

Sep-15-03 01:39P PRATER BUILDERS PROPERTY 9038722801

TARRANT REGIONAL WATER DISTRICT

140 FM 416, Streetman, Texas 75859

903-389-3928

Fax # 903-389-7587

TRWD USE ONLY

RC090380

APPLICATION NO.

5010

RECEIPT NO.

9129103

DATE

8-20-00

AMOUNT

APPLICATION FOR ON-SITE
SEWAGE FACILITY

RICHLAND - CHAMBERS

TRWD RESERVOIR

NAVARRO

COUNTY OF INSTALLATION

- PROPERTY OWNER'S NAME: JOHNSON RANDY
(LAST) (FIRST) (MIDDLE)
- PERMANENT MAILING ADDRESS: 5760 CEDAR GROVE PLANT 75093
(STREET/PO BOX) CIRCLE (CITY/STATE) (ZIP)
- TELEPHONE NO. DURING DAY: (214) 464-3620
- SITE ADDRESS: SE CR 2218
(STREET) (CITY/STATE) (ZIP)
- PROPERTY DESCRIPTION: LOT NO 4 THICK 1 SIZE 1 AC 50 FT
SUBDIVISION: BAY OAKS Acreage 6 Survey 600
- SOURCE OF WATER: Private Well ☒ Public Water Supply M.E.N.
(NAME OF SUPPLIER)
- SINGLE FAMILY RESIDENCE: No. of Bedrooms 4 Living Area (sq. ft.) 2766
DESIGNED MAXIMUM DAILY WATER CONSUMPTION (gpd): 300 gpd
- COMMERCIAL/INSTITUTIONAL (including multi-family residences) TYPE: n/a
NO. OF EMPLOYEES/OCCUPANTS/UNITS: n/a DAYS OCCUPIED PER WEEK: n/a
DESIGNED MAXIMUM DAILY WATER CONSUMPTION (gpd): n/a
- IS AN ORGANIZED SEWAGE COLLECTION WITHIN 300 FEET? Yes ☒ No
- DESIGNER: PHILLIP MARLAR LICENSE NO.: 2604
PHONE NO.: 972 452-8487
- INSTALLER: Jimmy KASH REGISTRATION NO.: OS-583
PHONE NO.: 903 654-1557

I certify that the above statements are true and correct to the best of my knowledge. Authorization is hereby given to the Tarrant Regional Water District to enter upon the above described private property for the purpose of lot evaluation and inspection of on-site sewerage facilities. I understand that the approval of this application constitutes authorization for construction of the on-site sewerage facility and that a permit to operate the facility will be granted following successful inspection of the installed system which indicates that the system was installed in compliance with TCRD's On-Site Sewerage Facility Rules (OSSFR) and the District's Waste Control Order.

(SIGNATURE OF OWNER)

(SIGNATURE OF AUTHORIZED DISTRICT REPRESENTATIVE)

(DATE)

(DATE)

TARRANT REGIONAL WATER DISTRICT

140 FM 416, Streetman, Texas 75859

903-389-3928

**AUTHORIZATION TO CONSTRUCT
AN
ON-SITE SEWAGE FACILITY**

Application Number RC 090380

Property Owner Randy Johnson

Mailing Address 5760 Cedar Grove Circle
 Plano, Texas 75093

Property Location Lot 4 Bay Oaks Estates
 SECR 2180

 Navarro County, Texas

This serves to notify all persons that an on-site sewerage facility application, related technical data, and the appropriate fee have been received by the Tarrant Regional Water District (District) from the property owner. The application has been reviewed for technical and administrative consideration against the standards set forth by the District. Approval is hereby granted for the construction as shown on the submitted plans.

Any modifications to submitted plans require approval by the Tarrant Regional Water District prior to installation.

You or your installer must contact the District office at 903-389-3928 between 7:30 A.M. to 8:30 A.M. to arrange for the required facility inspection. Calls after 8:30 A.M. may result in inspection being delayed until the next working day. **The authorization to construct is valid for one year from the date of issue of an application.** If a final inspection has not been performed within one year of issue, a new application and fee will be required.

Comments: **The following design is based upon the minimum standards set forth by the Texas Commission on Environmental Quality and is based on a maximum daily flow of 300 gallons, the use of water saving devices is required.**

 OS-8058

Authorized District Representative

10-03-03

Date

TARRANT REGIONAL WATER DISTRICT

140 FM 416, Streetman, Texas 75859

903-389-3928

**NOTICE OF APPROVAL
OF
ON-SITE SEWAGE FACILITY**

PERMIT # RC 090380

Property Owner Randy Johnson

Mailing Address 5760 Cedar Grove Cir.
Plano, Texas 75093

Property Location Lot 4 Bay Oaks Estates
Navarro County, Tx.

This serves to notify all persons that the on-site sewage facility owned by the above has satisfied design, construction, and installation requirements of the Texas Commission on Environmental Quality (TCEQ) and the District Waste Control Order. This Tarrant Regional Water District On-Site Sewage Facility Permit is issued for the operation of the above identified on-site sewage facility.

ANY MODIFICATIONS TO THE SYSTEM STRUCTURE, OR ITS COMPONENTS, MAY REQUIRE A NEW PERMIT. The owner must notify this office of the aforementioned changes.

