

PERMIT

SEWAGE DISPOSAL SYSTEM

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

P 12785

A 59282

DISTRICT

DATE 10/28/1999

DATE SYSTEM APPROVED 2/9/00

INSPECTOR RB

HOWARD COUNTY HEALTH DEPARTMENT

BUREAU OF ENVIRONMENTAL HEALTH

410-313-2640

INDEXED

Fogle's Septic Clean, Inc.

IS PERMITTED TO INSTALL ☒ ALTER

ADDRESS 580 Obrecht Road, Sykesville, Maryland 21784

PHONE 410-795-5670

SUBDIVISION King's Gift

LOT 53

ROAD

11408 CASTLE LANE
11682 Frederick Road

PROPERTY OWNER Araghi

ADDRESS

Low Pressure Dosing Septic System Design For A 3 Bedroom Domicile - DRIP DISPOSAL OPTION
See Design Plan and Attached Specifications as prepared by B. Allen, American Manufacturing,
May 5, 1999.

A signed Agreement & Easement must be recorded in Land Records Prior to issuance of Use and
Occupancy Permit.

REQUIRED: One 1500 Gallon, Two Chambered, Top Seamed Septic Tank
One 1500 Gallon, Two Chambered, Top Seamed Septic Tank, Set Backwards As Pump Chamber
Simplex Pump System Rated At 15 GPM At 125 Feet TDH Or Equivalent
Control Unit and Alarms As Specified In Approved Plan

Design Soil Loading Rate Is 0.25 GPD/LINEAR FEET.

TRENCHES - Install drip lines near to contour with same spacing as shown in plans; if elevation
conflicts, consult Health Department prior to construction.

- A preconstruction meeting with County Health Department is required prior to
beginning construction.

NOTES - No trench to exceed 100 feet in length. Provide 6" - 8" diameter cleanout and cap
to grade or above on septic tank; 2' - 3' Diameter Manhole Near to Grade On Pump
Pit. ok/cw

PLANS APPROVED BY Ronald J. Pinkley/C. Williams

DATE 10-18-1999

COVER NO WORK UNTIL INSPECTED AND APPROVED

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM

NOTE: CLEANOUT REQUIRED EVERY 70 FEET OF SEWER LINE AND/OR AT 90° SWEEPS IN LINES FROM HOUSE TO DRAIN FIELDS. 90° ELBOWS NOT
ACCEPTABLE.

NOTE: ALL PARTS OF SEPTIC SYSTEMS (I.E. TANK, DISTRIBUTION BOX TRENCHES) TO BE 100 FEET FROM WELL (UNLESS OTHERWISE SPECIFICALLY
AUTHORIZED)

NOTE: IF DEEP TRENCH(ES) ARE USED CALL FOR INSPECTION BEFORE AND AFTER PLACING GRAVEL IN TRENCH(ES)

NOTE: NO DRY WELL SHALL EXCEED 15 FOOT IN DIAMETER NO ABSORPTION TRENCH TO EXCEED 100 FEET IN LENGTH

NOTE: ALL PIPE FROM HOUSE TO SEPTIC TANK MUST BE CAST IRON OR SCHEDULE 35/40 PVC OR ABS

PERMIT VOID AFTER TWO YEARS

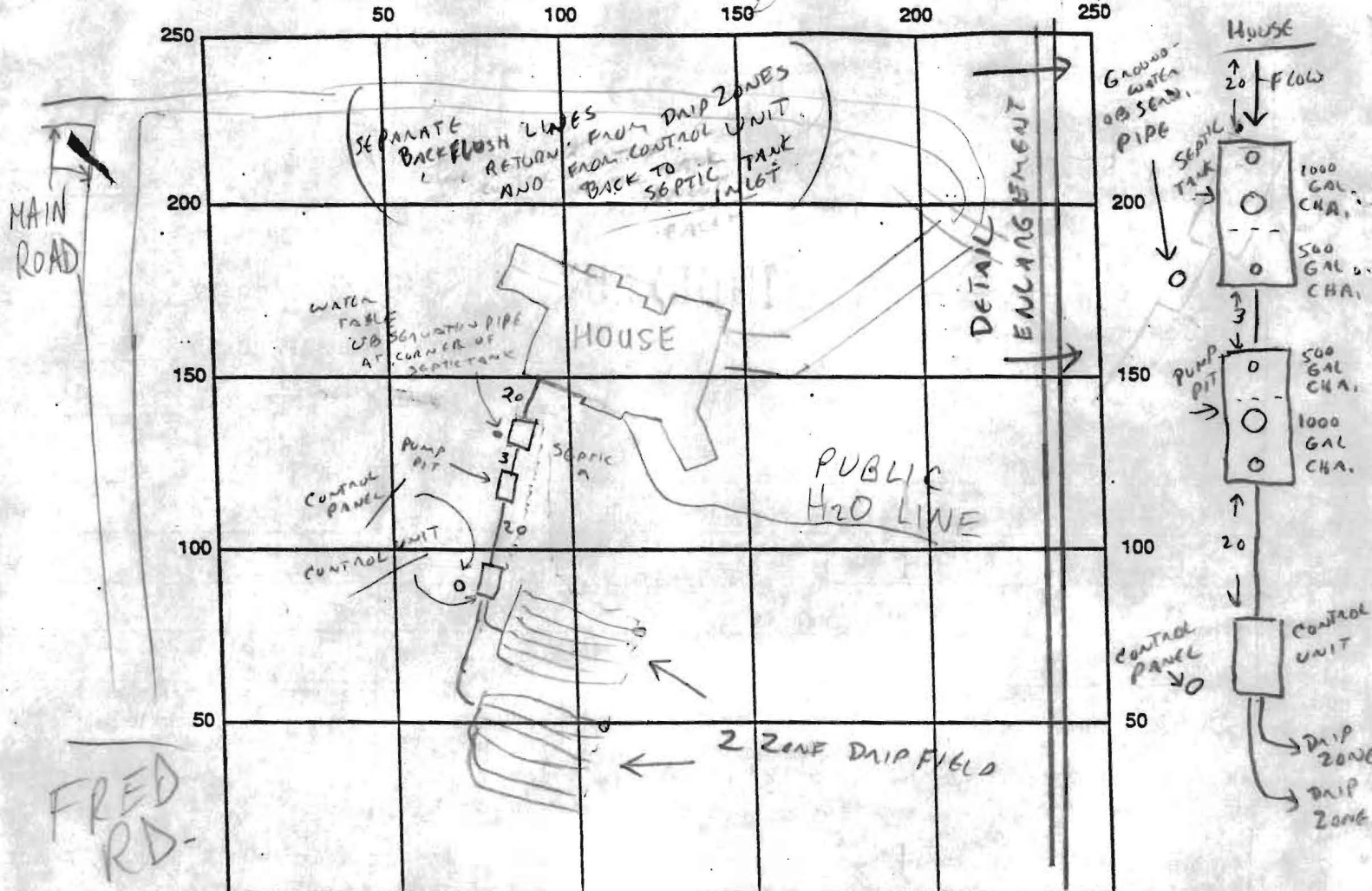
NOTE: INSTALL STAND PIPE ON SEPTIC TANK AND DRY WELL STAND PIPES MUST BE 8 INCHES IN DIAMETER CAST IRON. CONCRETE OR TERRA COTTA OR
PVA OR ABS ACCEPTED. IF TOP OF SEPTIC TANK IS DEEPER THAN 3 FEET. MANHOLE TO GRADE REQUIRED.

