

10819 SOUTH FORD RD

03110344

6/1/2007

duponbj

Groundwater and Wastewater Services File Imaging Project
May 2007
Barcode Font = IDAutomationHC39M

CERTIFICATE OF COMPLETION/OPERATION PERMIT

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

FILE: 5449-A DATE: 10-31-90

TC: 031-103-44 ~~P/L~~ ~~CRT~~

SERIAL Nº 13627

Name of Owner Mark Henderson Juris.:

Address of Property 10819 South Ford Rd.

Inspection Data:

Tank Material PVC

Total Length of Drainfield 135'

Number of Lines 4 @ various

Cover Depth 6"-12"

Water Supply Source well

Distance to Water Source > 50'

Excavation Inspected 10-31-90

Tank(s) Inspected 10-31-90

Wash Line Inspected

High Water Alarm Inspected 10-31-90

PLOT

Design: 1990, 1500ST, 1000DT, PI, MOD, 270SFT, 8S, cecil CTR# Mike Leazer

The undersigned has inspected the Septic Tank System described above, and certifies it has been

☑ installed or constructed ☐ altered or repaired

☑ in accordance with the permit issued ☐ as detailed in the plot above

and meets the provisions of 10 NCAC 10A .1900, "Laws And Rules For Sanitary Sewage Collection, Treatment, And Disposal" in effect on the date of issuance of the permit. The issuance of this

☐ Certificate of Completion ☑ Operation Permit

does not in any way guarantee that the system will operate properly or relieve any person now or hereafter owning, controlling, or using such system from any liability resulting from the failure of the system to operate properly. This document is issued subject to those restrictions and conditions shown on the permit(s) and the provisions of 10 NCAC 10A .1900 in addition to those listed below under "COMMENTS." This document shall be null and void if any information contained in the application is untrue or if any additions are made to the property which would increase the requirements for said system.

COMMENTS: Installed for 2 bedrooms T+T panel

B.R. Ferguson
Environmentalist

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

100.00 MAT

APPLICATION FOR AN IMPROVEMENT PERMIT

RECEIVED
MECKLENBURG COUNTY
HEALTH DEPT.
DEC 20 1989
ENVIRONMENTAL HEALTH
DIVISION

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

(OFFICE USE ONLY)
FILE: 5449A
TC:
SERIAL: № 19408 ☒ L ☒ CRT

JOB LOCATION

① ADDRESS: 5449 South Fork Rd. (STREET NO. / STREET) ② FILE: 5449 A
③ JURISDICTION: ④ TAX PARCEL NO.: 03110344
⑤ SUBDIVISION: Pine Island ⑥ LOT: 42 ⑦ BLOCK: 4

OWNER

⑧ NAME: MARK D. HENDERSON (FIRST / MIDDLE / LAST)
⑨ MAILING ADDRESS: 801 Savoy Ln.
⑩ CITY: Gastonia ⑪ STATE: N.C. ⑫ ZIP: 28054
⑬ PHONE: (WORK) 334-7335 ⑭ (HOME) 864-4103

REQUEST

This request is for a(n):
⑮ ☑ New permit (Provisional)
⑯ ☐ Repair or alteration permit
⑰ ☐ Authorization for mobile home exchange
⑱ ☐ Other (specify)

DESIGN CRITERIA

System will serve:
⑲ ☑ Residence ⑳ ☐ Mobile home ㉑ ☐ Business or place of public assembly
㉒ Number of bedrooms? 2 ㉕ Type?
㉓ Maximum occupancy? 4 ㉖ Maximum number of employees?
㉔ Basement? ☐ yes ☑ no ㉗ Maximum number of seats?

WATER SUPPLY

㉘ Water supply from (present or proposed):
A ☑ Individual well
B ☐ Municipal system
C ☐ Community well
D ☐ Community system

㉙ The undersigned, owner of the property described above as the "JOB LOCATION" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the MECKLENBURG COUNTY HEALTH DEPARTMENT to enter onto the property for the purpose of processing this request.

Signed: Mark D Henderson
Date: 12/19/89

IMPROVEMENT PERMIT

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department has approved the Request for the Job Location contained in this document. This approval is granted in accordance with the provisions of Laws And Rules For Sanitary Sewage Collection, Treatment And Disposal in effect at the time of issuance of the permit and is subject to the following provisions:

... No work shall be conducted on the septic tank system until an Installation, Construction, Alteration and/or Repair permit is issued by this Department.

... This permit is not transferable, and shall become null and void 36 months from the date of issuance.

Environmentalist — Date 12-23-89

Director or Authorized Section Head — Date

*This permit must be signed by the Director of Mecklenburg County Health Department or an authorized section head in order to be valid.

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION

CHARGE SLIP

Date: 12/20/89

Name/Company: Mark Henderson

Sanitation _____

Vector Control _____

O.P.W.D. ✓

Service: mp - new
5449A
modified

MECKLENB.
HEALTH DEP.
ENVIRONMENTAL HEALTH DIVISION
PAID
DEC 20 1989

Fee: $ 100.00 ck#955 $100.00

NOTICE:

A processing fee of $15.00 will be charged for all returned checks in accordance with N.C. General Statute 25-3-512.

Completed by

Collected by

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION

CHARGE SLIP

Date: 1-22-90

Name/Company: Capital Builders

Sanitation _____

Vector Control _____

O.P.W.D. ✓

Service: L. P. New.
Bal. due on modified system
South Ford Rd
File # 5449A

MECKLENBURG COUNTY
HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
PAID
JAN 22 1990

ck # 1212

Fee: $ 100.00

NOTICE:

A processing fee of $15.00 will be charged for all returned checks in accordance with N.C. General Statute 25-3-512.

Jackie Abernethy
Completed by

Collected by

100 '83 VAT

APPLICATION FOR AN IMPROVEMENT PERMIT

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

(OFFICE USE ONLY)
FILE: 5449A
TC: M
SERIAL: [illegible] 1948
☐ L ☑ CRT

JOB LOCATION

① ADDRESS: ____ South Ford Rd ____ (STREET NO. / STREET) ② FILE: 5449 A
③ JURISDICTION: ____ ④ TAX PARCEL NO.: 02110344
⑤ SUBDIVISION: Pine Island ⑥ LOT: 42 ⑦ BLOCK: 4

OWNER

⑧ NAME: MARK D. HENDERSON (FIRST / MIDDLE / LAST)
⑨ MAILING ADDRESS: 801 Savoy Ln.
⑩ CITY: Gastonia ⑪ STATE: N.C. ⑫ ZIP: 28054
⑬ PHONE: (WORK) 334-7335 ⑭ (HOME) 864-4102

REQUEST

This request is for a(n):

⑮ ☑ New permit (Provisional) ⑰ ☐ Authorization for mobile home exchange
⑯ ☐ Repair or alteration permit ⑱ ☐ Other (specify) 13

DESIGN CRITERIA

System will serve:

⑲ ☑ Residence ⑳ ☐ Mobile home ㉑ ☐ Business or place of public assembly
㉒ Number of bedrooms? 2 ㉕ Type? ____
㉓ Maximum occupancy? 4 ㉖ Maximum number of employees? ____
㉔ Basement? ☐ yes ☑ no ㉗ Maximum number of seats? ____

WATER SUPPLY

㉘ Water supply from (present or proposed):

A ☑ Individual well
B ☐ Municipal system
C ☐ Community well
D ☐ Community system

㉙ The undersigned, owner of the property described above as the "JOB LOCATION" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the MECKLENBURG COUNTY HEALTH DEPARTMENT to enter onto the property for the purpose of processing this request.

Signed: Mark D Henderson
Date: 12/19/89

IMPROVEMENT PERMIT

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department has approved the Request for the Job Location contained in this document. This approval is granted in accordance with the provisions of Laws And Rules For Sanitary Sewage Collection, Treatment And Disposal in effect at the time of issuance of the permit and is subject to the following provisions:

... No work shall be conducted on the septic tank system until an Installation, Construction, Alteration and/or Repair permit is issued by this Department.

... This permit is not transferable, and shall become null and void 36 months from the date of issuance.

[signature] 12-29-89
Environmentalist — Date

Director or Authorized Section Head — Date

*This permit must be signed by the Director of Mecklenburg County Health Department or an authorized section head in order to be valid.

100 MPT

APPLICATION FOR AN IMPROVEMENT PERMIT

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

(OFFICE USE ONLY)
FILE: 5449A
TC: AJ
SERIAL: NE 1948
☐ L ☐ CRT

70/

JOB LOCATION

① ADDRESS: South Ford Rd. (STREET NO. / STREET) ② FILE: 5447A
③ JURISDICTION: ④ TAX PARCEL NO.: 021103441
⑤ SUBDIVISION: Pine Island ⑥ LOT: 42 ⑦ BLOCK: 4

OWNER

⑧ NAME: Mark D. Henderson (FIRST / MIDDLE / LAST)
⑨ MAILING ADDRESS: 801 Savoy Ln.
⑩ CITY: Gastonia ⑪ STATE: N.C. ⑫ ZIP: 28054
⑬ PHONE: (WORK) 334-7335 ⑭ (HOME) 864-4103

REQUEST

This request is for a(n):

⑮ ☑ New permit (Provisional)
⑯ ☐ Repair or alteration permit
⑰ ☐ Authorization for mobile home exchange
⑱ ☐ Other (specify)

DESIGN CRITERIA

System will serve:

⑲ ☑ Residence ⑳ ☐ Mobile home
㉑ ☐ Business or place of public assembly
㉒ Number of bedrooms? 2
㉕ Type?
㉓ Maximum occupancy? 4
㉖ Maximum number of employees?
㉔ Basement? ☐ yes ☑ no
㉗ Maximum number of seats?

WATER SUPPLY

㉘ Water supply from (present or proposed):

A ☑ Individual well
B ☐ Municipal system
C ☐ Community well
D ☐ Community system

㉙ The undersigned, owner of the property described above as the "JOB LOCATION" has read the foregoing application, acknowledges the contents of same are true, and authorizes agents of the MECKLENBURG COUNTY HEALTH DEPARTMENT to enter onto the property for the purpose of processing this request.

