

17214 GREEN DOLPHIN LN

00107134

12/20/2007

duponbj

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

Mecklenburg County
Health Department

April 8, 1996

Crescent Resources Inc.
P.O. Box 1007
Charlotte, NC 28201-1007

Re: 17214 Green Dolphin Lane
File: 1297B
Parcel: 001-071-34

Dear Sirs:

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

The plans as submitted are approved with the following comments:

-Water saving plumbing devices and low flush toilets should be installed when constructing the residence.

-Effectively rake and lime all trench sidewalls.

-Landscaping of original system area and the repair area is prohibited. No grading, shaping, or altering in any way.

-The well should be located 100 feet, but in no case less than 50 feet from the sewage system and repair area.

-This is a Type 4 sewage disposal system. A contract must be executed for periodic maintenance between the property owner and a certified operator prior to the issuance of an operation permit (final).

Upon execution and recording of the enclosed "Septic Tank Agreement Forms" with the Register of Deeds an Improvement permit can be issued by this department.

If your have any questions concerning this matter please contact me at 336-5575.

Sincerely,

Kelly Randall

Kelly Randall, R.S.
Individual Water and Wastewater Systems

KR:gc

Enclosure(s)

MODIFIED SEPTIC SYSTEM PLAN

LOT 104 - CRESCENT RESOURCES, INC.

17214 GREEN DOLPHIN LANE

MECKLENBURG COUNTY - NORTH CAROLINA

(MCHD File #)

by

Toney C. Jacobs & Associates, Inc.
Consulting Soil Scientists
168 Broadbill Drive
Mooresville, N. C. 28115

April 2, 1996



To: Mr. Kelly Randall, R. S.
Mecklenburg County Health Dept.
Charlotte, N. C.

Mr. Jim Bass
Crescent Resources, Inc.
P. O. Box 396
Terrell, N. C. 28682



Paul G. Penninger, CPS-IT

Toney C. Jacobs, CPSS

17214 Green Dolphin Lane

LOW-PRESSURE DISTRIBUTION T & J PANEL SYSTEM

Design Considerations

This system is proposed for a single family residential lot approximately 0.88 acres in a rapidly developing waterfront area of single family homes in northern Mecklenburg County. The system is designed for a 4 bedroom home to be served by an on-site well. The soil on most of the lot is provisionally suitable for ground absorption; however, 1) there has been a drainage culvert and ditch-cut almost across the middle of the lot, 2) one old farm terrace crosses the middle of the drainfield and has caused some drainage complications, and 3) the 50' setback imparts a large portion of the lot. There is one small undisturbed and unaffected area of 40+ inches of provisionally suitable soil between all these features which is usable. This lot was platted and recorded before 1983 (Appendix 1) ; therefore, there is no requirement for a 100% repair. A very minor repair area exists in the front yard; however, there are CMUD utilities across the street from this lot. This includes specifically designed pressure sewer and water. Indications are that this would be available at substantial cost.

Because of limited space, the panel block system with pressure distribution is considered the only permittable option. A caution to the installer includes no cutting or leveling, except as noted in the plan. There is no need for a French drain to serve as an upslope interceptor because the old road ditch serves as a swail.

Location

The approximately 1 acre building lot is on the left Green Dolphin Lane, approximately ¼ mile northwest of Old Beatties Ford Road.

Reference

(1) *Design and Installation of Low Pressure Wastewater Treatment Systems*, by Craig Cogger, Bobby L. Carlisle, Dennis Osborne, and Ed Holland. UNC Sea Grant UNC-SC-82-03, May 1982.

(2) *Laws and Rules for Ground Absorption Sewage Disposal Systems 15A NCAC 18A. 1900,* NCDEHNR-DEH.

(3) *Design, Installation and Maintenance of the T & J Panel Wastewater Treatment System for Sanitarians and Septic Tank Installers,* 1988.

Recommendation

Two hundred and ninety nine (299) lineal feet of Pressure T & J. Application rate is reduced because of required short line design.

Ownership Responsibility for a LPP Distribution System

Conservation measures should be undertaken in plumbing fixture specifications to minimize the volume of wastewater entering the disposal system, including, but not limited to the following precautions:

(a) Provide water conserving plumbing fixtures within the facility. Waterclosets must be 1.6 gal. flush (per code). Shower head should also have restrictions or be of low volume design.

(b) Develop conservative water use habits.

(c) Monitor and maintain the system as necessary for proper operation. An Operation Permit will require a maintenance contract to be filed with the Mecklenburg County Health Department. It is recommended that the owner aggressively utilize this requirement because of its importance to system longevity. The management entity (certified operator) should be a part of installation process. If installed by other, it would be best if operator was consulted for a preclosure inspection.

System must be properly installed by a *qualified* and *competent* contractor following the requirements of the Mecklenburg County Department of Environmental Health, DEH, the N.C. Building Code, Plumbing Code, and the Electrical Code. This plan, as any, is a guide to a minimum standard, but cannot take the place of experience and common sense. County inspector should allow additional inspection time because of complexity of system and need for exacting levels.

Components of System

1. Two compartment septic tank - 1500 gal.
2. Pumping tank - 1500 gal.
3. Submersible effluent pump and level controls - SSOMA certified
4. High water alarm signals which are UL approved
5. Supply pipe
6. Gate valves
7. Laterals with LPP distribution and T & J Panels in ground absorption trenches, 2 feet wide, level end to end, and placed to the exact relative level specifications in plan. If the installer does not understand this or its importance,

he should not begin construction until certain of all requirements. Because this is a 3 valve design, levels are critical to proper loading!

Construction Sequence

1. Lines have been flagged as noted on drawing and in specifications.

2. Clear the area of all organic material with minimum soil disturbance (do not grade). The existing drainage ditch must be relocated as shown on plan. Ditch must be cleaned of organic material and backfilled with clean clay loam material, then compacted to conditions of natural soil. The existing farm terrace must be shaped (graded on south end) to create a uniform topo.

3. Install trenches per cited reference material and this plan. There should be one hole near the center of each panel, pointed up. Top grade on pipes to be "level" from end to end and vertically from manifold and checked by sanitarian. (Note: This is a three valve designed system and uses different size holes). Sanitarian must check that correct drill bits are on site and used correctly.

4. All joints in lateral manifold piping shall be watertight connections to insure that the only source of water seepage from the system is through the orifices as designed. Carefully install manifold and lateral network according to the attached design layout. Protect valves with valve box. A larger diameter protective sleeve with cap or approved box with lid shall be placed over the turned up lateral and positioned level with the ground surface (so as not to be damaged by mowing machine). Turn-up with two 45 degree elbows, not one 90. Area around pipe should be stabilized with crushed stone, both inside and outside of riser. Stone allows for infiltration of waste and wash water when system is maintained.

5. Carefully backfill manifold trenches to grade with clean clay or clay loam soil fill material which is carefully placed and compacted. This is very important because of grade from lines to tank

6. The installation contractor shall stabilize the area of construction by planting with Kentucky 31 tall Fescue and mulching. Area to be limed and fertilized with 0.5 tons lime, 75 units of N, 150 units P, and 100 units of K per disturbed acre.

7. The septic tank shall consist of an approved 1500 gallon capacity reinforced, precast watertight, concrete tank with full baffle and shall have easy access to each chamber from ground level for inspection. The first chamber of the septic tank shall consist of 2/3 to 3/4 of the volume of the total tank and the baffle shall contain a

horizontal opening across the tank at about midway . Locate the septic tank at such height as to provide approximately 8" of cover soil over top of the tank.

8. The dosing tank shall consist of an approved 1500 gallon capacity, reinforced, precast, watertight concrete tank without baffle and shall have a concrete mounting pad (concrete blocks) for accommodating the pump. Test for leakage per regulations. Provide access for entry into the tank directly over the pump location, and extending 6" above final grade. Use a 30" diameter concrete well casing or equivalent and concrete well cap or other approved type cover. There must be a seal (masonry or seal rope) between well tile and top of tank.

9. All piping and fitting shall be SCH 40 PVC. Glue for all PVC pipe joints shall be as recommended by the pipe manufacturer. Note: On the distal end of each lateral turn-up should be 2 each, 45 degree elbows, rather than one 90 to facilitate maintenance.

10. Pump: The submerged pump shall be Model ME 50 manufactured by Myers or equal, 115 or 230 v/l phase; capable of pumping 37.7 gallons per minute at 25.1' of head.

11. Pump controls and alarm to meet specifications of .1952, all being compatible.

12. A "Warning Sign" shall be located within the house to inform the occupants of action to take in case the "High Water Alarm" is activated. This sign shall contain the name, address, telephone number, and emergency telephone number of the person to contact upon malfunction of the system. This should be "management entity".

13. Pump and Controls: Details of pump installation are shown in the plan. The pump must be placed on concrete blocks on the bottom of the tank. This prevents the pumping of any solid particles which can clog the pipe system. A piece of nylon rope or other non-corrodible material should be attached to the pump and the outlet pipe for lifting the pump in and out of the chamber. Controls should be fastened to a "tree" or the outlet pipe with clamps or brackets supplied by the manufacturer. The lower level control or "pump-off" must be positioned above the pump, so that the pump remains submerged at all times. The level control "pump-on" is positioned to pump a specified volume of effluent. The high water control float is then mounted about 3" above the upper pump-on control. (Note: Care must be taken to insure that floats do not become fouled by other components in the tank, such as the electric power cord or the lifting rope. It is highly recommended that a telescoping "tree" be used for floats to facilitate adjustments.) The pump outlet pipe should be connected to the supply manifold with a threaded PVC union (or dresser coupling) to allow quick removal.

14. Electrical Connections: The pump and high water alarm must be placed on separate electrical circuits. (If the pump circuit fails, the alarm must still be able to operate). Follow the manufacturers recommendations for the proper fuses or circuit breakers. All electrical connections must be made outside the pumping chamber. Power cords from the pumps and controls should be plugged into a NEMA 4X approved outdoor receptacle. This must not be located inside the pumping chamber due to the corrosive and explosive gasses that may form from the sewage. This box must be a minimum of 1' above finished grade. Some level control switches have a box built into the housing, but are more expensive than the plug-in devices. Wiring between the pumping chamber and the station should meet State and local code requirements. A lightning arrester is recommended to protect the pump and controls from electrical surges.

15. Proper Operation Check: After all components have been installed and connected, the system should be checked for proper operation. With electrical power turned off, fill the pumping chamber with water from garden hose until the liquid rises to the level of the high-water alarm float. Turn on the electrical power. The alarm light should go on in the house, and the pump should start operating. The alarm light should go off when the liquid reaches the lowest float control. Be sure the pump is still completely submerged.

16. Pressure Head Adjustment: The pressure head must be adjusted to match that specified in the design. The pressure head is measured as the height liquid will rise above the turn-up elbow when the pump is running. To adjust the head:

(a) Glue a 4' length of pipe (preferably clear) to a threaded adapter that will screw onto the turn-up adapters. (Call this the "test tube".)

(b) Replace the turn-up cap with the "test tube".

(c) Adjust the gate valves until the effluent reaches the desired height in the "test tube". This may also be done with a weep hole in solid pipe at the desired height. Strive to be within 1/8" accuracy. Remember to include the distance below the ground surface to the lateral line when measuring the height. The pressure head should be as specified for each line. This is the height above the lateral where the liquid should be in the temporary "test tube". Note: This is the lateral pipe and not the ground surface.

17. Final Landscaping: After the system is installed, the absorption field should be reshaped to shed rainwater and be free of low areas to insure that the system will not be overloaded with excess rainwater and run-on. On this sloping site water should not

be allowed to concentrate and erode the surface. Because of the friable nature of the soil, it must be protected from erosion.

Concluding Note:

This plan was done to facilitate permitting by the Mecklenburg County Health Department by an agent of the owner. Any additions, or additional requirement(s), or deletions to enhance design or workability which will facilitate a permit are welcomed and may be made by note on this plan without returning entire design. The designer realizes that a plan with as many details as this can be changed and/or improved upon. The installer must realize that this is an exact plan and must be installed with exacting measurements. Because of the required grading, a site review is recommended with the system design before any construction begins. Should the installer desire a change, it must be approved by the health department in writing. Final inspection will also require more time and detail than a conventional system. If there are questions, please give me a call.

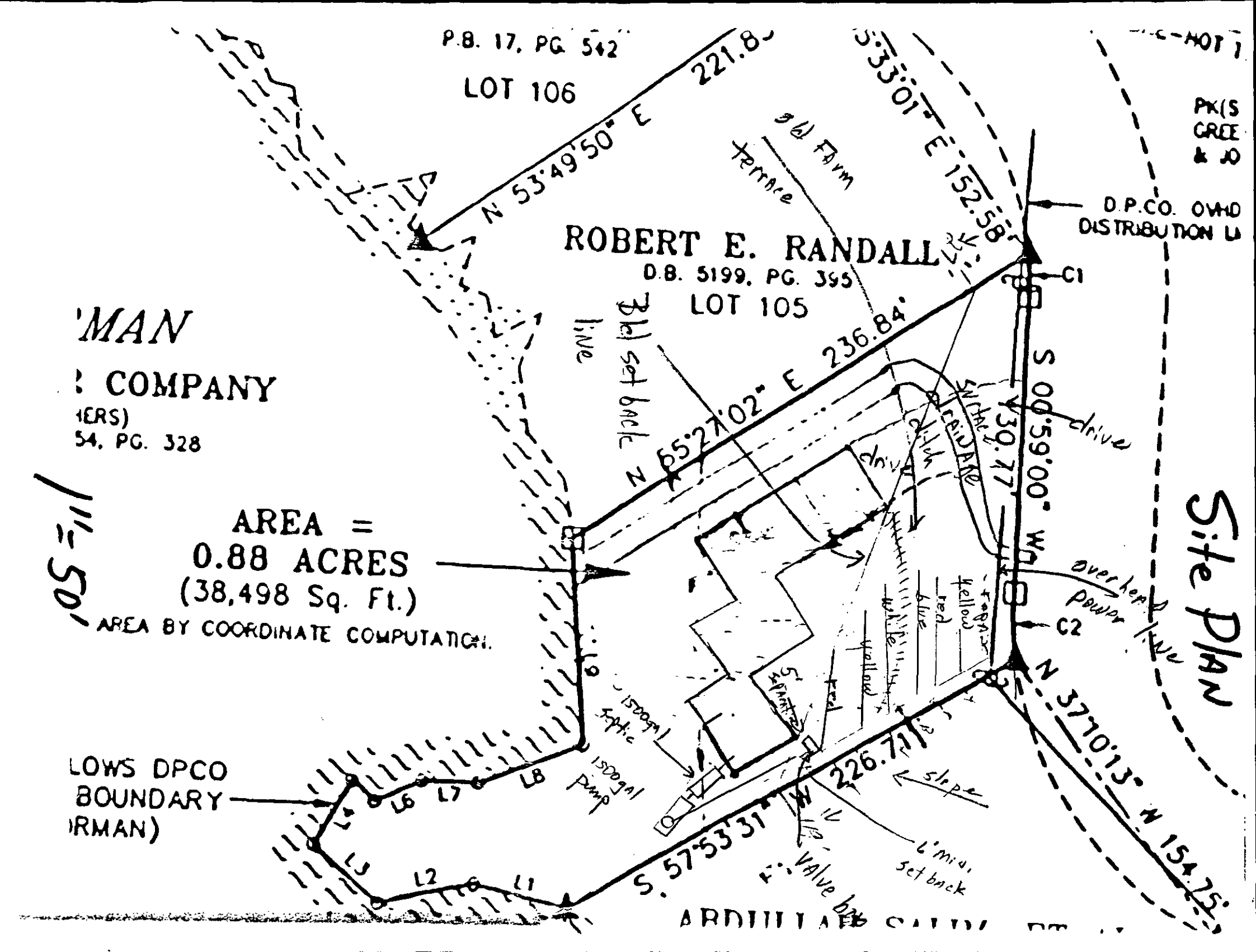
required KR 4-4-96

Design Specifications

Lot 104 - Green Dolphin Lane

Daily design flow:	480 gpd. - 4 bedroom house
Septic tank size:	1500 gal. (2 compartments)
Pumping tank size:	1500 gal.
Effluent loading rate:	0.268 pd/sf conventional system
Total length and diameter of supply manifold:	app. 70 lf-3" sch 40 PVC app. 80 lf 2" sch 40 PVC
Number and length of laterals:	6 lines totaling 99', end fed with 299 lf of 1¼" sch 40 PVC.
Hole size:	5/32", 11/64", and 9/64" line specific
Hole spacing:	1 per panel approx. 52"
Total number of holes:	66 (one in each T & J Panel near the center with the hole turned up)
Flow rate through the system:	37.7 gpm
Elevation head:	14.9'
Pressure head:	2.0'
Friction head:	approx. 40'
20% contingency	4.2'
Total head:	25.1'
Pump requirements:	37.7 gpm at 25.1' of head; use Myers "ME 50" pump or equivalent with compatible electrical
Dosing volume:	231gal. - 2.1 doses/day at design flow*
Depth of water pumped per dose:	calculated to specific tank by measure or dealer engineering specifications(1 cubic ft. of water equals 7.48 gals.)
Pump run per dose:	approx. 7.1 min.
Check valve:	No
Siphon break hole:	No

* Before placement of cap block, one panel on each line near the center of the field should be observed filling to make certain that it does not overflow top chamber into air chambers of panel. If overflow, reduce floats by 25 gallons and reset until no overflow is observed.


