

AMERICAN DRIP SYSTEM
STANDARD ENGINEERING SPECIFICATIONS
15 GPM UNIT

AMERICAN MANUFACTURING COMPANY INC.
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1-800-345-3132
s:/data/catalog/engineer/commercial plans/02drip25/model25specs
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Specifications

DISC FILTERS - Disc Filters shall be an oblique filter, entirely of plastic, with two 3/4" male end connections to NPT schedule 40 pressure PVC. The filter elements shall consist of grooved rings, mounted on a spine, forming a cylindrical filter body. The rings are to be kept together by a spring seated at the bottom of the filter cover. The out-in filter shall be of the screw in type with nitrilic rubber o-ring seal. The body materials shall be polyester, the spine and rings shall be polypropylene, and the spring shall be stainless steel. The nominal filtration capacity of the filter shall be 115 microns.

DRIPPER TUBING - The dripper tubing shall be Netafim Bioline pressure compensating dripperline for wastewater. The tubing shall be nominal 0.61 gallons per hour (+/- 5% flow rate from 7 to 60 psi). The tubing shall function as a turbulent flow emitter between 0 and 7 psi, ensuring that the nominal design flow is not exceeded at system start-up. The tubing shall be polyethylene 120 psi rating. Tubing end connections and splice connections shall be manufactured specifically for the tubing and for connection to standard schedule 40 NPT adapters. The drip tubing manufacturer shall provide a head loss chart for various drip tubing lateral lengths to provide for a minimum scouring velocity (2 ft/sec) at the distal end of the drip tubing lateral.

AUTOMATIC CONTROL VALVES - The automatic control valves shall be 1.0" diameter solenoid activated diaphragm valves by Bernad. The body and cover shall be reinforced nylon. The metal parts shall be stainless steel, the diaphragm shall be nylon-fabric reinforced polyisoprene. The seals shall be Buna-N. These valves shall operate electrically using hydraulic pressure to open and to close.

MASTER VALVE - The automatic master control valves shall be 1.5" diameter solenoid activated diaphragm valve by Dorot. The body and cover shall be reinforced nylon. The metal parts shall be stainless steel, the diaphragm shall be nylon-fabric reinforced polyisoprene. These valves shall operate electrically using hydraulic pressure to open and to close.

RETURN PRESSURE ASSEMBLY FOR ZONE RETURN CONTROL VALVE - The automatic zone return valve shall, in the event the drip zones are over 10 feet in vertical elevation above the hydraulic unit, have installed a "return pressure assembly". The assembly is to be used to prevent the line from draining after or during each dose. See standard detail.

GRAVITY PIPING - All gravity piping shall be schedule 40 PVC DWV as a minimum. Fittings shall be Schedule 40 PVC suitable for underground installation. All joints shall be solvent welded with the use of primer and PVC Glue.

NON-DRIPPER LINE PRESSURE PIPING - All non-dripper line pressure piping shall be PVC schedule 40 pressure rated. Rigid piping shall be standard ASTM 1120 for use with solvent welded Schedule 40 fittings. Flex piping shall be schedule 40 PVC flex pipe for use with pressure fittings.

FLOAT SWITCHES - The system will operate on four floats. The bottom two floats ("Off" and "Enable") shall be Connelly 10 amp, 115 volt, narrow angle supplied by American Manufacturing. The top two floats ("Peak" and "High Level") shall be Connelly 10 amp, 115 volt wide angle differential microswitches supplied by American Manufacturing.

GENERAL VALVES - All ball valves shall be Schedule 40. Check valves shall be of the swing check design of metallic bronze or brass with corrosion resistant metal hinge pin for use in wastewater. Gate and globe valves shall be of the true-union pvc type with stem adapters for surface operation.

FLOW METER - Flow meter shall be dial-type multi-jet 5/8" to 2" meter with total enclosure and an electrical output register. The meter shall be bronze with externally threaded ends with bronze threaded union end connectors. The meter shall provide contact closure corresponding to defined volume increments. Maximum switch current 500mA and maximum switching voltage 32 volts (AC or DC) for output register..

DISCONNECTS - Piping disconnects shall be PVC schedule 80 unions.

AIR RELEASE VALVES - Air release valves shall be 2" diameter Guardian air release and vacuum valves by Netafim. Body shall be made of fiberglass reinforced U.V. Protected nylon. Maximum working pressure 150 psi.

