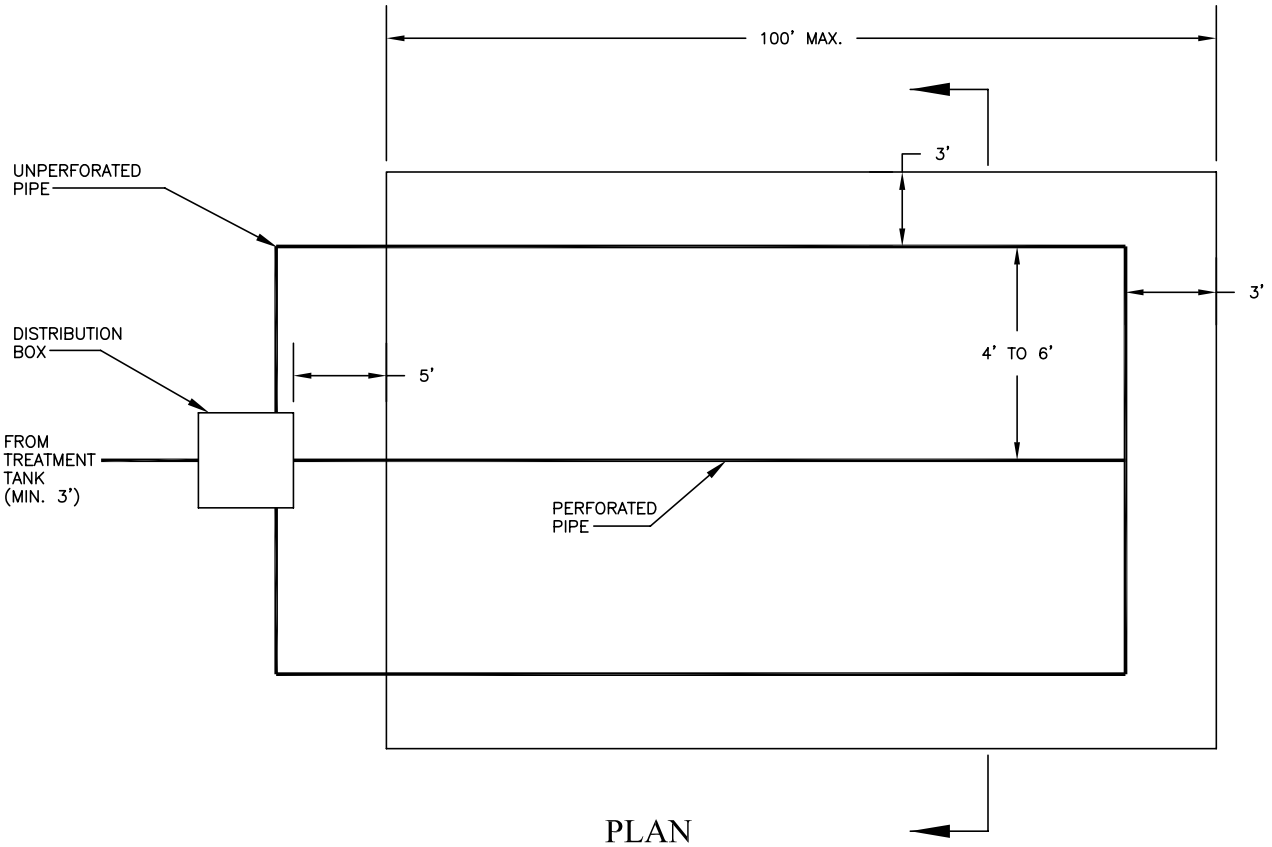
SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

TYPICAL AGGREGATE TRENCH
DESIGN FULL DEPTH GRAVITY
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - K
(SHEET 1 OF 2)



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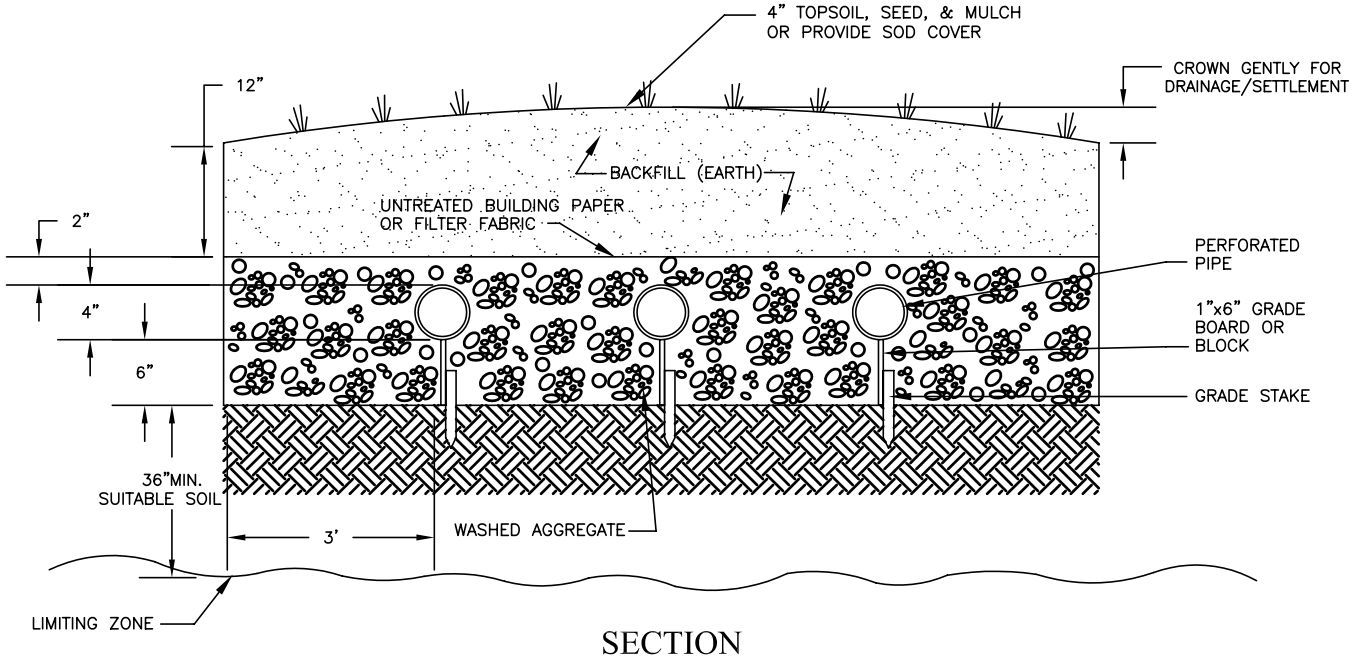


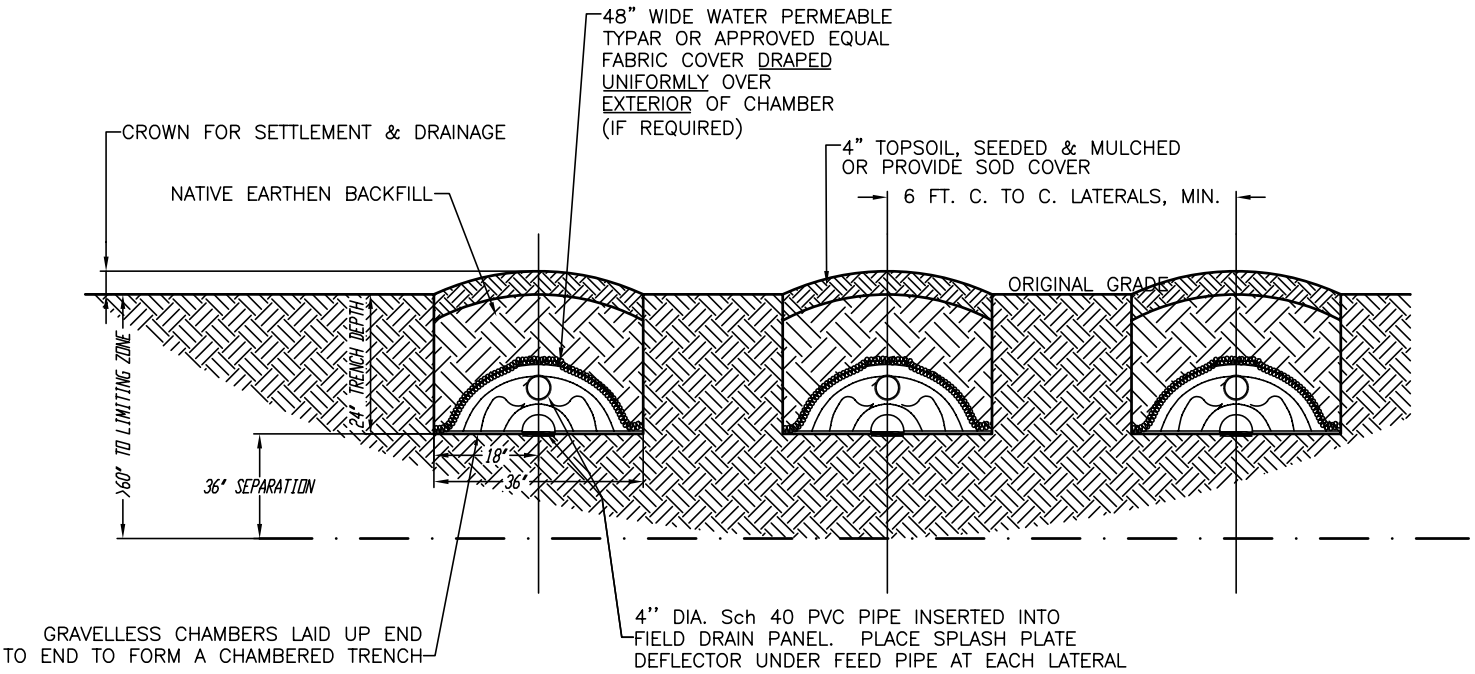
SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