ADDITIONAL INFORMATION:

Edelia Barcenas OS#9158
Authorized District Representative

October 28, 2003
Date

TARRANT REGIONAL WATER DISTRICT

140 FM 416, Streetman, Texas 75859
903-389-3928

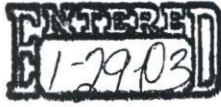
ON-SITE SEWAGE FACILITY PROGRAM LOW PRESSURE PIPE SYSTEM INSPECTION REPORT

PROPERTY OWNER: Randy Johnson	PERMIT NUMBER: RC 090380
-------------------------------	--------------------------

I. SEWER	Y	N
CLEANOUTS PROPERLY INSTALLED:	✓	
PROPER TYPE PIPE FROM STRUCTURE TO DISPOSAL SYSTEM:	✓	
SLOPE OF SEWER 1/8 INCH PER FOOT MINIMUM:	✓	
II. SEPTIC TANK	Y	N
TANK SIZE REQUIRED: 1,000 gal. TANK SIZE INSTALLED: (2) 500 gal	**	**
TYPE: CONCRETE MANUFACTURER: ELLISON	**	**
RISERS PROVIDED ON TANKS BURIED GREATER THAN 12":	✓	
INLET FLOWLINE GREATER THAN 3" ABOVE OUTLET FLOWLINE:	✓	
OUTLET LIQUID PENETRATION 1/4 TO 1/2 TOTAL LIQUID DEPTH:	✓	
"T" PROVIDED ON INLET AND OUTLET:	✓	
IF SINGLE TANK, ARE 2 COMPARTMENTS PROVIDED?	N/A	
III. PUMP TANK	Y	N
TANK SIZE REQUIRED: 500 gal. TANK SIZE INSTALLED: 500 gal	**	**
TYPE: CONCRETE MANUFACTURER: ELLISON	**	**
TYPE AND SIZE OF PUMP: 1/2 GRUNDFOS API2	**	**
IV. DRAINFIELD	Y	N
LATERAL LINE SIZE: ☒ 1" PVC ☐ 1 1/4" PVC ☐ 1 1/2" PVC ☐ OTHER SPECIFY _____	**	**
SUPPLY LINE DIAMETER: 2"	**	**
MANIFOLD DIAMETER: 2"	**	**
AREA REQUIRED: 3,024 sqft AREA INSTALLED: 3024 ft ²	**	**
EXCAVATION DEPTH: 24" WIDTH: 10" LENGTH: 1008	**	**
DISTANCE BETWEEN EXCAVATIONS: 4'	**	**
PROPER PLACEMENT OF DAMS	✓	
TYPE OF MEDIA: "C" ROCK	**	**
DEPTH OF MEDIA: 12"	**	**
PROPER BARRIER BETWEEN MEDIA AND BACKFILL:	✓	
RISERS INSTALLED FOR HEAD PRESSURE ADJUSTMENT:	✓	
DATE HEAD PRESSURE WAS SET: 10/28/2003	**	**
ZONES INSTALLED PROPERLY. yes. HOW MANY? 1 zone	**	**
PROPER CONTROL VALVES INSTALLED. yes. HOW MANY? 1 valve	**	**
MINIMUM REQUIRED SETBACK DISTANCES MET? IF NOT, LIST DEFICIENCIES.	✓	
AUDIO/VISUAL ALARMS INSTALLED:	✓	

COMMENTS: _____

INSPECTED BY: Edlin Barcenas OS 9158 DATE: October 28, 2003



BUILDING PERMIT

COUNTY OF NAVARRO, TEXAS

No 0729

JOB ADDRESS		BAY OAKS Lot #4 12023SE2171		APPLICANT ADDRESS
LOT NO. 4	BLK. 1 SEC 1	SUBDIVISION BAY OAKS Est		
OWNER Randy Johnson	ADDRESS 5760 CEDAR GROVE CIR PLANO, TX 75093		PHONE 972-608-0941	
CONTRACTOR HAL PRATER	ADDRESS		PHONE 654-2884	
ELECTRICAL MONTGOMERY ELEC	ADDRESS		PHONE	
PLUMBING Bill's Plumbing	ADDRESS		PHONE	
MECHANICAL Lochridge-Priest	ADDRESS		PHONE	
USE OF BUILDING Single Family Dwelling				
CLASS OF WORK: ☒ NEW ☐ ADDITION ☐ ALTERATION ☐ REPAIR ☐ DEMOLISH				
DESCRIBE WORK:				
TYPE OF CONST. FRAME		SQ. FT. 2766	NO. OF STORIES 1	
NO. OF ROOMS 8 4 BR	NO. OF BATHS 3	FOUNDATION SIAB		
ROOF Comp	SPRINKLERS REQUIRED	PARKING SPACES N/A		
NO. OF DWELLING UNITS	ZONING	OCCUPANCY GROUP		
NOTICE THIS PERMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN 6 MONTHS, OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 1 YEAR AT ANY TIME AFTER WORK IS COMMENCED. THE ISSUANCE OF THIS PERMIT SHOULD NOT BE CONSTRUED BY ANY PERSON AS AN APPROVAL OF BUILDING OR CONSTRUCTION TECHNIQUES, METHODS, OR MATERIALS.		I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION. SIGNATURE: <i>Hal W. Prater</i> VALUATION: \$ 15213000 PERMIT FEE \$ 370.99 APPROVED FOR ISSUANCE BY: <i>John Lennon</i> DATE: 1-29-03		
SPECIAL CONDITIONS:				
THIS BECOMES YOUR PERMIT WHEN APPROVED FOR ISSUANCE				

Phillip Marlar R.S.
Registered Professional Sanitarian # 2604
Certified Site Evaluator OS 6352
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487

Soil Evaluation Report

Date: September 12, 2003

Property Owner: Randy Johnson
Current Address:

Property Location: SE CR 2218

Address: Same as above

City: Corsicana

Location / Subdivision: Bay Oaks Est.