WIRE SPLICES - Field wire splices shall be installed in suitable wire splice pull boxes with waterproof connections for access to splice connections. The boxes shall have structural capacity for in ground installation and light vehicle yard care traffic.

SPECIAL DRIP EQUIPMENT - All non-specified drip equipment shall be as supplied by American Manufacturing Company, Inc. including the controls, drip hydraulic unit, pumps, and specialty fittings.

HEATER - The hydraulic unit shall be equipped with a thermostatically controlled heater. The heater shall be 225 watt & 120 volt.

HYDRAULIC UNIT ENCLOSURE - The enclosure shall be made of fiberglass with latching cover.

ENCLOSURE INSULATION - Insulation shall be made with two layers of aluminum separated by 5/16 inch dead air space with a minimum R-value of 8.3.

TOP FEED MANIFOLDS - Top feed supply and return manifolds shall be specified on sites with drainfield slopes greater than 10%. Manifolds shall be made with pressure rated schedule 40 PVC.

ZONE RESTING OPTION - The system controller shall allow for a zone to be rested or taken out of service. The controller shall have the capability to bypass a zone that has been taken out of service and dose the next available zone.

PIPE BEDDING - In ground piping shall be installed according to local codes. Piping shall be installed on original soil or suitably compacted fill or gravel bedded excavations on original soil. Free standing piping shall be schedule 40 PVC and assembled with restrained joints.

HYDRAULIC UNIT - Drip hydraulic unit by American Manufacturing must be mounted on an aluminum skid with an insulated enclosure with a removable lid for maintenance and monitoring purposes.

Three Filter Hydraulic Unit

The subsurface pump delivers unfiltered effluent to each filter. The filter backflushing schedule is triggered at the beginning of each dose cycle. One filter valve closes, thus blocking the flow of unfiltered effluent to that filter. After a short delay, the other flushing valves open, thereby backflushing the unused filter. The accumulated impurities discharge back into the pretreatment unit. The closing and opening procedure of the filter and back flush valves causes a change of flow within the unit to provide filtered water from two filters to backflush the other filter. The backflush procedure lasts approximately fifteen seconds then the back flushing valve closes. Only after the first filter has completed its backflushing cycle, will the second filter begin its cycle of backflushing in the same manner as the first. Effluent will then be pumped through clean disc filters, then through the flow meter and finally through the outlet manifold to the drip field supply line. During extended dose times the disc filters are re-backwashed to assure optimum operation.

H3-A. DRIP MOUND - LAYOUT:

1. Stake the perimeter of the drip absorption component and also install "offset" stakes to enable re-staking should perimeter stakes be destroyed. It is also suggested to stake the location of the centerline of the mound and the supply and return manifold trenches as a reference line.
2. Verify the reference elevation of each zone along its centerline. Any discrepancy will affect the bed's design.
3. Install the effluent delivery line from the effluent-dosing tank as per the approved plans. Lay the pipe below frost depth, cap and back fill. Mark end location for future identification.

H3-B. DRIP MOUND - BASAL AREA PREPARATION:

1. Plow the area inside the perimeter with a chisel plow to a depth not to exceed 6 inches. Do not till into the curtain drain area (if applicable). Plow parallel to contour of ground. DO NOT ROTOTILL. Moldboard plowing is not recommended. Do not plow when soil moisture is above the plastic limit. Soil should crumble when rolled between the hands rather than form a "rope" or "wire". Notify the Engineer and the Agency at least 2 to 3 days prior to plowing. The Engineer or the Agency shall verify the effectiveness of the plowing prior to fill placement. Any tree roots loosened by the tilling shall be manually removed.
2. Do not till into the curtain drain trench or within 12 inches of the curtain drain trench. Maintain at least 12 inches of undisturbed soil between the tilled basal area, and the closest curtain trench sidewall.
3. The plowed surface should be rough and irregular with crevasses visible. Do not over till the site.
4. Plow the area only when the sand fill is available. Do not allow the plowed surface to be ruined on as this will clog the pores in the soil and reduce infiltration rates.