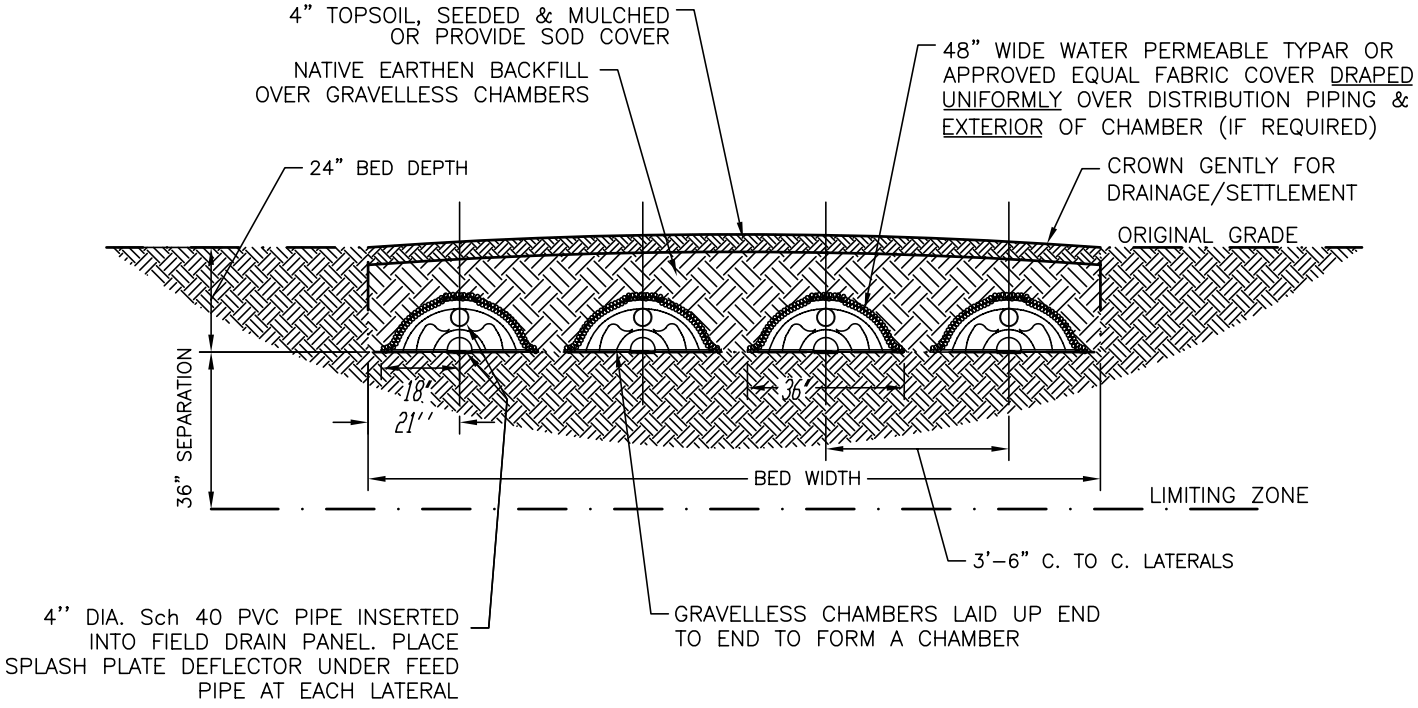
TYPICAL AGGREGATE BED
DESIGN FULL DEPTH GRAVITY
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - K
(SHEET 2 OF 2)



FULL DEPTH TRENCH SECTION



FULL DEPTH BED SECTION

STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

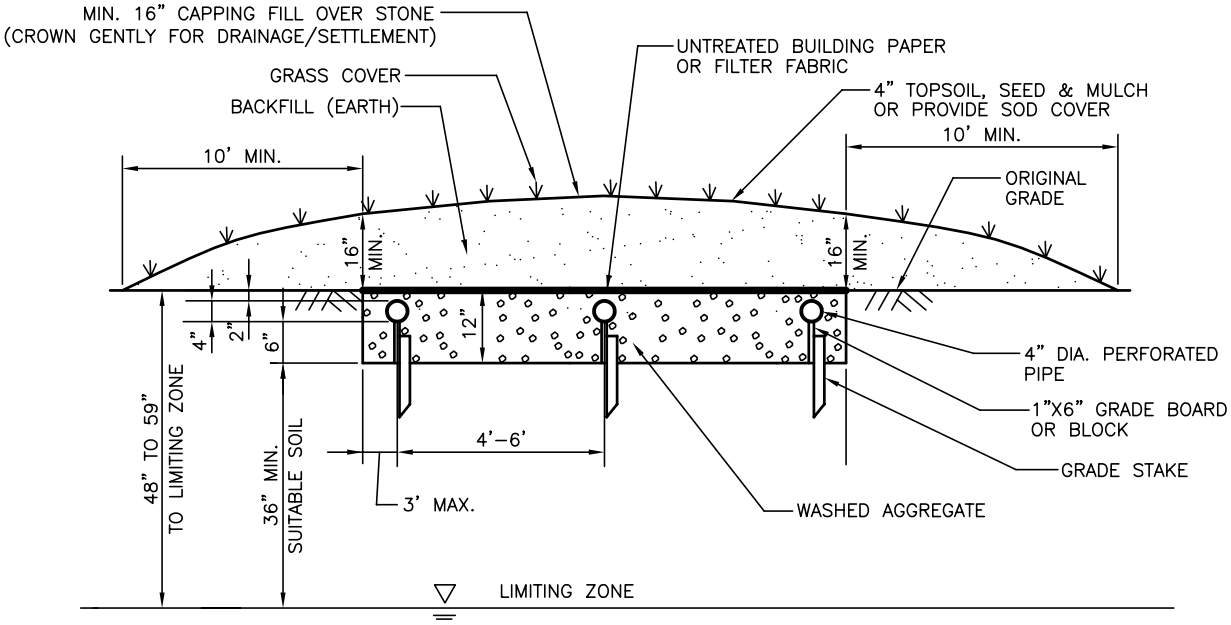
TYPICAL AGGREGATE-FREE DESIGNS FULL DEPTH GRAVITY

(NOT TO SCALE)

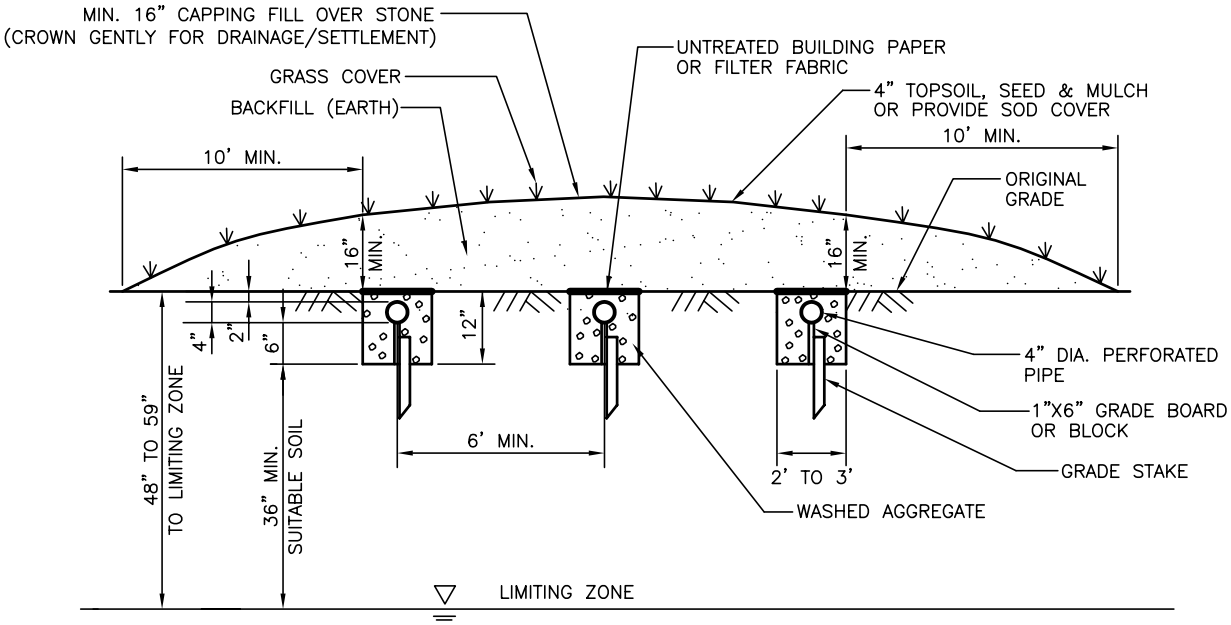
ISSUED: JANUARY 1985

REVISED: APRIL 2004

EXHIBIT - L



BED SECTION



TRENCH SECTION

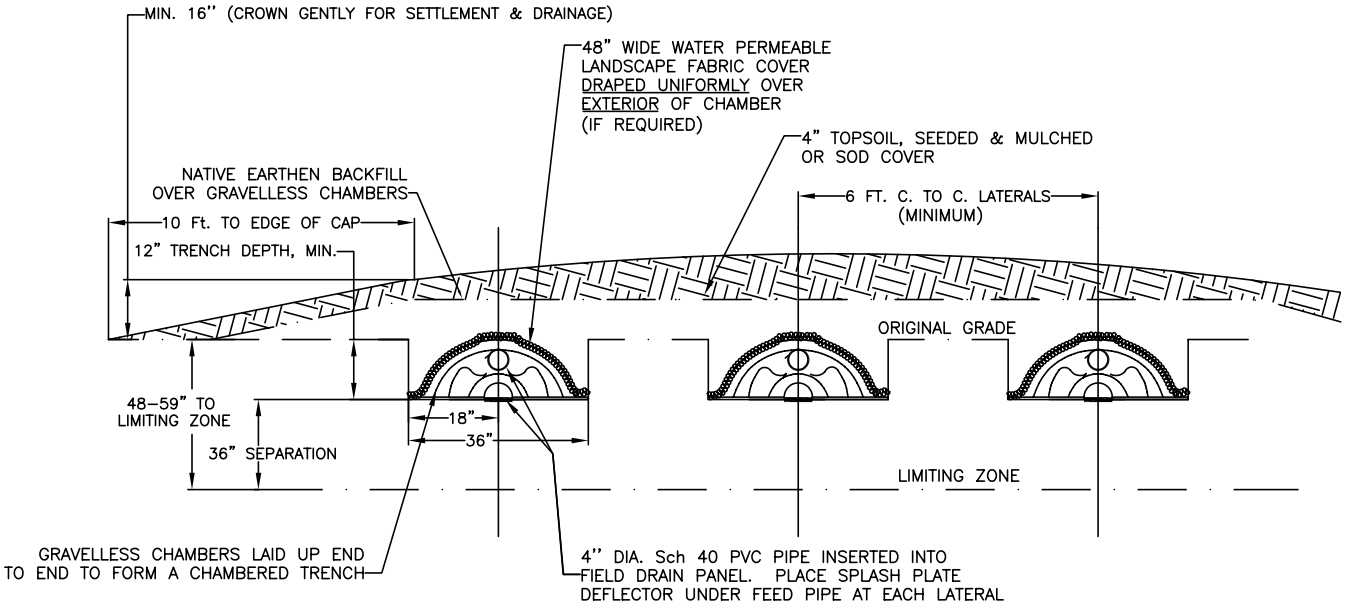
STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