Signed: Mark D Henderson
Date: 12/19/87

IMPROVEMENT PERMIT

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department has approved the Request for the Job Location contained in this document. This approval is granted in accordance with the provisions of Laws And Rules For Sanitary Sewage Collection, Treatment And Disposal in effect at the time of issuance of the permit and is subject to the following provisions:

... No work shall be conducted on the septic tank system until an Installation, Construction, Alteration and/or Repair permit is issued by this Department.

... This permi[redacted]me null and void 36 months from t

Waiting on GnG Form

Environmentalist — Date

Director or Auth — Date

*This permit must be signed by the Director of Mecklenburg County Health Department or an authorized section head in order to be valid

TO: ENVIRONMENTAL HEALTH DEPT.
BUILDING STANDARDS DEPT.
DEPT. OF ENVIRONMENTAL PROTECTION/
SOLID AND HAZARDOUS WASTE

DATE 12/21/89

FROM: COUNTY ENGINEERING DEPARTMENT

EHD FILE _____ JURISDICTION CODE Mck

PARCEL NUMBER # 031-103-44

ASSIGNED ADDRESS 10819 South 3rd Rd

EXISTING ADDRESS _____

PROJECT NAME N/A

THE ABOVE DESCRIBED LOCATION HAS BEEN CHECKED CONCERNING:

		APPROVED	DISAPPROVED
1.	SUBDIVISION REGULATIONS	/ /	/ /*
2.	FLOODWAY REGULATIONS	/ /	/ /*
3.	EROSION CONTROL REGULATIONS	/ /	/ /*
4.	PUBLIC UTILITY EASEMENT	/ /	/ /*
		PRESENT	**NOT PRESENT**
5.	PUBLIC UTILITY EASEMENT	/ /*	/ /
6.	PROPERTY FRONTS ON THOROUGHFARE	/ /*	/ /
7.	DRIVEWAY PERMIT REQUIRED	/ /*	/ /

*If checked, further investigation will be required to determine whether a building permit can be issued by Building Standards for the site.

REMARKS: Address Verified

NOTE: THIS FORM MUST BE TURNED IN AT THE CASHIER'S OFFICE AT BUILDING STANDARDS WHEN PAYING PERMIT FEES.
A CERTIFICATE OF OCCUPANCY WILL NOT BE GRANTED UNTIL THE TRANSPORTATION DIVISION GRANTS FINAL APPROVAL ON DRIVEWAY(S).

SIGNED: PRR

OPWEAR 06-88

NEW ADDRESS / /*

FORM 100

COPY

PRESENTED FOR REGISTRATION
90 JAN 22 AM 11:35
ANNE A. POWERS
REGISTER OF DEEDS
MECKLENBURG CO. N.C.

FILE NO. 5449-A

STATE OF NORTH CAROLINA

COUNTY OF MECKLENBURG

ACKNOWLEDGEMENT OF REQUEST BY OWNER FOR RECLASSIFICATION OF SITE FROM "UNSUITABLE" TO "PROVISIONALLY SUITABLE" UNDER 10 NCAC 10A .1948(c)

The undersigned, Mark D. and Lucinda K. Henderson

owner of property located at 42-4 South Ford Rd. - Pine Island Subdivision

("the site") and described in an instrument recorded in Book 4092 at Page 277, Mecklenburg Public Registry, hereby acknowledges that he applied to the Mecklenburg County Department of Environmental Health ("the Department") for a permit to install a septic tank sewage disposal system on the site; that the Department evaluated the site for suitability for such a system in accordance with the regulations promulgated by the North Carolina Commission for Health Services as 10 NCAC 10A .1934 et seq; that the Department originally classified the site as "unsuitable" pursuant to the standards set forth in the regulations; that the undersigned requested pursuant to 10 NCAC 10A .1948(c) that the Department reclassify the site as "provisionally suitable" in light of the particular septic tank system proposed by the undersigned; that the Department considered various studies, data and other information which indicate to the Department that the septic tank system proposed by the undersigned can reasonably be expected to function satisfactorily and thus that the findings specified in 10 NCAC 10A .1948(c)(1), (2), and (3) can be made; and that the Department therefore reclassified the site as "provisionally suitable" and issued an appropriate permit for such proposed septic tank system.

The undersigned further acknowledges that the proper design, construction, operation and maintenance of such septic tank system is his responsibility and that neither the Department nor its officials, employees or agents warrant or guarantee that the said system installed pursuant to the permit issued by the Department will function in a satisfactory manner for any given period of time or that the Department, its officials, employees or agents assume any liability for any damages of any kind which are caused, or which may be caused, by a malfunction of such system.

The undersigned further agrees for himself, his heirs and assigns that he shall indemnify and hold harmless the Department, its employees and officials, as well as Mecklenburg County and its employees and officials, for any damages or other claims of any person or persons whatsoever arising out of the installation, operation, or failure of said septic tank system.

The undersigned further agrees for his heirs and assigns that, in the event any septic tank system installed under authority of the aforesaid permit fails to perform adequately in any respect, he will take whatever measures are required to correct same; or if such is impossible he will discontinue use of said system immediately.

Use of the singular masculine pronoun forms herein shall be deemed to also include the plural and feminine forms as the context may require.

This document shall be placed on the public records of the Register of Deeds of Mecklenburg County and indexed therein under the Grantor Index in the name or names of the undersigned, and the foregoing acknowledgements shall henceforth be binding on all persons claiming any right, title, or interest in the site.

This 22ND day of JANUARY, ~~19~~ 1990.

Mark D. Henderson (SEAL)

Lucinda K. Henderson (SEAL)

STATE OF NORTH CAROLINA
COUNTY OF MECKLENBURG

I, Gwynn A. Lockleak, a Notary Public for said County and State, do hereby certify that Mark D. & Lucinda K. Henderson personally appeared before me this date and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and notarial seal, this 22nd day of JANUARY, 1990.

Gwynn A. Lockleak
Notary Public

My Commission Expires: 10-21-94

Mecklenburg County
Health Department

January 17, 1990

Mark D. Henderson
801 Sandy Ln.
Gastonia, NC 28054

RE: Property located at South Ford Rd.
FILE: 5449A
PARCEL: 031-103-44

Mr. Henderson:

Receipt of your plans for a modified waste disposal system for the property referenced above is acknowledged.

Your plans for the modified system for the above property as submitted are approved with the following comments:

- The well should be located 100 feet or no less than 50 feet away from any part of the sewage disposal system and repair area.
- Water saving plumbing devices and low flush or microflush toilets must be installed when constructing the residence.
- Occupants to utilize maximum water conservation measures wherever possible.
- Maintain a minimum of 5 feet clearance between driveway and any portion of system/repair area.
- All trench sidewalls to be thoroughly raked and limed.

Upon execution and recording with the Register of Deeds Office, Mecklenburg County, of the enclosed "Septic Tank Agreement Form", an Improvements Permit may be issued by this office.

Sincerely,

Gene Vaughan, R.S., Supervisor
On Premises Waste Disposal & Water Supply

GV/kat

Enclosures - 3 Septic Tank Agreement Forms

Environmental Health Division
1200 Blythe Boulevard • Charlotte, North Carolina 28203 • (704) 376-4603

3.6
31
111.4

5 Letter

om + 100% Repair TF

→ 400.0 ⑧ Maintain a minimum of 5 FEET Clearance Between Driveway and any portion of System ~~of~~ Repair Area.

(2) All Sidewalls to be Thoroughly Raked and Lined ~ TRENCH

Date: Dec. 12, 1989

From: T J Systems
Rt 2 Box 207
Stony Point, N.C. 28678

To: Mark Henderson
801 Sandy Lane
Gastonia, N.C. 28054
704-3347335 work 704-864-4103 home

Subject: Lot 42 Block 4 South Ford Road
File # : 5449A

System type: 16 inch T & J Panel System with pressure distribution.

This system is designed for a two bedroom house at an application rate of .3 gpd. 240/.3 = 800/3 = 267 LF of conventional drainfield multiplied by .5 = 133 LF of 16 inch T & J Panel System. This system shall be installed in accordance with all state and local rules and regulations and in compliance manufacturer's installation guidelines. Soil evaluation was supplied by the county.

Line	# Panel	# Hole Per Panel	Size Hole	Line Head	Line Length	Hole Flow	Per min Line Flow
A	9	one	5/32	2ft	40'	.41	3.69
B	8	one	5/32	2ft	35'	.41	3.28
C	8	one	5/32	2ft	35'	.41	3.28
D	6	one	5/32	2ft	25'	.41	2.46
E	repair				75'		
F	repair				25'		
G	repair				40'		
Totals	31				135'		12.71