NOTE: DISTRIBUTION BOXES MUST HAVE BAFFLES

*INSTALLER IS RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT

*CALL 461-9933 FOR INSPECTION OF SEPTIC SYSTEM.

59282



INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE

Septic Tanks Level ☒
 (pump pit)
 Dosing Chamber Level ☒
 Dual Pump _____
 Controls _____
 Alarm _____
 Pump Test _____
 Piezometers _____
 Observation Ports _____
 Float Settings High Off: _____
 High On: _____
 Low Off: _____
 Low On: _____

Trench: 2 ZONE DRAIN FIELD
 Width INSTALLED 12"
 Length BELOW SAND.
 Bottom INSTALLED TO SUPPLY
 Depth AS BUILT
 Inlet _____
 Depth _____
 Gravel _____
 Depth _____

Alarm Float: _____

Remarks: 11/9/99 - S.T. HOLE HAS H₂O MOTTILING & SEEPAGE @ 3-4'
AGREED w/INSTALLER TO FILL S.T. w/H₂O UPON INSTALLATION, AND TAKE
SOME EXTRA MEASURE (AS DECIDED w/OWNER) w/PUMP PIT (MR)

11/10 GROUND WATER STABILIZED @ 6'-7' B.G. (8" LOWER THAN MIDPOINT OF TANK), OBSERVATION PIPE TO BE ADDED FOR MONITORING

11/11 DRAIN LINES INSTALLED, CONTROL BOX IN PLACE. READY FOR WIRING AND TESTING. (CW)

11/12 FLOW THRU SYSTEM & RETURN LINES CONFIRMED, NO LEAKS DETECTED, SUPPLIER TO BALANCE & STARTUP LATER

Date System Approved 2/9/00 Inspector B. Baber

2/3/00 ADD'L ELEC. WORK NEEDED, NO FINAL (MR) 3/8/00 Electrical hooked up. Working (BB)



HOWARD COUNTY HEALTH DEPARTMENT

6751 Columbia Gateway Drive Columbia, MD 21046

(410) 313-6300 Fax (410) 313-6303

TDD (410) 313-2323 Toll Free 1-877-4MD-DHMH

Penny E. Borenstein, M.D., M.P.H., Acting County Health Officer

July 9, 2002

TO: C. Vernon Gray, Chairman
Howard County Council

FROM: Penny Borenstein, M.D., M.P.H.
Health Officer

SUBJECT: Septic System on Araghi Property

In response to your request regarding the Araghi Septic System, the following information is provided.

The Health Department originally approved a low pressure distribution system for this property based on percolation tests performed on March 11, 24, and 25, 1998. Previous tests had indicated a high water table, which would not permit the installation of a conventional septic system.

A low pressure distribution system plan by James Clise, of S/E Engineering, Inc. was originally approved. The applicant then requested a change to a drip irrigation system as prepared by B. Allen, of American Manufacturing, on May 5, 1999. At that time Craig Williams and Ron Pinkley, of the Bureau of Environmental Health reviewed and approved the plan to install the drip irrigation system. The system was installed in November of 1999. The Health Department gave final approval of construction of the system in early February, 2000.

If you require additional information, you may contact Frank Skinner at 410-313-1770.

PB:cf

Atteron Review for Araghi Septic System
King's 6 ft lot 53
(11698 Frederick Rd) (A 59282)

Review of File
8/26-27 by PJP

LPD system design changed to Drip System (installed)

Problems
Notes

① System installed in early November 1999 (end of a Drought year)
[water table in UG#1 Monitoring wells usually @ same levels Post November
i.e. 5-6 ft below seasonally higher water tables in typical years]

515+517 grey = hazel mottles @ 2 1/2' + lower (water @ 5')

Notes from
Septic Permit

② @ water mottling & seepage observed @ 3'-4' in Septic Tank Hole

③ 4/10/99 Ground water stabilized @ 6 1/2' - 7' b.g. (8" lower than midpoint of Tank)

(Topseamed Tanks were required)

④ Observation pipe was supposed to be added for monitoring (per CW)

⑤ 2 zones of Drip lines installed @ 12" BG, installer to supply as built.

Unit 0 Signed 4/30/01

3 Test Holes - clay varies 2'-4' in Top layer. (SL - Hical @ lower depth)

in March of '89 water seen @ 9-11 ft (4 1/2' lower than March '98 and 6 1/2' lower than April '98 or March '93)

2 Holes C (Close to Hole 517) had water @ 12 1/2' in Dec 23, '98 when had water @ 5' in March '98
UG#1 (new A4)

③ per Test March '98 - (water seen 2 ft higher by end April '98 or early March '93)

@ water observed running in @ 5-8 ft zone in test Holes 515, 517, 517B

@ 6 1/4' grey level (10YR 7/1) LS caving @ 6', water @ 8.5

Test DC @ 18', E and F were 480, 160, 106 mpa respectively

to bill

Unit = 748.15 - Need an interpreter to explain water Sewer Bell readings 6/01/00 - 6/24/02



Howard County Council

George Howard Building
3430 Court House Drive
Ellicott City, Maryland 21043-4392

COUNCILMEMBERS

C. Vernon Gray, Chairman
District 2
Mary C. Lorusong, Vice Chairperson
District 4
Guy Guzzone
District 3
Allan H. Kittleman
District 5
Christopher J. Merdon
District 1

HOWARD COUNTY COUNCIL MEMORANDUM

TO: PENNY BORENSTEIN, M.D.
DEPARTMENT OF HEALTH
FROM: C. VERNON GRAY, CHAIRMAN
SUBJECT: SEPTIC SYSTEM ON ARAGHI PROPERTY
DATE: 6/26/02

Dr. Borenstein,

I have a series of questions regarding the Araghi septic system:

Why was that particular sand drip septic system (I understand it was experimental) approved by the Health Department? What was the basis of the decision to approve it? Who reviewed the request and approved the permit for the septic system?