Lot: 4 Block:

Section:

County: Navarro

Additional Information: Approx. 6.703 +/- Acre

Soil Borings

	Hole # 1	Hole # 2	
Depth(Feet)			
0	0-6" clay loam III	0-8" clay loam III	
1	6-48" clay IV	8-48" clay IV	
2			
3			
4			
Soil classification	IV	IV	
Textural Class	Clay	Clay	
Presence of Mottling	No	No	
Restrictive Horizon	Yes - Clay	Yes - Clay	
Groundwater	No	No	
Flood hazard	No	No	
Upper Water Shed	No	No	
Presence of ponds/streams/wells	Lake 200' + away from disposal field	320' Elev. 100' + away from disposal field	
Topography	5 % slope	5 % slope	

Vegetation Present in disposal area: Wooded & native vegetation

Soil currently supports & will support future vegetative growth.

Site suitable for a standard subsurface conventional system: **No**

Comments/Additional Information: See site design for test hole locations.

Grass needs to be established over disposal field as soon as possible.

I certify that the findings of this report are based on my field observations and are accurate to the best of my ability.

Date:

9/12/03 Phillip Marlar R.S.

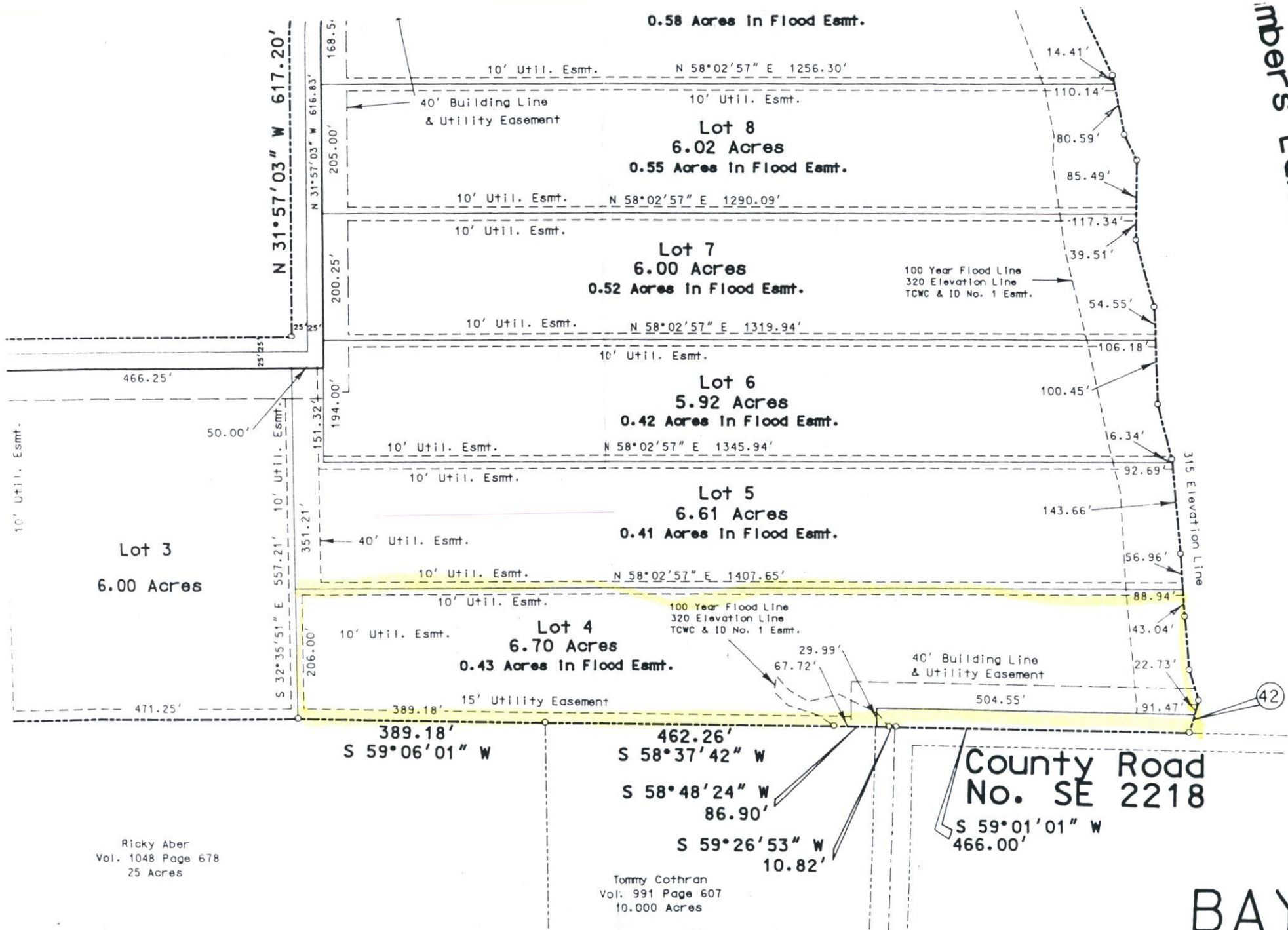
Phillip Marlar R.S. # 2604 / S.E. # 6352

#2604

SE# 6352



Members Lake



Ricky Aber
Vol. 1048 Page 678
25 Acres

Tommy Cothran
Vol. 991 Page 607
10.000 Acres

County Road
No. SE 2218

BAY C
Wilson Reed
S.L. Johnson
NAVA

Phillip Marlar R.S.
Registered Professional Sanitarian
Certified Site Evaluator OS 6352
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487