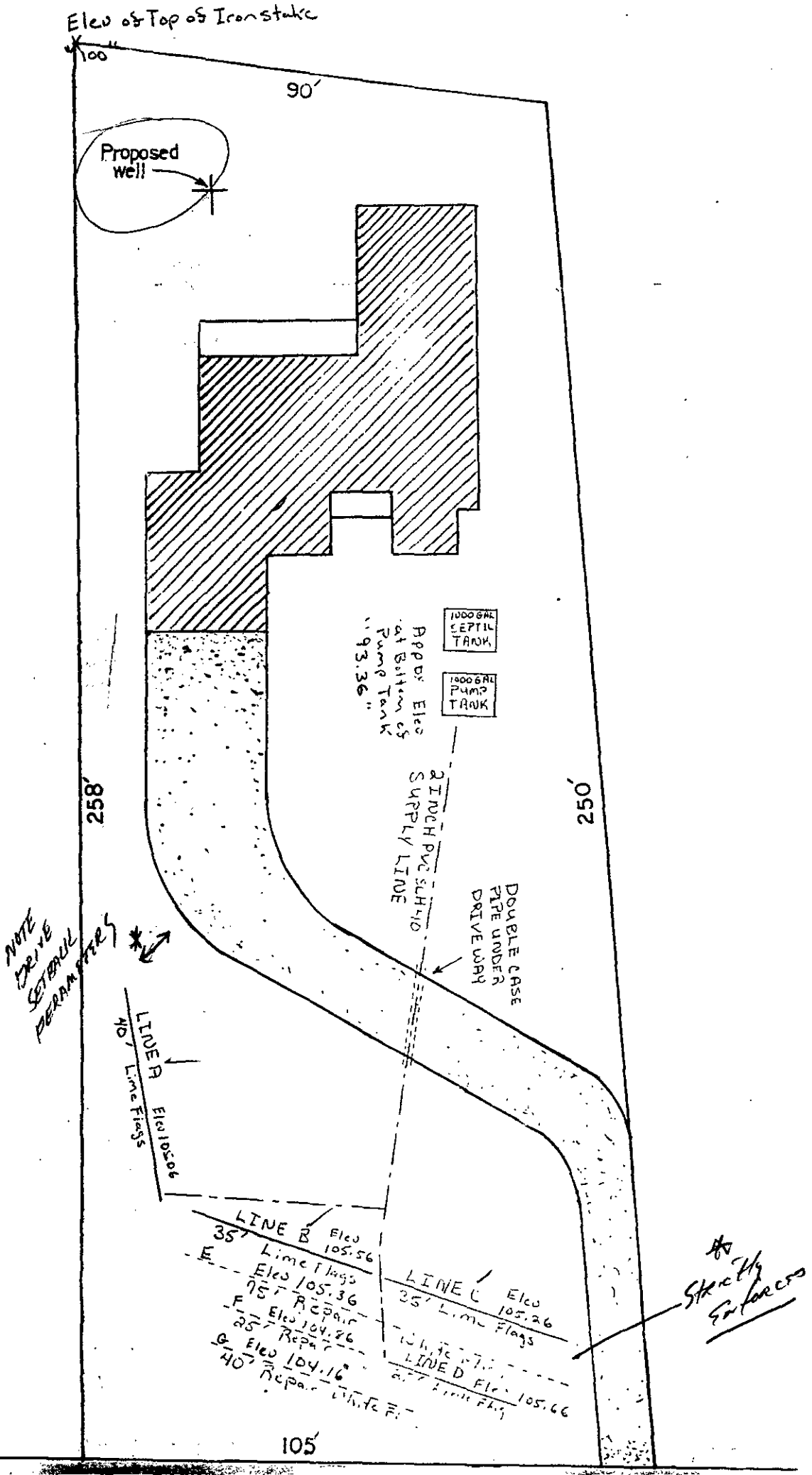
CALCULATIONS FOR PUMPED SYSTEMS:

Head: Friction loss = 2.1
Total lift = 17.8
TDH = 19.9

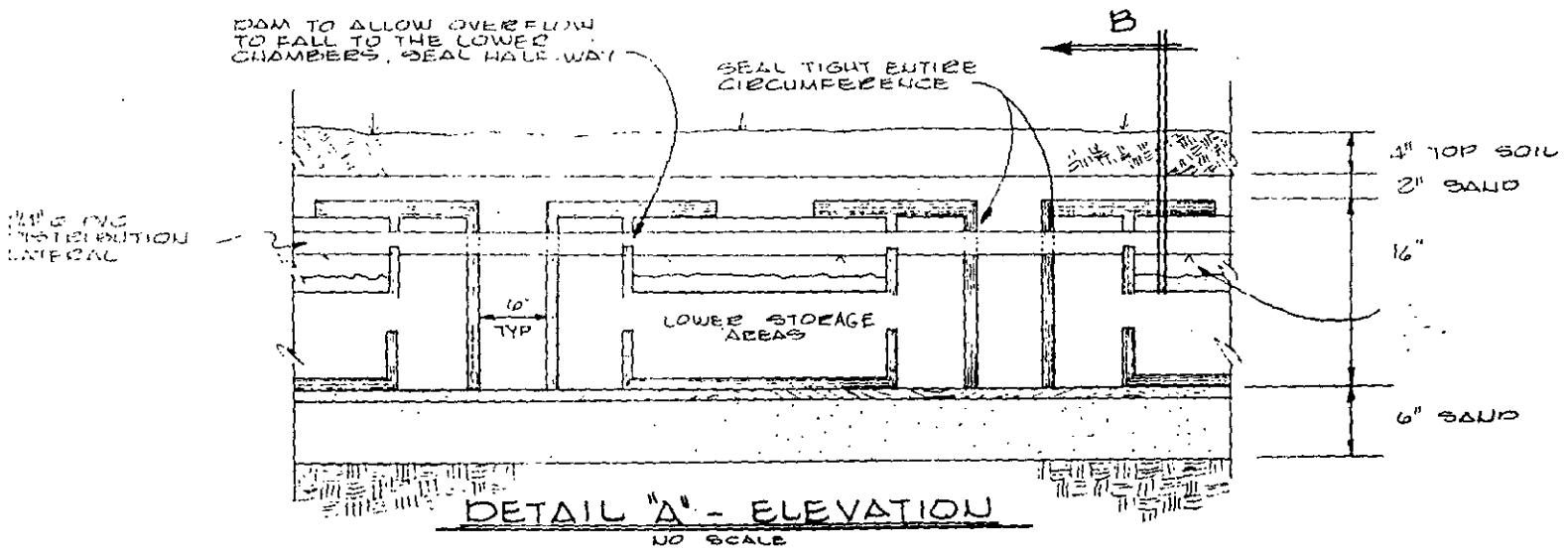
Pump Size: 16 gallon per minute at 25 feet of head.

Pump cycle should be 8.8 min or 112 gallons.

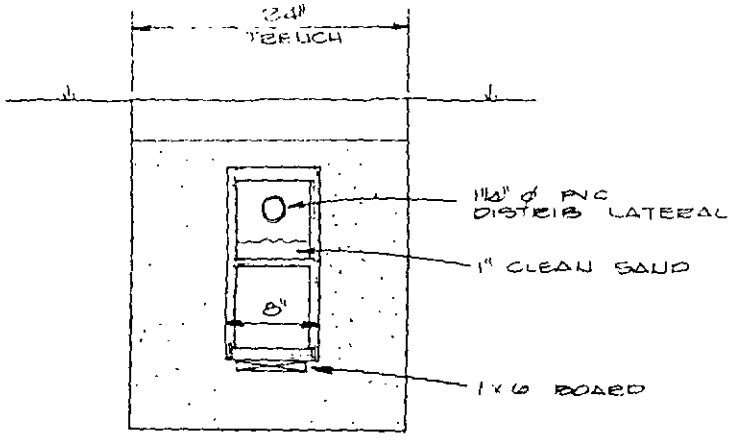
Note: Each line shall have a globe valve at the start of the line for pressure adjustment.


Elev of Top of Iron stake
100'
90'
Proposed well
1000 GAL SEPTIC TANK
1000 GAL PUMP TANK
Appox Elev at Bottom of Pump Tank 93.36'
2 INCH PVC SCH 40 SUPPLY LINE
DOUBLE CASE PIPE UNDER DRIVE WAY
258'
250'
105'
NOTE DRIVE SETBALL PERAMETER
LINE A
40' Lime Flags
Elev 105.06
LINE B
Elev 105.56
35' Lime Flags
E
Elev 105.36
25' Repair
F
Elev 104.86
25' Repair
G
Elev 104.16
40' Repair Lime Flags
LINE C
Elev 105.26
35' Lime Flags
LINE D
Elev 105.66
Stake Entrance

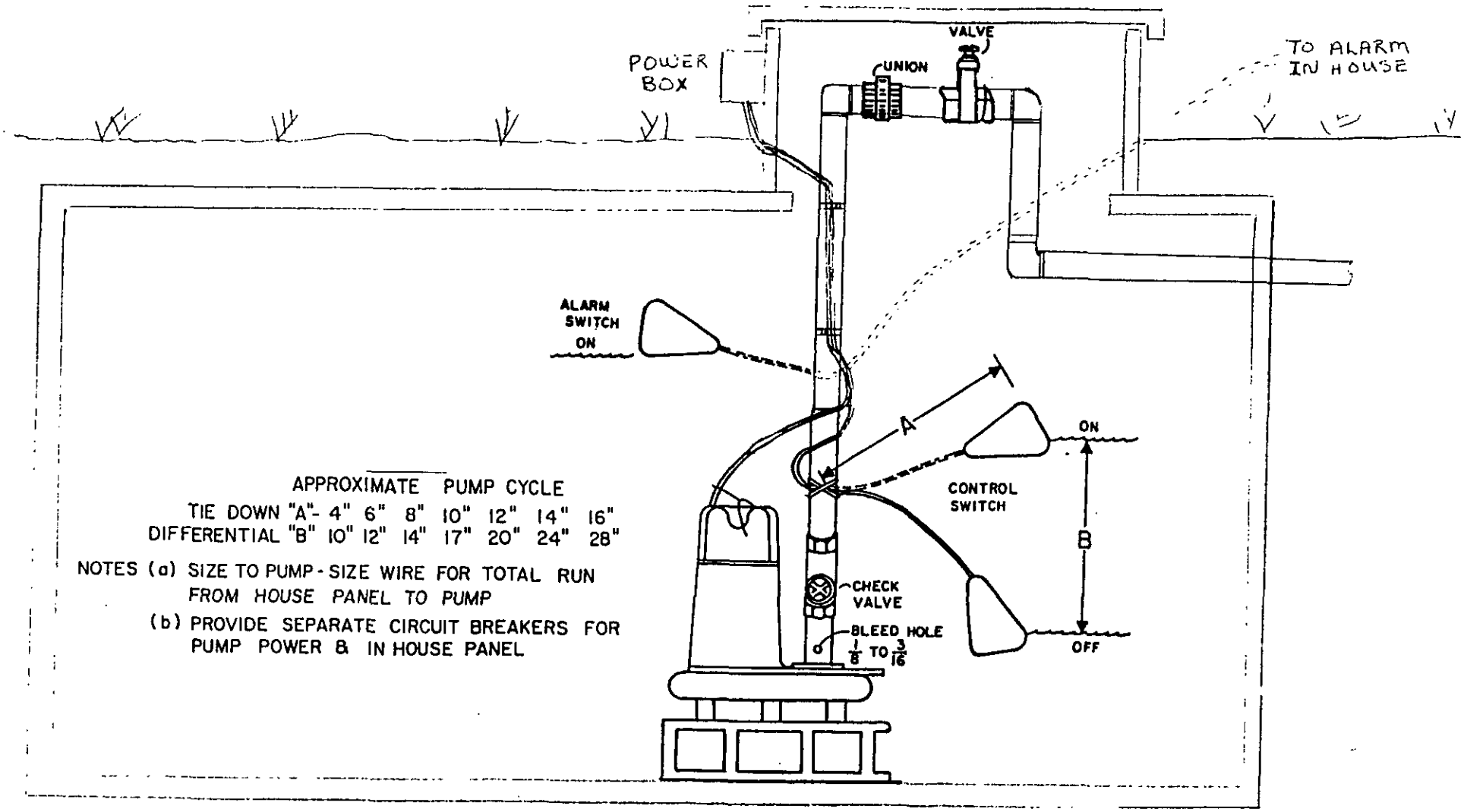
T & J PANEL AS MFG'D
BY STATESVILLE
CONCRETE PRODUCTS