Thanks,

Vernon



Howard County Health Department

Bureau of Environmental Health, Ellicott City, Maryland 410-313-2640

SEWAGE DISPOSAL PERMIT NO. A-REPAIR P- NO FEE

PERMITTEE

LOCATION

1408 CASTLE LANE
KINGS GIFT - LOT 53 - 11698 FREDERICK ROAD
(ARAGHI)

Do Not Cover Work Until Health Department Approval Appears On This Card

POST THIS CARD WHERE IT CAN BE SEEN FROM ROAD

☐

STOP ALL CONSTRUCTION ON SEWAGE
DISPOSAL SYSTEM AND CONTACT HEALTH
DEPARTMENT BEFORE CONTINUING

☐

WORK IS SATISFACTORY,
CONTINUE

Inspector

Date

Inspector

Date

☐

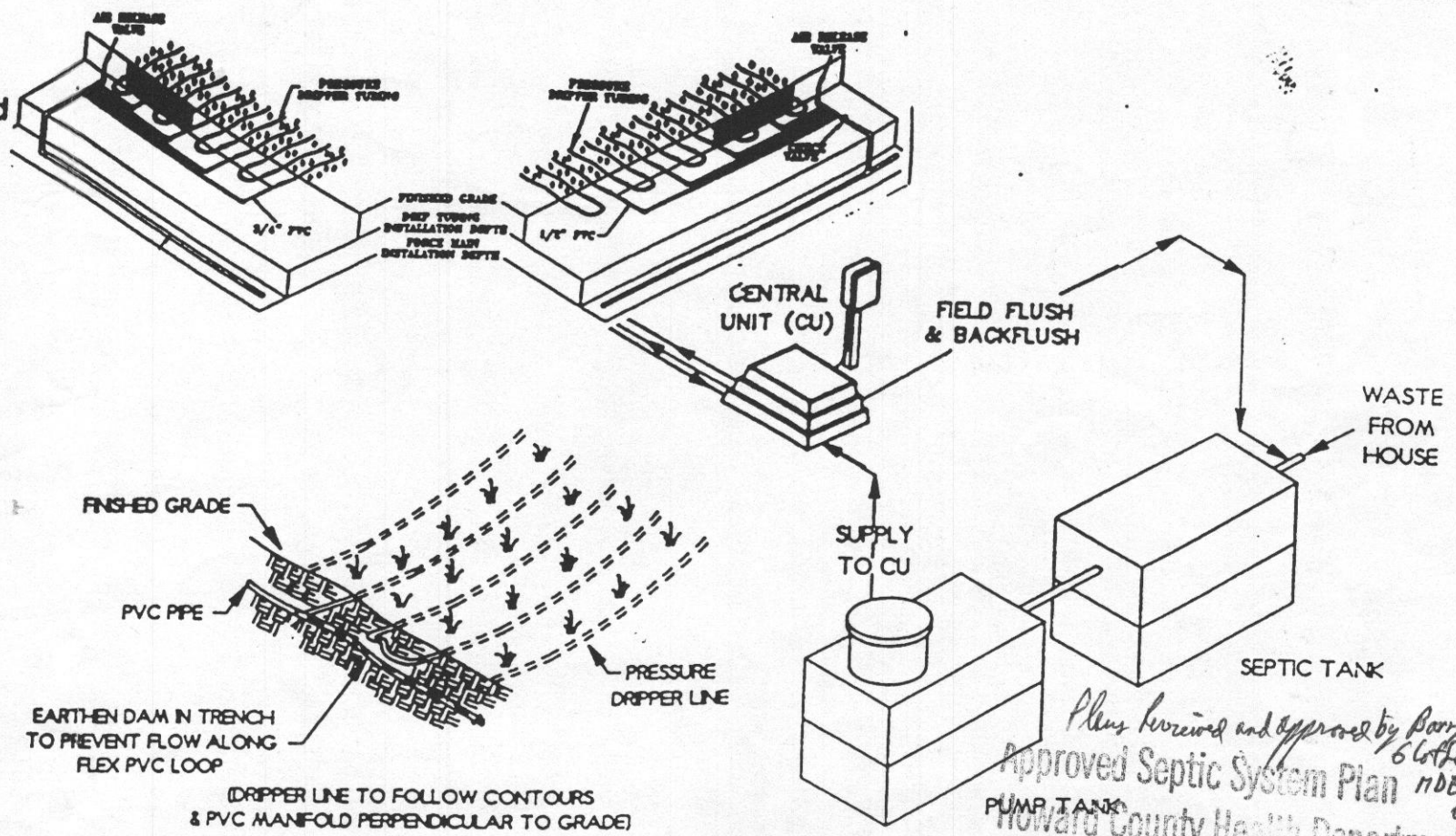
FINAL INSPECTION MADE,
COVER ALL WORK

Inspector

Date

DRIP DISPOSAL INSTALLATION & CONSTRUCTION TECHNIQUES

- 1. All installation and construction techniques shall conform to county codes and State Board of Health "Sewage and Disposal Regulations" pertaining to on site sewage systems and the permit for this site.
- 2. The installation of this system shall be in accordance with specifications and procedures as supplied by the Manufacturer of the equipment.
- 3. The drip tubing shall be installed using a vibratory plow or trencher.
- 4. All PVC pipe and fittings shall be PVC SCH 40 Type 1 rated for pressure applications. All glued joints shall be cleaned and primed with purple (dyed) PVC primer prior to being glued.
- 5. All cutting of PVC pipe, flexible PVC and dripper tubing shall be accomplished with pipe cutters approved by American Manufacturing Company, Inc. No sawing of PVC, flexible PVC or dripper tubing allowed.
- 6. All PVC pipe, flexible PVC and dripper tubing in the work area shall have the ends covered with duct tape to prevent construction debris from entering the pipe. Prior to gluing, all joints shall be inspected for and cleared of any construction debris.
- 7. The building sewer shall be 4" SCH 40 PVC with a minimum slope of 1/4" per foot. There shall be no bends greater than 45 degrees. Cleanouts on the building sewer shall be provided every 25 feet with additional cleanouts provided as necessary. For construction techniques refer to the "Sewage Handling and Disposal Regulations".
- 8. Gravel base under the Central Unit (Cu) is to be drained via 2" PVC pipe, screened at inlet and outlet, with discharge to be at grade down slope to ensure drainage of surface water from unit.
- 9. Drainfield supply and return lines and manifolds to be installed at adequate depth to prevent freezing. Horizontal spacing between the dripper lines and the installation depth to be as specified.
- 10. No activity on drainfield area other than minimum required to install system. Do not park equipment, drive large equipment over or store materials on drainfield area.
- 11. No wet weather installation is permitted.
- 12. The contractor shall be certified by American Manufacturing Company, Inc. to install this type of system and shall hold a pre construction meeting with the individuals responsible for soil evaluation, permitting and inspections prior to site work beginning to insure protection of the site conditions and to ensure the system is installed according to design.
- 13. If site conditions are determined to require the installation of the system to deviate from these plans, all work shall stop immediately and the designer shall be notified. Any ongoing work shall be at the sole responsibility of the contractor.