P.B. 17, PG. 542
LOT 106
N 53°49'50" E 221.8'
S 33°01' E 152.58'
ROBERT E. RANDALL
D.B. 5199, PG. 395
LOT 105
N 65°27'02" E 236.84'
S 00°59'00" W 230.77'
N 37°01'13" W 154.75'
S 57°53'31" W 226.71'
AREA =
0.88 ACRES
(38,498 Sq. Ft.)
AREA BY COORDINATE COMPUTATION
Site Plan
105'-11"
C1
C2
D.P.CO. OVHD DISTRIBUTION LI
overhead power line
drive
slope
Terrace
Old Farm
Old set back line
1500 gal Septic
1500 gal Pump
5' Easement
Valve box
Minimum set back
LOWS DPCO BOUNDARY
IRMAN)
'MAN
COMPANY
IERS)
54, PG. 328

	Line	Color	Length ft	Assumed G.S. Elev. ft	Design Head ft	Hole Size "	Hole Spacing "	# Panels / # Holes	Flow/ Hole gpm	Flow/ Line gpm
	1	RED	44	93.2	3.2	5/32	≈52"	10	.518	5.2
	2	YELLOW	53	94.4	2.0	11/64		12	.495	5.9
	3	WHITE	58	95	4.2	9/64		13	.480	6.2
	4	BLUE	55	97.2	2.0	11/64		12	.495	5.9
	5	RED	47	97.6	2.7	5/32		10	.475	4.8
	6	YELLOW	42	98.3	2.0	11/64		9	.495	4.5
			299'					66		37.7

tank ✕ blue
1" bottom

L Front iron = 100' for elevations

LAKe

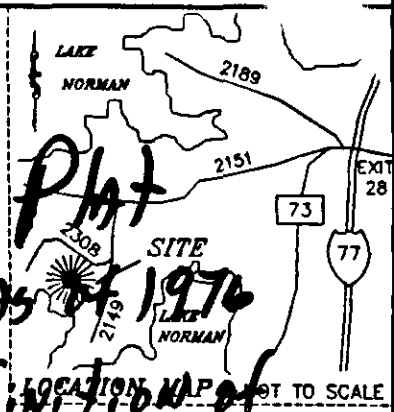
CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	139.47'	19.16'	9.59'	19.14'	S 02°57'06" E	07°52'11"
C2	199.97'	28.63'	14.34'	28.60'	S 03°07'03" E	08°12'07"

LINE DATA

LINE	DIRECTION	DISTANCE
L1	N 78°11'04" W	42.68'
L2	S 76°27'00" W	44.29'
L3	N 47°42'00" W	37.49'
L4	N 27°24'00" E	34.83'
L5	S 40°31'00" E	13.60'
L6	N 64°05'00" E	23.02'
L7	N 89°12'00" E	26.00'
L8	N 66°35'00" E	49.65'
L9	N 05°00'00" W	90.62'
L10	N 53°48'09" E	17.36'
L11	S 54°42'02" W	16.86'

New survey Plat
Same lot As of 1976
New definition of
760' MSL
Contour



GREEN DOLPHIN LN.

S.R. NO. 2308
60' RD. R/W

(BASE BEARING)
S 49°33'00" E
163.35'

314.21'

150.86'

N 56°34'04" E 226.00'

N 79°01'46" W 753.27'
TIE LINE-NOT TO SCALE

PK(S) C/L INTER.
GREEN DOLPHIN LN.
& JOHN CONNER RD.

FIRE HYDRANT

CRESCENT RESOURCES, INC.
RECREATION LOTS, SECT. 2
D.B. 3146, PG. 153
REF. DWG. CF. 2-A
P.B. 17, PG. 542
LOT 106

S 35°33'01" E 152.58'

N 53°49'50" E 221.83'

D.P.CO. OVHD
DISTRIBUTION LINE

ROBERT E. RANDALL
D.B. 5199, PG. 395
LOT 105

C1

N 55°27'02" E 236.84'

S 00°59'00" W 130.77'

LAKE NORMAN

DUKE POWER COMPANY
(J.R. WITHERS)
UMI 251, D.B. 654, PG. 328

PLAT NORTH
P.B. 17, PG. 542
REC. MAY 24, 1976

AREA =
0.88 ACRES
(38,498 Sq. Ft.)
AREA BY COORDINATE COMPUTATION.

15' DRAINAGE DITCH

CRESCENT RESOURCES, INC.
(J.R. WITHERS)
UMI 251, D.B. 654, PG. 328
UMI 1230, D.B. 3146, PG. 153
TAX ID 001-071-034

C2

N 37°10'13" W 154.75'

TO S.R. NO. 2149
(JOHN CONNER RD.)

P/L. FOLLOWS DPCO
PROJECT BOUNDARY
(LAKE NORMAN)

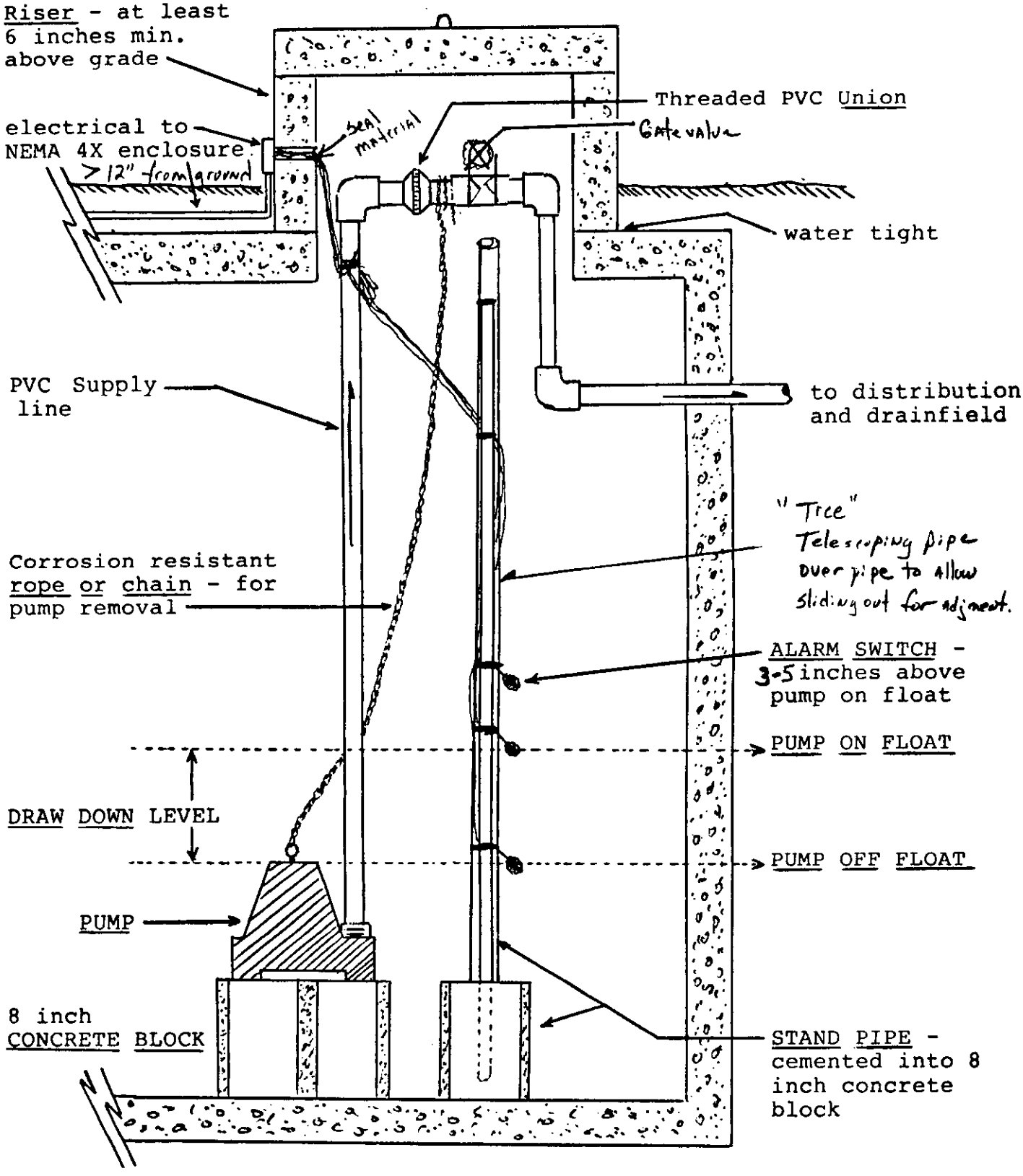
L8 L7 L6 L5 L4 L3 L2 L1

S 57°53'31" W 226.71'