DETAIL "A" - ELEVATION
NO SCALE



DETAIL "B" - SECTION
NO SCALE

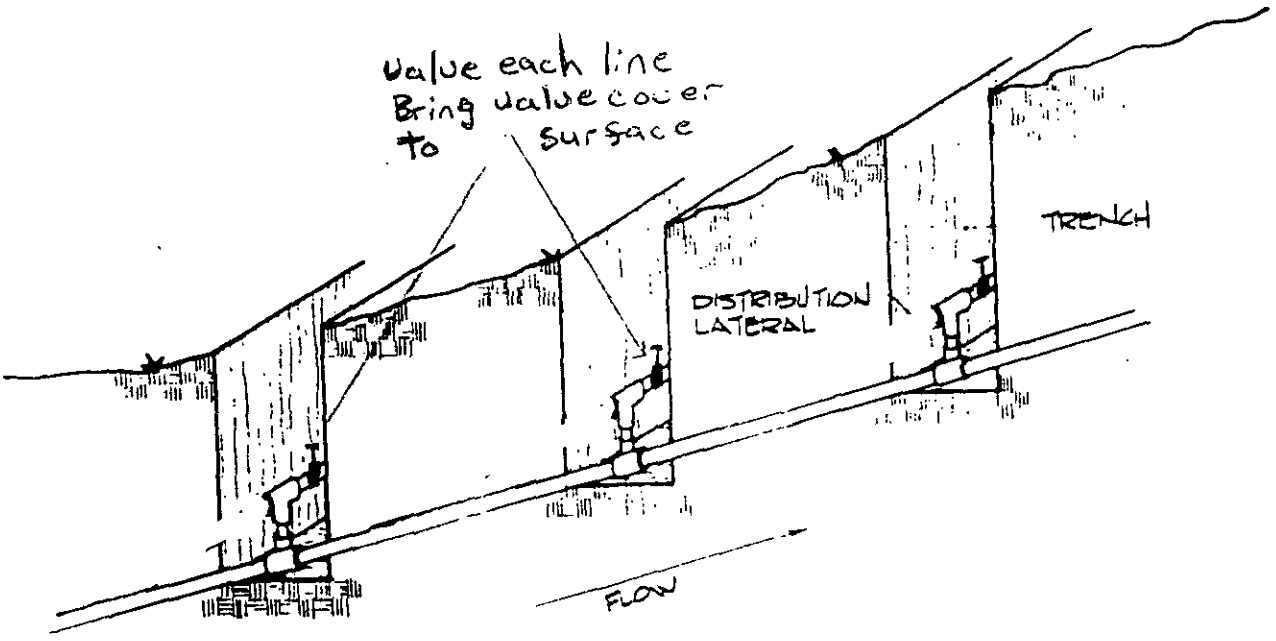


APPROXIMATE PUMP CYCLE

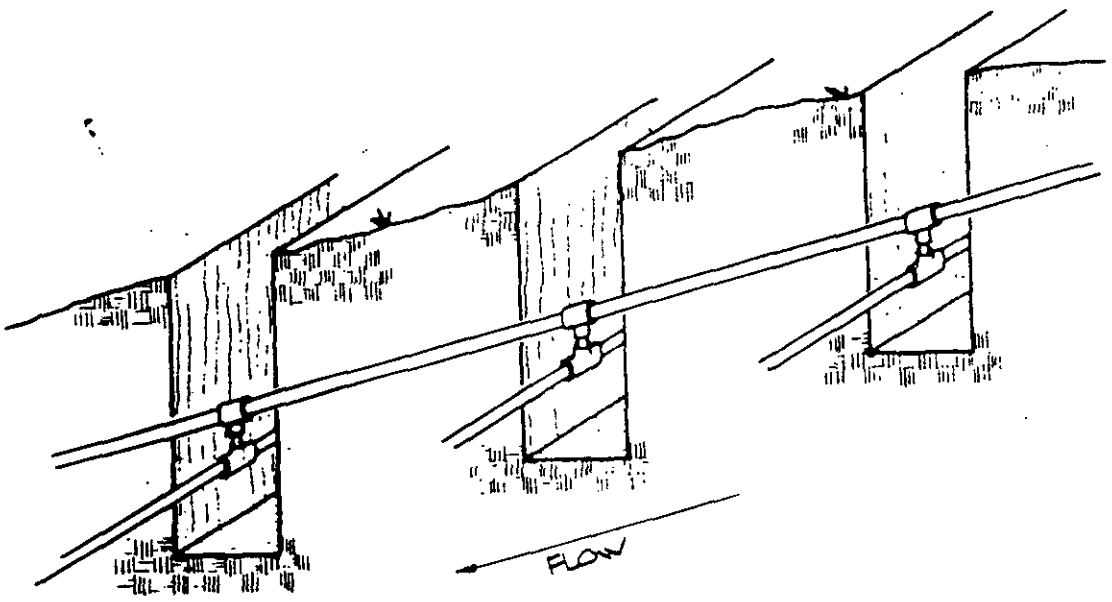
TIE DOWN "A" -	4"	6"	8"	10"	12"	14"	16"
DIFFERENTIAL "B"	10"	12"	14"	17"	20"	24"	28"

NOTES (a) SIZE TO PUMP - SIZE WIRE FOR TOTAL RUN FROM HOUSE PANEL TO PUMP

(b) PROVIDE SEPARATE CIRCUIT BREAKERS FOR PUMP POWER & IN HOUSE PANEL



A. PUMPING UPHILL



B. PUMPING DOWNHILL

Figure 10. Manifold placement on slopes

DESIGN, INSTALLATION AND MAINTENANCE

OF THE

T & J PANEL WASTEWATER TREATMENT SYSTEM

FOR

SANITARIANS

AND

SEPTIC TANK INSTALLERS

Although this manual is sectioned for specific user groups, we at T & J Panel suggest that you familiarize yourself with the complete manual.

Sanitarians

In the early days of the T & J Panel System, when it was still considered an experimental system, the primary reason for permitting the Panel System was because of insufficient space for a conventional system. Now with inclusion in the Sewage Regulations(10NCAC 10A .1956(3)(a)(ii)), the Panel System should be considered when a quality effluent may be needed, space is limited, usable soil is limited, or there are indications that at some future time, space may be needed for other uses. When there is a trend for added development such as additions to homes, pools, or other special landscaping development the T & J Panel System may prevent insufficient space later. As an example, there was a subdivision where three of five homes in the same block added in-ground pools. Each of these pools impacted the existing nitrification lines. As a sanitarian, if you can foresee such a trend developing, discuss the Panel System with the home owner.

As noted in the regulations, the PPBPS is only permitted where soils are suitable for a conventional system, however, only one-half of the space is needed. The Panel System will allow the use of the best soils on the lot. This system may be gravity fed or pumped using the LP Panel System as described. Most of the concepts for a T & J Panel layout are the same as for a conventional system. The biggest differences are areal area needs and quality of effluent being introduced into the soil.

Conversion

A three bedroom house with a 0.4 gpd application rate. (First three steps are the same as the conventional line)

1) 120 gallons per bedroom x 3 bedrooms = 360 gallons per day design flow rate.

2) 360 flow rate/0.4 application rate = 900 sq. ft. of trench bottom.

3) 900 sq. ft./3 ft. wide trench = 300 lineal feet of conventional system.

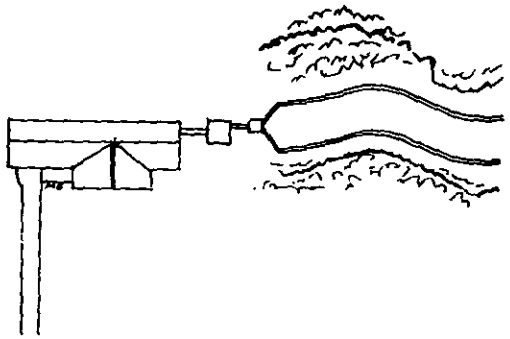
This conventional layout requires 2700 sq. ft. of area on the lot and equal space for repair for a total of 5400 sq. ft. of suitable and usable area. To calculate the T & J Panel System size, the above calculations must be made with an additional fourth step as described in 10NCAC 10A .1956 (3)(a)(ii)(B) for a PPBPS (the T & J Panel System)

4) 300 lineal feet of conventional system x 0.5 for a 16 inch high Panel System = 150 lineal feet of T & J Panel trench.

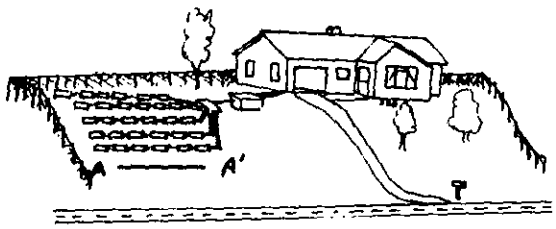
A Panel System requires only a 1200 sq. ft area on the lot for the system and equal area for repair. With the Panel System the installation and repair can go into the same space as the initial area required by a conventional gravel trench system.