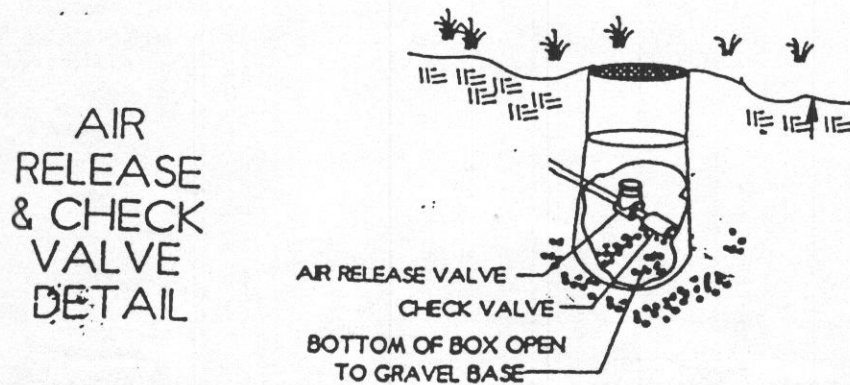
Plus reviewed and approved by Barry 6/20/02
Approved Septic System Plan 110E
Howard County Health Department

SUBSURFACE DISTRIBUTION SYSTEM

SCOPE: DOMESTIC SEWAGE WILL FLOW BY GRAVITY THROUGH THE SEPTIC TANK THEN INTO A SIGNAL DOSING TANK. THE CENTRAL UNIT WILL DISPOSE OF THE EFFLUENT BY ALTERNATELY DOSING MULTIPLE ZONES IN THE SOIL ADSORPTION AREA.

THE CENTRAL UNIT COMPRISES BOTH THE HYDRAULIC AND THE CONTROL UNITS.

NOTE: No activity on all portions of adsorption area including material storage, and machines. No cutting or filling within 20' of area.

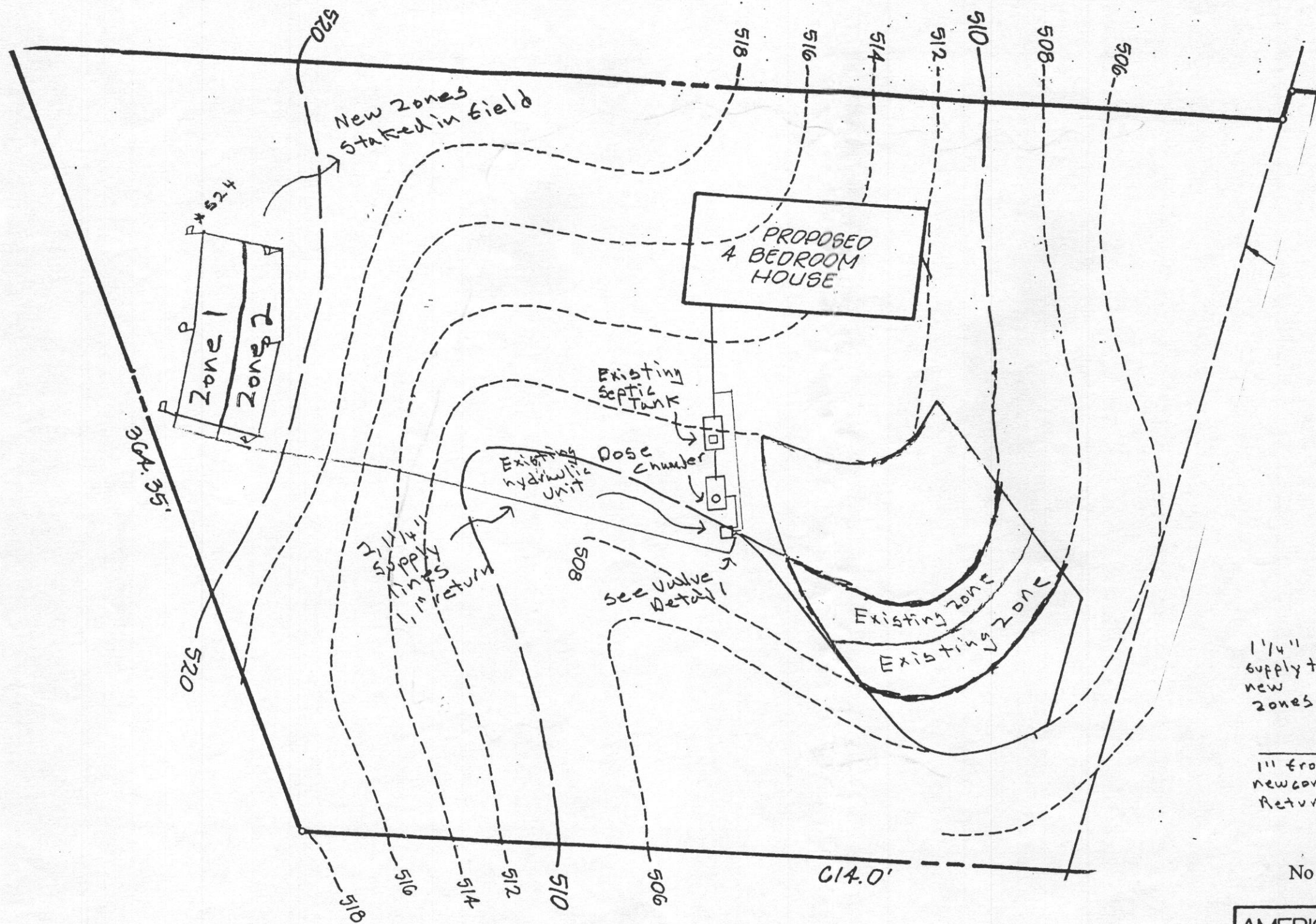


- NOTE: 1. THE AIR RELEASE VALVE SHALL BE PLACED AT THE HIGHEST POINT ON THE RETURN LINE OF EACH ZONE.
2. EACH ZONE TO HAVE THE SAME VALVE BOX SETUP AND THEREAFTER CONNECTED.

COVER SHEET
SITE PLAN
ZONE DETAIL
HYDRAULIC PROFILE

CALCULATION SHEET

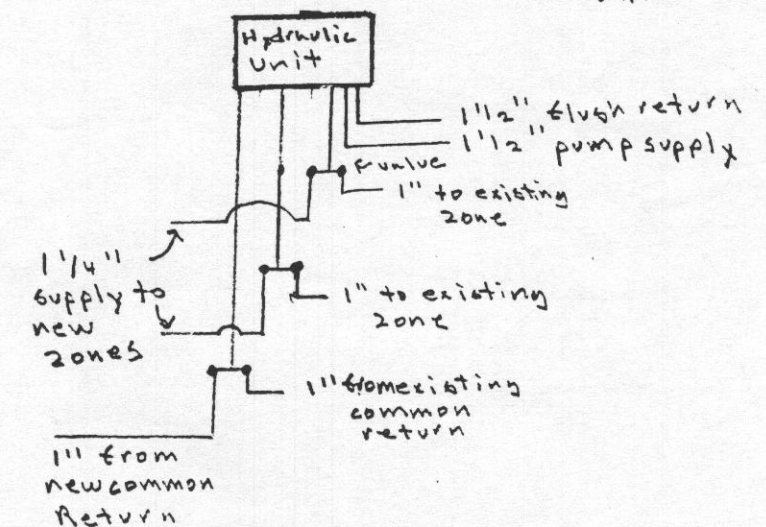
AMERICAN MANUFACTURING COMPANY INC. 5517 WELLINGTON ROAD, GAINESVILLE VA 22065 PHONE: 703-754-0077			
PROJECT NAME: Arughi		DRAFTER	DATE
Kings Gift Lot 53		CHECKED	DATE
COUNTY: Howard		APPROVED	DATE
DESIGNED BY: TW Ashton		TITLE: COVER SHEET	
REVISION	FILE L:\DATA\ECAD\PACKAGE\DRP1	SCALE:	SHEET 1 OF 8