Randy Johnson
 SECR 2218
 Corsicana, Texas

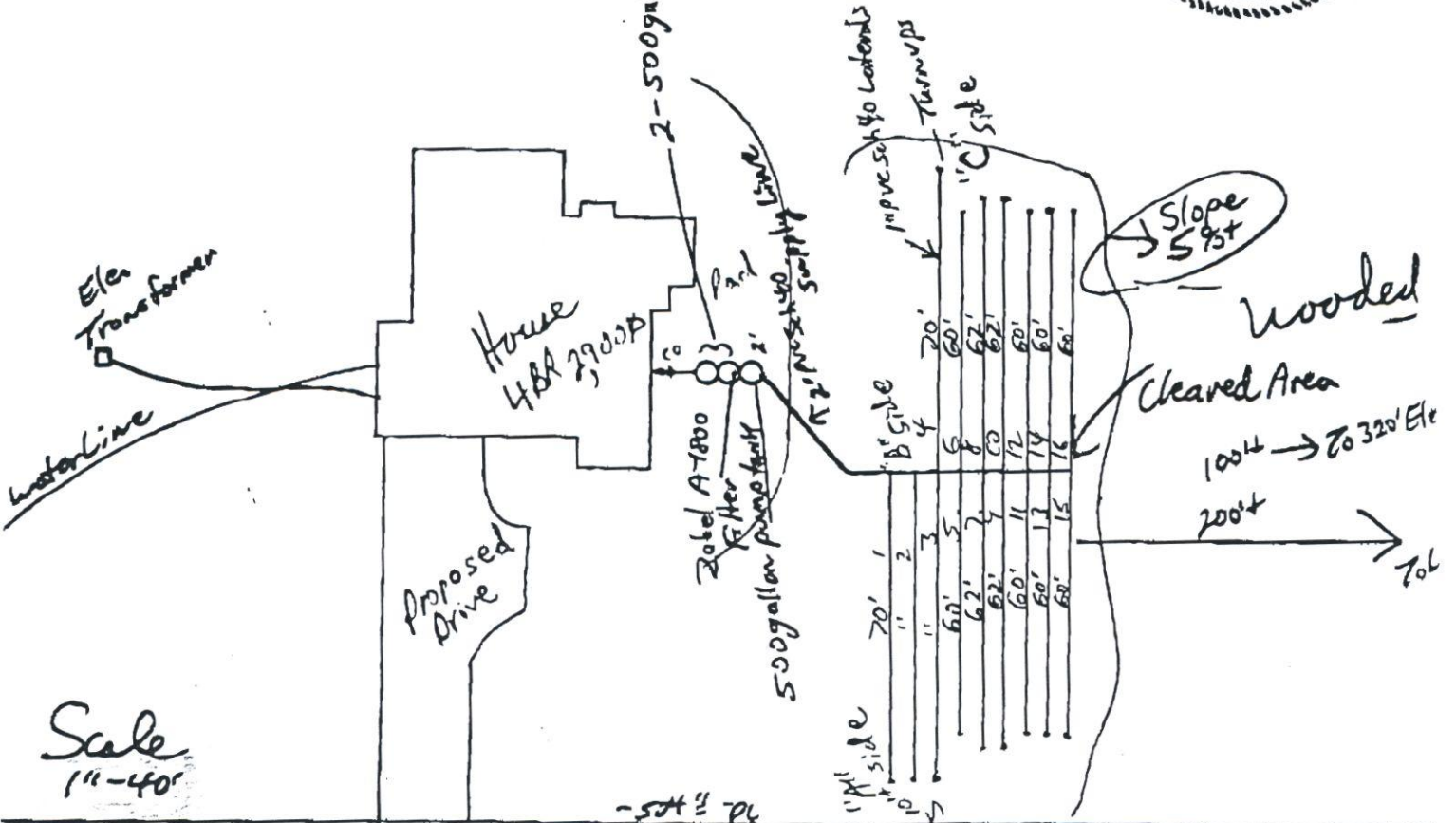
Bay Oaks Est.
Lot 4

Class II Soil

6.703 AC Tract

LPD Design:
 85' of 2" PVC Sch 40
 Supply Line
 1,008' of 1" PVC Sch 40
 Lateral Line on 4 to 5' centers
 for 3024 ft
 6" wide Trenches

Phillip Marlar
 #2604
 SECR 2218



SECR 2218

**Phillip Marlar R.S.
Registered Professional Sanitarian
Certified Site Evaluator OS 6352
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487**

September 12, 2003

Tarrant County Water Control District Designated Representative

Subject Property: Randy Johnson's property at Bay Oaks Est. lot 4 Corsicana, Texas
Subject Design: Low Pressure Dosing System

Design Parameters:

4 Bedroom House (2,900 sq ft living area) (4 Bedroom Equivalent)
4 Bedroom House (with water saving fixtures) = 300gpd
Soil Evaluation Class IV soil
Long Term Loading Rate .1 gal / sq ft / day
Required Absorption Area = 300 gpd / .1 gal / sq ft / day = 3,000 sq ft
Minimum Designed Absorption Area = 3,024 sq ft
Total Length of Laterals = 1,008'

System Parameters

2 - 500 gallon tanks or a baffled 1,000 gallon tank
A Zabel A-1800 filter in the outlet of the second compartment or tank
A 500 gallon pump tank with high water alarm
Supply Line - 2" diameter sch 40 piping
Lateral Lines - 1" diameter sch 40 piping
Supply Line Length - 85'
Lateral Line Length - 1,008'
Hole Size in Laterals - 1/8"
Hole Spacing - 5 to 7' (See attached chart)
Holes - 155
Elevation Head - 5'
Friction Head - 4.53' (using 4.45 friction rate)
Pressure Head - 2' (Operating Head)
Total Head - 11.53 Ft 11.6
Barnes EH-L pump with 11.53 Ft head will pump 80 + gpm
GPM at 2 ft Operating Head = 51.67 gpm + 2 gpm for 1/8" anti-siphon hole = 53.67 gpm
Type Pump - 1/2 HP Submersible Barnes EHV or equivalent
Pump at 53.67 gpm will deliver 28 ft. head
Lateral Depth - 20 to 26" (Average Depth 23")
Excavation width 6" to 1' wide Rock - washed clean 3/8 to 1"
Rock Depth - at least 10" + under the pipe (laterals) then another 2" for total of 12"
Volume Supply Line - 13.77 gallons Volume Laterals 44.32 gallons
Volume Supply & Laterals - 58.09 gallons Check Valve Required - No
Minimum Dosing - 74.52 gallons (Approximately 4 doses per day)
(6.75" of effluent depth in pump tank to be pumped at a time)