Window Effect

Areal space should always be a consideration for any system, however, it is especially notable with the Panel System as with any system that reduces the size of the areal area drainfield. The following is a simplistic example of this concept.



RIGHT

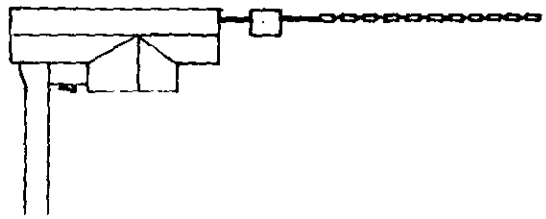


WRONG

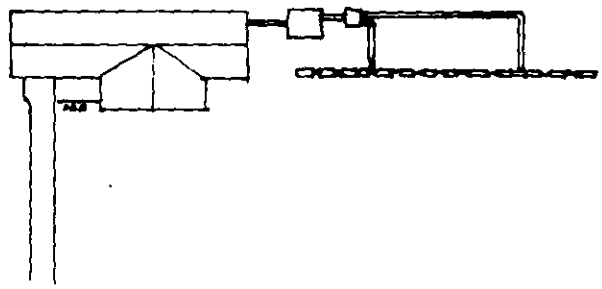
While both systems have the same lineal footage of trench the lower diagram is not a desireable design. The effluent must pass through the area A-A' which can cause a strain on that area and even a failure because of hydraulic overloading.

Distribution

Another extreme would be the use of a long single trench fed from only one end. In the first example, below the areal space is good and the chance of hydraulic overloading is greatly reduced. However downline distribution in the panel line will not give optimum treatment.



WRONG



RIGHT

In the lower example we see that the trench has been feed from multiple points. Because the Panel lines are put in as level as possible, never exceeding 1/4 inch of fall in 10 feet of run, they feed both ways equally. T & J recommends that no gravity line exceed 50 feet, unless it is fed from multiple points. In both of these examples, we are specifying the Panel System, but the logic applies to the conventional system as well.

COUNTY HEALTH DEPARTMENT

(SEPTIC TANK) IMPROVEMENTS PERMIT AND CERTIFICATE OF COMPLETION
(Ground Absorption Sewage Disposal System -- G. S. Chapter 130-A-Article 11)

OWNER OR CONTRACTOR _____ DATE _____ PERMIT NO. _____

PHONE: Business _____ Home _____

LOCATION _____

_____ S. R. No. _____

SUBDIVISION NAME _____ LOT NO. _____ SECTION OR BLOCK NO. _____

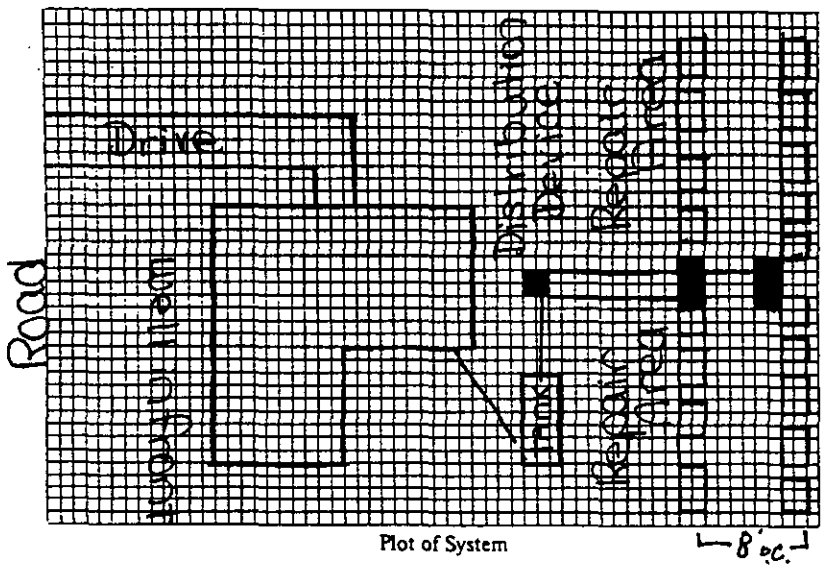
House (✓) Mobile Home ( ) Business ( ) Other _____

No. Bedrooms 3 No. Bathrooms 2 1/2
Garbage Disposal Unit N/A Yes ( ) No ( )
Auto. Dishwasher Yes (✓) No ( )
Auto. Wash. Machine Yes (✓) No ( )
Site Suitable Yes (✓) No ( )

Character & Porosity of Soil clay loam over clay
Percolation Rate 0.4 gal/ft²/day
Topography 6% slope
Depth to Water Table > 60"
Rock or other impervious formations none

Lot Area _____

_____ Basement with Plumbing _____ Basement without Plumbing ✓ No Basement


Road
Drive
Existing house
Existing deck
Existing deck
Existing deck

COUNTY HEALTH DEPARTMENT

(SEPTIC TANK) IMPROVEMENTS PERMIT AND CERTIFICATE OF COMPLETION
(Ground Absorption Sewage Disposal System -- G. S. Chapter 130-A-Article 11)

OWNER OR CONTRACTOR _____ DATE _____ PERMIT NO. _____

PHONE: Business _____ Home _____

LOCATION _____

_____ S. R. No. _____

SUBDIVISION NAME _____ LOT NO. _____ SECTION OR BLOCK NO. _____

House (✓) Mobile Home ( ) Business ( ) Other _____

No. Bedrooms 3 No. Bathrooms 2½

Garbage Disposal Unit N/A Yes ( ) No ( )

Auto. Dishwasher Yes (✓) No ( )

Auto. Wash. Machine Yes (✓) No ( )

Site Suitable Yes (✓) No ( )

Lot Area 20,000

Character & Porosity of Soil clay loam over clay

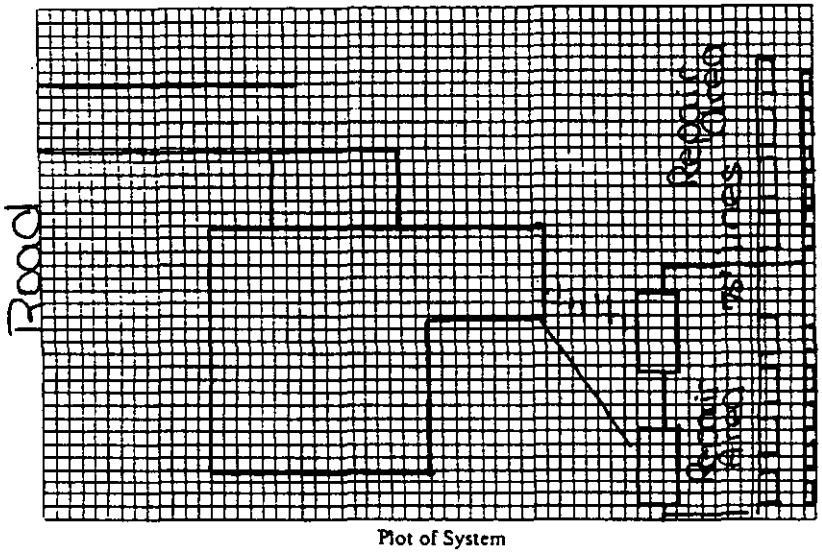
Percolation Rate 0.4 gal/ft²/day

Topography gdo slope

Depth to Water Table 10"

Rock or other impervious formations _____

_____ Basement with Plumbing _____ Basement without Plumbing ✓ No Basement Pressure Distributn



Size of Tank 1,000 septic / 1000 pump Gals.

Nitrification Field:

No. of Lines 2@5' lines of T-5

Sq. Ft. 900 Linear Ft. 150

Depth of Stone in Lines 24" sand

Water Supply: Individual ( )
Public ( )

Installed by _____

I understand and agree to install septic tank system as specified on this Improvements Permit.

Signed: _____

IMPROVEMENTS PERMIT BY _____

COMMENTS: pump sized by head 2-4' at turn up

CERTIFICATE OF COMPLETION BY _____ DATE _____

EXISTING SYSTEM CHECKED BY: _____ DATE _____

CONSTRUCTION MUST COMPLY WITH ALL OTHER APPLICABLE STATE AND LOCAL REGULATIONS.

Permit is VOID if any unauthorized changes are made in installation of system and/or if any false information is supplied in making Improvements Permit.

Health Dept. Copy: White Inspection Dept. Copy: Yellow Sanitarian's Copy: Pink Owner's Copy: Gold

How Many Panels Do You Need?

To calculate the number of 16 inch high panels needed for a 150 foot line, multiply 150'x 12" = 1800" then divide by 52" which is 46 inches for the panel and 6 inches for the space between the panels in the trench. 1800" /52" = 34.6 panels, so you would call for 34 panels. (A material order chart is included in the installer section of this manual.) If there is to be more than one trench, the sizing of the lines should be as equal as possible with as close to the same number of panels in each trench as is practical. A permit will normally show the panel as small blocks on the line. The following two pages are sample copies of permits for Panel systems.

Gravity or Pressure

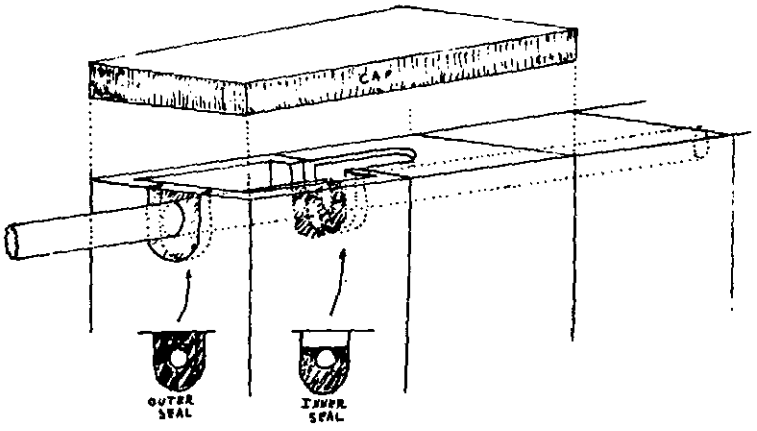
The T & J Panel System can be installed as either gravity or a low pressure distribution system. When designing a pressure system the principles of low pressure distribution are as described in the LPP manual. There is further discussion on pressure systems in the installer section of this manual. One of the attached permits is for a LP Panel drainfield.