TYPICAL AGGREGATE TRENCH/BED DESIGN- CAPPING FILL GRAVITY

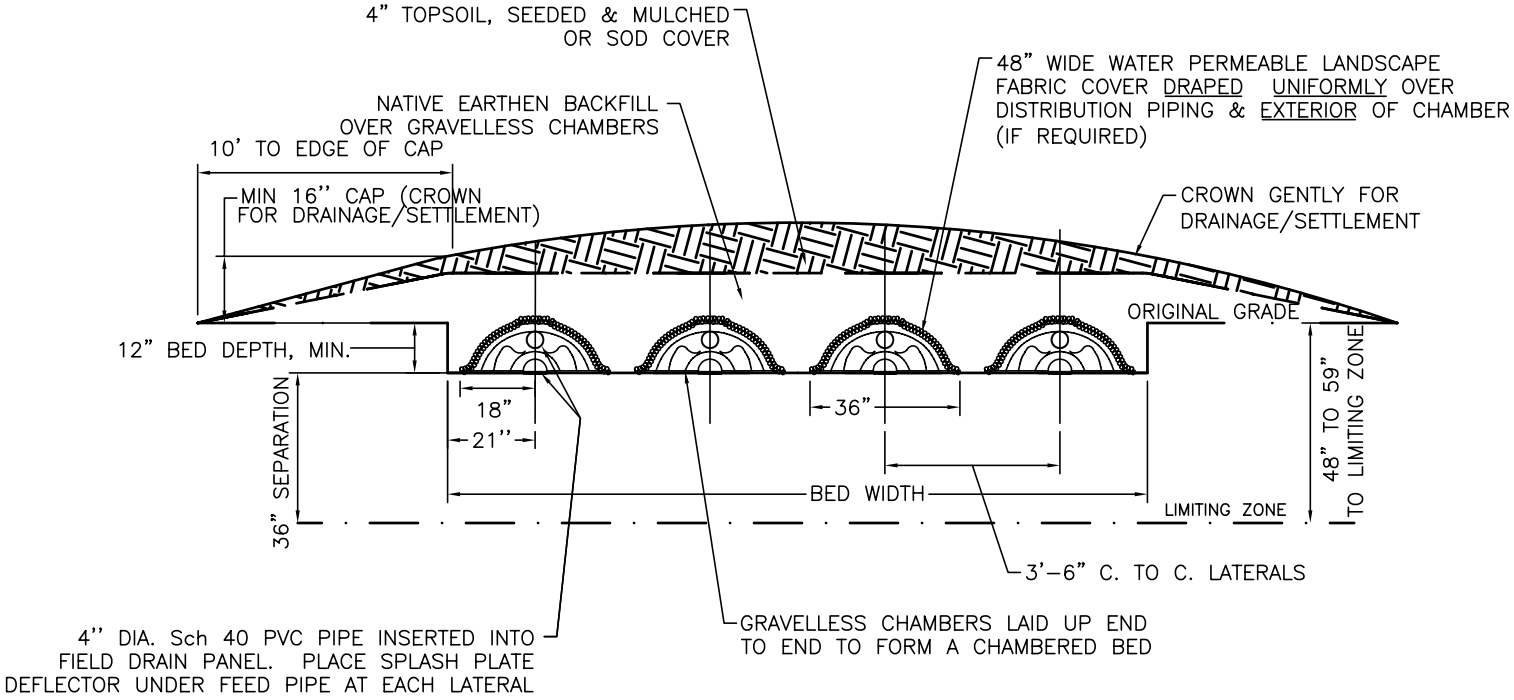
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - M



CAPPING FILL TRENCH SECTION



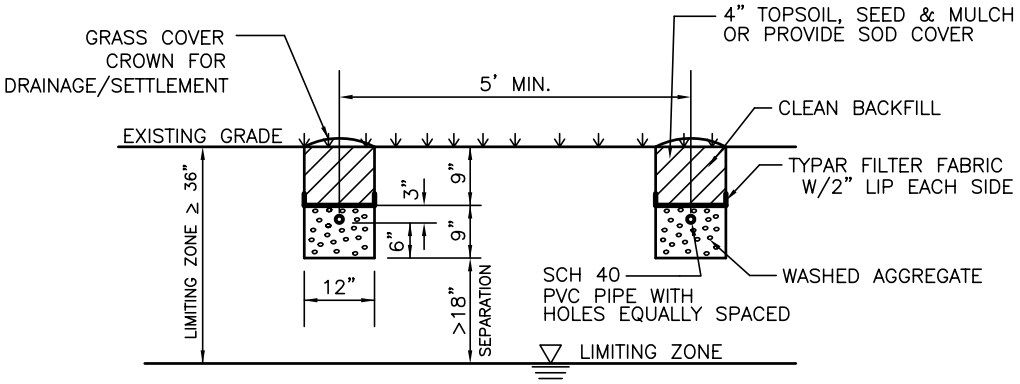
CAPPING FILL BED SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

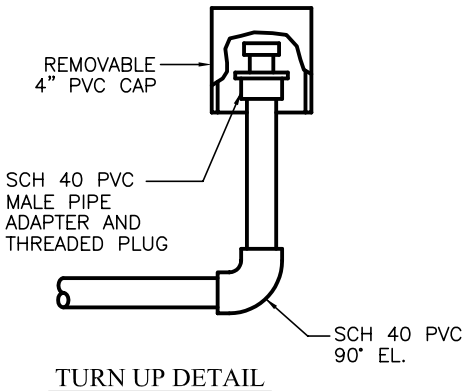
TYPICAL AGGREGATE-FREE DESIGNS CAPPING FILL GRAVITY
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

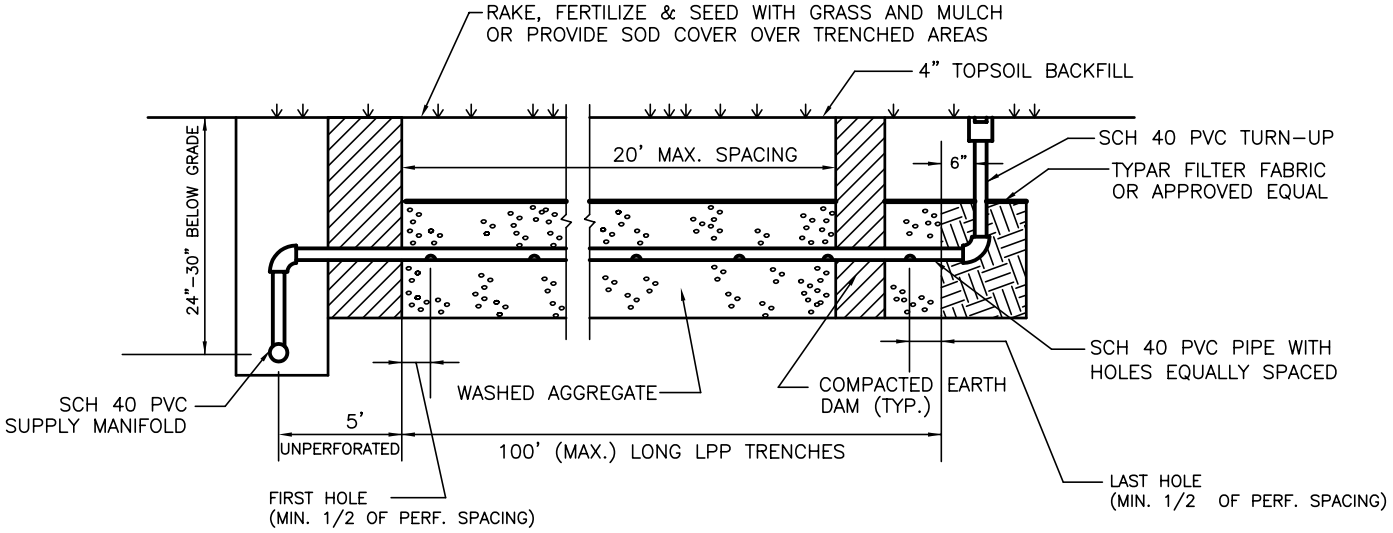
EXHIBIT - N



TRENCH CROSS SECTION



TURN UP DETAIL



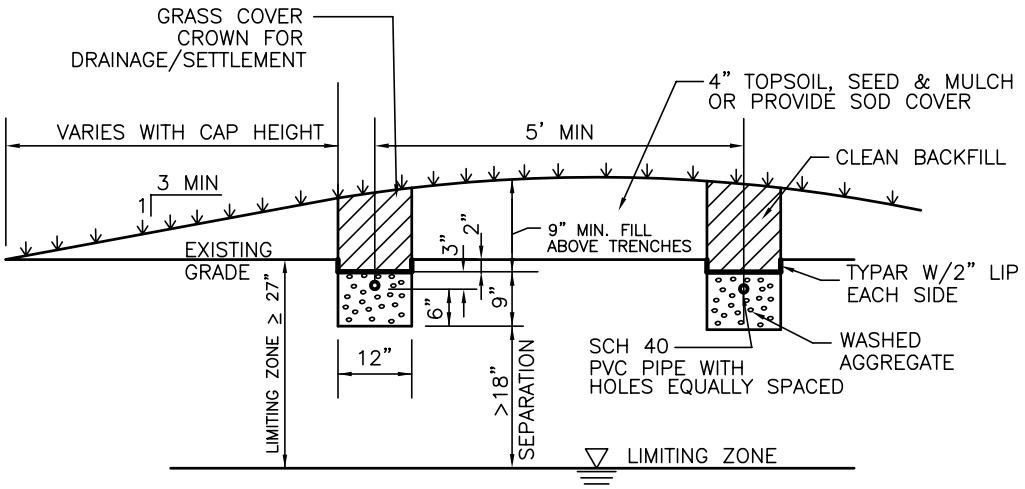
LPP TRENCH SECTION DETAIL

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

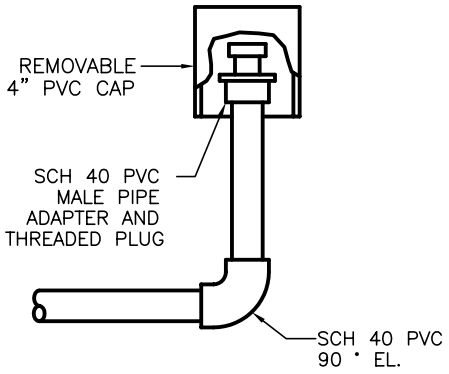
TYPICAL FULL DEPTH
LOW PRESSURE PIPE DESIGN
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - O
(SHEET 1 OF 3)