Phillip Marlar
#2604
SE
6352
Revised
10/24/03

Randy Johnson Residence - Elevation Chart

Line	Side "A"	Side "B"	Side "C"
1	2'-8"	2'-4"	
2	2-11	2-9	
3	3-4	3-2	
4		3-2	3-2
5	3-5	3-6	
6		3-6	3-5
7	4-2	4-2	
8		4-2	3-8
9	4-5	4-4	
10		4-4	4-1
11	4-6	4-9	
12		4-9	4-2
13	4-7	4-10	
14		4-10	4-7
15	4-9	4-10	
16		4-10	5

Tank -0'

Phillip Marlar P.S.
 #2604
 SE# 6352
 Revised 10/24/03



Phillip Marlar R.S.
Registered Professional Sanitarian
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487

Randy Johnson LLP - OSSF Specifications (Elevation Chart)

Line	Elevation Avg/Line	Difference in Elev.	Pressure Head
1	2.5'	0	2'
2	3'	.5	2.5'
3	3.5'	1'	3'
4	3.5'	1'	3'
5	3.5'	1'	3'
6	3.5'	1'	3'
7	4'	1.5'	3.5'
8	4'	1.5'	3.5'
9	4'	1.5'	3.5'
10	4'	1.5'	3.5'
11	4.5'	2'	4'
12	4.5'	2'	4'
13	4.5'	2'	4'
14	4.5'	2'	4'
15	4.5'	2'	4'
16	4.5'	2'	4'

Lateral lines will vary from 18 to 28" in depth.
Average line depth will be 24" in depth.

Phillip Marlar R.S.
2624
SE# 6352
10/24/03
Revised



Phillip Marlar R.S.
Registered Professional Sanitarian
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487

Randy Johnson LLP - OSSF Specifications

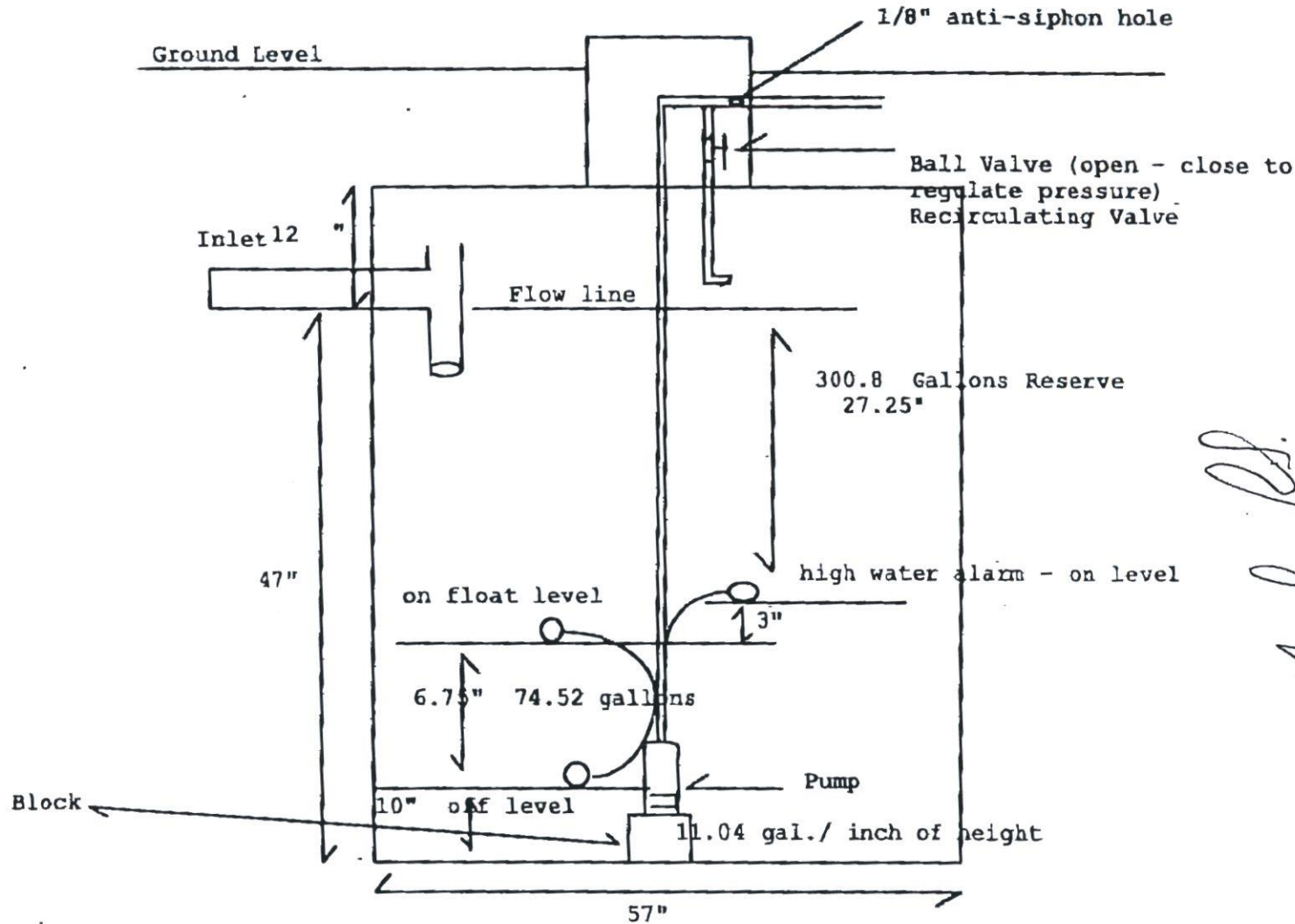
Line	Length	Pressure Head	Hole Space	# Holes	Hole Size	Flow GPM/Hole	Rate GPM/Line	GPM/Ft./Line
1	70'	2'	5'	14	1/8"	.26	3.64	0.052
2	70'	2.5'	5.5'	13	1/8"	.29	3.77	0.053
3	70'	3'	6	12	1/8"	.32	3.84	0.054
4	70'	3'	6	12	1/8"	.32	3.84	0.054
5	60'	3'	6	10	1/8"	.32	3.2	0.053
6	60'	3'	6	10	1/8"	.32	3.2	0.053
7	62'	3.5'	6.5	9	1/8"	.345	3.105	0.050
8	62'	3.5'	6.5	9	1/8"	.345	3.105	0.050
9	62'	3.5'	6.5	9	1/8"	.345	3.105	0.050
10	62'	3.5'	6.5	9	1/8"	.345	3.105	0.050
11	60'	4'	7	8	1/8"	.37	2.96	0.049
12	60'	4'	7	8	1/8"	.37	2.96	0.049
13	60'	4'	7	8	1/8"	.37	2.96	0.049
14	60'	4'	7	8	1/8"	.37	2.96	0.049
15	60'	4'	7	8	1/8"	.37	2.96	0.049
16	60'	4'	7	8	1/8"	.37	2.96	0.049
Totals	1,008'			155			51.67	