ABDULLAH SALIM, ET AL
D.B. 7684, PG. 112
LOT 103

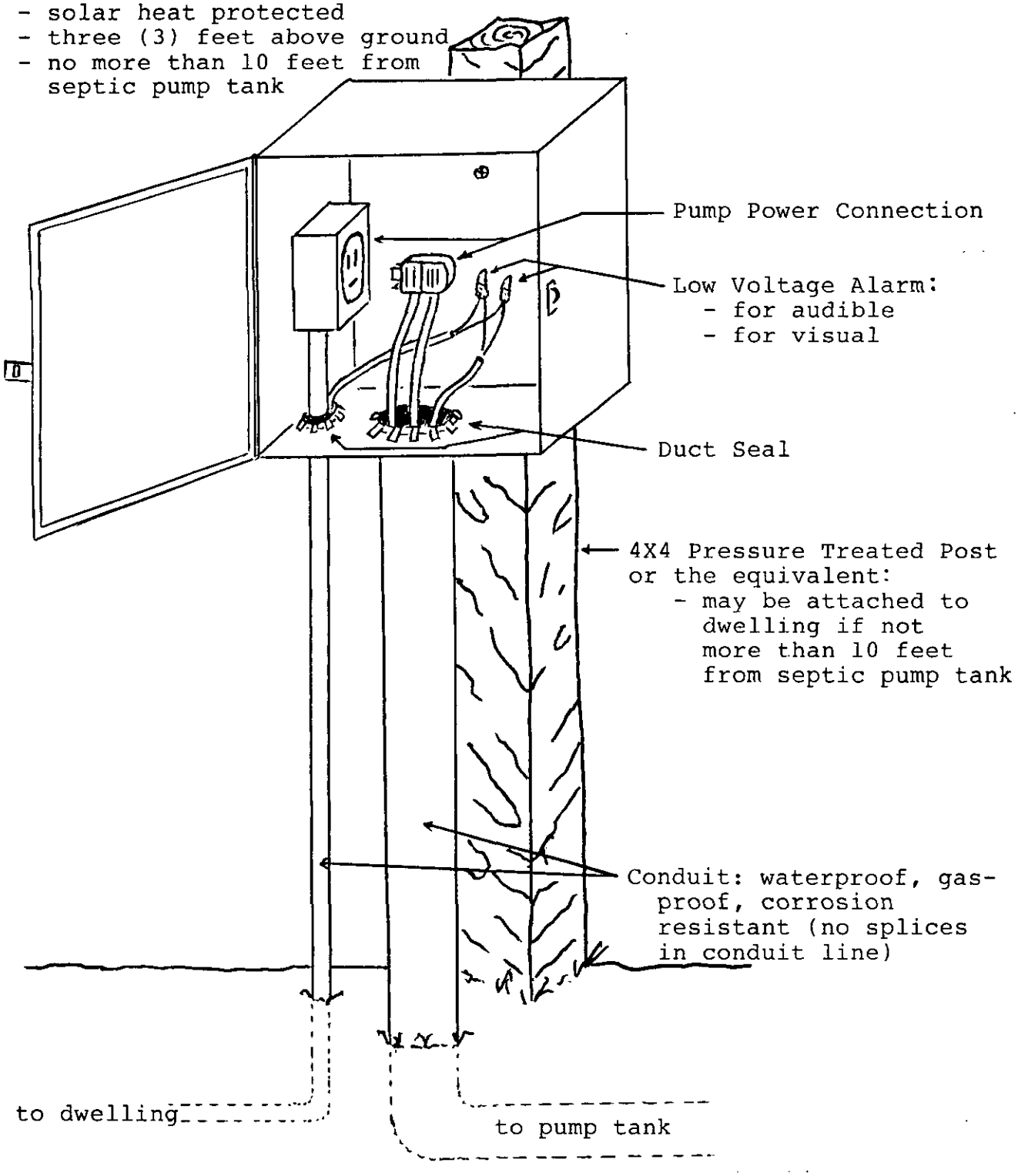
L10

PUMP DIAGRAM

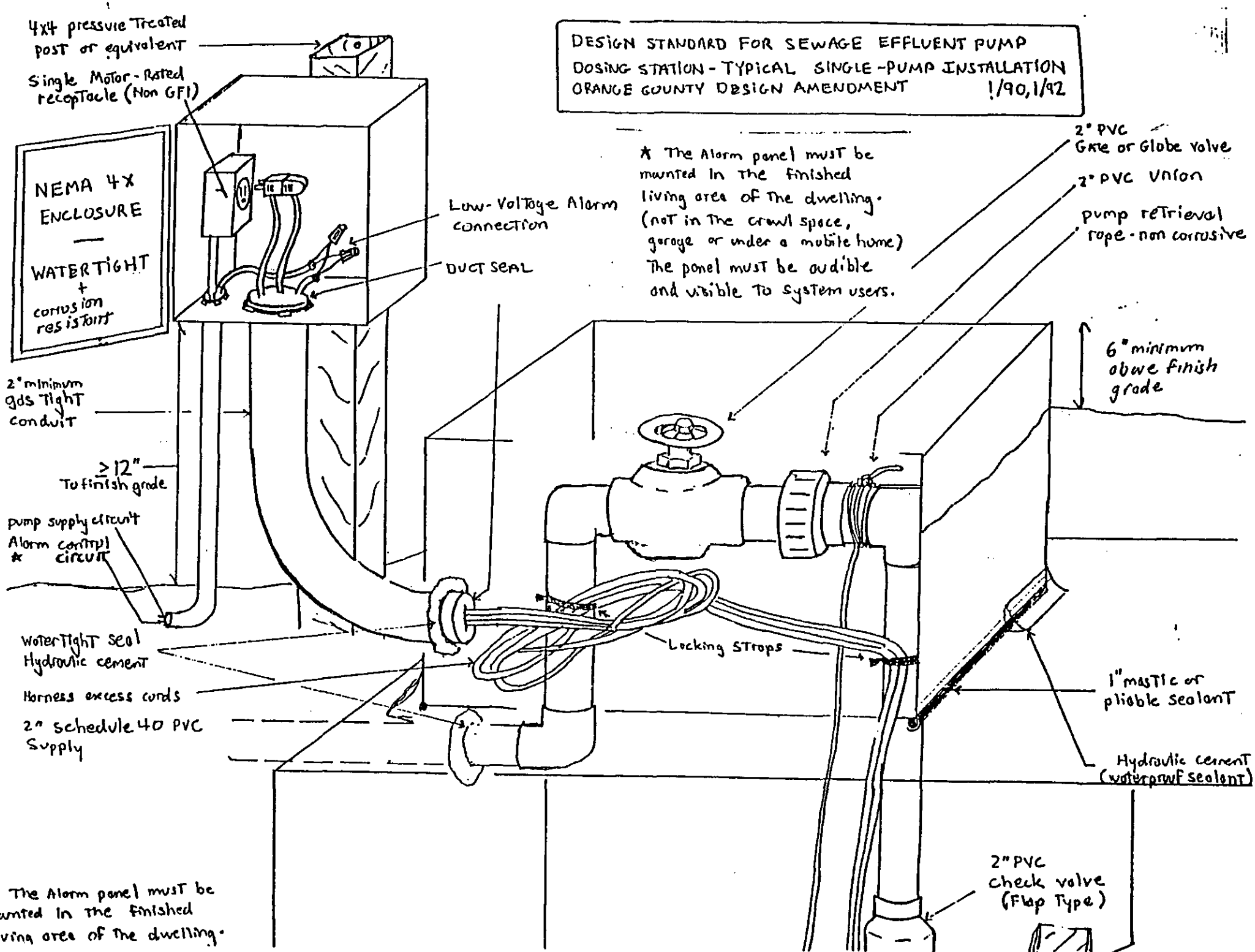


NEMA 4X ENCLOSURE must be:

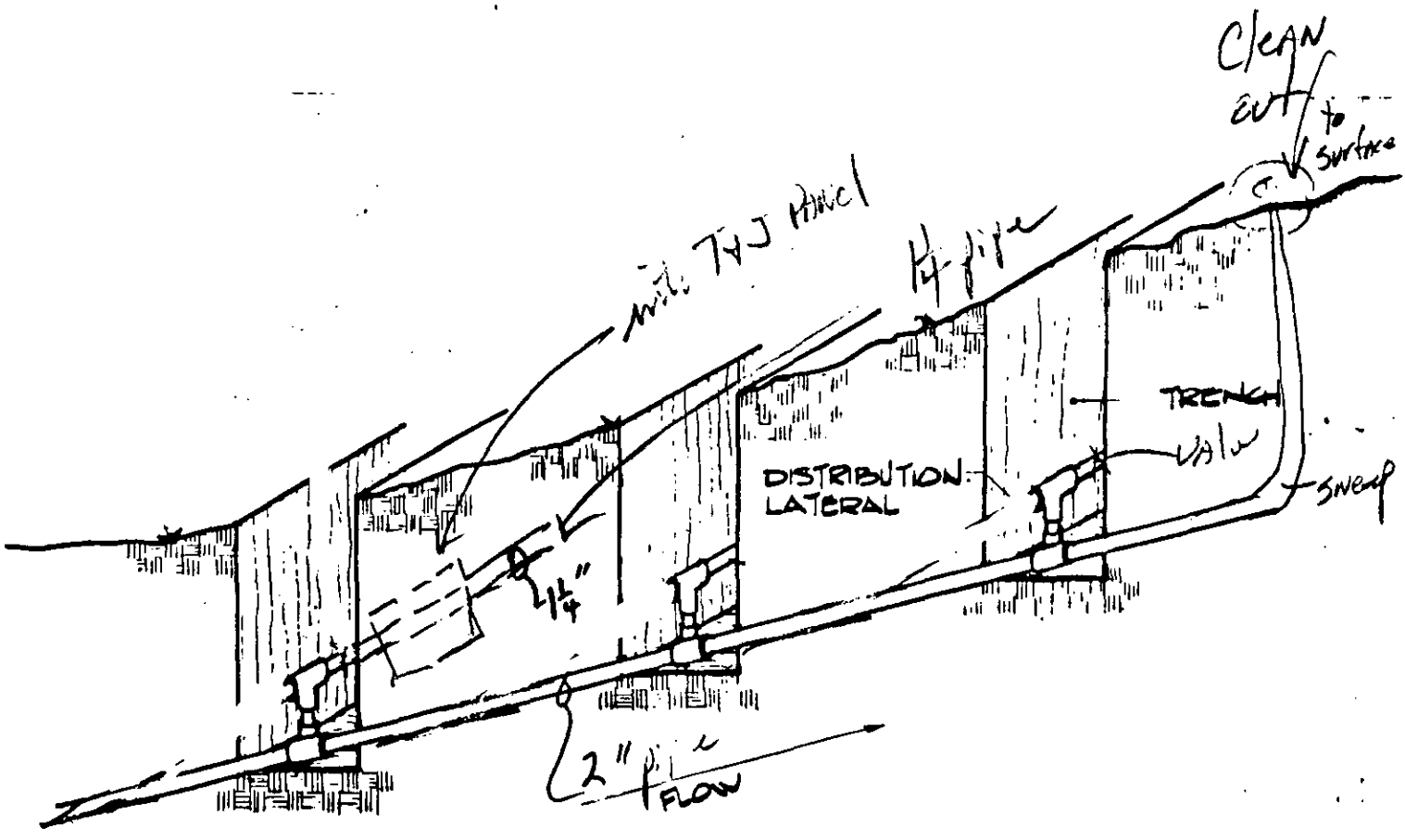
- water tight
- corrosion resistant
- solar heat protected
- three (3) feet above ground
- no more than 10 feet from septic pump tank



DESIGN STANDARD FOR SEWAGE EFFLUENT PUMP
DOSING STATION - TYPICAL SINGLE-PUMP INSTALLATION
ORANGE COUNTY DESIGN AMENDMENT 1/90, 1/92



* The Alarm panel must be mounted in the finished living area of the dwelling.

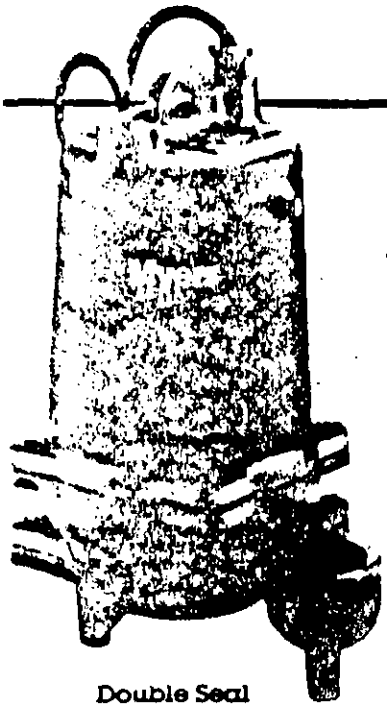


A PUMPING UPHILL

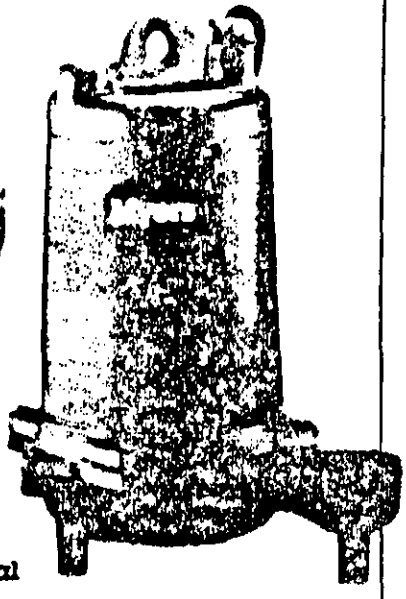
from Cooper et al, 1982)

ME SERIES

1/3 through 1-1/2 HP
Effluent Pumps



Double Seal



Single Seal

THE MYERS ME SERIES EFFLUENT PUMPS ARE DESIGNED SPECIFICALLY FOR TODAY'S EFFLUENT PRESSURE DISTRIBUTION MOUNDS, TRENCHES AND HIGH FLOW DRAINAGE APPLICATIONS. The ME Series effluent pumps with their efficient two vane, enclosed impellers provide the ideal performance for optimum dosing. ME Series pumps are constructed of only corrosion resistant materials like cast iron, stainless steel and thermoplastics to assure that they will perform for years to come in the harsh effluent environment and drainage applications. For more information, call your Myers distributor today or the Myers Ashland, Ohio sales office at 419/289-1144.

ADVANTAGES BY DESIGN

IDEAL FOR USE IN MOUND AND TRENCH PRESSURE DISTRIBUTION SYSTEMS

- High efficiency, two vane, enclosed impeller provides ideal performance for most efficient dosing.
- Impeller passes full ¾ inch solids.
- Enclosed impeller design eliminates possibility of jamming or corrosion between impeller and volute.

DURABLE MOTOR WILL DELIVER MANY YEARS OF RELIABLE SERVICE

- Oil-filled motor for maximum heat dissipation and constant bearing lubrication.
- High torque, permanent split capacitor (PSC), single phase motors. No starting switches or relays to wear out.
- Optional seal leak probe warns of seal leak condition. (Dual seal motors only.) Helps prevent costly motor damage
- Motors have on winding current and temperature sensitive overload. (Single phase only.)

THE ME SERIES EFFLUENT PUMPS ARE DESIGNED FOR YEARS OF MAINTENANCE FREE OPERATION

- Volute seal ring is replaceable Restores pump to original performance if wear should occur.
- Motor is held in place by 4 screws. Easily removed if service is ever needed.

PRODUCT CAPABILITIES

Capacities To	120 GPM	454 LPM
Heads To	98 ft.	29.8 m
Max. Spherical Solids	¾ in.	19 mm
Liquids Handling	domestic effluent & drain water	
Intermittent Liquid Temp.	up to 140° F	up to 60° C
Motor Electrical Data	1/3 & 1/2 HP 115 volts, 1 ph 1/3 to 1-1/2 HP, 230 volts, 1 ph 208, 230, 460, 575 volts, 3 ph oil-filled, permanent split capacitor type, 1 ph, 3450 rpm, 60 Hz	
Motor Insulation	Class B (130°C)	
Third Party Approvals	Pending	
Acceptable pH Range	6-9	
Specific Gravity	9-11	
Viscosity	28-35 SSU	
Discharge, NPT	2 in.	50.8 mm
Min. Sump Dia. Simplex Duplex	24 in. 36 in.	61 cm 91.4 cm

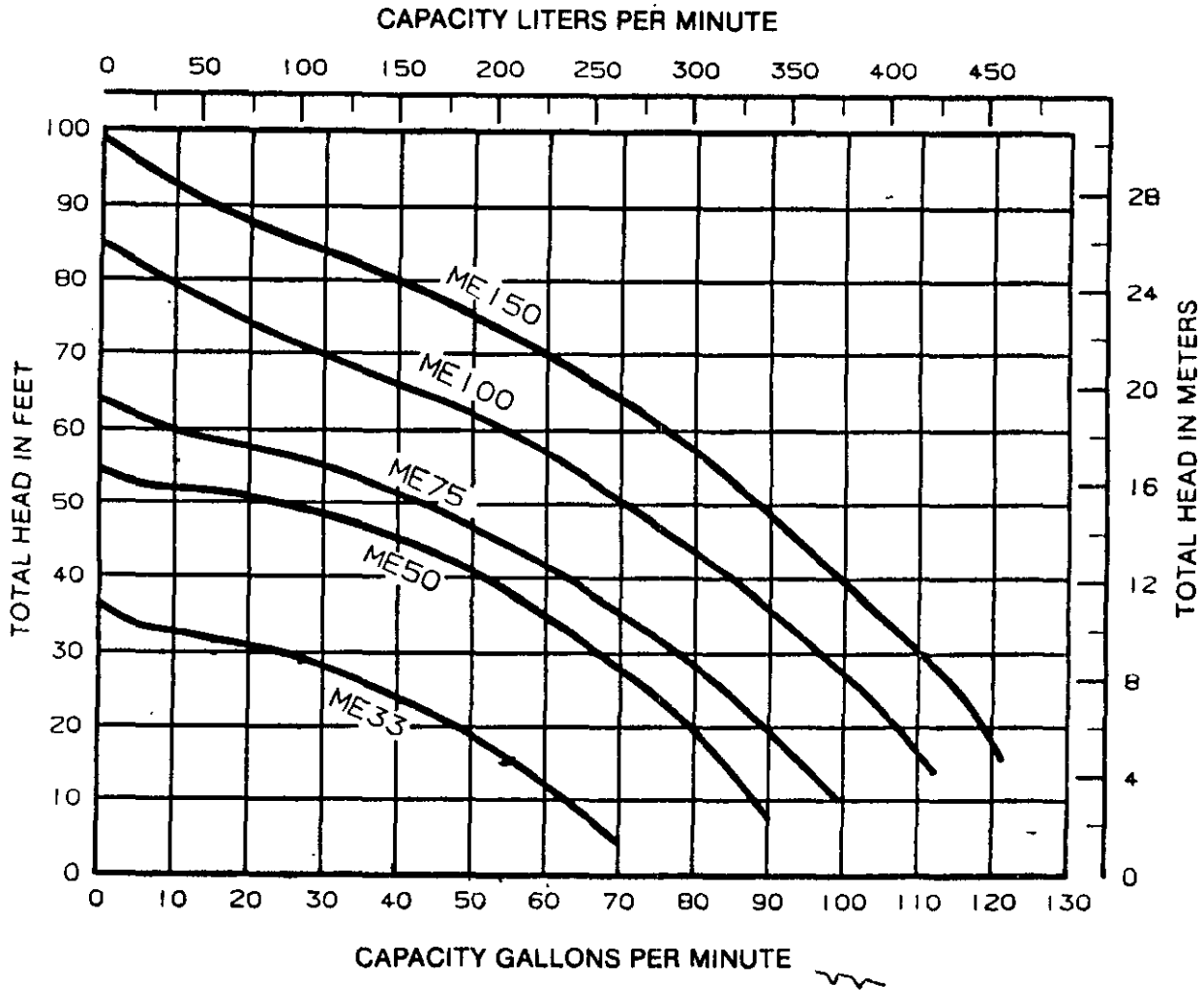
Construction Materials	
Motor Housing, Volute	cast iron, Class 30, ASTM A48-76
Enclosed Two Vane Impeller Standard Optional	engineered thermoplastic bronze
Impeller Wear Ring	304 SST
Volute Sealing Ring	Buna-N
Shaft	416 SST
Power Cord 1/3 & 1/2 HP, 1 Ph 3/4 & 1 1/2 HP, 1 Ph All 3 Ph	 20 ft. 16/3 SJOW/SJOW-A 20 ft. 14/3 SJOW/SJOW-A 20 ft. 14/4 SOW/SOW-A
Shaft Seals Standard Optional Opt. Lower	single carbon & ceramic tandem carbon & ceramic tungsten carbide
Fasteners	300 Series SST