Approved Septic System Plan
Howard County Health Department

Signature OK pub6 Date 6/20/02

Valve Detail Schematic, to be
rested in valve
box at hydraulic
unit



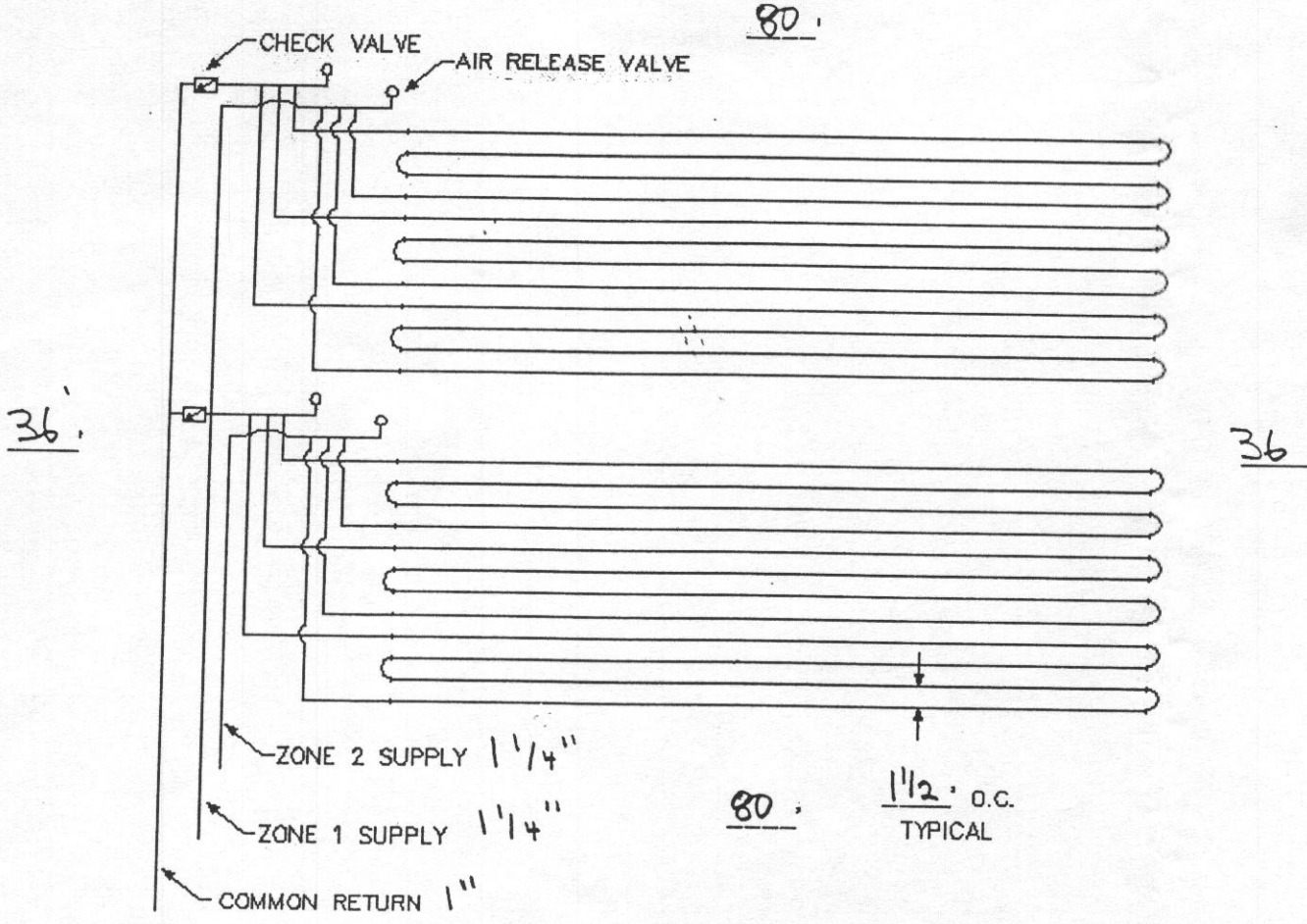
No cutting or filling within 20' of area.

NOTE: The preservation of the original structure of the soil in the adsorption area is essential to maintaining the percolative capacity of the soil. No activity other than the construction of the system is permitted within the adsorption area. The adsorption system is not to be constructed during periods of wet weather when the soil is sufficiently wet at the depth of installation to exceed its plastic limit. The plastic limit is exceeded when the soil can be rolled between the palms of the hands to produce threads 1/8 inch in diameter without breaking a crumbling. Consult with health department and or site soil scientist of record.

AMERICAN MANUFACTURING COMPANY INC.
5517 WELLINGTON ROAD, GAINESVILLE VA 20155 PHONE: 703-754-0077

PROJECT NAME: <u>Arayhi</u>	DRAFTER	DATE
<u>Kings Gitt Lot 53</u>	CHECKED	DATE
COUNTY: <u>Howard</u>	APPROVED	DATE
DESIGNED BY: <u>TW Aughton</u>	TITLE:	<u>SITE PLAN</u>
REVISION	FILE: <u>LVECA0/PACK901</u>	SCALE: <u>NONE</u>
		SHEET <u>2</u> OF <u>3</u>

INSTALL ALL TUBING ALONG CONTOUR. $e 12''$



Approved Septic System Plan
Howard County Health Department

OK per BB
Signature Date 6/20/02

AMERICAN MANUFACTURING CO. 5517 WELLINGTON RD. GAINESVILLE VA 20155; 703-754-0077	
PROJECT NAME: <u>Arayhi</u>	DR. BY: _____ DATE: _____
<u>Kings Girt Lot 53</u>	CK. BY: _____ DATE: _____
COUNTY: <u>Howard</u>	APP. BY: _____ DATE: _____
TITLE: ZONE DETAIL	
REV. _____	FILE: _____
SCALE: <u>N.T.S.</u>	SHEET <u>3</u> OF <u>8</u>