All lateral lines to be 18 to 28" in depth.
 Average line depth to be 24" in depth.

Phillip Marlar R.S.
#2604
SE# 6352
10/24/03
Revised



500 Gallon Tyler-Products Tank



Phillip Marlar P.E.
 #2604
 56352
 dated 10/24/03

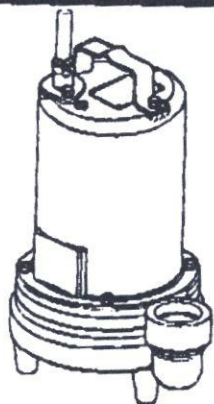
Pump Time 1.44 minutes for
 74.52 gallons at 57.67 gpm
 at .86 psi (2ft).

Total Head 11.53 FT at 57.67
 gpm for 2" Sch 40 PVC
 piping.

1/2 HP Barnes EH-L @
 57.67 gpm will deliver 28
 FT total head.

Approx. 4 doses per day

SECTION	B
PAGE	3.
DATE	12/79
REPLACES	1/98



NUTLIG

**DISCHARGE:
LIQUID TEMPERATURE:
VOLUME:
MOTOR HOUSING:
SEAL PLATE:
IMPELLER:** Design:

Declaro:

Abstract:

SHAFT:
SQUARE RINGS:
HARDWARE:
PAINT:
SEAL:

Design:**CABLE ENTRY:**

SPEED:
UPPER BEARING:
LOWER BEARING:
MOTOR: *Design*

Insulation

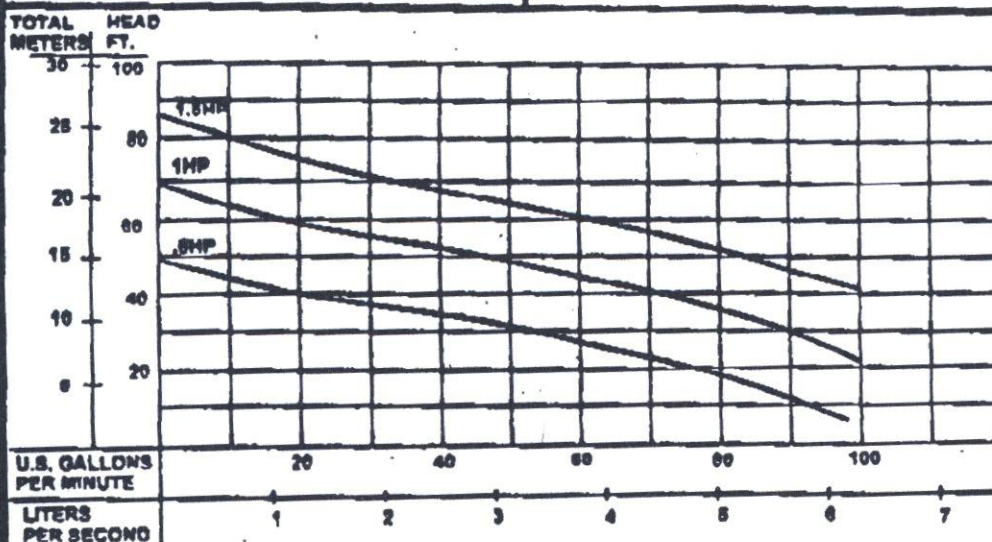
SINGLE PHASE:

THREE PHASE:

OPTIONAL EQUIPMENT:

OPTIONAL EQUIPMENT: Seal Material, Impeller Thrust,
N/C Temperature Sensors with cable for 3 phase pumps (Requires
Relay in Control Panel), Additional Cable.