TRENCH CROSS SECTION



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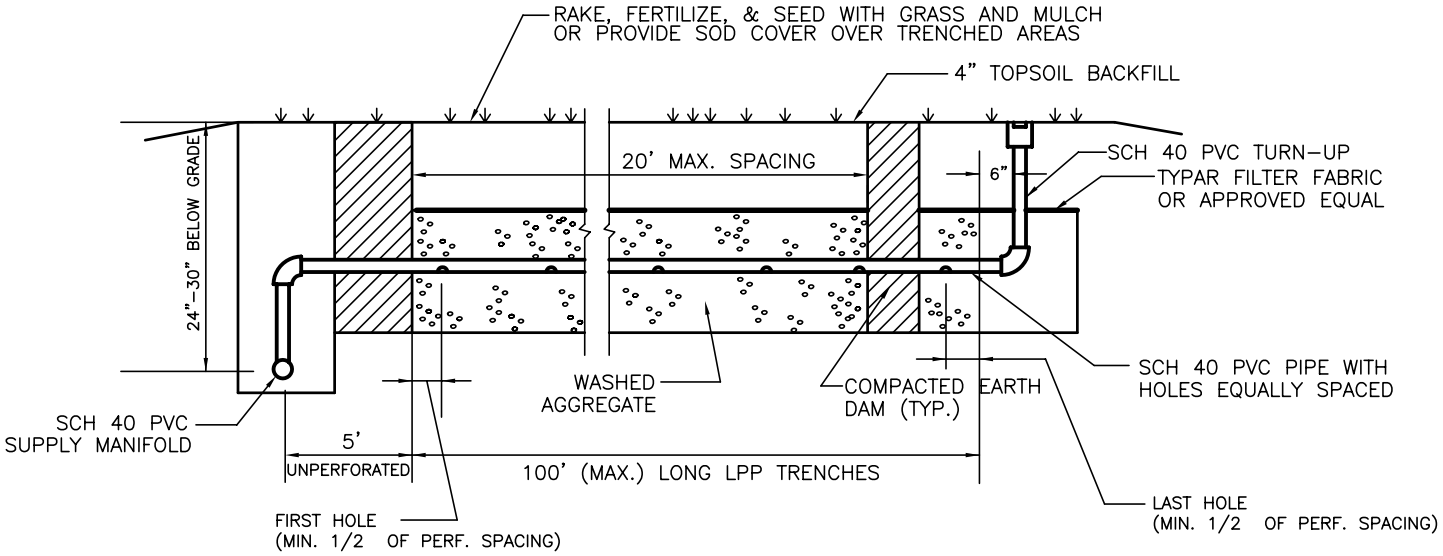


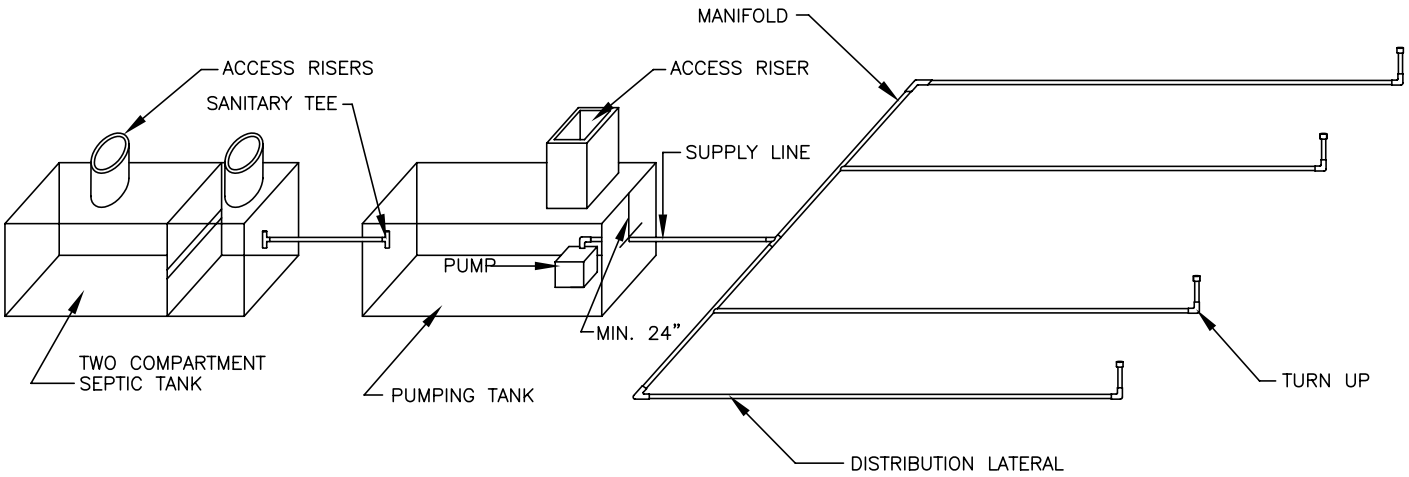
LPP W/CAP TRENCH SECTION DETAIL

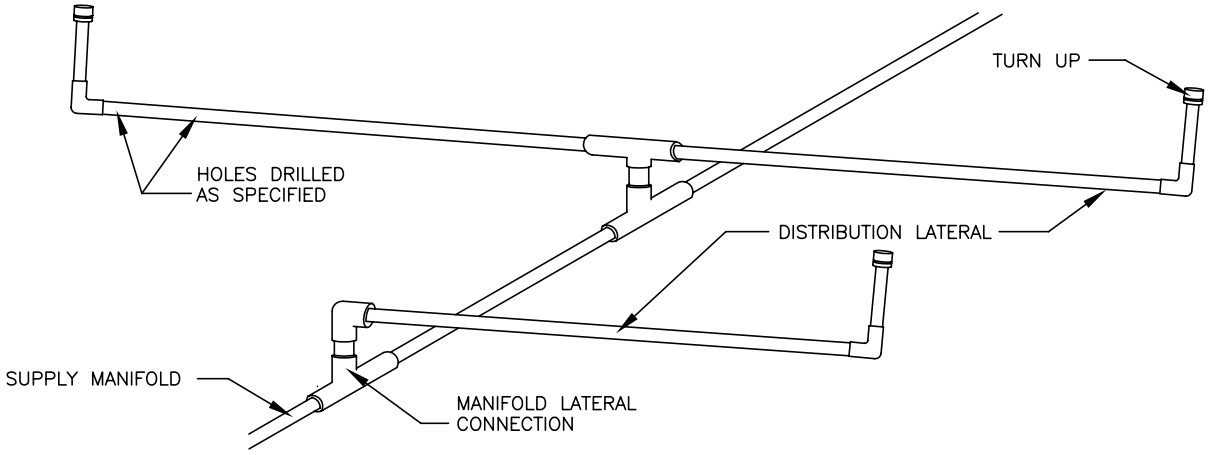
STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

TYPICAL CAPPING FILL
LOW PRESSURE PIPE DESIGN
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - O
(SHEET 2 OF 3)





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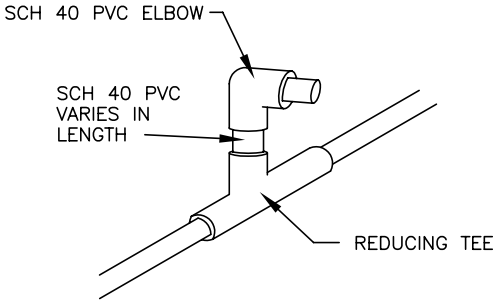
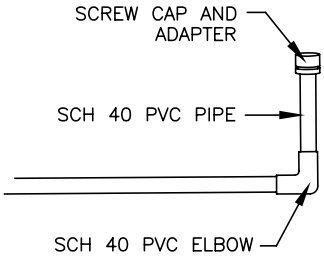
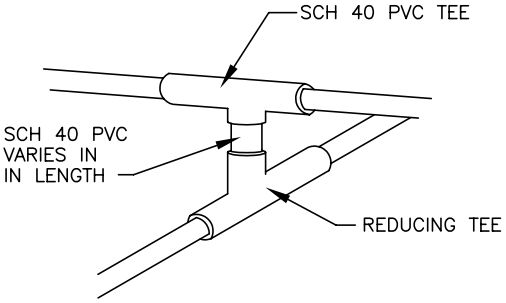


SIDE MANIFOLD
LATERAL CONNECTION



TURN UP



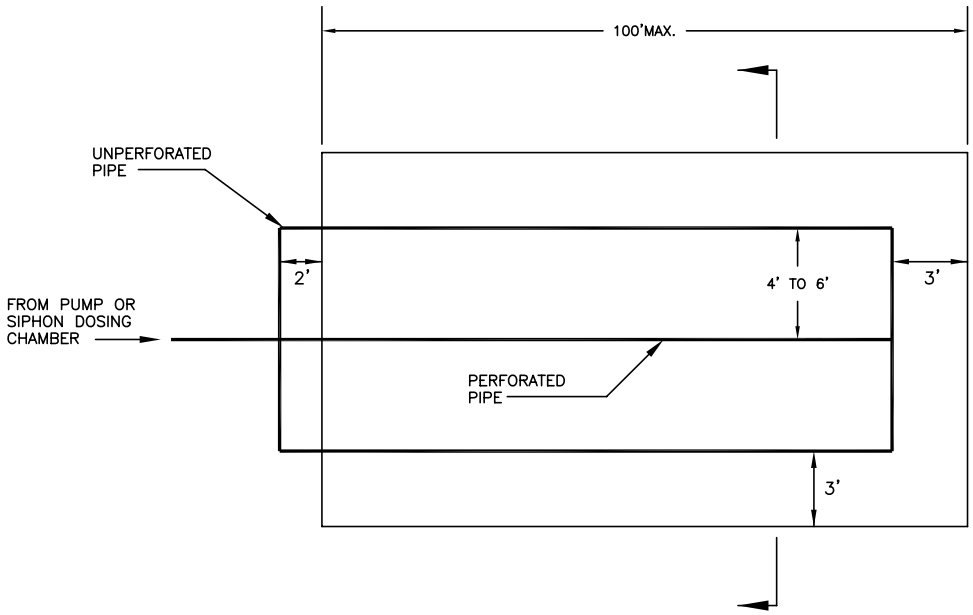
CENTER MANIFOLD
LATERAL CONNECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