WHERE INNOVATION MEETS TRADITION

Myers®

ME Series
1/3 through 1-1/2 HP
Effluent Pumps
Performance Curve

Myers



F.E. Myers, A Pentair Company • 1101 Myers Parkway, Ashland, Ohio 44805-1923
419/289-1144 FAX 419/289-6658 Telex 98-7443

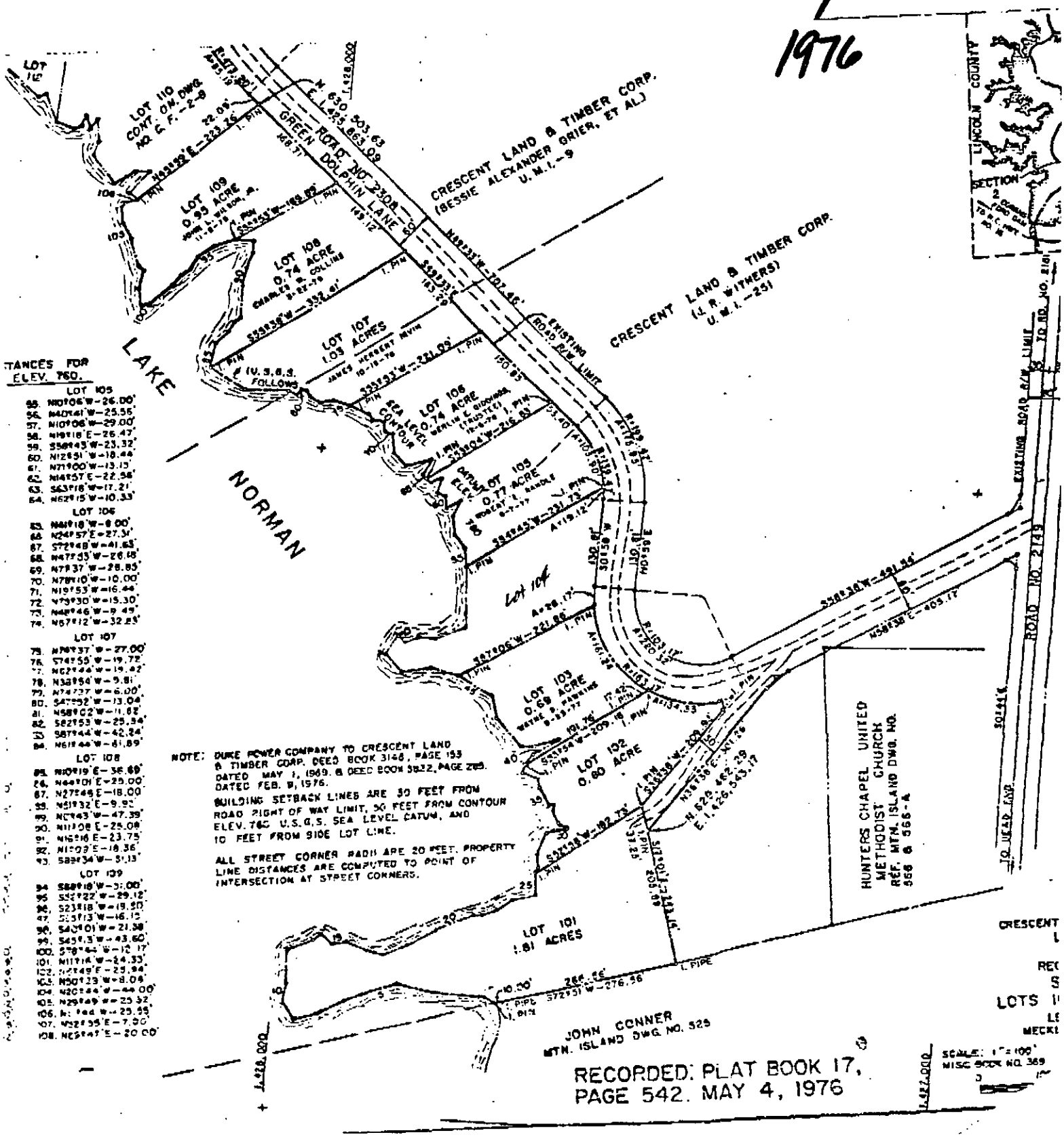
K3327 7/91

Printed in U.S.A.

Appendix 2

To	From
Tawey Jacobs	Jim BASS
Co.	Co.
Dept.	Phone #
Fax # 704-662-9545	Fax # 704-478-2130

Old survey Plat 1976



TANCES FOR ELEV. 760.

LOT 105
55. N10°06'W-26.00'
56. N40°41'W-25.56'
57. N10°06'W-29.00'
58. N19°18'E-26.47'
59. S58°43'W-23.32'
60. N12°51'W-18.44'
61. N71°00'W-13.13'
62. N14°57'E-22.56'
63. S63°18'W-17.21'
64. N62°15'W-10.33'

LOT 106
65. N41°18'W-8.00'
66. N24°57'E-27.34'
67. S72°48'W-41.65'
68. N47°53'W-26.68'
69. N7°37'W-28.85'
70. N78°10'W-10.00'
71. N19°53'W-16.44'
72. N79°30'W-15.30'
73. N48°46'W-9.49'
74. N67°12'W-32.23'

LOT 107
75. N78°37'W-27.00'
76. S74°55'W-19.72'
77. N62°44'W-19.42'
78. N38°54'W-9.81'
79. N74°37'W-6.00'
80. S47°52'W-13.04'
81. N58°02'W-11.82'
82. S62°53'W-25.34'
83. S87°44'W-42.24'
84. N61°44'W-61.89'

LOT 108
85. N10°19'E-36.69'
86. N44°01'E-25.00'
87. N27°46'E-18.00'
88. N51°32'E-9.92'
89. N0°43'W-47.39'
90. N11°08'E-25.08'
91. N15°16'E-23.75'
92. N1°09'E-18.36'
93. S88°34'W-51.13'

LOT 109
94. S88°18'W-51.00'
95. S52°22'W-29.12'
96. S23°18'W-19.50'
97. S1°57'W-46.12'
98. S40°01'W-21.38'
99. S45°13'W-43.60'
100. S78°44'W-12.17'
101. N11°16'W-24.33'
102. N2°49'E-25.84'
103. N50°13'W-8.06'
104. N20°44'W-44.00'
105. N29°49'W-25.92'
106. N1°44'W-25.55'
107. N52°35'E-7.00'
108. N69°47'E-20.00'

NOTE: DUKE POWER COMPANY TO CRESCENT LAND & TIMBER CORP. DEED BOOK 3146, PAGE 153 DATED MAY 1, 1969. & DEED BOOK 3822, PAGE 285. DATED FEB. 9, 1976.

BUILDING SETBACK LINES ARE 30 FEET FROM ROAD RIGHT OF WAY LIMIT, 50 FEET FROM CONTOUR ELEV. 760 U.S.G.S. SEA LEVEL DATUM, AND 10 FEET FROM SIDE LOT LINE.

ALL STREET CORNER RADII ARE 20 FEET. PROPERTY LINE DISTANCES ARE COMPUTED TO POINT OF INTERSECTION AT STREET CORNERS.

TOTAL

Design, Installation and Maintenance

of the

T & J Panel Wastewater Treatment System

For

Environmental Health Specialist

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. Fifth Edition.

ENVIRONMENTAL HEALTH SPECIALISTS

System Design

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 development. 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 the environmental health specialist who is designing a system, and you can foresee such a trend of continued development, the Panel System may be an option the home owner would like to utilize.

As noted in the regulations a PPBPS is only permitted where soils are suitable, provisionability suitable, or reclassified provisionability suitable, however only one half of the area needed for a conventional system is required. This is one reason that the Panel System can help you use the best soils available on the lot. The system can be gravity fed, pumped to pressure manifold and gravity fed into the lines, or pumped to Low Pressure Panel lines. Most of the concepts for a Panel System layout are the same as for a conventional system. The biggest difference being the areal area needed and the quality of effluent being introduced into the ground.

The T & J Panel system can be installed as either gravity, pump to gravity, pump to pressure manifold, or low pressure pipe distribution system. When designing a pressure system the principles of low pressure distribution are as described in the LPP manual. There is futher discussion on pressure systems in the installer section of this manual.

Conversion

A three bedroom house with a 0.4 gpd application rate. (The first three steps are the same as for the conventional system.)

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

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

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

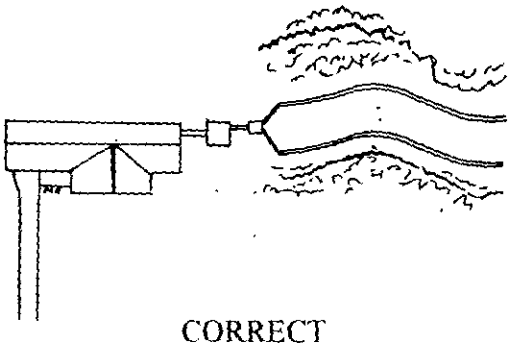
This conventional layout requires 2700 sq. ft. of area on the lot with another equal area of repair space for a total of 5400 sq. ft. of suitable usable area. To calculate the size of the T & J Panel system , the above calculations must be made with an additional fourth step as described in 10NCAC 10A .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 Pane System = 150 lineal feet of T & J Panel System.

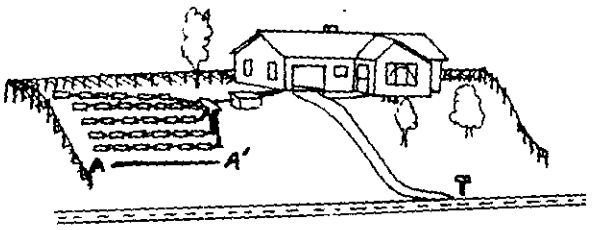
A Panel System requires only a 1200 sq. ft. area on the lot for the system with an equal area for repair, for a total of 2400 sq. ft. . With the panel system the installation and repair can go into the same area as the initial area required for a conventional gravel trench system.

Window Effect

To prevent hydraulic overload in the soil 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.



CORRECT

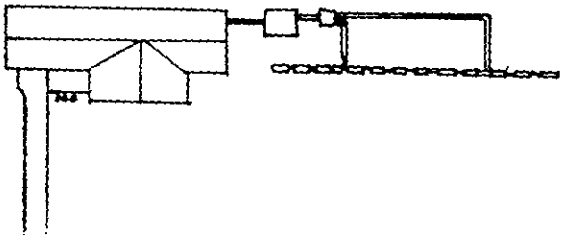


INCORRECT

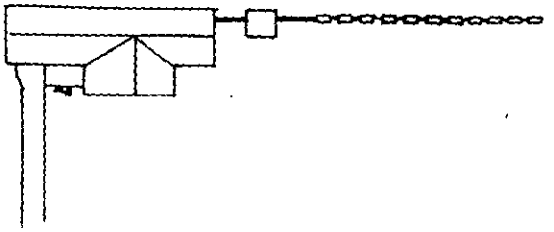
While both systems have the same lineal footage of trench the incorrect diagram is not a desirable design. The effluent must pass through the area A-A' which can cause a strain on that area and even a failure because of hydraulic overloading.

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 over loading is greatly reduced. However, downline distribution in the panel line will not give optimum treatment.



CORRECT



INCORRECT

In the lower example we see that the trench has been fed from multiple points. Because the Panel lines are put in as level as possible, never exceeding 1/4 inch of rainfall 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.

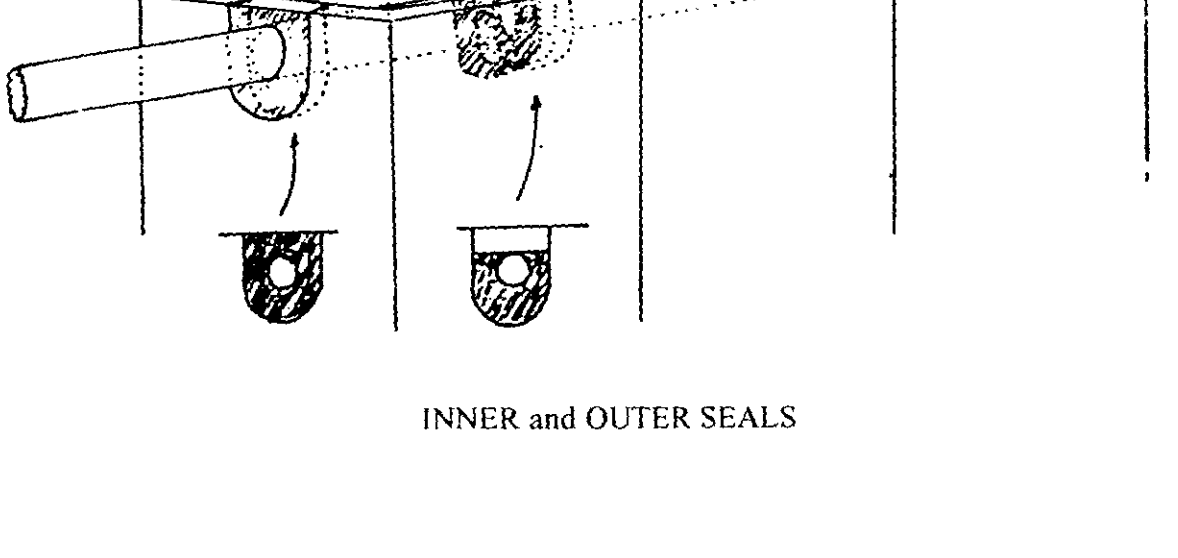
To calculate the number of 16 inch high panels needed for a 150 foot line, multiply 150' x 12" = 1800" then divide by 52" which is 46 inches for the panel and 6 inches for the space between the panels in the trench. 1800" /52" = 34.6 panels, so you would call for 34 panels. (A material order chart is 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. Environmental Health Specialists should show the panel as small blocks on the line of the trench.

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 chamber become additional storage chambers for the effluent. These seals can be inspected by lifting the caps at the ends of the panels while inspecting the system installation



INNER and OUTER SEALS

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 several 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 will help the system to continue the brake down of solids.

Final Inspection

The following list of points are things that an inspector should look for when issuing a 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?

7) Record field data on operations permit.