EL _____



SEE 4 OF 8

DRIP DISPOSAL INSTALLATION & CONSTRUCTION TECHNIQUES

- 1. All installation and construction techniques shall conform to county codes and State Board of Health "Sewage and Disposal Regulations" pertaining to on site sewage systems and the permit for this site.
- 2. The installation of this system shall be in accordance with specifications and procedures as supplied by the Manufacturer of the equipment.
- 3. The drip tubing shall be installed using a vibratory plow or trencher.
- 4. All PVC pipe and fittings shall be PVC SCH 40 Type 1 rated for pressure applications. All glued joints shall be cleaned and primed with purple (dyed) PVC primer prior to being glued.
- 5. All cutting of PVC pipe, flexible PVC and dripper tubing of size 1 1/2" or smaller shall be accomplished with pipe cutters approved by American Manufacturing Company, Inc. No sawing of PVC, flexible PVC or dripper tubing of size 1 1/2" or smaller allowed.
- 6. All PVC pipe, flexible PVC and dripper tubing in the work area shall have the ends covered with duct tape to prevent construction debris from entering the pipe. Prior to gluing, all joints shall be inspected for and cleared of any construction debris.
- 7. The building sewer shall be 4" SCH 40 PVC with a minimum slope of 1/4" per foot. There shall be no bends greater than 45 degrees. Cleanouts on the building sewer shall be provided every 25 feet with additional cleanouts provided as necessary. For construction techniques refer to the "Sewage Handling and Disposal Regulations".
- 8. Gravel base under the Central Unit (Cu) is to be drained via 2" PVC pipe, screened at inlet and outlet, with discharge to be at grade down slope to ensure drainage of surface water from unit.
- 9. Drainfield supply and return lines and manifolds to be installed at adequate depth to prevent freezing. Horizontal spacing between the dripper lines and the installation depth to be as specified.
- 10. No activity on drainfield area other than minimum required to install system. Do not park equipment, drive large equipment over or store materials on drainfield area.
- 11. No wet weather installation is permitted. American Manufacturing Company, Inc. will determine if weather/site/soil conditions are suitable for the drip field installation.
- 12. The contractor shall be certified by American Manufacturing Company, Inc. to install this type of system and shall hold a pre construction meeting with American Manufacturing Company, Inc. and individuals responsible for permitting and inspections prior to site work beginning to insure protection of the site conditions and to ensure the system is installed according to design.

13. If site conditions are determined to require the installation of the system to deviate from these plans, all work shall stop immediately and the designer shall be notified. Any ongoing work shall be at the sole responsibility of the contractor.

DRIP DISPOSAL INSTALLATION SPECIFICATIONS

FORCE MAIN TESTING

All force mains shall be tested for leaks during startup. Uncovered force mains shall be visibly inspected during a Zone Dose. If a leak is suspected in covered force mains then the force main shall be tested at a minimum pressure of at least 50 percent above the design operating pressure, for at least 30 minutes. There shall be no discernible leakage. All supply and return manifolds shall remain uncovered until drainfield testing is complete.

PIPE BEDDING

Classes A, B or C bedding (latest edition of ASCE Manuals and Reports on Engineering Practice and the WEF Manual of Practice) or AWWA pipe installation conditions 3, 4 or 5, shall be provided for installation of pipelines in excavated trenches. Installation of pipelines of flexible materials shall be in accordance with recognized standards. For residential installations of PVC pipe less than 3" diameter, excavation to undisturbed earth and direct burial with excavated dirt that will not damage the pipe is required.

WATER SEWER LINE CROSSING

Sewer shall be laid at least ten (10) feet horizontal from a water main. The distance shall be measured edge-to-edge. When local conditions prohibit this horizontal separation, the sewer may be laid closer provided that the water main is in a separate trench or an undisturbed earth shelf located on one side of the sewer and the bottom of the water main is at least 18 inches above the top of the sewer. Where this vertical separation cannot be obtained, the sewer shall be constructed of water pipe material in accordance with AWWA specification and pressure tested in place without leakage prior to backfilling. The hydrostatic test shall be conducted in accordance with the most recent edition of the AWWA Standard for the pipe material, with a minimum test pressure of 30 psi.

Sewers shall cross under water mains such that the top of the sewer is at least 18 inches below the bottom of the water main. When local conditions prohibit this vertical separation, the sewer shall be constructed of AWWA specified water pipe and pressure tested in place without leakage prior to backfilling, in accordance with the provisions of this chapter.

Sewers crossing over water mains shall be laid to provide a separation of at least 18 inches between the bottom of the sewer and the top of the water main. The sewer must be constructed of AWWA approved water pipe and pressure tested in place without leakage prior to backfilling, in accordance with the provisions of this chapter. The sewers must have adequate structural support to prevent damage to the water main and sewer joints must be placed equidistant and as far as possible from the water main joints.

Approved Septic System Plan
Howard County Health Department

Signature: *[Signature]* Date: *6/20/02*

PROJECT NAME: Arughi	DRAFTER	DATE
Kings Gift Lot 53	CHECKED	DATE
COUNTY: Howard	APPROVED	DATE
DESIGNED BY: TW Ashton	TITLE: Specs	
REVISION	FILE L:\ECAD\PACK301	SCALE: NONE
		SHEET 5 OF 8

DRIP DISPOSAL MATERIAL 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.

AUTOMATIC CONTROL VALVES - The automatic control valves shall be 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.

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 - Float switches for level indication and control shall be encapsulated mechanical differential microswitches. The switches shall be Square D, American Electronic Components, or equal.

GENERAL VALVES - All gate, ball, globe and check valves shall be Schedule 40. Check valves shall be of the swing check design of metallic bronze with corrosion resistant metal hinge pin for use in wastewater.

PIPING DISCONNECTS - Piping disconnects shall be PVC schedule 80 unions.

AIR RELEASE VALVES - Air release valves shall be resilient seat "pop-up" type air release valves for use with filtered effluent (nominal filtration size of 115 microns.)

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.

PIPE BEDDING- In ground piping shall be installed according to local codes. Free standing piping shall be schedule 40 PVC and assembled with restrained joints.