2" (51mm) NPT, Vertical
104°F (40°C) Continuous.
Cast Iron ASTM A-48, Class 30.
Cast Iron ASTM A-48, Class 30.
Cast Iron ASTM A-48, Class 30.
3 Vane, Open, With Pump Out
Vaness On Back Side. Dynamically
Balanced, ISO G6.3.
Polypropylene with stainless insert
418 Stainless Steel
Buna-N
300 Series Stainless Steel
Air Dry Enamel.
Single Mechanical
Carbon/Ceramic/Buna-N
Hardware • 300 Series Stainless
5 ft. (4.8M) Cord. Plug on 120 Volt.
Custom Molded For Sealing And
Strain Relief.
3450 RPM (Nominal).
Single Row, Ball, Oil Lubricated
Single Row, Ball, Oil Lubricated
NEMA L-Single Phase, NEMA B-Three
Phase Torque Curve. Completely
Oil-Filled. Squirrel Cage Induction.
Class B
Permanent Split Capacitor (PSC).
Includes Overload Protection in Motor.
200-240/480 is Tri-Voltage. 500V
Requires Overload Protection to be
Included in Control Panel.
Seal Material, Impeller Thru,
for 3 phase pumps (Requires
stable.



Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

CRANE.

A Crane Co. Company

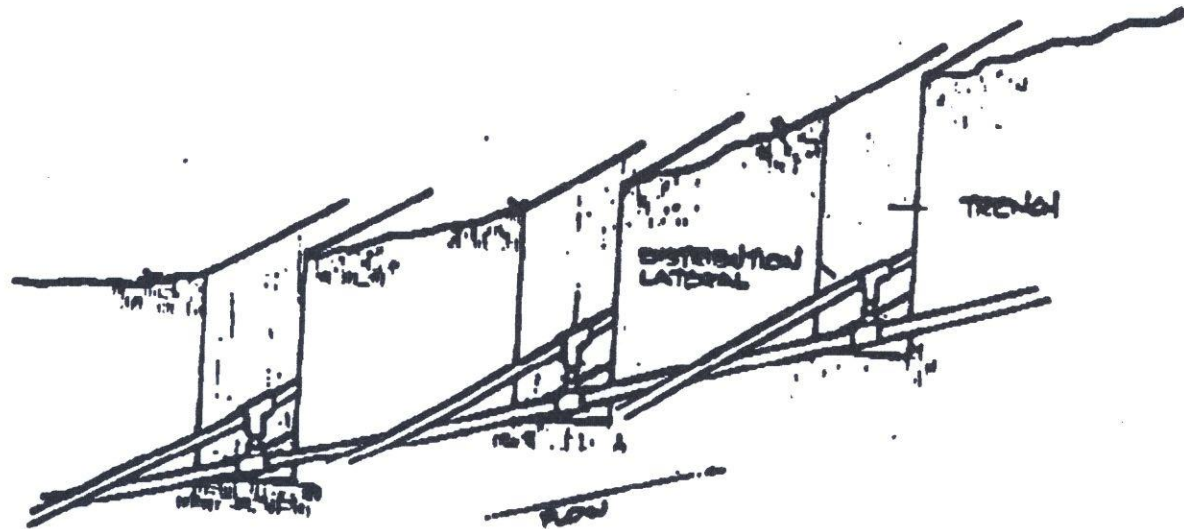
PUMPS & SYSTEMS

Barnes Pumps, Inc.
Distributor Sales & Service Dept.
420 Third Street P.O. Box 803
Piqua, Ohio 45356-0803
PH: (937) 815-3595
Fax: (937) 773-7157

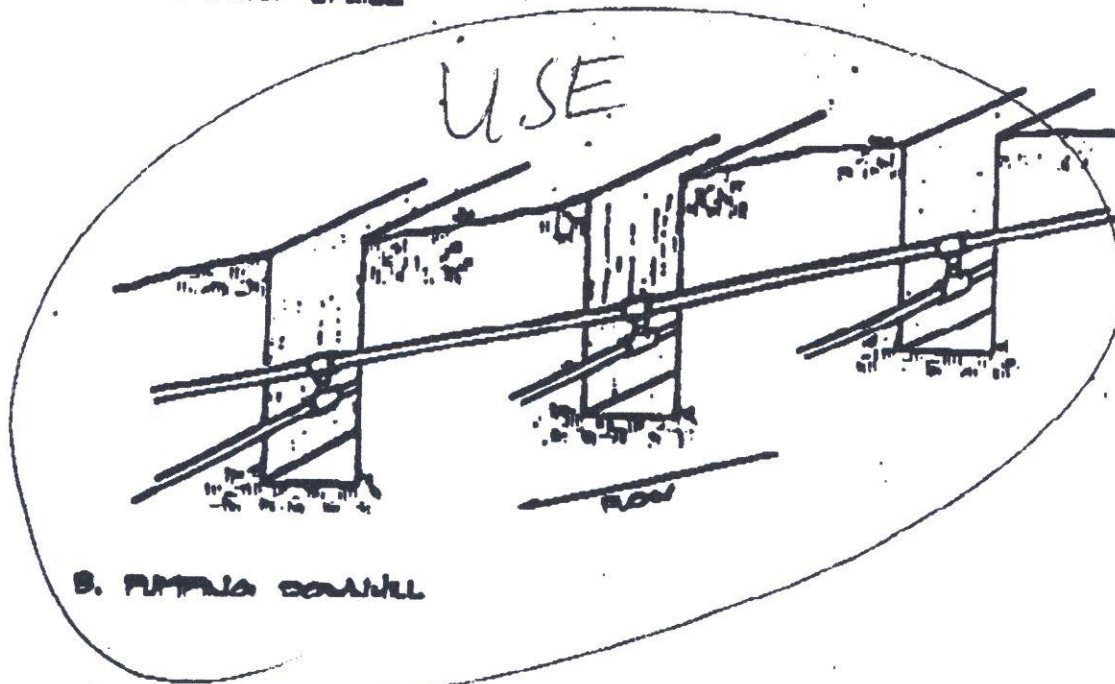
Barnes Pumps, Inc.
Big-To-Spec & Project Sales
1485 Lexington Ave.
Mansfield, Ohio 44907-2674
Ph: (419) 774-1811
Fax: (419) 774-1830