H3-C. DRIP MOUND - FILL PLACEMENT:

1. Place all materials from the uphill side of the plowed area, taking care to keep trucks and equipment off of the plowed area and the non-disturbed areas as this will compact the soil.
2. Use a coarse sand material meeting ASTM C-33 specifications. In addition, sand to be sized 0.053 mm to 2.0 mm with maximum 20% greater than 2.0 and maximum 5% less than 0.053 mm. "Concrete sand" normally meets these specifications. Individual analysis will be performed on a case-by-case basis.
3. No equipment shall enter the areas designated as "replacement or secondary" or the areas held in reserve as the non-disturbed down slope areas.
4. The sand fill shall average the appropriate depth as specified on the approved plan set, taking into consideration the roughness of the tilled base.

H3-D. DRIP MOUND - DISTRIBUTION PLACEMENT:

1. Assemble the laterals of each zone as shown on the plans. Each individual run should be laid level at elevation as shown on plans.
2. Duct tape should be placed over all piping including drip tubing after cutting during installation to eliminate construction debris from entering the piping network. All dirt and debris must be removed from piping.
3. Air release valves must be stubbed up to within 4 inches of final grade. Provide a valve box with lid set flush with final grade to access the air release valve.
4. Observation ports should be stubbed up flush with the finish grade. Provide a valve box with lid to access the observation ports. Valve boxes should be set flush with final grade.
5. Place a topsoil sand interface barrier over the drip mound. Use a Geotextile filter fabric for this interface. Plan to cover the entire sand area. An alternative method would be to place an additional 3 inches of sand over the tubing to provide a natural filter protecting the tubing. This will prevent the migration of soil particles from the topsoil cover material into the sand of the drip mound.

H3-E. DRIP MOUND - FINAL COVER:

1. Place all materials from the uphill side of the plowed area, taking care to keep trucks and equipment off of the plowed area and the non-disturbed area to prevent soil compaction.
2. Cover the mound with fine textured silt loam topsoil to a settled depth of 8 inches. Crown the soil cover to shed water.
3. Construct heel of mound to shed surface water.
4. Seed and straw the entire mound area with a locally available grass seed mixture. Fertilize as required.
5. The soil absorption bed may need to be protected from freezing the first year if the project is a late season installation or if grass cover is sparse.
6. The system may be mowed as normal, or on an intermittent basis. Final mowing for the season shall occur no later than October 1st of that year. Use caution not to disturb or damage the air release valves or observation ports.

CONNECTION OF ANY ROOF DRAINS, FLOOR DRAINS, FOUNDATION DRAINS, POOLS OR OTHER CLEAN WATER CONNECTIONS TO ANY PART OF THE SEPTIC SYSTEM IS PROHIBITED. ALL SUCH WATER SHALL BE DIRECTED AWAY FROM TANKS, DRIP MOUND AREA AND OTHER SYSTEM COMPONENTS.

SURFACE WATER; SUCH AS RAINFALL, SEEPAGE OR NORMAL RUNOFF, SHALL BE DIRECTED AWAY FROM THE TANKS, DRIP MOUND AREA AND OTHER SYSTEM COMPONENTS.

THE SEPTIC TANK, DOSING TANK, AND DRIP MOUND AREA; SHALL BE KEPT FREE OF BUILDINGS, STRUCTURES, PLAY AREAS, PARKING AREAS, DRIVEWAYS, PORCHES, GARDENS, LANDSCAPING OR POOLS. DO NOT DISTURB THE SOIL IN THESE AREAS.

Erosion and Sediment Control Schedule

Ingress-Egress

A stone access drive complete with under lying geo-textile fabric (20 feet wide and 50 feet long) for ingress and egress at the site shall be installed. This drive shall be the only entrance and exit to the site.

Silt Fence

All silt fence shall be installed prior to any earthwork activities at the site in the locations shown on the site plan as well as along the front of any lot that slopes towards the street.

Temporary Seeding

Disturbed areas of the site that are to remain idle for more than Twenty-one (21) days shall be properly seeded and straw mulched within seven (7) days of completion of initial grading. Temporary seeding and mulching of a thirty (30) foot strip of the entire front of the lot shall be maintained on the site once initial grading is complete.