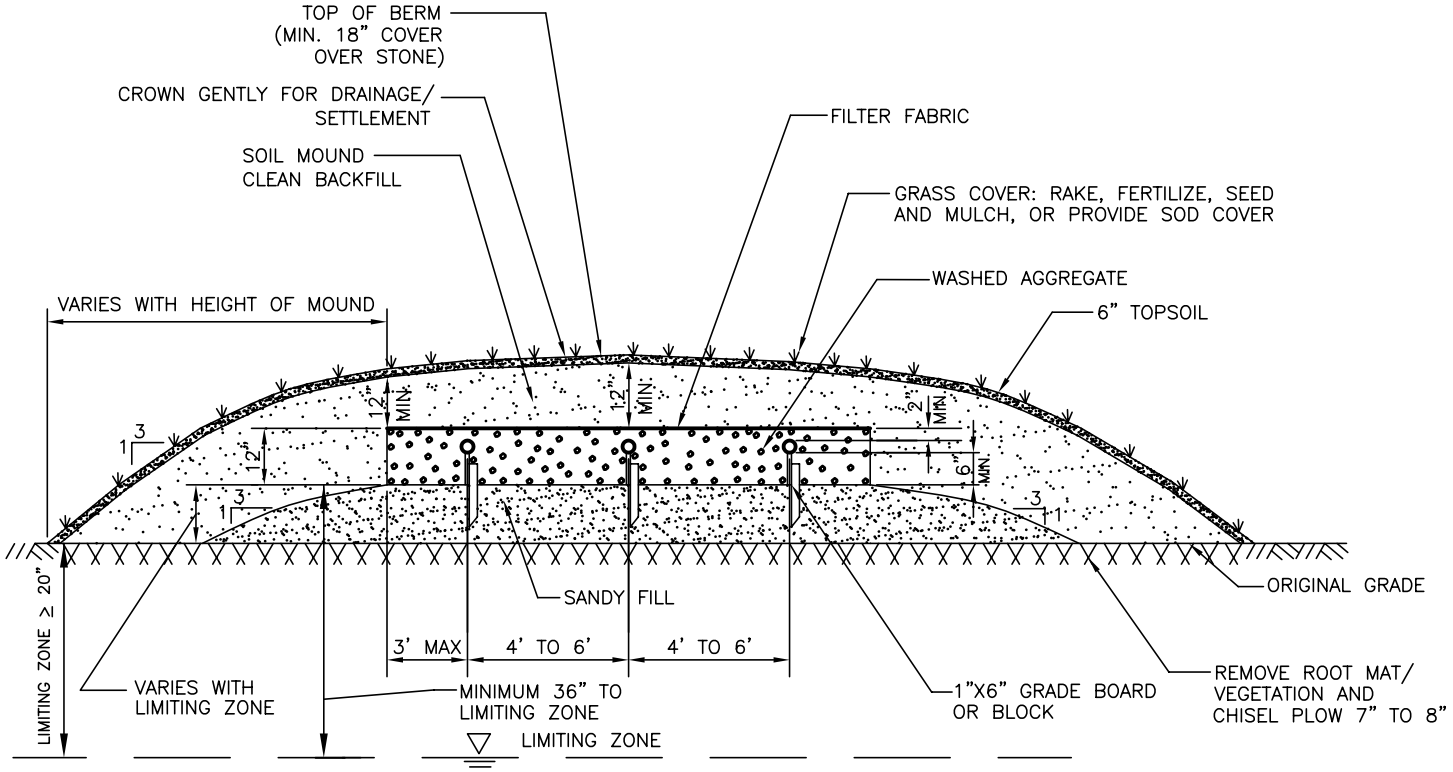
TYPICAL DISTRIBUTION NETWORK FOR A LOW PRESSURE PIPE DESIGN
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - O
(Sheet 3 of 3)



PLAN



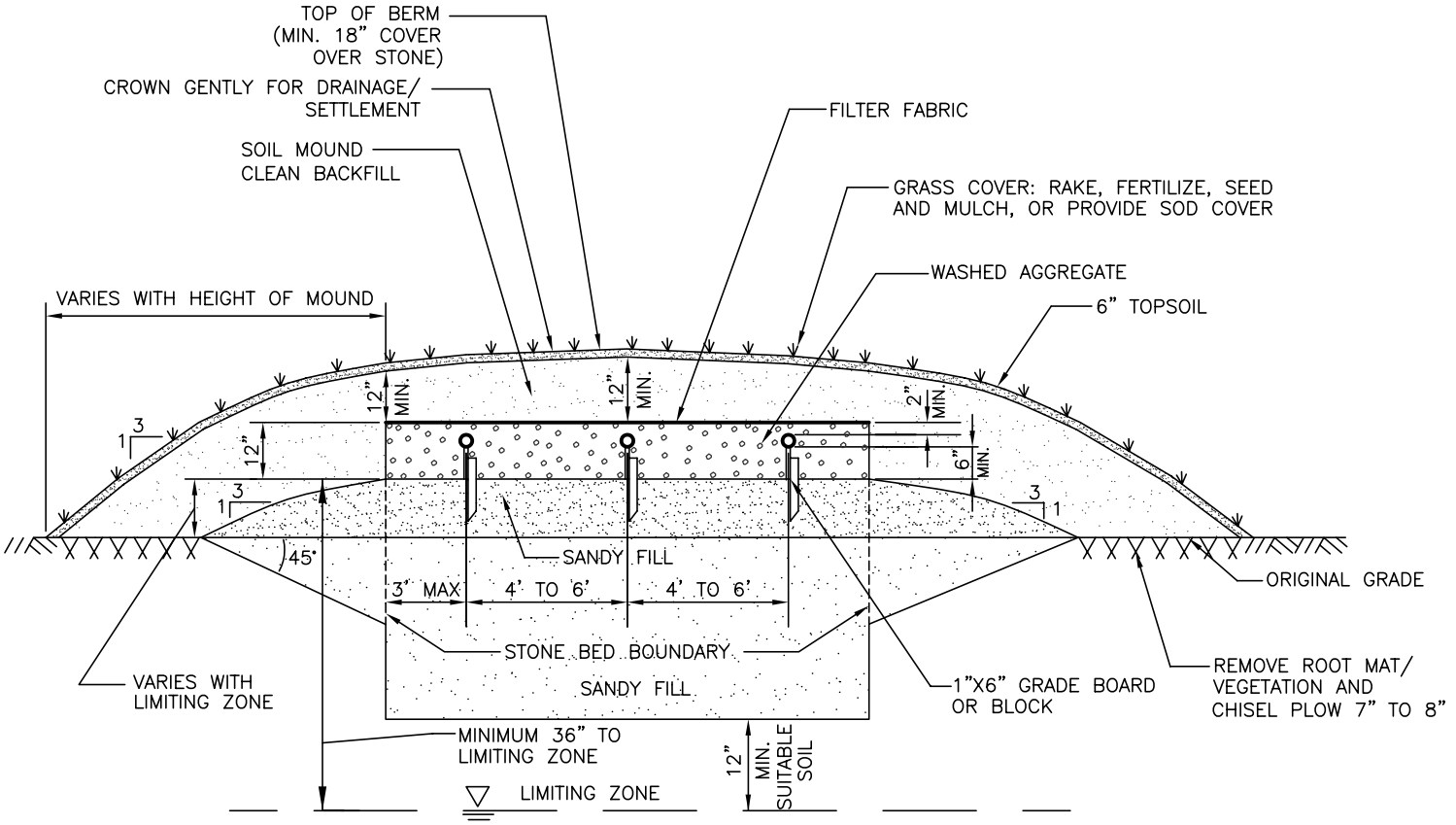
SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

TYPICAL ELEVATED SAND MOUND DESIGN

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - P
(Sheet 1 of 2)



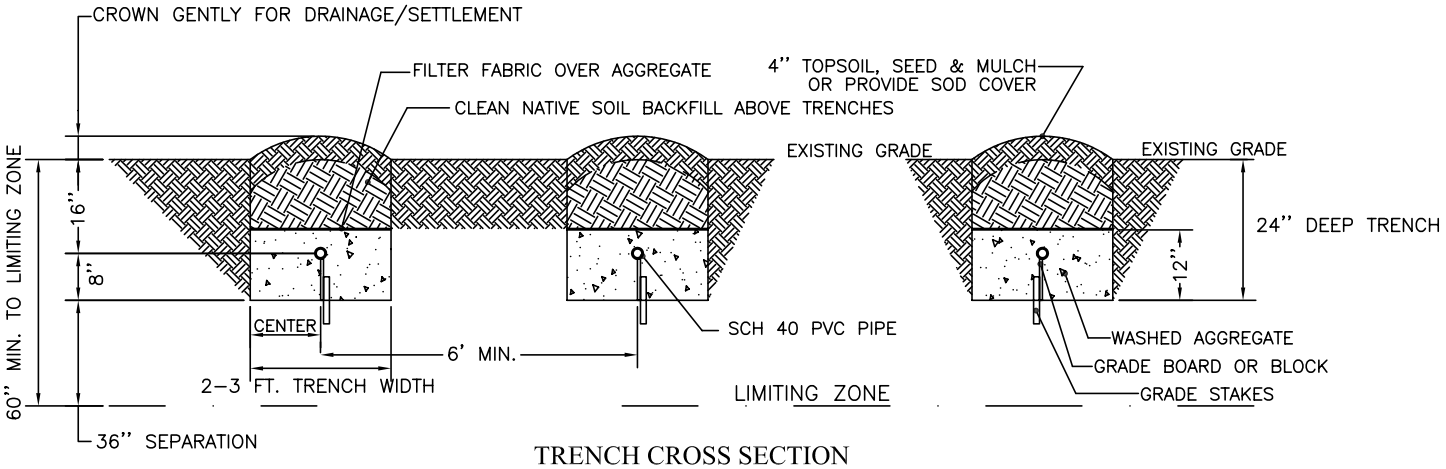
SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