Backfill

Backfill sand shall be a clean, washed, medium sand that is naturally occurring and falls within the gradation of ASTM C-33 specification. This specification is one that is used in the ready mix industry and is readily available in all areas. The second type of sand that you will need is a clean particle sand to coat the bottom of each panel's top chamber with a bed of sand one inch thick. This sand is a medium grade of sand blasting sand. Each one hundred pound bag should cover eight panels. Backfill sand calculations should be taken from the material sheet.

Tar Seals

The two drawings below illustrate the inner and outer seal. Note that while the outer seal is a complete seal, the inner seal is only up to the top of the connecting pipe. This is to allow for over flow of the effluent at peak use periods into the lower air chambers. At this point the air chambers become additional storage chambers for the effluent.



Trench Preparation

Trench grade should be established so that backfill cover will be four to six inches over the tops of the panels. (Note on severe slopes system depth should be adjusted to protect against brakeout of effluent) In clay type soils the trench side walls should be raked to bring slicked over areas back as near to original structure as possible. A light dusting of lime on the side walls is required to promote the soil structure.

Final Inspection

The following list of points are things that an inspector should look for before issuing an completion permit.

1) Is depth of the panels within guidelines?

2) Are drain lines level or less than 1/4 inch fall in ten feet?

3) Have seals been properly constructed?

4) Was the proper sand used in the trench backfill?

5) If in clay type soils were the side walls raked and limed?

(For Pumped Systems)

6) Have pump size, head pressure, and dose cycle been properly sized and set?

(Set dose cycle for 3.6 gallons per 16 inch high panel.)

Installer

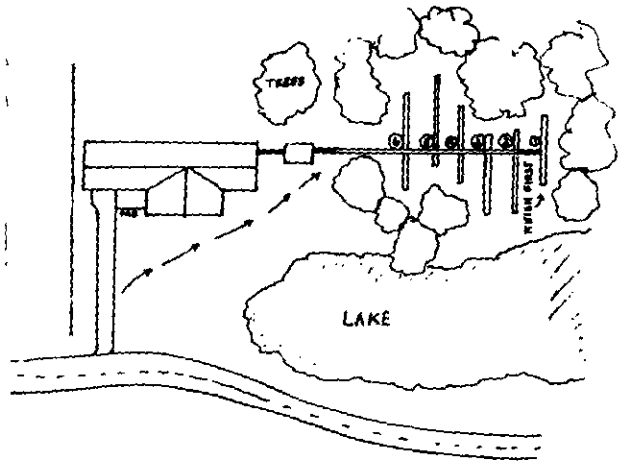
Generally, on level open land, a Panel System can be installed in about the same time as a conventional system; however, traditionally, Panel Systems have been installed where space and topography have restricted use of a conventional system. For this reason Panel System installations have required more time. Many installers enjoy the change of working with panels, not handling gravel, and the satisfaction of knowing a system is being installed where previously a conventional system was not possible.

Ordering Materials

Enclosed on following two pages you will find an order sheet for the T & J Panel System and a materials chart for 16 inch high Panel System. The distributor in your area will lead you through these sheets when ordering or pricing the system. For information on the distributor located closest to you call 1-800-222-2577 (inside N.C.) or 704-872-9566. After ordering, your panels will be shipped to the job site banded together on pallets.

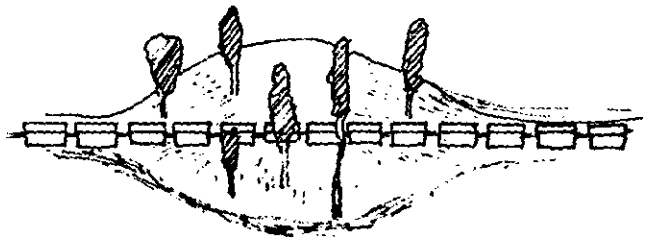
Installation Tips

Installation for multiple line systems should begin in the most confining area and be worked to the more open areas.

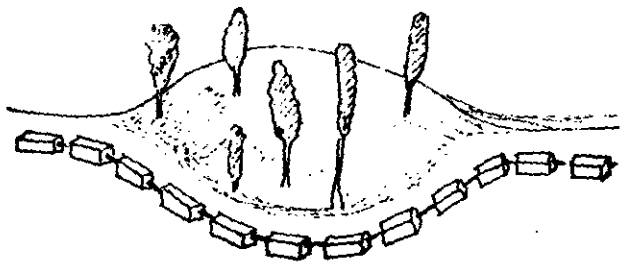


Above is an example of a multiple line installation. As you can see the installation should begin with the line marked 1 and proceed to 2, 3, then 4. This procedure will greatly ease material handling and backfilling. (Note sections of the drainlines should be left uncovered to allow for inspection of lines when area is confined and return access to lines is limited.)

On the following page are two examples of drain lines on sloping lots. The first drawing shows the drainline going through a slope making the center of the line deeper in the ground. This is not a desirable situation. The second drawing shows the drainline going around the slope keeping the trench depth and cover uniform for the entire length of the line. On slopes care should be given to avoid cutting away valuable top soil in an effort to make straight lines. Panel lines can be curved to almost any degree.



Wrong



Right

Digging The Trench

Start by shooting the grade and marking the contour. Then for a 16 inch panel add 28 inches to the shallowest or lowest grade that the trench must cross to obtain the trench bottom grade. Now dig the trench at the elevation derived, checking the grade frequently. The trench should be a minimum of two feet wide. With the trench open all sidewalls shall be raked to bring smeared areas back to their original structure before a light dusting of lime is applied. Now place a 6 inch layer of backfill sand in the trench and level to grade, then place a 1 x 4 or 6 inch board flat on it's side on top of the 6 inch layer of sand. Once more check the grade of the trench by shooting the top of the board. Once the grade boards have been set, the panels may be set into the ditch by hand or using the backhoe. Each panel weights about 155 pounds and placement by hand goes quickly. The panels should be placed about 6 inches apart in the trench to obtain equal spacing. Now place 10 to 12 pounds of clean particle sand (medium sand blasting sand) in the top chamber of each panel to form a bed of sand about one inch thick. Tar seal rope should be placed in the U outs to form seals as shown in earlier drawings. Once the tar rope is in place, a 24 inch section of two inch PR160 pipe is cut to span from the upper middle top chamber of the first panel to the upper middle chamber of the next panel. The tar seal rope that is used should be of tar or butyl that is soft and pliable to obtain a water tight seal. Now that the connection and sealing is complete a block cap is placed on each end of the panel covering all openings.(These will be delivered with the panels.) The cap block may well serve as an inspection port at some future date. The trench is ready to be backfilled to the top of the panel with the same backfill sand used in the trench bottom. With the sand to the top of the panel, trenches should be left for the sanitarian to inspect. Soil cover should be added after the final inspection.

Most Panel Systems are currently used due to space considerations and caution should be taken to preserve suitable soil structure and site conditions.

Materials Chart For 16 Inch Panels

Materials needed per panel:

- Three feet of half inch tar seal rope per panel.
- Two feet of two inch PR160 pipe per panel or same linear feet as line layout of pressure system of one and a quarter inch pipe. Add pipe for tie in of lines to tank and house.
- One hundred pounds of partical sand (sand blasting sand fine texture) per eight panels.
- Same linear feet of one by six boards as line length.
- Bag powder lime when in clay soils.