Approved Septic System Plan
Howard County Health Department

OK per B6 6/20/02
Signature _____ Date _____

SPECIFICATION

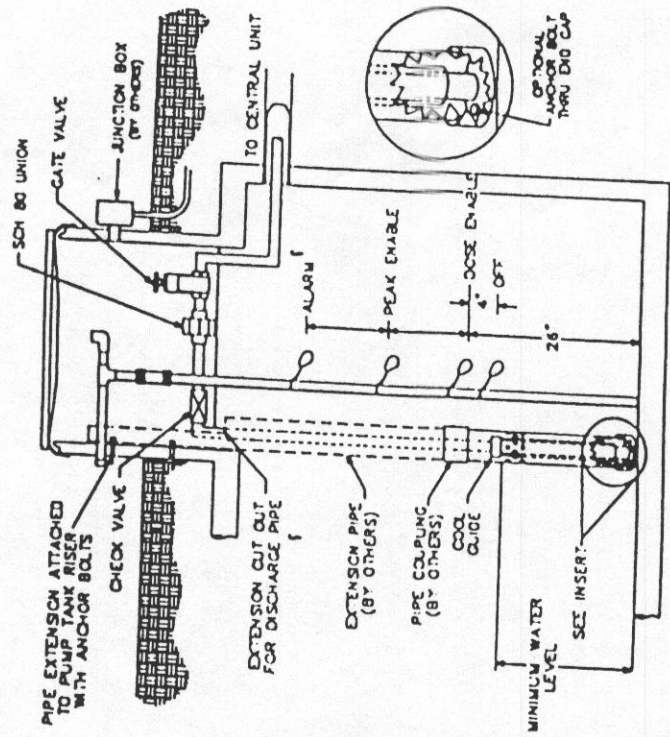
Laminar Flow Collar

The laminar flow collar shall be made of non-corrosive, glueable PVC and have sufficient holes in the outer guide tube to assure laminar flow for the rated capacity. The inner flow collar shall extend near the bottom to provide sufficient cooling flow for the motor. The dimension between the inner collar and the pump motor shall not restrict flow to the pump intake but will provide for scouring of surfaces. The Laminar Flow Collar shall be a "Cool Guide" as manufactured by American Manufacturing Company, Inc. Patent Pending.

INSTALLATION INSTRUCTION

1. Measure the distance from the bottom of the tank to 6" down from the top of the riser.
2. Cut the extension pipe (by others) to the length necessary to reach this height. Cut 1/2 of the pipe down 12" to 18" away from the top of the pipe for pump discharge pipe.
3. Glue the extension coupling (by others) to the extension pipe and to the Cool Guide.
4. For Repairs: Glue on the Cool Guide flat cap and place the Cool Guide firmly on the bottom of the tank. Attach extension to riser with anchors as shown.
5. For New Construction: Anchor flat cap to bottom of tank in proper location to hold Cool Guide and extension. The cap may or may not need to be glued to the device. Attach extension to riser with anchors as shown.
6. Place pipe dope on Cool Guide adapter threads and thread into pump discharge.
7. Attach cooling collar to adapter with set screw provided.
8. Glue pipe into flow collar and with pump attached, lower into guide tube.
9. Attach to discharge pipe, valves, and connect electrical as specified.

INSTALLATION SCHEMATIC



Note:

The float switches should be installed so when the bottom float is down and off, the inlet holes are still covered by the effluent. The hole in the adapter is to provide a exit point for the pump motor cord and to prevent the Cool Guide from "air locking" the pump.; Do Not seal off this hole.

PROJECT NAME: Arugh	DRAFTER	DATE
Kings with lot 53	CHECKED	DATE
COUNTY, Howard	APPROVED	DATE
DESIGNED BY: T W Ashton	TITLE: Specs	
FILE: LVEADVPAC380	SCALE: NONE	SHEET 6 OF 8

AMERICAN MANUFACTURING COMPANY

SEPTIC DRIP CALCULATION SHEET

Job Name; Arugh
Location; Kings Gift Lot 53
Date; 6/14/02

1. 450 GALLONS PER DAY 3 BEDROOMS
2. 23 GPD/L.F. SOIL LOADING RATE IN 2880 area or
3. 2 ZONES 156 gal. 6 to 2 day
4. 420 TOTAL DRIPPER LINE PROVIDED
5. SEPTIC TANK SIZE Existing
6. DOSING TANK SIZE Existing
7. ZONE ONE
8. 1440 TOTAL ABSORPTION AREA
9. 160 LINEAR FEET DRIPPER LINE
10. 320 LONGEST LATERAL LENGTH
11. 4.9 DOSING FLOW RATE
12. 3 NUMBER OF RETURN FILED FLUSH CONNECTIONS
13. 4.8 FIELD FLUSH FLOW RATE (1.6 gpm / lateral connection)
14. 9.7 TOTAL FLOW REQUIRED
15. ZONE TWO
16. 1440 TOTAL ABSORPTION AREA
17. 160 LINEAR FEET DRIPPER LINE
18. 320 LONGEST LATERAL LENGTH
19. 4.9 DOSING FLOW RATE
20. 3 NUMBER OF RETURN FIELD FLUSH CONNECTIONS
21. 4.8 FIELD FLUSH FLOW RATE (1.6 gpm / lateral connection)
22. 9.7 TOTAL FLOW REQUIRED
23. 9.7 MAXIMUM DESIGN FLUSHING FLOW 10 gpm
* 24. 8 FEET HEAD LOSS HYDRAULIC UNIT (from table 2A @ #23)

25. HYDRAULIC UNIT SUPPLY LINE SIZE (1-1/2" TYPICAL)
26. 1 1/2 INCHES PIPE @ 156 GPM 1.61' / 100'
27. 30 LENGTH SUPPLY PIPE + 50' = .8 x 1.61' = 1.3
28. 7 FT. STATIC LIFT TO CENTRAL UNIT ELEVATION
* 29. 8.3 TOTAL FEET HEAD LOSS (DYNAMIC HEAD LOSS + #28)
* 30. FORCE MAIN SUPPLY LINE PIPE SIZE & LENGTH 1 1/4 @ 106 GPM = 1.56' / 100'
31. 1 1/4 ZONE ONE SIZE 240 LENGTH 3.74 FT HEAD LOSS
32. 1 1/4 ZONE TWO SIZE 225 LENGTH 3.5 FT HEAD LOSS
* 33. RETURN FLUSH LINE SIZE & LENGTH 1 1/2 @ 66 GPM = 2.17' / 100'
34. 1 ZONE ONE SIZE 240 LENGTH 5.2 FT HEAD LOSS
35. 1 ZONE TWO SIZE 225 LENGTH 4.9 FT HEAD LOSS
* 36. 14 FEET HEAD LOSS TOTAL STATIC (VERTICAL LIFT)
37. TOTAL PRESSURE LOSS (ADD ITEMS: 24, 29, 31-32, 34-35, 36, + FLUSHING TABLE 3A)
* 38. 78 ZONE ONE HEAD LOSS, INCLUDES 39' FEET FLUSHING
39. 77.7 ZONE TWO HEAD LOSS, INCLUDES 39' FEET FLUSHING
40. PUMP SIZING
41. 78 MAXIMUM PRESSURE LOSS TOTAL (HIGHEST FEET 38-39)
42. 1233 DISC FILTER BACKFLUSH (#29 + 115' @ 15 GPM)
43. 15 GPM @ 1233 FEET (LARGER OF 41 or 42)
44. PUMP MODEL Ac 10 motor
45. 15 GPM @ 125 FEET 115 VOLTS 1 PHASE 1/2 HP
46. TIME DOSING PER ZONE 60% ZONE AVERAGE (180 min rest)
47. ZONE ONE 4.9 GPM 6.9 MIN/DOSE 34 GAL/DOSE
AVERAGE CYCLES 4 PEAK CYCLES 6.6
48. ZONE TWO 4.9 GPM 6.6 MIN/DOSE 34 GAL/DOSE
AVERAGE CYCLES 4 PEAK CYCLES 6.6
49. TOTALS: AVERAGE 600 GPD, PEAK 270 GPD
50. 4 INCHES DRAWDOWN FLOAT SWITCH SETTING (MINIMUM 4")