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

Installer

The Panel Block System

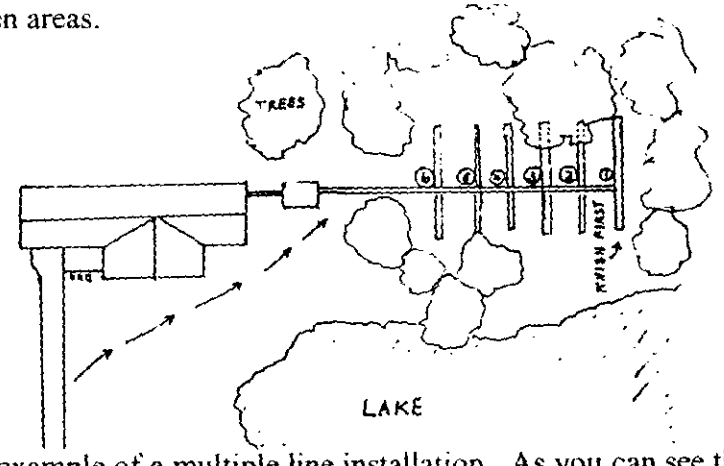
Generally, on level open land, a Panel System can be installed in about the same time as a conventional system; however traditionally, Panel Systems have been installed where space and topography have restricted use of a conventional system. For this reason Panel System installations have required more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

Ordering Materials

Inclosed 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.

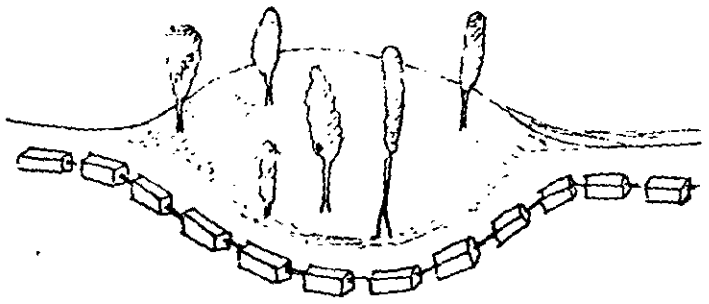
Installation Tips

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

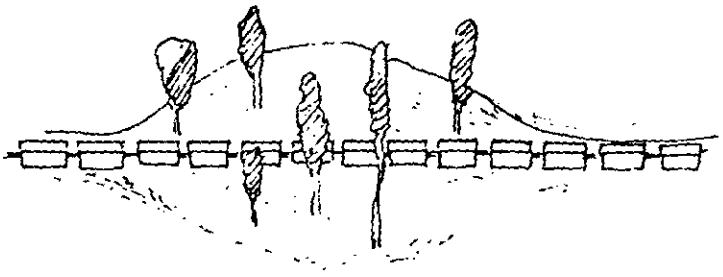


Above is an example of a multiple line installation. As you can see the installation should begin with the line marked 1 and proceed to 2, 3, then 4. This procedure will greatly ease material handling and backfilling. (Note sections of the drainlines should be left uncovered to allow for inspection of 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 around the slope keeping the trench depth and cover uniform for the entire length o the line. On slopes, care should be given to avoid cutting away valuable top soil in an effort to make straight lines. The Panel line should be installed on grade with the contour of the natural slope. Panel lines can be curved to almost any degree.



CORRECT



INCORRECT

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 side walls 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 its 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 weighs about 155 pounds and placement by hand goes quickly. The panels should be place 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 so 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 particle 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
8 1/4 tons sand

60 LF - 14 panels
10 tons sand

70 LF - 16 panels
11 1/2 tons sand

80 LF - 18 panels
13 1/4 tons sand

90 LF - 21 panels
15 tons sand

100 LF - 23 panels
16 1/2 tons sand

110 LF - 25 panels
18 1/4 tons sand

120 LF - 27 panels
20 tons sand

130 LF - 30 panels
21 1/2 tons sand

140 LF - 32 panels
23 tons sand

150 LF - 34 panels
25 tons sand

160 LF - 37 panels
26 1/2 tons sand

170 LF - 39 panels
28 tons sand

180 LF - 41 panels
30 tons sand

190 LF - 43 panels
31 1/2 tons sand

200 LF - 46 panels
33 tons sand

T & J Panel Material Worksheet

Homeowner _____ County _____

Address _____

_____

Description of System _____

_____

_____

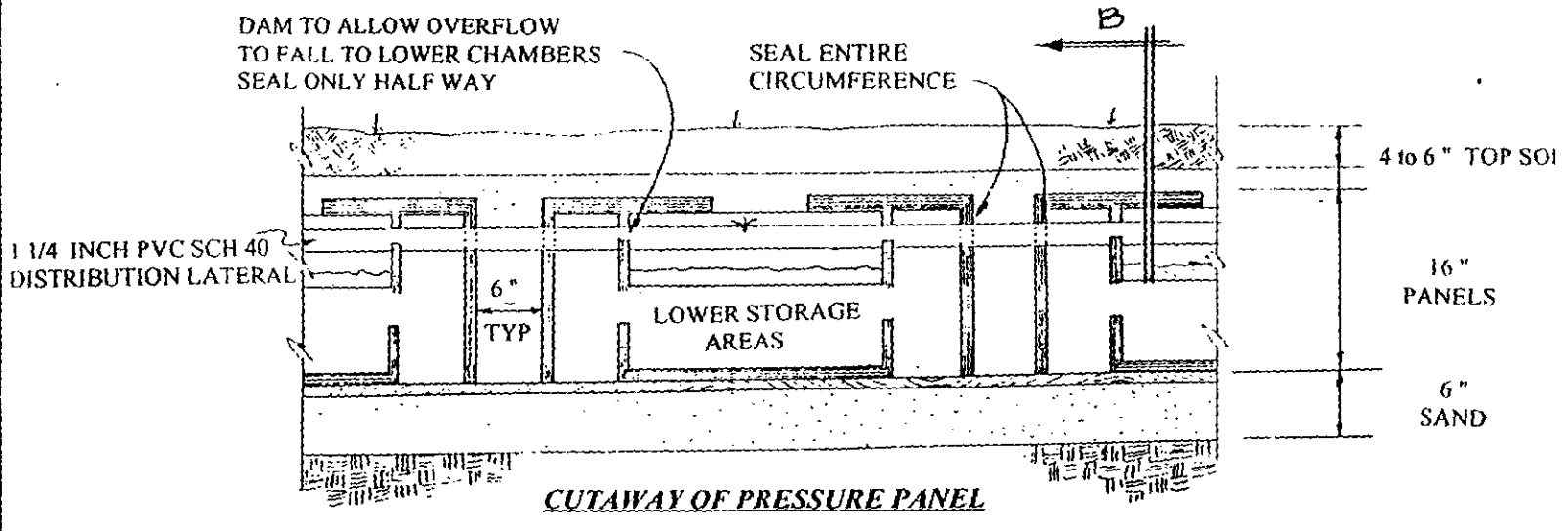
_____	T & J Panels _____ Inch (caps N/C)	_____
_____	2" Pipe	_____
_____	1 1/4" Pipe	_____
_____	Fittings for Pipe	_____
_____	Tar Seal Rope (3' per Panel)	_____
_____	Bag Partial Sand (100 lbs per 8 panels)	_____
_____	Pallets (Returnable)	_____
_____	Screened Creek Sand (FM 2.3 to 3.0)	_____
_____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

Panels With Pressure Distribution

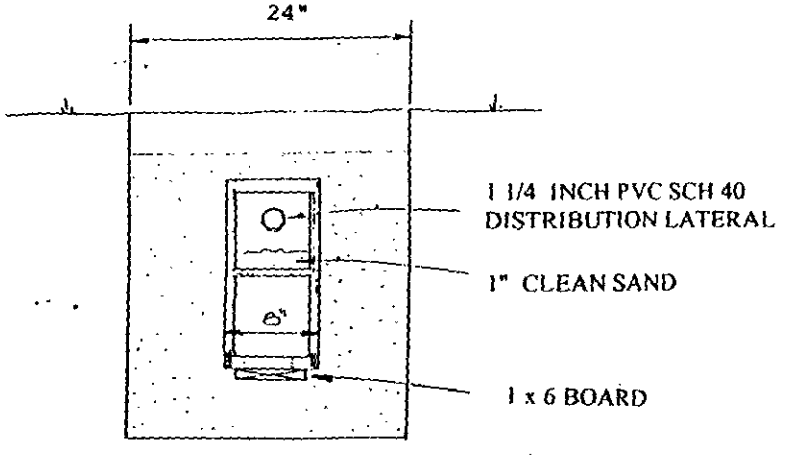
The LP Panel uses Technology similar to that of Low Pressure Pipe (LPP) System. The tables and distribution design described in the LPP manual is applicable to the pressure Panel System. The system should be used with two to four feet of head. In many respects a LP Panel is similar to a LPP with the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

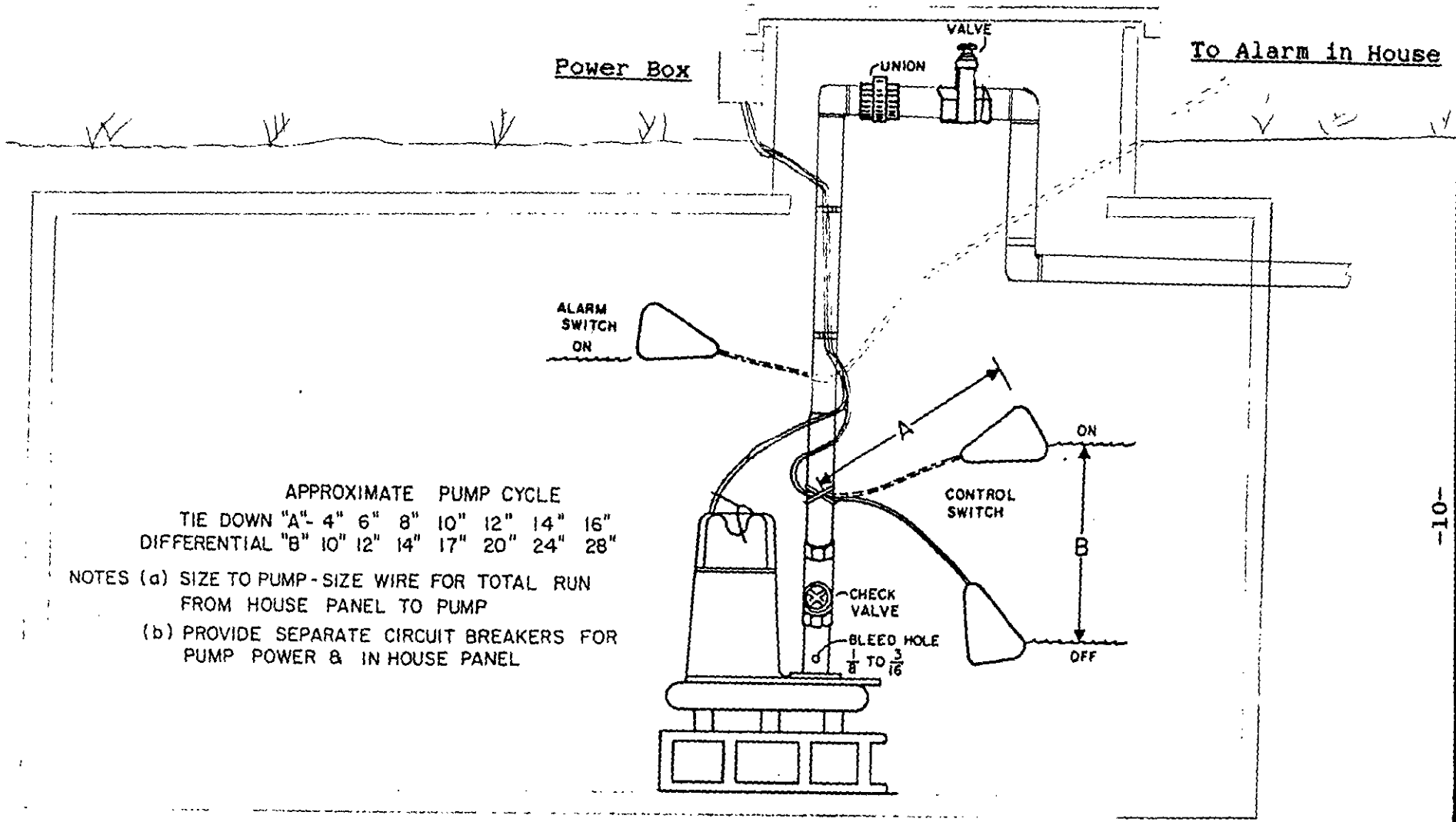
The dosing cycle for the Panel System is designed to pump enough effluent to fill the top chambers of all the panels in the system. The top chamber of a 16 inch panel hold 3.6 gallons. When the system has 34 panels and all holes are the same size, then you would multiply 34 x 3.6 to get 122 gallon per dose cycle. The holes are drilled in the distribution pipe at the 10 and the 2 o'clock position. These are then placed so that the effluent is pumped into the top chamber of the panel. If the hole sizing changes in the system the pump cycle is set by the hole that is discharging the fastest.

All valves and turnups should be neatly capped, covered and labeled for future service. Pump tanks should be constructed as shown in the drawing as to allow for service and repairs.