Panel and C-33 Sand fill

50 LF - 11 panels
8¼ tons sand

60 LF - 14 panels
10 tons sand

70 LF - 16 panels
11½ tons sand

80 LF - 18 panels
13¼ tons sand

90 LF - 21 panels
15 tons sand

100 LF - 23 panels
16½ tons sand

110 LF - 25 panels
18¼ tons sand

120 LF - 27 panels
20 tons sand

130 LF - 30 panels
21½ tons sand

140 LF - 32 panels
23 tons sand

150 LF - 34 panels
25 tons sand

160 LF - 37 panels
26½ tons sand

170 LF - 39 panels
28 tons sand

180 LF - 41 panels
30 tons sand

190 LF - 43 panels
31½ tons sand

200 LF - 46 panels
33 tons sand

T & J Panel Material Worksheet

Homeowner _____ County _____

Address _____

_____

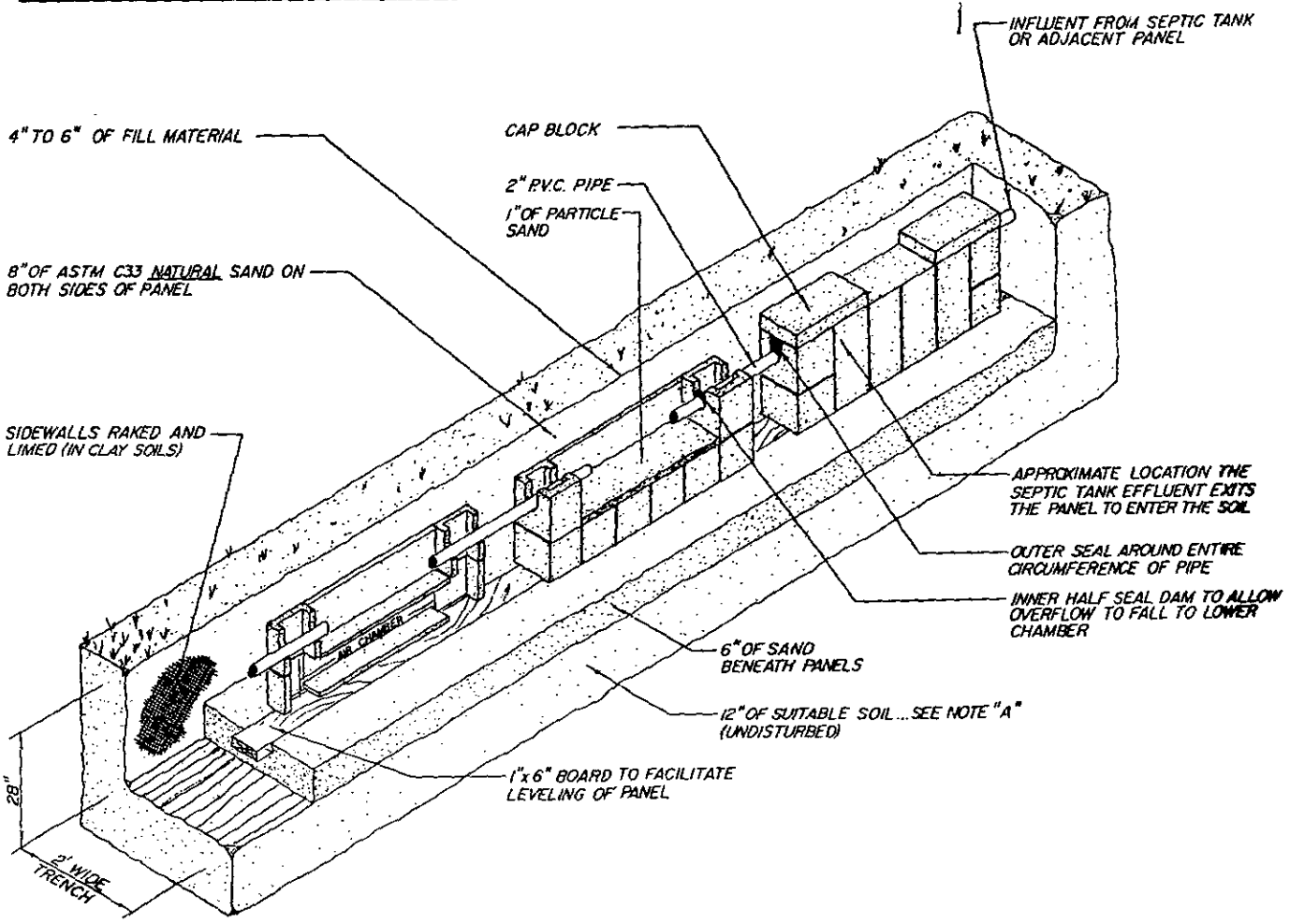
Description of System _____

_____

_____

_____	T & J Panels _____ Inch (caps N/C)	_____
_____	2" Pipe	_____
_____	1 1/4" Pipe	_____
_____	Fittings for Pipe	_____
_____	Tar Seal Rope (3' per Panel)	_____
_____	Bag Partical Sand (100 lbs per 8 Panels)	_____
_____	Pallets (Returnable)	_____
_____	Screened Creek Sand (FM 2.3 to 3.0)	_____
_____	1x4 or 1x6 Boards	_____
_____	Power Lime	_____
_____	Sep Tank _____ Gallon	_____
_____	Tar Seal for Tank	_____
_____	4" PVC Pipe Schedule 40	_____
_____	Distrobution Box	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
	Sub-total	_____
	Delivery Charge	_____
	Tax	_____
	Total	_____

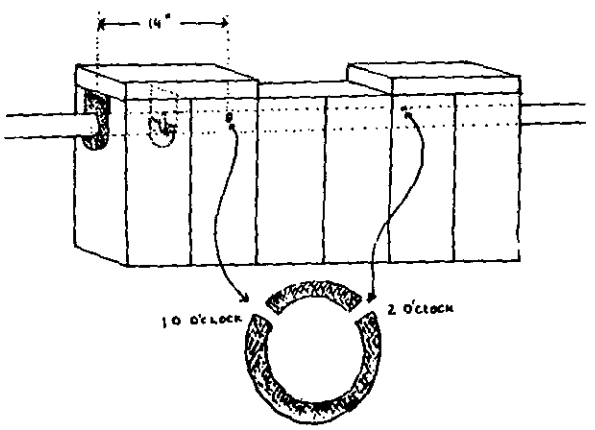
Isometric Drawing of a Segment of 16" T&J Panel Drainfield



Panels With Pressure Distribution

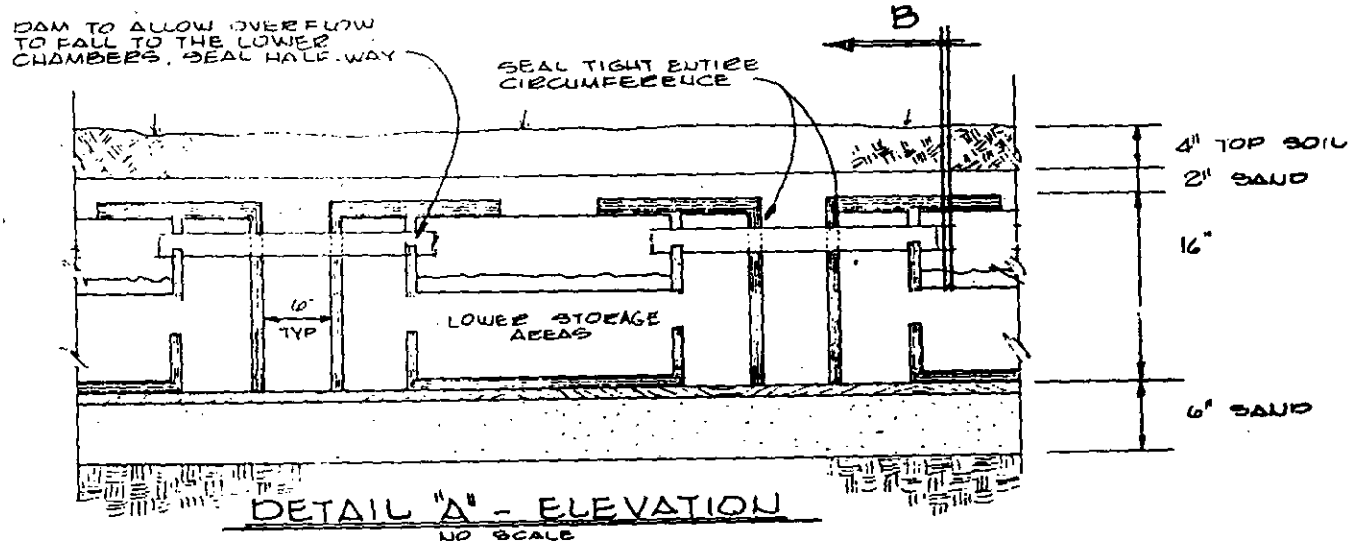
The LP Panel uses Technology similar to that of Low Pressure Pipe (LPP) System. The tables and distribution design described in the LPP manual are applicable to the pressure Panel System. The system should be used with two to four feet of head. In many respects an LP Panel is similar to an LPP with the holes discharging into the panels.

The dosing cycle for the Panel System is designed to pump enough effluent to fill the top chambers of all the panels in the system. The top chamber of a 16 inch panel holds 3.6 gallons. If the system has 34 panels in trenches, then you would multiply 34 X 3.6 to get 122 gallon per dose cycle. Two holes are drilled in the distribution pipe. One at the 10 and one at the 2 o'clock position. These are then placed so that the effluent is pumped into the top center chamber of the panel with each hole approximately 4 inches from opposite ends of the chamber.

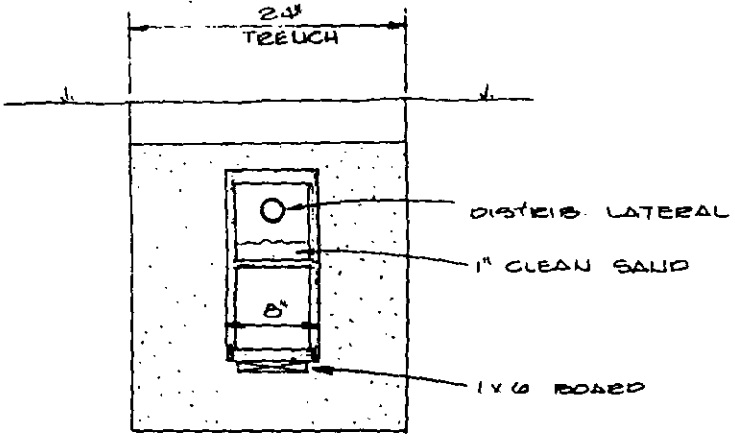


THE T. & J. PANEL
WASTE WATER TREATMENT SYSTEM
PATENT NUMBER 4013559

P.O. Box 288 • Statesville, North Carolina 28677
N.C. WATS 1-800-222-2577 • (704)872-9566



DETAIL "A" - ELEVATION
NO SCALE



DETAIL "B" - SECTION
NO SCALE

MECKLENBURG COUNTY ENVIRONMENTAL HEALTH
SITE EVALUATION REPORT
SERIAL NUMBER 15984

File: 5449A Action 2

Parcel: 03110344 ☐ PC

Location: South Ford Rd.