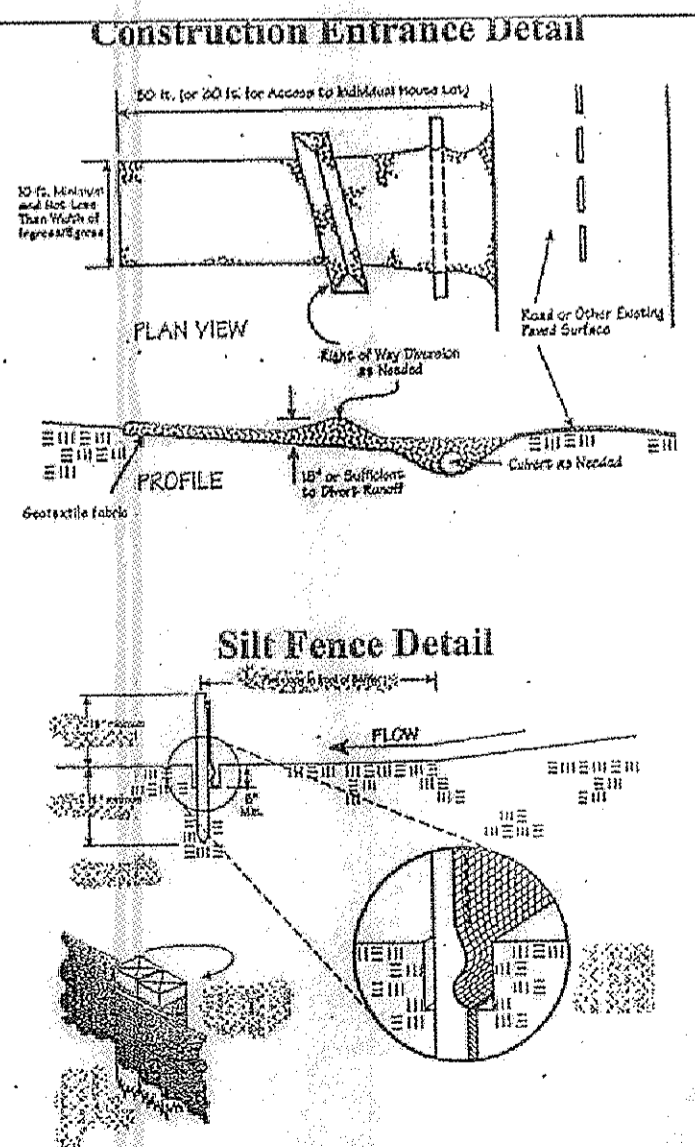
Stabilization of critical areas within fifty (50) feet of any stream or wetland shall be complete within two (2) days of the disturbance if the site is to remain inactive for longer than fourteen (14) days.

Mulching

Straw-mulch shall be applied at a rate of 1 bale per every ten (10) feet of curb, at a width of thirty (30) feet of the entire length of the lot. Wood chips may also be used but must be spread at a minimum depth of four inches over the thirty-foot width and must be accompanied by a properly installed silt fence.

Maintenance

Erosion and sediment controls shall be inspected every seven (7) days or within 24 hours of a 0.5" or greater rainfall event. Necessary repairs shall be made at this time.



Site and Soil Evaluation for Sewage Treatment and Dispersal

County: Lake	Land Use / Vegetation: Idle/Cross
Township/Sec: Kirtland	Landform: Upland
Property Address/Location: 10178 Quarry View Lane	Position on Landform: Flat
Kirtland, OH 44094	Percent Slope: 2-4
Applicant Name: Gutoskey & Associates	Shape of Slope: Linear, Linear
Address: 17078 Moon Road	Date: April 29, 2010
Chagrin Falls, OH 44023	Evaluator: Floyd E. McCleary & Ray Harris
Phone #: 330-393-7645	Signature: Floyd E. McCleary
Test Hole #: 4	McClary Soil Investigations, Inc.
Latitude/Longitude: 41°35'38.5" N, 81°22'03.0" W	106 Barnwood Drive NE
Method: Ph X Auger Probe	Warren, Ohio 44484
	Phone #: 330-393-7645