CUTAWAY OF PRESSURE PANEL





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

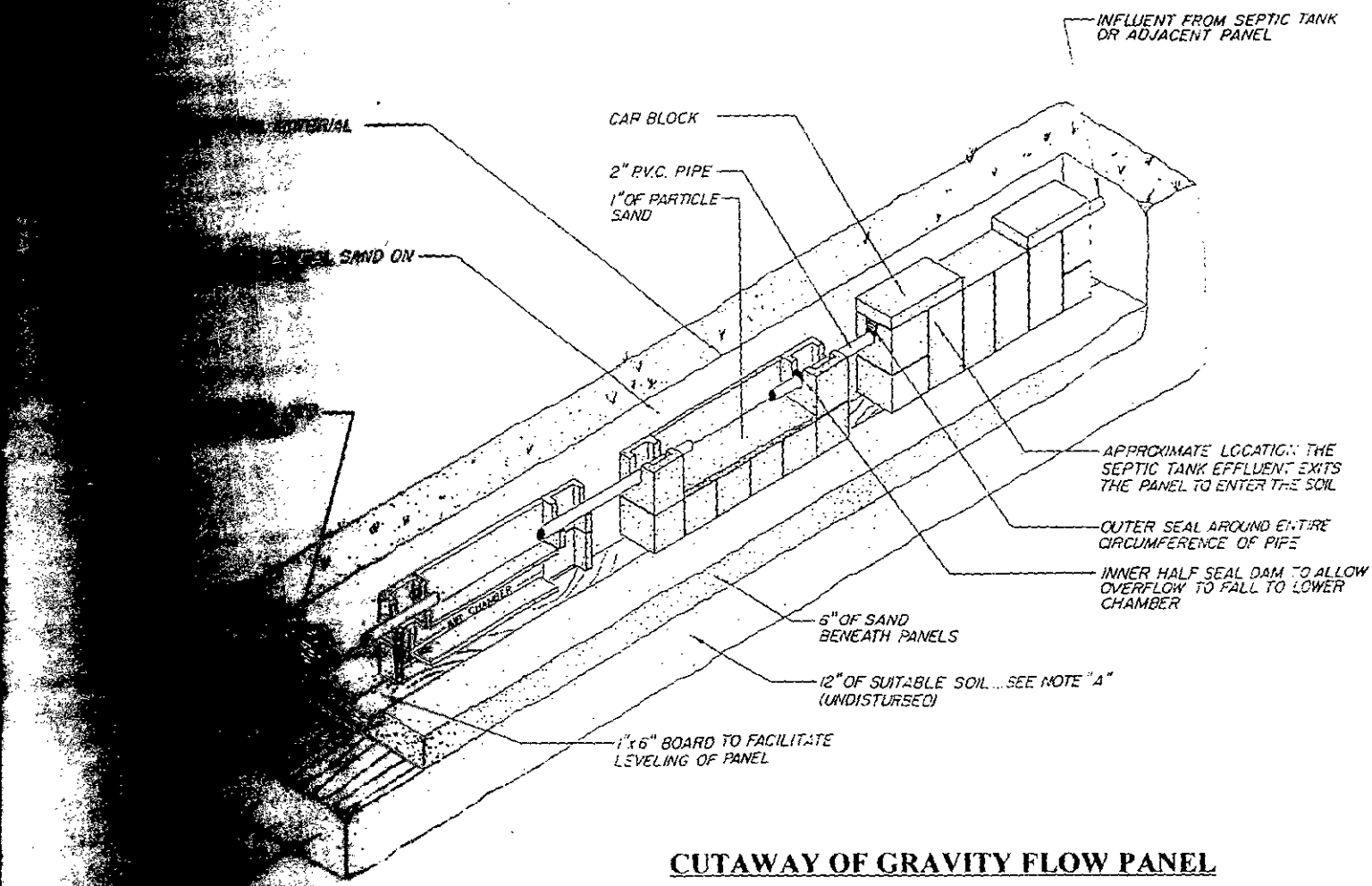
(b) PROVIDE SEPARATE CIRCUIT BREAKERS FOR PUMP POWER & IN HOUSE PANEL

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

ISOMETRIC DRAWING OF A SEGMENT OF 16" T & J PANEL SYSTEM DRAINFIELD



CUTAWAY OF GRAVITY FLOW PANEL

THE T.&J. PANEL
WASTEWATER TREATMENT SYSTEM

PATENT NUMBER 4013559

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

There are many new developments in ground absorption sewage disposal system on the market today. The T&J Panel System is designed to make the most out of the least amount of space possible. This is made possible by the fuller use of the more porous top soil and the limited effect of evapotranspiration and the wicking action of the block as the effluent is kept close to the surface of the ground and fused through the pores of the block to the sidewall area of the drainfield lines. This more general distribution and wicking allows for the use of the entire sidewall area and helps prevent the sealing off of the bottom and lower sidewalls that often occurs in a conventional system.

A 16 inch high panel is 46 inches long, 8 inches wide, and weighs about 155 pounds. There is a 6 inch by 6 inch air chamber at each end of the panel which extends from top to bottom to ensure aerobic action in each level of the field lines. Each panel has a storage chamber just below the top chamber for storage during peak use periods. A 24 inch panel is also available for use in repair or specially engineered systems.

* *

Limited Warranty

The structural integrity of each T&J Panel, when installed in accordance with manufacturer's instructions, is warranted against defective materials and workmanship for one year from date of manufacture. Should a defect appear within the warranty period, purchaser must inform T&J Panel System of the defect before the warranty expires. T&J Panel System will supply a replacement unit. T&J Panel System's liability specifically excludes the cost of removal and/or installation of the panels. There are no other warranties with respect to the units, including no warranties of merchantability or of fitness for a particular purpose. The warranty does not extend to incidental, consequential, special or indirect damages. The company shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other loss or expense incurred by buyer. Specifically excluded from warranty coverage are: Damage to the panels due to ordinary wear and tear; alteration, accident, misuse, abuse or neglect of the panels; the panels being subjected to stresses greater than those prescribed in the installation instructions; the placement by buyer of improper materials into buyer's system; or any other event not caused by the company. Furthermore, in no event shall the company be responsible for any loss or damage to the buyer, the panels or any third party resulting from its installation or shipment. Buyer shall be solely responsible for ensuring that installation of the system is completed in accordance with all applicable laws, codes, rules and regulations. Any alteration of this warranty must be noted as "Warranty" in writing by the company.

Engineering and Test Data by Law Environmental Services and Ayers and Associates is available from the manufacturer at the address below.

THE T&J PANEL
WASTEWATER TREATMENT SYSTEM

PATENT NUMBER 4013559

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

Distributed by

Serving people with a better quality system

When Your Problem in On-site Waste Is:



Topography and Vegetation



Special Landscaping Needs



Future Site Needs



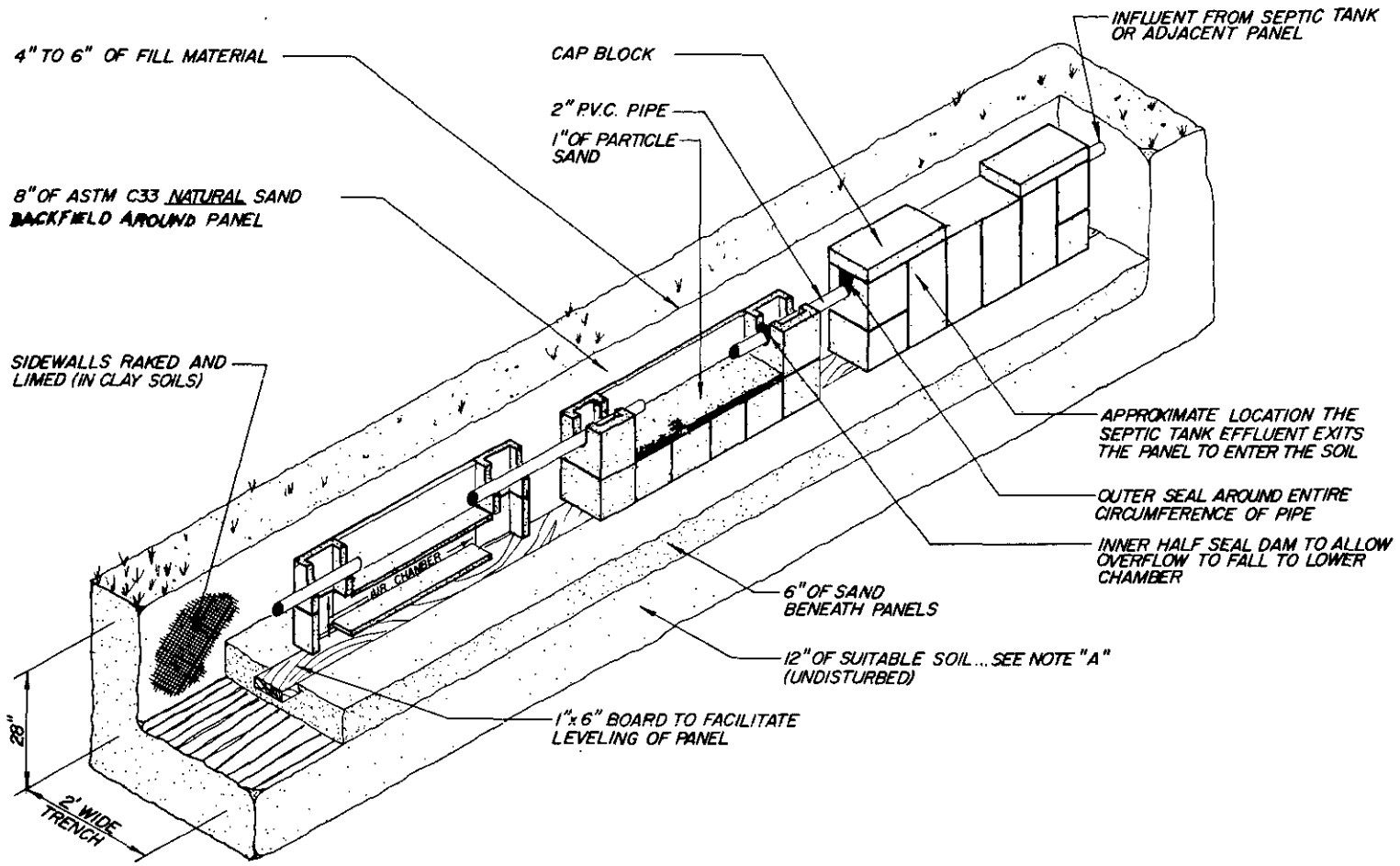
Limited Suitable Area

Then consider the

T&J Panel Wastewater Treatment System

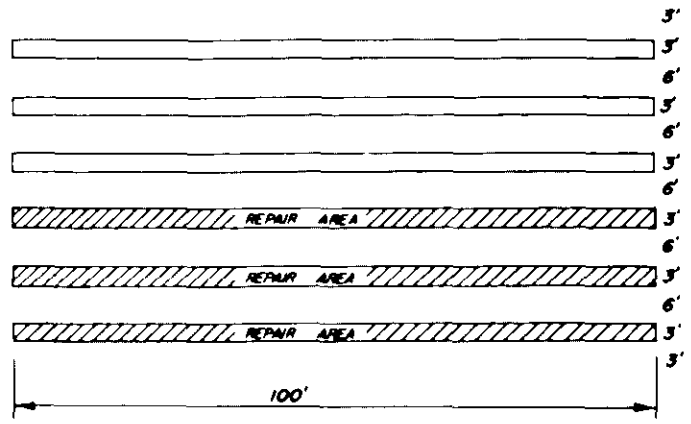
A Better Quality Effluent Than With Conventional Systems

Isometric Drawing of A Segment of 16" T&J Panel System Drainfield



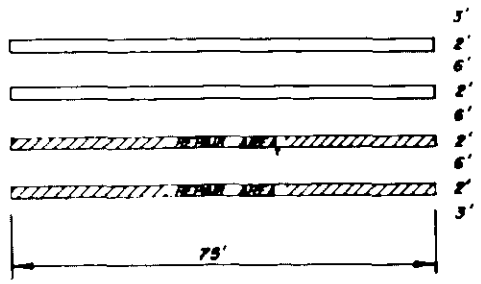
See the difference in a real space needed with the T&J Panel System Wastewater Treatment System when compared to a conventional tile/stone nitrification system.

Conventional System



A total suitable and usable area of 5400 square feet is needed for a conventional system.

T & J Panel System



A total suitable and usable area of 2400 square feet is needed for the T & J Panel System**.

*Typical 3 bedroom house in a clay soil with 0.4 gallon per day per foot square application rate with a design flow on 120 gallons per day per bedroom.

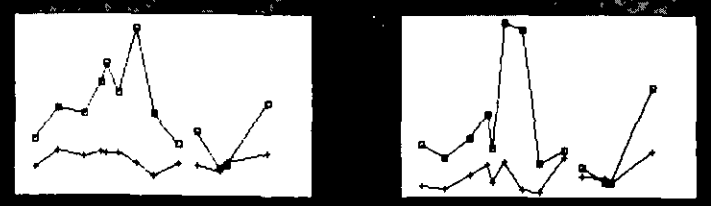
**The T & J Panel Wastewater Treatment System is included in the North Carolina Sewage regulations as a PPBPS as of August 1, 1988. This allows for a 50% reduction in lineal footage of trench with the 16 inch panel as illustrated above. (See note "A")
Note A - This reflects North Carolina Codes. Please check local codes and practices for your area.

Advantages of the T & J Panel System

- Effluent discharged closer to the ground surface
- Each panel works as individual unit

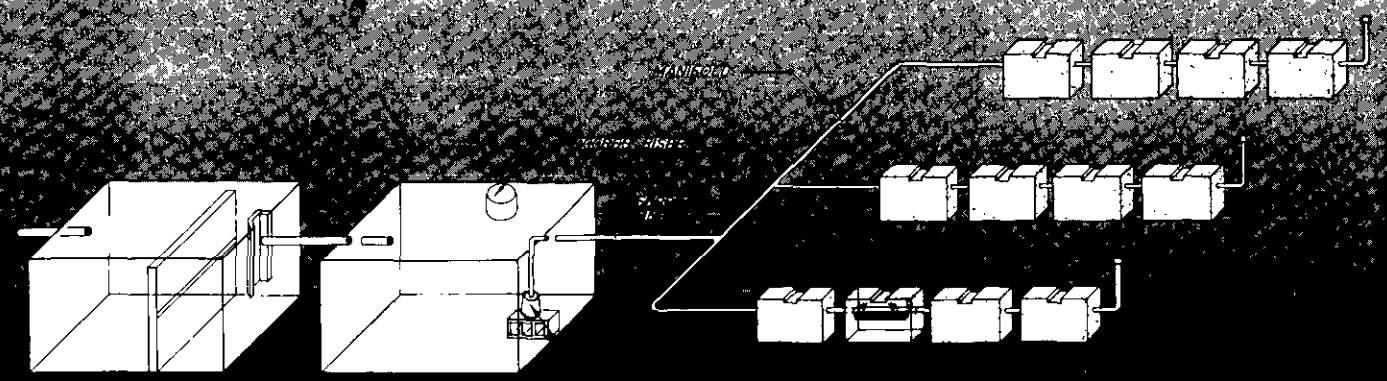
Environmentally Superior Effluent With The T & J Panel System

Side by side by side test for total suspended solids and chemical oxygen demand was tested on the Panel System. The



Low Pressure Panels (LP Panel) - Alternative installation for the T&J Panel System.

The LP offers a high quality effluent with a uniform distribution of wastewater throughout the entire system.