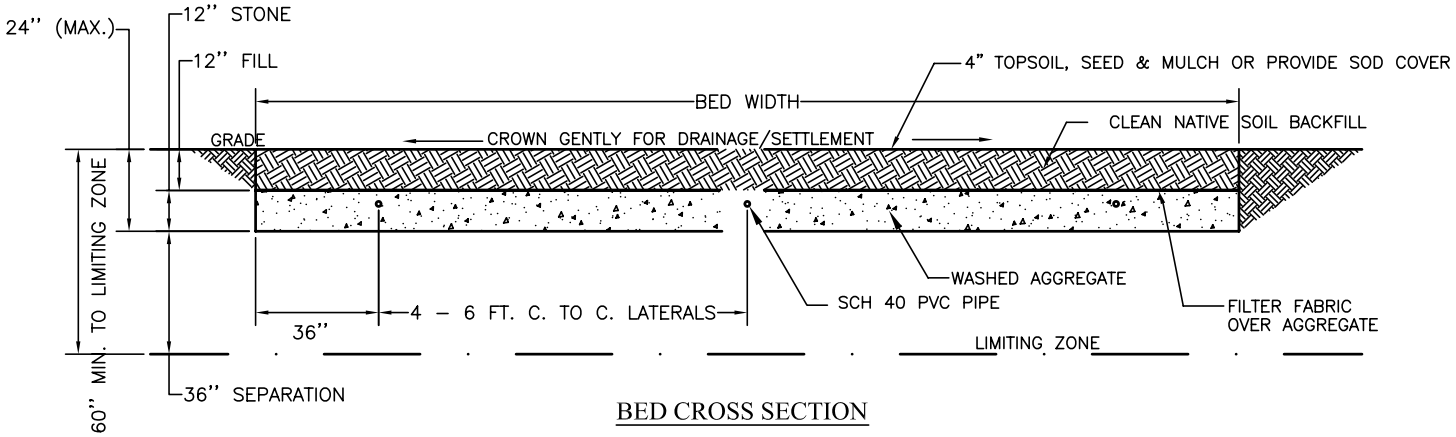
TYPICAL SAND-LINED ELEVATED SAND MOUND DESIGN

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - P
(Sheet 2 of 2)



TRENCH CROSS SECTION



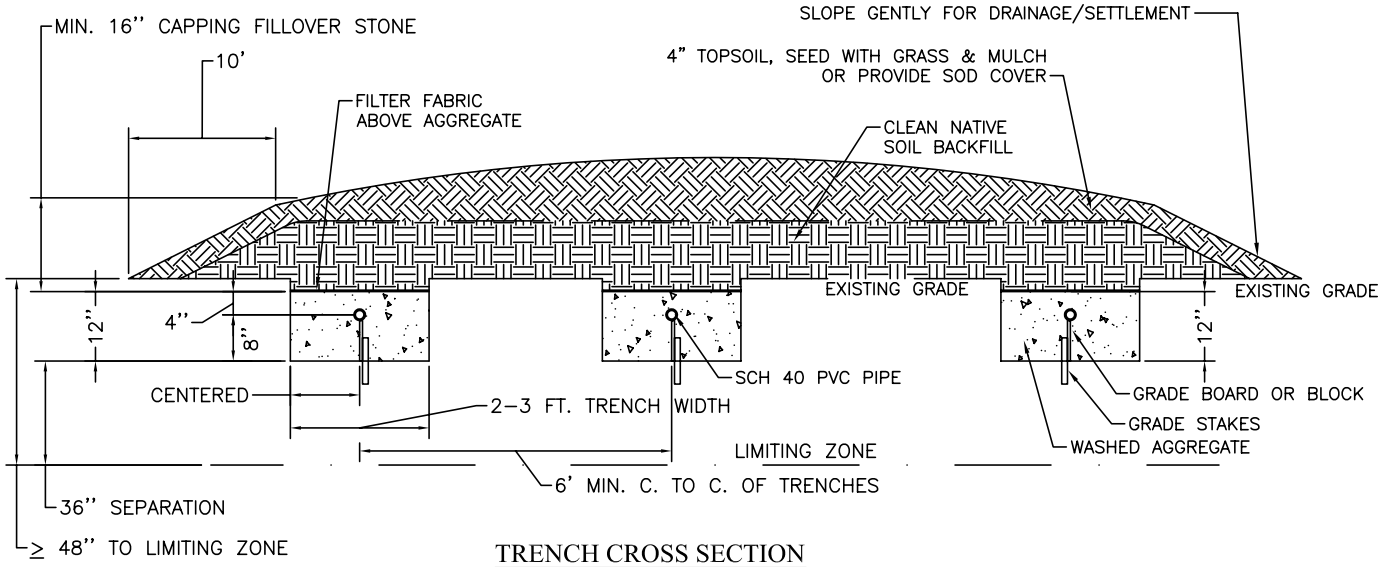
BED CROSS SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

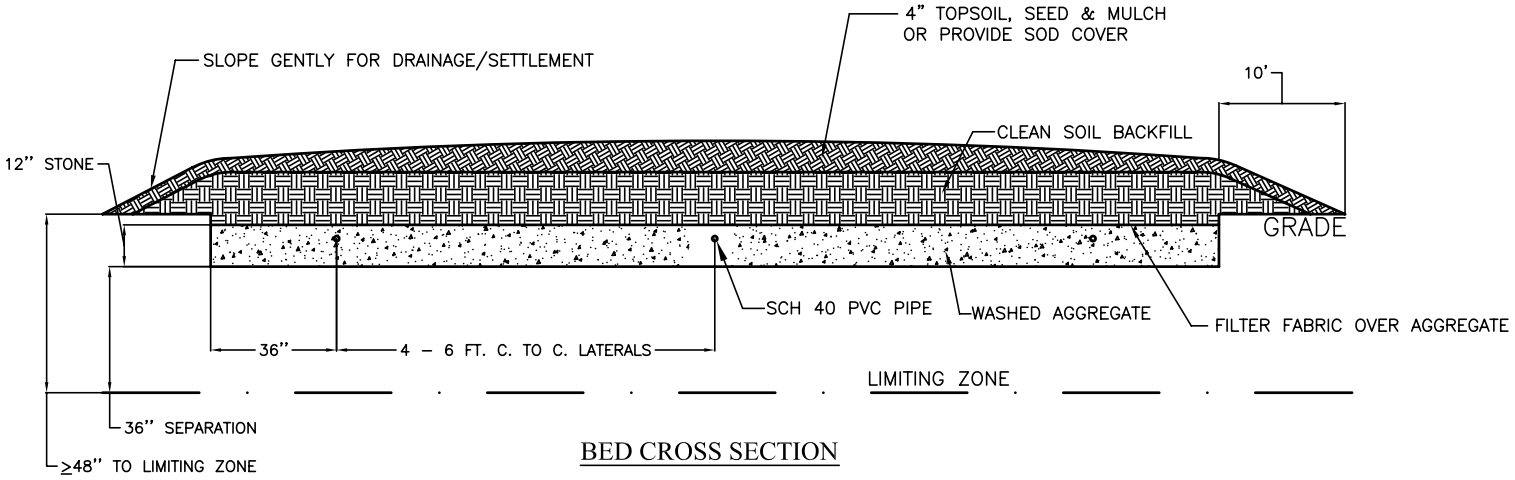
TYPICAL PRESSURE-DOSED FULL DEPTH TRENCH/BED DESIGNS

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - Q



TRENCH CROSS SECTION



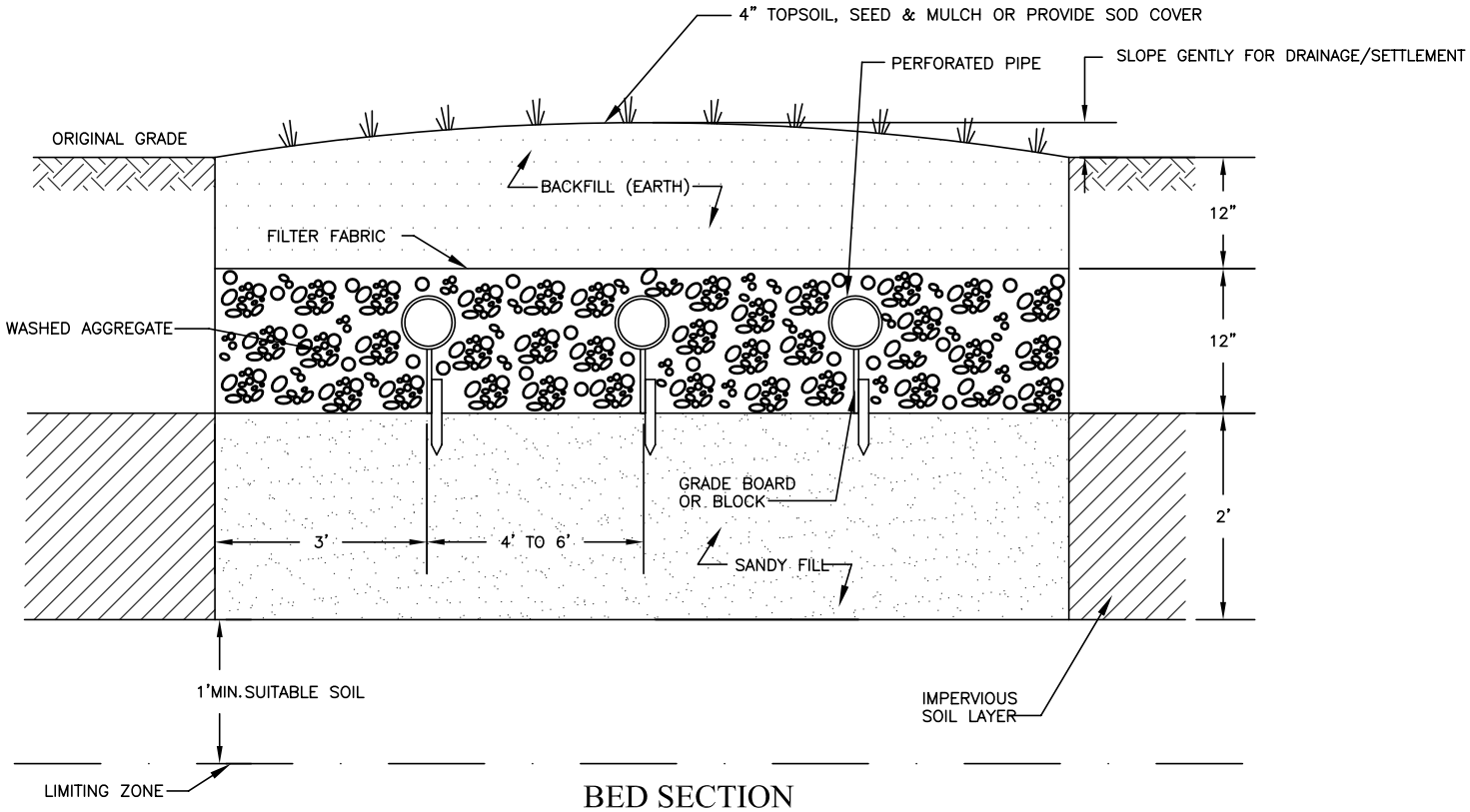
BED CROSS SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