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Approved Septic System Plan
Howard County Health Department

Signature AP 6/20/02 Date

AMERICAN MANUFACTURING COMPANY INC. 5517 WELLINGTON ROAD, GANESVILLE VA 20155 PHONE: 703-754-0077			
PROJECT NAME: <u>Arugh</u>	DRAFTER	DATE	
<u>Kings Gift Lot 53</u>	CHECKED	DATE	
COUNTY: <u>Howard</u>	APPROVED	DATE	
TITLE: <u>Design</u>			
DESIGNED BY: <u>Twilington</u>			
FILES: <u>LNEAD\PACK901</u>	SCALE: <u>NONE</u>	SHEET <u>7</u> OF <u>8</u>	

Dripper Line Pressure Chart 3A Field Flushing			
Length Linear Feet	Head Loss Psi.	Head Loss Ft.	
50	7	16	
60	7	16	
70	7	16	
80	7	16	
90	7	16	
100	7	16	
110	7	16	
120	7	16	
130	7	16	
140	7	16	
150	7	16	
160	7	16	
170	7	16	
180	7	16	
190	7.4	17	
200	8	18	
210	8.5	20	
220	9.2	21	
230	9.9	23	
240	10.5	24	
250	11.2	26	
260	12	28	
270	12.7	29	
280	13.5	31	
290	14.3	33	
300	15.2	35	
310	16	37	
320	16.9	39	
330	17.9	41	
340	18.9	44	
350	19.9	46	
360	20.9	48	
370	22	51	
380	23.1	53	
390	24.2	56	
400	25.4	59	

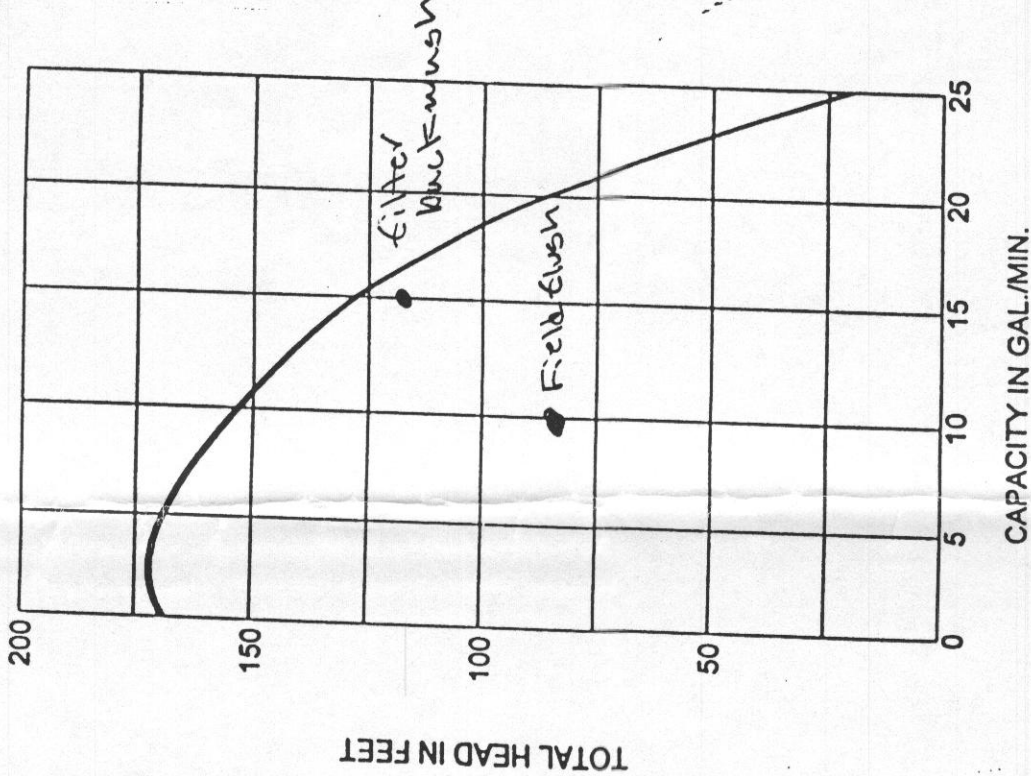
Central Hydraulic Unit Chart 2A Flow vs Head Loss			
Flow in GPM	Total Loss in TDH 25 gpm. Unit	Total Loss in TDH 15 gpm Unit	
5	2	4	
6	2	4	
7	3	5	
8	4	6	
9	5	7	
10	6	8	
11	7	9	
12	7	11	
13	8	12	
14	9	13	
15	10	16	
16	12	19	
17	14	22	
18	16	24	
19	18	27	
20	20	28	
21	21'		
22	22		
23	23		
24	24		
25	25		

CHARTS 2A AND 3A USED IN
DETERMINING HEAD LOSS IN
THE DRIP DISPOSAL SYSTEM

Turbine15 Pump Curve

MODEL # / ITEM #
ASD157-S122

DPI-B9140
DH2-22KIT
PK-FLDRETKIT
BIOLINE1000
PVC12FLEX
PVCPRFIP12X34
BIOLINE12X34
BIOCOUP
COOLGUIDE15
TURBINE15
PUMPKITDRIP



American Manufacturing Co., Inc.

15 GPM DRIP PACKAGES -- RESIDENTIAL

CONTENT DESCRIPTION
2 ZONE SIMPLEX DRIP SYSTEM
DPI22-SAB124-AHJLY DRIP
2 FLD2 ZONE HYD UNIT KIT
FIELD RETURN KIT (1 PER ZONE)
DRIP TUBING PER 1000 FT ROLL
1/2 X 100 PVC FLEX TUBE/DRIP
1/2 X 3/4 PVC PRESS S X FIP AD
1/2 BIOLINE X 3/4 MIP DRIP ADAPTER
BIOLINE REPAIR COUPLING 1/2 IN
LAMINAR FLOW COOLING GUIDE
15 GPM MULTISTAGE PUMP
1-1/2 IN DRIP PUMP KIT

1 1 1 2 2 1 50 50 6 1 1 1

Approved Septic System Plan
Howard County Health Department

Signature AP Okenb6 Date 6/20/02

AMERICAN MANUFACTURING COMPANY INC.
5517 WELLINGTON ROAD, GANESVILLE VA 20655 PHONE: 703-754-0077

PROJECT NAME: Arughi
Kings Gift Lots 53
COUNTRY: Howard
TITLE: Design

DESIGNED BY: TW Ashton
FILE: LVEADVPAC001
SCALE: 1"=10'
SHEET 8 OF 8