FEE: #100
DATE: 3/12/96
CK. # 85-8

APPLICATION FOR IMPROVEMENT PERMIT FOR RESIDENTIAL SITE INDIVIDUAL WATER AND WASTEWATER SYSTEMS PROGRAM

[ ] CRT

TYPE APPLICATION: ✓ NEW SYSTEM __ EXPANSION/ ALTERATION OF EXISTING SYSTEM __ REPAIR OF EXISTING SYSTEM

NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT,
HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

FILE #: 1297B

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION:

TAX/PARCEL NUMBER: 001-071-[illegible] 34

STREET ADDRESS: 17214 Green Dolphin Lane

SUBDIVISION OR MOBILE HOME PARK NAME:

LOT NUMBER: Lot 105

TYPE OF BUILDING (CHECK ONE):

__ SINGLE MOBILE HOME(S)
__ DOUBLE WIDE (D)
✓ HOUSE (H)
__ MODULAR HOME (M)
__ MULTIPLE FAMILY (U)
__ OTHER (O)

TOWNSHIP (CHECK ONE):

✓ 0 MECKLENBURG
__ 1 CHARLOTTE
__ 2 DAVIDSON
__ 3 CORNELIUS
__ 4 PINEVILLE
__ 5 MATTHEWS
__ 6 HUNTERSVILLE
__ 7 MINT HILL

HEATED SQUARE FOOTAGE:

NUMBER OF BEDROOMS: 4 NUMBER OF OCCUPANTS: 8

FOUNDATION FOR RESIDENCE:

__ WITHOUT BASEMENT ON SLAB
✓ CRAWL SPACE
__ WITH BASEMENT /PLUMBING
__ WITH BASEMENT /NO PLUMBING

✓ Lemley

IF EXPANSION/ALTERATION OF EXISTING SYSTEM, DESCRIBE THE PROPOSED BUILDING ADDITION:

N/A

WILL THERE BE A HOME BUSINESS IN THE RESIDENCE: __ YES ✓ NO TYPE: _____

WATER SUPPLY (CHECK ONE):

__ COMMUNITY (C)
__ MUNICIPAL (M)
✓ PRIVATE WELL (P)
__ SHARED WELL (S)
__ OTHER 'SPRINGS' (O)

IF ANY OF THE FOLLOWING ARE LOCATED ON THE PROPERTY, PLEASE SHOW LOCATION ON PLAT:

BURIED CABLES, LANDFILLS, STUMPHOLES	__ YES __ NO	WELL, SPRINGS OR WATERLINES	__ YES __ NO
EXISTING WASTEWATER SYSTEMS	__ YES __ NO	DESIGNATED WETLANDS	__ YES ✓ NO
EASTMENTS OR RIGHT-OF-WAYS	__ YES __ NO		

PROPERTY OWNER:

NAME: (LAST) Crescent Resources Inc (FIRST) (MI)

ADDRESS: PO Box 1007

CITY: Charlotte STATE: N.C. ZIP: 28201-1007

DAYTIME PHONE: 704 663-6905

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:

NAME: (LAST) Jacobs (FIRST) Toney (MI) C

DAYTIME PHONE: 704 663-6905

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? before '83

An Improvement Permit is subject to suspension or revocation if site plans or the intended use change or if information submitted in this application is falsified or changed. The undersigned, owner, or legal agent for the 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: Toney C Jacobs, CPM DATE: 3/12/96

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
c/o HAL MARSHALL CTR., SUITE 211, 700 N. TRYON ST., CHARLOTTE, N.C. 28202., (704) 336-5102

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

12400

Sheet ___ of ___
PROPERTY ID #: ___
COUNTY: ___

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

#2 1297B
001-071-34

OWNER: Crescent Resources Dev APPLICANT: ___
ADDRESS: PO Box 1007, Cher APPLICATION DATE: ___ DATE EVALUATED: ___
PROPOSED FACILITY: residence PROPOSED DESIGN FLOW (.1949): 480gpd PROPERTY SIZE: .7
LOCATION OF SITE: 17214 Green Dolphin Lane PROPERTY RECORDED: ___
WATER SUPPLY: ☑ Private ☐ Public ☐ Well ☐ Spring ☐ Other ___
EVALUATION METHOD: ☐ Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: ☐ Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	Slopes 5-8% .1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
1	LS	0-2"	gr/SL	Fr/SExP/SSSP	7.46" TO Chroma 2 Mottles	46"	N/A	None	.3gpd/ft² IV PS
		2-30"	sBK/L	Fr-Fi/SExP/SP					
		30-46"	sBK/L	Fr/SExP/SSSP					
2	LS	0-12"	gr/SL	Fr/SExP/SSSP	7.46" TO Chroma 2 Mottles	46"	N/A	None	.3gpd/ft² IV PS
		12-32"	sBK/C	Fr-Fi/SExP/SP					
		32-46"	sBK/SC	Fr/SExP/SSSP					
3		0-10"	gr/SL	Fr/SExP/SSSP	7.46" To Chroma 2 Mottles	46"	N/A	None	.3gpd/ft² IV PS
		10-26"	sBK/C	Fr-Fi/SExP/SP					
		26-40"	sBK/C	Fr/SExP/SSP					
4									

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	Restricted 46	
System Type(s)		

OTHER FACTORS (.1946): ___
SITE CLASSIFICATION (.1948): ___
EVALUATED BY: William R. Meals 4-1-96
OTHER(S) PRESENT: ___

OM[illegible]NTS: 100% Repair not required

LEGEND

use the following standard abbreviations

LANDSCAPE POSITION	GROUP	SOIL TEXTURE	CONVENTIONAL .1955 LTAR	LPP .1957 LTAR	MINERALOGY/ CONSISTENCE	STRUCTURE
C (Concave Slope) V (Convex Slope) (Drainage Way) S (Debris Slump) P (Flood Plain) S (Foot Slope) (Head Slope) (Linear Slope) (Nose Slope) (Ridge) (Shoulder Slope) (Terrace)	I	S (Sand) LS (Loamy Sand)	1.2 - 0.8	0.6 - 0.4	NEXP (Non-expansive) SEXP (Slightly Expansive) EXP (Expansive)	G (Single Grain) M (Massive) CR (Crumb) GR (Granular) SBK (Subangular Blocky) ABK (Angular Blocky) PL (Platy) PR (Prismatic)
	II	SL (Sandy Loam) L (Loam)	0.8 - 0.6	0.4 - 0.3		
	III	SI (Silt) SICL (Silty Clay Loam) CL (Clay Loam) SCL (Sandy Clay Loam) SLC (Silt Loam Clay)	0.6 - 0.3	0.3 - 0.15		
					MOIST	WET
	IV	SC (Sandy Clay) SIC (Silty Clay)	0.4 - 0.1	0.2 - 0.05	VFR (Very Friable) FR (Friable) FI (Firm) VFI (Very Firm v. Very Sticky) EFI (Extremely Firm)	NS (Non-sticky) SS (Slightly Sticky) S (Sticky) VS (Very Sticky) NP (Non-plastic) SP (Slightly Plastic) P (Plastic) VP (Very Plastic)
		O (Organic)	None			

OTES

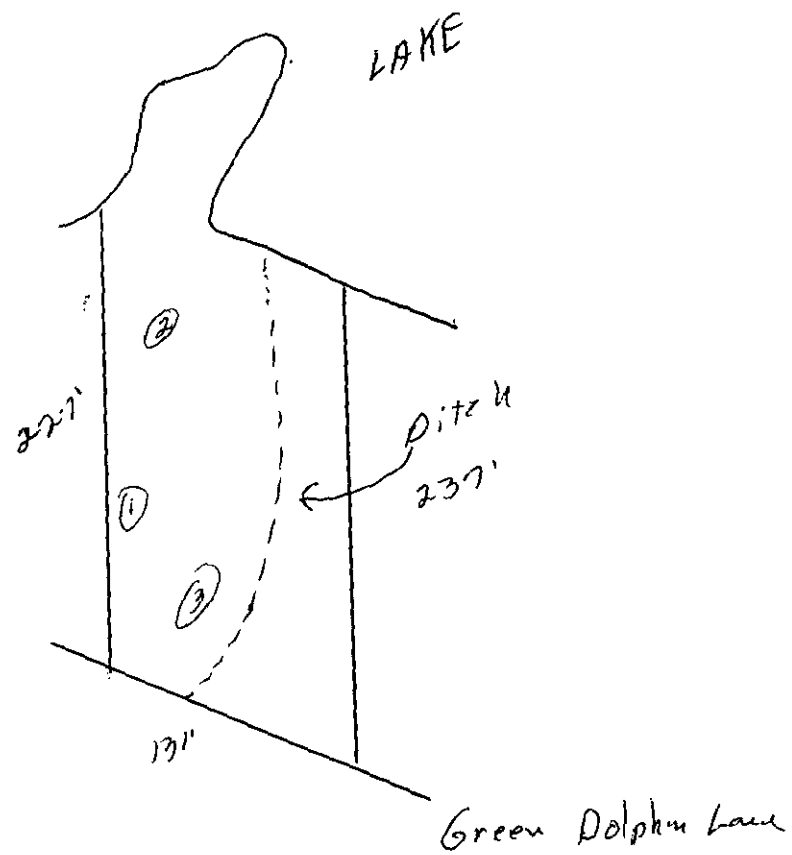
ORIZON DEPTH	In inches below natural soil surface
EPTH OF FILL	In inches from land surface
ESTRICTIVE HORIZON	Thickness and depth from land surface
APROLITE	S(suitable) or U(unsuitable)
OIL WETNESS	Inches from land surface to free water or inches from land surface to soil colors with chroma 2 or less - record Munsell color chip designation
LASSIFICATION	S (Suitable), PS (Provisionally Suitable), or U (Unsuitable)

valuation of saprolite shall be by pits.

ong-term Acceptance Rate (LTAR): gal/day/ft²

Show profile locations and other site features (dimensions, reference or benchmark, and North).

12918



FEE: $100 =

DATE: 3/12/96

CK. # 25 8

APPLICATION FOR IMPROVEMENT PERMIT FOR RESIDENTIAL SITE INDIVIDUAL WATER AND WASTEWATER SYSTEMS PROGRAM

[ ] CRT

TYPE APPLICATION: ✓ NEW SYSTEM __ EXPANSION/ ALTERATION OF EXISTING SYSTEM __ REPAIR OF EXISTING SYSTEM

NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT,
HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

FILE #: 1292B

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION:

TAX/PARCEL NUMBER: 001-071-034

STREET ADDRESS: 17214 Green Dolphin Lane

SUBDIVISION OR MOBILE HOME PARK NAME:

LOT NUMBER: Lot 105

TYPE OF BUILDING (CHECK ONE):

__ SINGLE MOBILE HOME(S)
__ DOUBLE WIDE (D)
✓ HOUSE (H)
__ MODULAR HOME (M)
__ MULTIPLE FAMILY (U)
__ OTHER (O)

TOWNSHIP (CHECK ONE):

✓ 0 MECKLENBURG
__ 1 CHARLOTTE
__ 2 DAVIDSON
__ 3 CORNELIUS
__ 4 PINEVILLE
__ 5 MATTHEWS
__ 6 HUNTERSVILLE
__ 7 MINT HILL

✓ Lemley

HEATED SQUARE FOOTAGE:

NUMBER OF BEDROOMS: 4

NUMBER OF OCCUPANTS: 8

FOUNDATION FOR RESIDENCE:

__ WITHOUT BASEMENT
__ ON SLAB
✓ CRAWL SPACE
__ WITH BASEMENT /PLUMBING
__ WITH BASEMENT /NO PLUMBING

IF EXPANSION/ALTERATION OF EXISTING SYSTEM, DESCRIBE THE PROPOSED BUILDING ADDITION:

N/A

WILL THERE BE A HOME BUSINESS IN THE RESIDENCE: __ YES ✓ NO TYPE: _____

WATER SUPPLY (CHECK ONE):

__ COMMUNITY (C)
__ MUNICIPAL (M)
✓ PRIVATE WELL (P)
__ SHARED WELL (S)
__ OTHER 'SPRINGS' (O)

IF ANY OF THE FOLLOWING ARE LOCATED ON THE PROPERTY, PLEASE SHOW LOCATION ON PLAT:

BURIED CABLES, LANDFILLS, STUMPHOLES	__ YES __ NO	WELL, SPRINGS OR WATERLINES	__ YES __ NO
EXISTING WASTEWATER SYSTEMS	__ YES __ NO	DESIGNATED WETLANDS	__ YES ✓ NO
EASTMENTS OR RIGHT-OF-WAYS	__ YES __ NO		

PROPERTY OWNER:

NAME: Crescent Resources Inc
(LAST) (FIRST) (MI)

ADDRESS: PO Box 1007

CITY: Charlotte STATE: N.C. ZIP: 28201-1007

DAYTIME PHONE: (704) 663-6905

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:

NAME: Jacobs Toney C
(LAST) (FIRST) (MI)

DAYTIME PHONE: 704 663-6905

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? before '83

An Improvement Permit is subject to suspension or revocation if site plans or the intended use change or if information submitted in this application is falsified or changed. The undersigned, owner, or legal agent for the 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: Toney C Jacobs, CPSS DATE: 3/12/96

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
c/o HAL MARSHALL CTR., SUITE 211, 700 N. TRYON ST., CHARLOTTE, N.C. 28202., (704) 336-5102

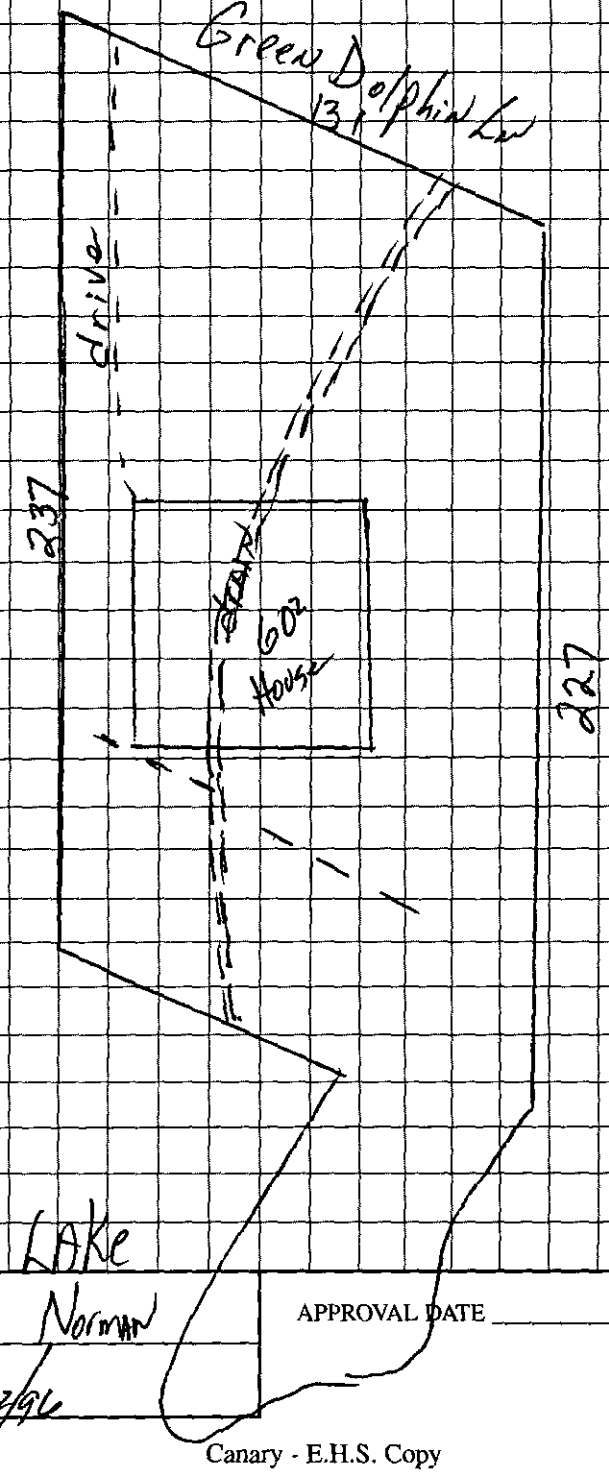
PROPOSED PLOT PLAN

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON STREET
CHARLOTTE, NC 28202
PHONE (704) 336-5102

FILE: 1297B

TC: 001-071-034

Draw in and name all roads adjoining the property. Draw in and accurately dimension the lot concerned. Accurately indicate property boundaries proposed and/or existing structures and driveways, underground utilities, and wells and springs within 100 feet of the proposed building or drainfield.