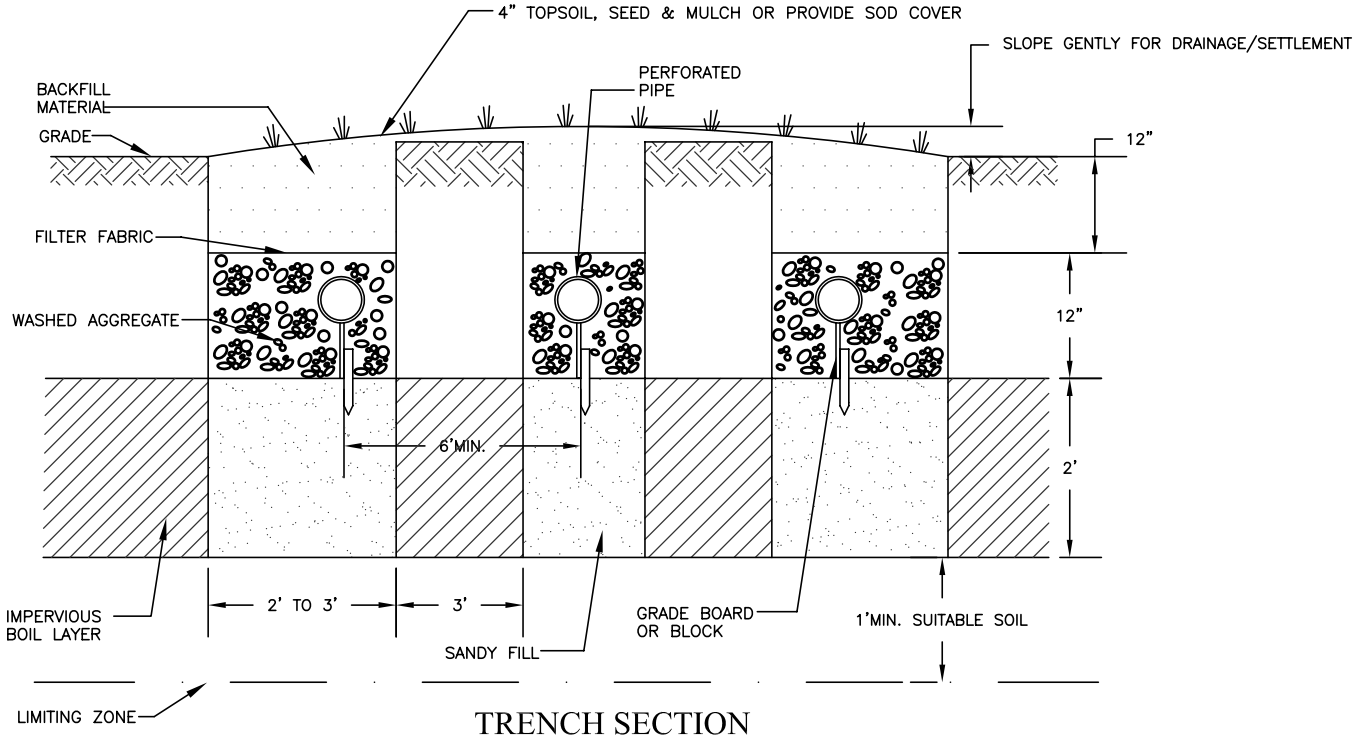
TYPICAL PRESSURE DOSED TRENCH/BED DESIGN CAPPING FILL

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - R



BED SECTION



TRENCH SECTION

STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

TYPICAL SAND-LINED TRENCH/BED DESIGNS

ISSUED: JANUARY 1985

REVISED: APRIL 2004

EXHIBIT - S

On-Site Wastewater Treatment and Disposal System Siting Information

SYSTEM TYPE	DEPTH TO THE LIMITING CONDITION (LZ)	SEPARATION REQUIREMENTS	TRENCH DEPTH
Denial	0 - 10 inches	N/A	N/A
Alternative Technologies *	11 - 18 inches	Same as ESM/drip	Same as ESM/drip
Micro-Irrigation (drip) *	18 - 24 inches	18 inches	0 - 6 inches
Elevated Sand Mound	20 - 26 inches	36 inches	N/A
Wisconsin At-Grade	24 - 26 inches	N/A	N/A
Low Pressure Pipe (CF)	27 - 35 inches	18 inches	varies, min. 9 inches
Low Pressure Pipe (FD)	36 - 47 inches	18 inches	18 inches
Gravity Capping Fill	48 - 59 inches	36 inches	varies, min. 12 inches
Pressure-Dosed (CF)	48 - 59 inches	36 inches	varies, min. 12 inches
Full Depth Gravity	60 inches or more	36 inches	24 inches
Pressure-Dosed (FD)	60 inches or more	36 inches	24 inches

* All performance-based approvals and criteria will be considered and approved on a case by case basis

TOTAL NITROGEN EFFLUENT CONCENTRATIONS REQUIRED FOR COMMUNITY TREATMENT SYSTEMS PROVIDING A HIGH DEGREE OF NITROGEN REMOVAL (mg/l)

Average Dwelling Unit Design Flow (GPD)

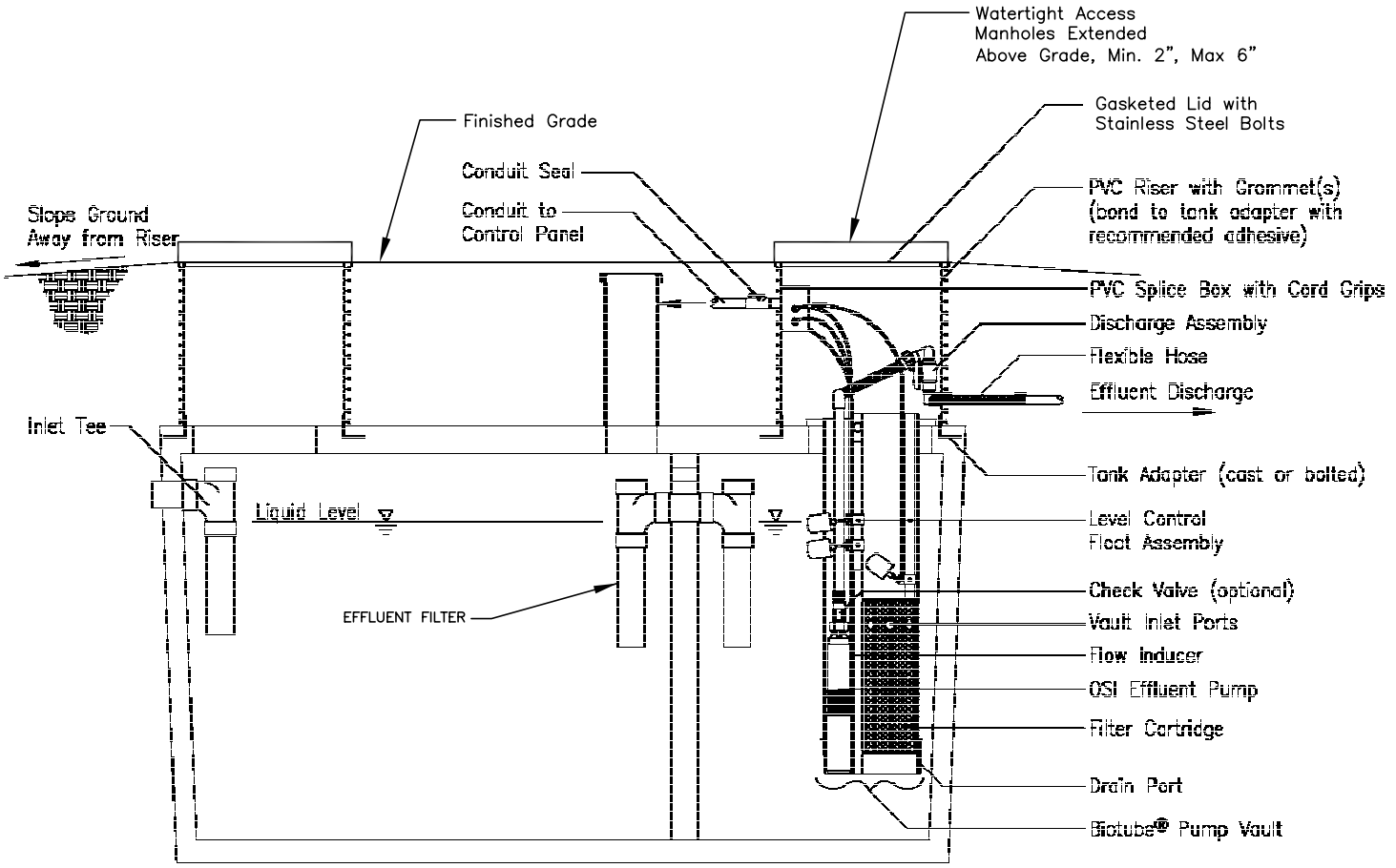
	240	300	360	420	480
Maximum Siting Density (dwelling units per pervious acre)					
3	35	30	23	22	14
4	29	22	14	13	11
5	22	13	11	10	10
6	14	11	10	10	10
7	13	10	10	10	10
8	11	10	10	10	10
9	10	10	10	10	10
10	10	10	10	10	10

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

TOTAL NITROGEN CONCENTRATIONS FOR COMMUNITY SYSTEMS

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - U



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

SEPTIC TANK LIFT STATION
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - V