Subdivision:

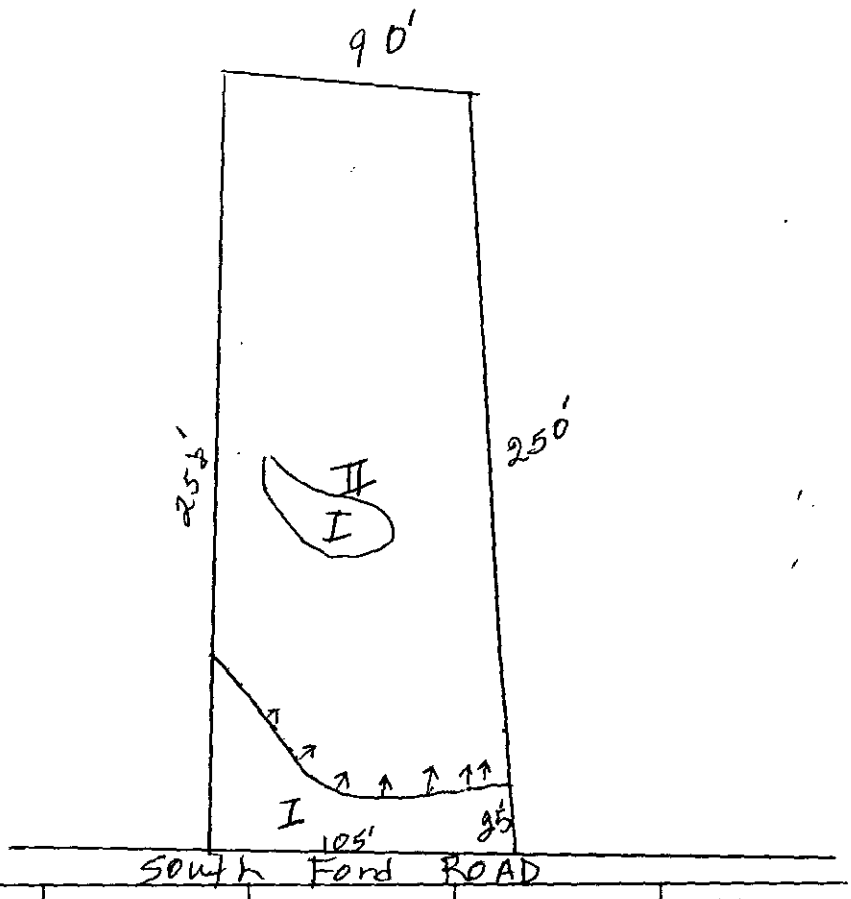
Lot: 42 Block: Acres: 56

Owner: John Robert Day
Address: 610 A-2 Mt. Holly -Belmont Rd
Belmont, NC 28012

Comments: _____

Described by: W. B. Ramsey

Date: 2-8-89



***** EVALUATION KEY *****

S = Suitable U = Unsuitable
PS = Provisionally Suitable
The "Area Classification" below indicates the suitability of areas in the diagram.

FACTORS	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6
Topography	S (PS) U 2-6	S (PS) U 2-4	S PS U	S PS U	S PS U	S PS U
Texture	S (PS) U	S PS (U) 2-1	S PS U	S PS U	S PS U	S PS U
Structure	S (PS) U	S PS U Weak Blocky	S PS U	S PS U	S PS U	S PS U
Drainage	S (PS) U	S PS (U) Slow	S PS U	S PS U	S PS U	S PS U
Depth	S (PS) U 36-37	S PS (U) 15-25	S PS U	S PS U	S PS U	S PS U
Restrictive Horizons	S (PS) U	S (PS) U	S PS U	S PS U	S PS U	S PS U
Available Space	S PS (U)	S (PS) U	S PS U	S PS U	S PS U	S PS U
Other (specify)	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Soil Group/Series	IVa Cecil	IVb Helena				
Area Classification	S PS (U)	S PS (U)	S PS U	S PS U	S PS U	S PS U

Mecklenburg County
Health Department

Basil G. Deltu, M.D., M.P.H.
Health Director

February 14th, 1989

John Robert Day
610 A-2 Mt. Holly -Belmont Rd
Belmont, NC 28012

RE: Property located at South Ford Rd. 42
FILE: 5449A
PARCEL: 03110344

Dear Sir:

At your request, a field investigation was conducted on the property designated above for the purpose of determining site suitability for the installation of a ground absorption sewage disposal system. The results of this investigation showed the property to be classified UNSUITABLE for the installation of such a system. A copy of the Site Evaluation Report (Serial Number 15984) is enclosed.

State regulations provide that sites originally classified unsuitable may be utilized for the installation of alternate or modified sewage disposal systems provided the requirements of 10 NCAC 10A .1948 (c) are met. A reprint of this section is enclosed for your information.

Should you desire to file for permission to install an alternate or modified sewage treatment system on the property, please submit an Application For An Improvement Permit with an ACCURATELY dimensioned plot plan detailing the location of current and/or proposed buildings, wells and sewage disposal systems to this office. They will be reviewed, and if it is determined that the proposed system may reasonably be expected to function satisfactorily, an Improvement Permit will be issued by the Department upon completion by you, of a formal request for lot reclassification.

If I may be of any assistance, please feel free to call.

Very truly yours,

Sylvia D. Daniel, R.S., Supervisor
On Premises Waste Disposal & Water Supply

Enclosure (2)

MECKLENBURG COUNTY ENVIRONMENTAL HEALTH — Site

SITE EVALUATION REPORT — Parcel

SERIAL NUMBER — Action 2

PC

Location: South Ford Rd.

Subdivision:

Lot: 42 Block: Acres:

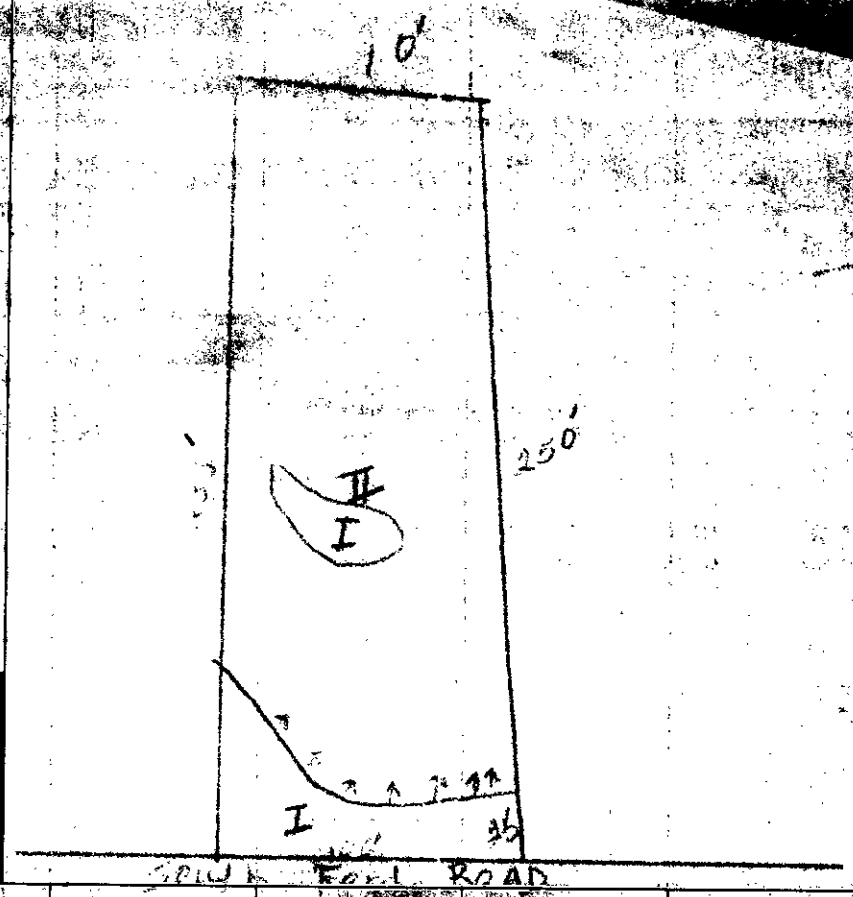
Owner: John Robert Day

Address: 610 A-2 Mt. Holly-Belmont Rd
Belmont, NC 28012

Comments:

Described by: W.B. Kennedy

Date: 6-7-89



*** EVALUATION KEY ***

S = Suitable U = Unsuitable

PS = Provisionally Suitable

The "Area Classification" below indicates the suitability of areas in the diagram.

FACTORS	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6
Topography	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Texture	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Structure	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Drainage	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Depth	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Restrictive Horizons	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Available Space	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Other (specify)	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U
Soil Group/Series	IIe (Cecil)	IIe Nason				
Area Classification	S PS U	S PS U	S PS U	S PS U	S PS U	S PS U

APPLICATION FOR SOIL INVESTIGATION

TAX # 031-103-44

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
1200 BLYTHE BOULEVARD
CHARLOTTE, NC 28203
PHONE (704) 376-4603

(OFFICE USE ONLY)

FILE: 5449A

TC: _____

☐ PC ☐ REPT

JOB LOCATION

① ADDRESS: 265 South Ford Road

② SUBDIVISION: Pine Island- ③ LOT: 42 ④ BLOCK: 4

⑤ PARCEL REFERENCE: BOOK NO.: 031 PAGE NO.: 103 PARCEL NO.: 414

⑥ DEED REFERENCE: BOOK NO.: 4092 PAGE NO.: 277-

OWNER

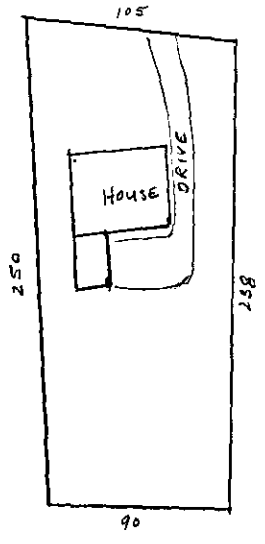
⑦ NAME: John (FIRST) Robert (MIDDLE) Day (LAST)

⑧ MAILING ADDRESS: 610 A-2 Mt. Holly-Belmont Rd

⑨ CITY: Belmont ⑩ STATE: N.C. ⑪ ZIP: 28012

⑫ PHONE: (WORK) 343-6080 (HOME) 827 4206

⑬ Accurately diagram and dimension lot.



N

I Don't See Anything More Than A 2BR on This One & That is Being optimistic

⑭ The undersigned, owner of the property described above as the "JOB LOCATION" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the MECKLENBURG COUNTY HEALTH DEPARTMENT to enter onto the property for the purpose of processing this request.

Signed: John R. Day

Date: 12/31/89

Mecklenburg County services are available without regard to ethnic origin, sex, or disability.

WHITE - HEALTH DEPARTMENT'S COPY • CANARY - ENVIRONMENTALIST'S COPY • PINK - OWNER'S COPY

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION

CHARGE SLIP

Date 2/2/89

Name/Company Mark Henderson

Sanitation ____

Vector Control ____

O.P.W.D. ✓

Service: Soil Test
54494

MECKLENBURG COUNTY
HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
PAID

FEB 3 1989

Fee: $30.00

Completed by

Collected by