OWNER/AGENT SIGNATURE

DATE 3/22/96

APPROVAL DATE _____

White - Health Department's Copy Canary - E.H.S. Copy Pink - Owner's Copy

1297

DATE 3-22-96

TO: CHARLOTTE-MECKLENBURG BUILDING STANDARDS
PERMIT ISSUING SECTION

FROM: MECKLENBURG COUNTY ENGINEERING

JURISDICTION Meck

#00107-34
PARCEL NUMBER

1724 GREEN DOLPHIN LN
ASSIGNED STREET ADDRESS (ADDRESS OF RECORD)

LOT #104
EXISTING STREET ADDRESS (IF DIFFERENT FROM ASSIGNED)

N/A
PROJECT NAME (IF APPLICABLE)

THE ABOVE DESCRIBED LOCATION HAS BEEN CHECKED CONCERNING:

1. SUBDIVISION REGULATIONS	✓ APPROVED	____ NOT APPROVED
2. FLOODWAY REGULATIONS	3-22-96 BJM APPROVED	____ NOT APPROVED
3. WATERSHED PROTECTION	✓ APPROVED	____ NOT APPROVED
4. COMMERCIAL DRAINAGE PLAN	✓ APPROVED	____ NOT APPROVED
5. PUBLIC UTILITY EASEMENT	____ PRESENT	✓ NOT PRESENT
6. PROPERTY FRONTS ON THOROUGHFARE	____ YES	✓ NO
7. DRIVEWAY PERMIT REQUIRED	____ YES	✓ NO
8. DOES PROJECT CONFLICT WITH ROAD PROJECT?	____ YES	✓ NO

REMARKS: SEPTIC TANK.

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

ALL OTHER FORMS OBSOLETE

☐ NEW ADDRESS

SIGNED: B. McCONICO

REVISED 1/91

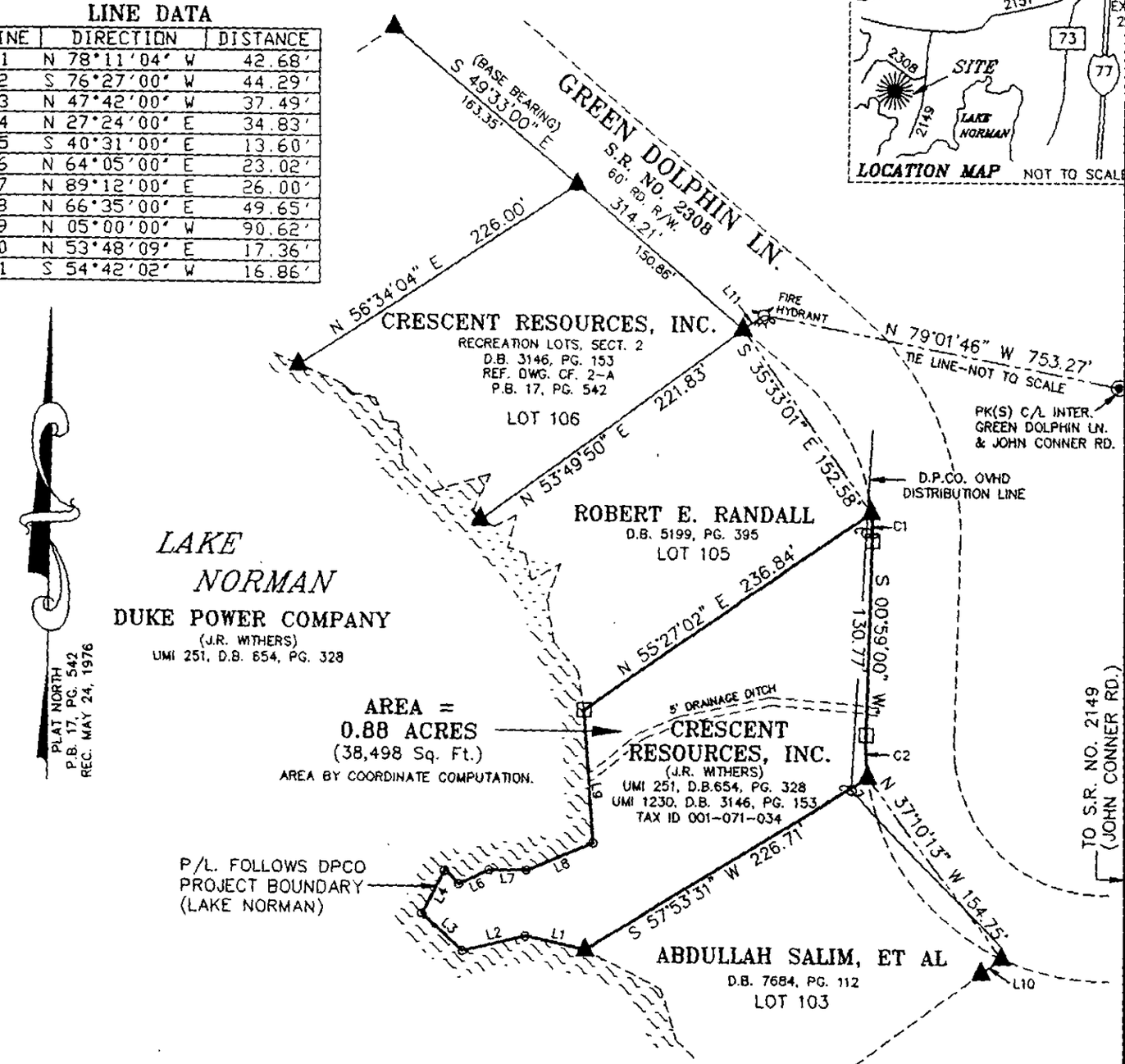
1297B

CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	139.47'	19.16'	9.59'	19.14'	S 02°57'06" E	07°52'11"
C2	199.97'	28.63'	14.34'	28.60'	S 03°07'03" E	08°12'07"

LINE DATA

LINE	DIRECTION	DISTANCE
L1	N 78°11'04" W	42.68'
L2	S 76°27'00" W	44.29'
L3	N 47°42'00" W	37.49'
L4	N 27°24'00" E	34.83'
L5	S 40°31'00" E	13.60'
L6	N 64°05'00" E	23.02'
L7	N 89°12'00" E	26.00'
L8	N 66°35'00" E	49.65'
L9	N 05°00'00" W	90.62'
L10	N 53°48'09" E	17.36'
L11	S 54°42'02" W	16.86'



NOTE: PROPERTY SUBJECT TO ANY VALID & ENFORCEABLE EASEMENTS, RESTRICTIONS & RIGHTS OF WAY OF RECORD.

NOTE: ALL CORNERS NOT IDENTIFIED ARE POINTS ALONG DPCO PROJECT BOUNDARY (LAKE NORMAN)

LEGEND

- LINES SURVEYED
- LINES NOT SURVEYED
- TIE LINES
- OVHD DISTRIBUTION LINE (OVERHEAD)
- ⊡ #4 REBAR (S)
- ▲ #5 REBAR (F)
- ◉ PK (S)
- RETAIL POWER POLE

STATE OF NORTH CAROLINA
MECKLENBURG COUNTY

I certify that this map was drawn from an actual survey made under my supervision.
The unadjusted error of closure as calculated is 1': 10,000'+
Boundaries not surveyed, if any, are noted. Deed descriptions are recorded in Book 3146, Page 153.

Witness my hand and seal this 29th day of JANUARY, 1996.

James R. Hobbs
Registered Land Surveyor
L-3703

CRESCENT RESOURCES INC.
P.O. BOX 1003
CHARLOTTE, N.C. 28201-1003

SURVEY & MAP PREPARED BY:
DUKE POWER COMPANY
P.O. BOX 1007
CHARLOTTE N.C. 28201-1007
TELEPHONE: (704)382-6665

PROJECT NO.	7514
PARCEL NO.	49262
REQUEST NO.	88151
CRI ID. NO.	310300
E.C. = 1' :	10,000'+
L.F.	1004-PER., 1601-TIES
DRAWN BY:	JVB
CREW:	B. HOBBS
DATE:	1-18-1996
CHK BY:	J R HOBBS

SOURCE OF TITLE: D.B. 3146, PG. 153
PROPERTY OWNED BY
CRESCENT RESOURCES, INC.
COWANS FORD DEVELOPMENT

BOUNDARY SURVEY OF
PORTION OF

J.R. WITHERS TRACT, U.M.I. 251

LEMLEY TOWNSHIP
MECKLENBURG COUNTY, N.C.

SCALE: 1" = 100'
BOOK NO. 2260

JANUARY 18, 1996
REQUEST NO. 88151

100 50 0 100 200 300
SCALE IN FEET

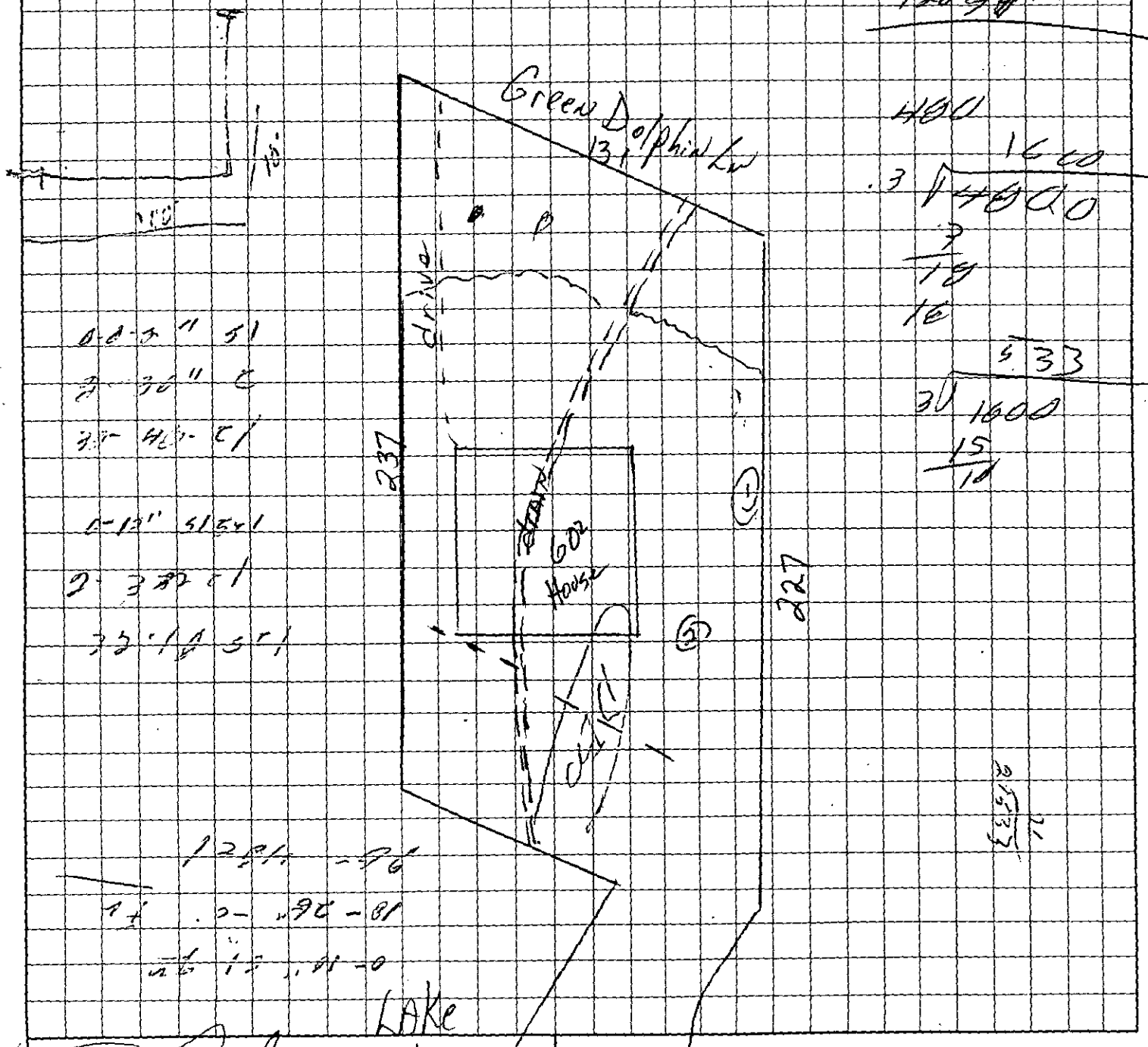
PROPOSED PLOT PLAN

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON STREET
CHARLOTTE, NC 28202
PHONE (704) 336-5102

FILE: 1297B

TC: 001-071-034

Draw in and name all roads adjoining the property. Draw in and accurately dimension the lot concerned. Accurately indicate property boundaries proposed and/or existing structures and driveways, underground utilities, and wells and springs within 100 feet of the proposed building or drainfield.



APPROVAL DATE _____

OWNER/AGENT SIGNATURE

DATE 3/22/96

White - Health Department's Copy Canary - E.H.S. Copy Pink - Owner's Copy

TCJ CONSULTING

SITE / SOIL EVALUATION

JOB: Ann Bass PHONE: _____ DATE: 3/7/96

LOCATION: _____ PIN: _____ COUNTY: _____ PROPERTY SIZE: _____

PROPOSED FACILITY: _____ WATER SUPPLY: On-Site Well__ Community__ Public__ EVALUATION: Auger Boring__ Pit__ Cut__

WEATHER: _____ ANTECEDENT MOISTURE: _____ SURFACE WATER: _____

FACTORS	PROFILE 1	PROFILE 2	PROFILE_	PROFILE_
LANDSCAPE POSITION-%	Low Spot	[illegible]		
HORIZON I DEPTH	0-24	0-6		
Color - Munsell	Mixed A	[illegible]		
Texture		sl		
Structure		[illegible]		
Consistence		[illegible] VSS NP		
		[illegible]		
Boundary	abrupt	clear		
HORIZON DEPTH II	2-26	6-17		
Color - Munsell	Mxd	[illegible]		
Texture	sc	sc		
Mottles	N/A	NA		
Structure	Wf SAB	Wf SAB		
Consistence	Fim SP	Fim SS SP to SP		
	VFI S A Thing			
	abrupt clear			
Boundary	gradual	gradual		
HORIZON III DEPTH	26-36	17-36		
Color - Munsell	Mxd	Mxd		
Texture	fsCl, sC	fsCl		
Mottles	C brown clay loam	NA		
Structure	Ab clay	Wf SAB		
Consistence	"	Fim SS SP		
	Fim fsCl clay L			
Boundary		irr bdy		
HORIZON IV DEPTH				
Color - Munsell				
Texture				
Mottles		Fm. many fine faint brown + red gray		
Structure				
Consistence		26-		
		[illegible] few mottles		
Boundary				
SOIL WETNESS	0-26	0-40		
RESTRICTIVE HORIZON	26+	[illegible]		
SAPROLITE	No	No		
LTAR	.25	[illegible]		
CLASSIFICATION	fsl-SP	[illegible]		

LEGEND

LANDSCAPE POSITION
R - Ridge
S - Shoulder
L - Linear slope
S - Foot slope
N - Nose slope
H - Head slope
Cc - Concave slope
Cv - Convex slope
T - Terrace
P - Flood Plain

TEXTURE
s - sand
ls - loamy sand
sl - sandy loam
l - loam
si - silt
sil - silt loam
sicl - silty clay loam
cl - clay loam
scl - sandy clay loam
sc - sandy clay
sic - silty clay
c - clay

CONSISTENCE
MOIST / WET
Ns - non-sticky
Ss - slightly sticky
S - sticky
Vs - very sticky

Np - non-plastic
Sp - slightly plastic
P - plastic
Vp - very plastic

MOIST
vfr - very friable
fr - friable
fi - firm
vfi - very firm
efi - extremely firm

STRUCTURE
sg - single grain
m - massive
cr - crumb
gr - granular
sab - subangular
ab - angular
pl - platy
pr - prism