PERCOLATION RATES
BASED UPON USDA SOIL TEXTURES

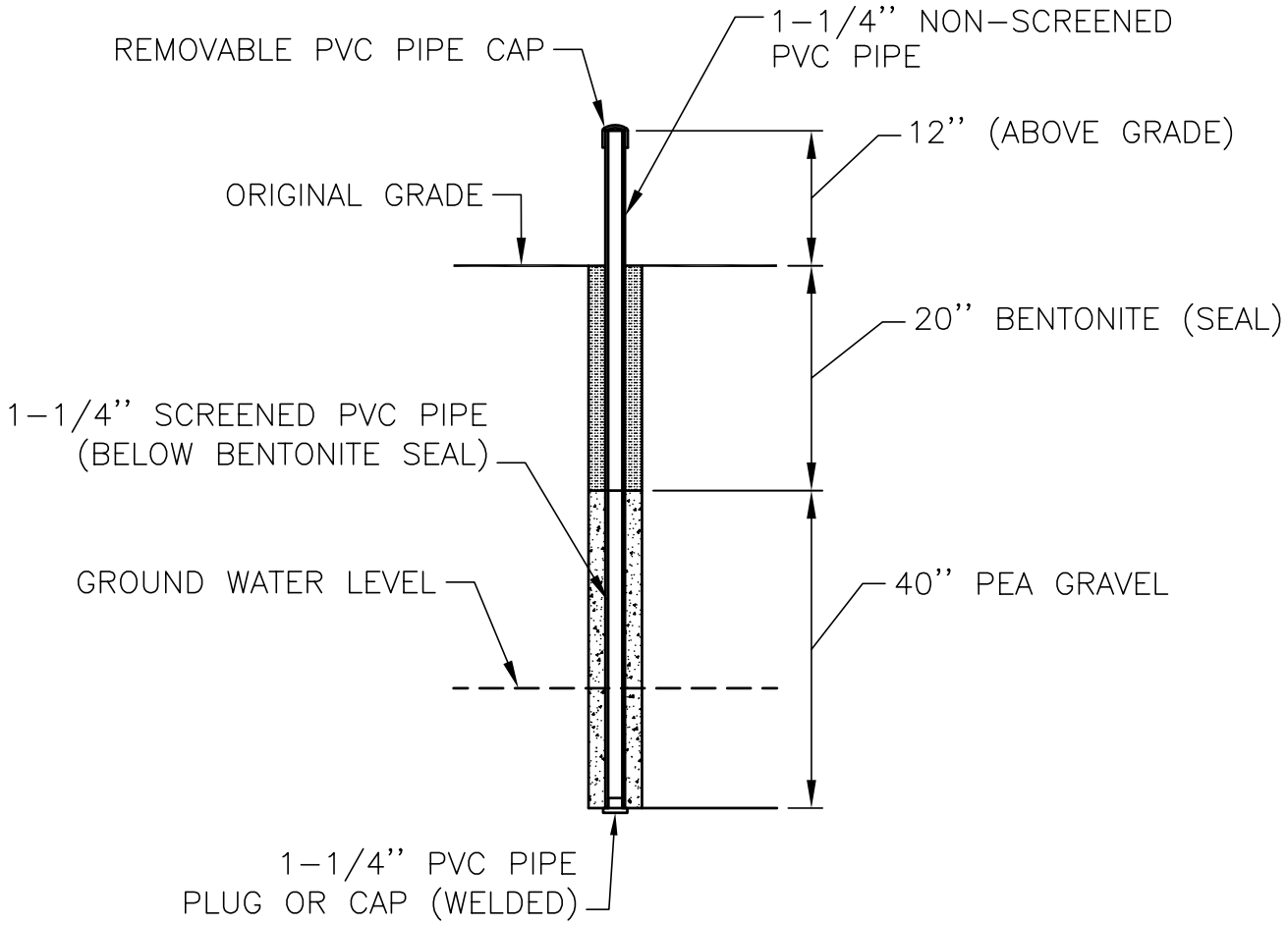
USDA TEXTURE	DNREC ASSIGNED PERMEABILITY RATE (MPI)*
Sands	5
Loamy Sand	10
Sandy Loam	20
Sandy Clay Loam	30
Loam	30
Silt Loam	50
Silt	50
Clay Loam	75
Silty Clay Loam	75
Sandy Clay	120
Silty Clay	120
Clay	120

* Other soil properties such as high bulk density, structure, total porosity, and size and continuity of the pores may significantly affect these permeability rates. Textures of loamy coarse sand and coarse sandy loam may have permeability rates faster than assigned, while loamy very fine sand, loamy fine sand, very fine sandy loam and fine sandy loam may have permeability rates slower than assigned.

Permeability Class	Permeability Rate (mpi)
Very Slow	> 120
Slow	50 – 120
Moderate	25 – 49
Moderately Rapid	10 – 25
Rapid	6 – 10
Very Rapid	< 6

LOW PRESSURE PIPE DESIGN
PERCOLATION RATES & MAXIMUM HOLE SPACING DISTANCES

MPI	FACTOR	MAX. SPC'G
20	3.70	60
25	4.20	60
30	4.80	72
35	5.50	72
40	5.58	72
45	5.87	72
50	6.16	72
55	6.45	72
60	6.65	72
65	7.35	96
70	8.05	96
75	8.75	96
80	9.45	96
85	10.15	96
90	10.99	96
95	11.76	96
100	12.74	96
105	13.86	96
110	15.26	96
115	16.52	96
120	17.50	96



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

OBSERVATION WELL CONSTRUCTION DIAGRAM
(NOT TO SCALE)

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - Y

ON-SITE WASTEWATER SYSTEM ABANDONMENT REPORT

DELAWARE
DIVISION OF WATER RESOURCES
Working for YOU to Provide "Clean Water for Today and Tomorrow"

(Please Type or Print Legibly)

TAX MAP #: _____

LICENSEE NAME: _____ LICENSE #: _____ PHONE #: _____

ABANDONMENT DATE: _____

THIS FORM MUST BE SUBMITTED WITHIN 10 DAYS OF COMPLETION

REASON FOR ABANDONMENT: (Circle one) **Connection to Central Sewer** **New System Installed**

IF NEW SYSTEM INSTALLED - PERMIT #: _____

ABANDONED SYSTEM PERMIT #: _____

WAS ABANDONED SYSTEM A:
(Check all that apply)

Cesspool	☐	**# Cesspools** _____
Concrete Tank	☐	**# Concrete Tanks** _____
Steel Tank	☐	**# Steel Tanks** _____

TYPE OF ABANDONMENT: (Circle one) **Crushed and Filled** **Removed and Filled**

_____ Date

_____ Licensee Signature

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

SYSTEM ABANDONMENT REPORT

ISSUED: JANUARY 1985
REVISED: APRIL 2004

EXHIBIT - Z

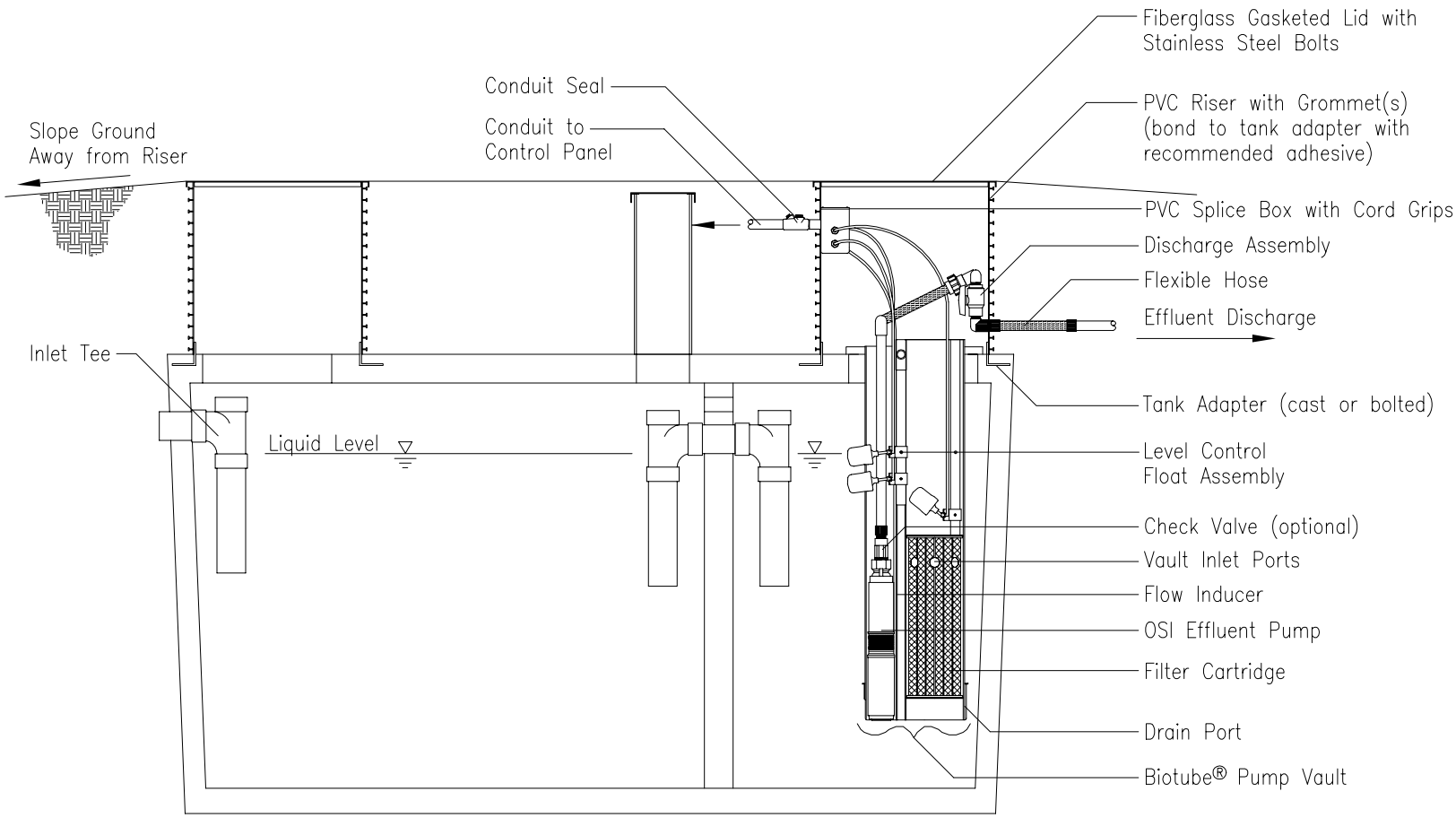
Effluent Pumping System - 2nd Compartment Drawdown

Orenco Systems®
Incorporated

814 AIRWAY AVENUE
SUTHERLIN, OREGON
97479-9012

TELEPHONE:
(541) 459-4449

FACSIMILE:
(541) 459-2884



Patents # 4,439,323 & 5,492,635
Foreign Patents Pending
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