Estimating Soil Permeability													Other Soil Features
Soil Profile		Estimating Soil Saturation			Texture								
		Munsell Color (hue, value, chroma)								Structure			
		Redoxomorphic Features											
Horizon	Depth (inches)	Matrix Color	Concentrations	Depletions	Class	Approx. % Clay	Approx. % Fragments	Grade	Size	Type (shape)	Consistence		
A	0-8	10YR 3/3	-	-	sil	20-25	-	2	f	gr	fr		
Bt1	8-23	10YR 5/6	10YR 6/8	10YR 6/1	sicl	35-40	-	2	m	abk	fi		
Bt2	23-37	10YR 5/4	10YR 6/6	10YR 6/1	cl	35-40	3-5	2	m	abk	fi		
Bt3	37-50	10YR 4/4	10YR 6/6	10YR 6/1	cl	30-35	3-5	2	m	abk	fi	CO ₂ begin at 37"	
BC	50-60	10YR 4/4	-	-	cl	30-35	3-5	1	m	pr	fi		
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A	0-9	10YR 3/3	-	-	sil	20-25	-	2	f	gr	fr														
Bt1	9-14	10YR 5/6	10YR 6/8	10YR 6/2	sicl	30-35	-	2	m	shk	fi														
Bt2	14-22	10YR 5/6	10YR 6/8	10YR 6/1	sicl	35-40	1-3	2	m	shk	fi														
Bt3	22-42	10YR 5/4	10YR 6/6	10YR 6/1	sicl	30-35	2-4	2	m	shk	fi														
Bt4	42-50	10YR 4/4	-	-	cl	30-35	3-5	2	m	shk	fi														

NOTES

- 1.) PACKAGE SYSTEM SUPPLIED BY AMERICAN MANUFACTURING CO. AS DISTRIBUTED BY STREAMKEY, INC. 0.61 GPH DRIPPER LINE - 1000 LF, 1/2 HP PUMP. APPROXIMATE ABSORPTION AREA/EMITTER=4 SQ. FT.
- 2.) FLUSH FIELD FREQUENCY: 1 IN 25 DOSES
- 3.) FILTER FLUSH FREQUENCY: 1/DOSE
- 4.) AIR RELEASE VALVES ARE TO BE INSTALLED AT THE HIGH POINT OF EACH DRIP ZONE.
- 5.) THE PROPOSED SITE OF THE INITIAL SEWAGE SYSTEM AND THE REPLACEMENT AREA MUST BE CLEARLY IDENTIFIED, STAKED AND FENCED OFF AS NECESSARY TO ENSURE THAT THESE AREAS ARE PROTECTED DURING THE SITE DEVELOPMENT AND CONSTRUCTION PROCESS. ANY DISTURBANCE OR DAMAGE THAT OCCURS DURING THE SITE DEVELOPMENT AND HOME CONSTRUCTION PROCESS WILL RESULT IN THE FOREFEITURE OF THE SYSTEM DESIGN APPROVAL.
- 6.) THE FORCE MAIN SHOULD BE INSTALLED FROM THE UPSLOPE SIDE. ALL VEHICLE TRAFFIC ON THE BASAL AREA AND DOWNSLOPE AREA OF THE MOUND SHOULD BE AVOIDED WITH INSTALLATION WORK BEING CONDUCTED FROM THE UPSLOPE SIDE OR END OF THE MOUND BASAL AREA.
- 7.) MINIMIZE COMPACTION BY USING LIGHT-WEIGHT EQUIPMENT AND BY KEEPING EQUIPMENT OFF THE DRIP FIELD AREA.
- 8.) SURFACE WATER RUNOFF & ROOF DRAINS ARE TO BE DIVERTED AWAY FROM FIELD.
- 9.) DURING START UP INSTALLER SHALL RECORD FLOW RATE AND FLUSH RATE FOR EACH ZONE AND THE WATER METER READING.
- 10.) ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE.
- 11.) INSTALLATION AND O&M MANUALS SHALL BE PROVIDED BY SUPPLIER.
- 12.) THE BUILDING OWNER IS REQUIRED TO ENTER INTO A SERVICE CONTRACT FOR SYSTEM MAINTENANCE. ALL SERVICE SHALL BE PERFORMED BY A CERTIFIED SERVICE PROVIDER.
- 13.) THE DESIGNER AND SYSTEM SUPPLIER WILL BE AVAILABLE FOR ON-SITE CONSULTING AND CONDUCTING A SYSTEM START-UP UPON COMPLETION OF THE INSTALLATION.

Revisions:

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20TH CENTURY CONSTRUCTION
S/L 11
CHAPIN LEDGES SUBDIVISION
KIRTLAND - COUNTY OF LAKE, OHIO

GUTOSKEY & ASSOCIATES, INC.
Civil Engineers, Surveyors and Land Planners
17078 MOON ROAD, SUITE 1
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Fax (440) 543-7176



NOTES

Date: MAY, 2010
Scale: Hor. 1"=30'
Vert. 1"=5'
Drawn By: G.A.
Checked By: J.G.

Sheet 3 Of 3

CONTRACT No.
10-2535