Barnes Pumps Canada, Inc.
83 West Drive
Bramalea, Ontario
Canada L8T 2J8
Ph: (905) 457-0223
Fax: (905) 457-2850

SWPC
MEMBER



A. PUMPING UPHILL



B. PUMPING DOWNHILL

Figure 10. Manifold placement on slopes

**Phillip Marlar R.S.
Registered Professional Sanitarian
Certified Site Evaluator OS 6352
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487**

September 12, 2003

Tarrant County Water Control District Designated Representative

Subject Property: Randy Johnson's property at Bay Oaks Est. lot 4 Corsicana, Texas
Subject Design: Low Pressure Dosing System

Design Parameters:

4 Bedroom House (2,900 sq ft living area) (4 Bedroom Equivalent)
4 Bedroom House (with water saving fixtures) = 300gpd
Soil Evaluation Class IV soil
Long Term Loading Rate .1 gal / sq ft / day
Required Absorption Area = 300 gpd / .1 gal / sq ft / day = 3,000 sq ft
Minimum Designed Absorption Area = 3,000 sq ft
Total Length of Laterals = 1,000'

System Parameters

2 - 500 gallon tanks or a baffled 1,000 gallon tank
A Zabel A-1800 filter in the outlet of the second compartment or tank
A 500 gallon pump tank with high water alarm
Supply Line - 2" diameter sch 40 piping
Lateral Lines - 1 "diameter sch 40 piping
Supply Line Length - 76'
Lateral Line Length - 1,000'
Hole Size in Laterals - 1/8"
Hole Spacing - 5 to 6.5' (See attached chart)
Holes - 176
Elevation Head - 5'
Friction Head - 4.05' (using 4.45 friction rate)
Pressure Head - 2' (Operating Head)
Total Head - 11.05 Ft
Barnes EH-L pump with 11.05 Ft head will pump 80 + gpm
GPM at 2 ft Operating Head = 52.88 gpm + 2 gpm for 1/8" anti-siphon hole = 54.88 gpm
Type Pump - 1/2 HP Submersible Barnes EHV or equivalent
Pump at 54.88 gpm will deliver 28 ft. head
Lateral Depth - 20 to 26" (Average Depth 23")
Excavation width 6" to 1' wide Rock - washed clean 3/8 to 1"
Rock Depth - at least 10" + under the pipe (laterals) then another 2" for total of 12"
Volume Supply Line - 12.31 gallons Volume Laterals - 41 gallons
Volume Supply & Laterals - 53.37 gallons Check Valve Required - No
Minimum Dosing - 74.52 gallons (Approximately 4 doses per day)
(6.75" of effluent depth in pump tank to be pumped at a time)



Phillip Marlar R.S.
#2604
SE#
6352
9/12/03

Phillip Marlar R.S.
Registered Professional Sanitarian
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487

Randy Johnson LLP - OSSF Specifications (Elevation Chart)

Line	Elevation Avg/Line	Difference in Elev.	Pressure Head
1	5.5'	0	2'
2	5.5'	0	2'
3	5.5'	0	2'
4	5.5'	0	2'
5	6'	.5	2.5'
6	6'	.5	2.5'
7	6'	.5'	2.5'
8	6'	.5'	2.5'
9	6.5'	1'	3'
10	6.5'	1'	3'
11	6.5'	1'	3'
12	6.5'	1'	3'
13	7'	1.5'	3.5'
14	7'	1.5'	3.5'
15	7'	1.5'	3.5'
16	7'	1.5'	3.5'

Lateral lines will vary from 20 to 26" in depth.
Average line depth will be 23" in depth.



Phillip Marlar R.S.
#2604
SE# 6352
9/12/03

Phillip Marlar R.S.
Registered Professional Sanitarian
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487

Randy Johnson LPD - OSSF Specifications

Line	Length	Pressure Head	Hole Space	# Holes	Hole Size	Flow GPM/Hole	Rate GPM/Line	GPM/Ft./Line
1	60'	2'	5'	12	1/8"	.26	3.12	0.052
2	65'	2'	5'	13	1/8"	.26	3.38	0.052
3	60'	2'	5'	12	1/8"	.26	3.12	0.052
4	65'	2'	5'	13	1/8"	.26	3.38	0.052
5	60'	2.5'	5.5'	11	1/8"	.29	3.19	0.053
6	65'	2.5'	5.5'	12	1/8"	.29	3.48	0.053
7	60'	2.5'	5.5'	11	1/8"	.29	3.19	0.053
8	65'	2.5'	5.5'	12	1/8"	.29	3.48	0.053
9	60'	3'	6'	10	1/8"	.32	3.2	0.053
10	65'	3'	6'	11	1/8"	.32	3.52	0.054
11	60'	3'	6'	10	1/8"	.32	3.2	0.053
12	65'	3'	6'	11	1/8"	.32	3.52	0.054
13	60'	3.5'	6.5'	9	1/8"	.345	3.1	0.051
14	65'	3.5'	6.5'	10	1/8"	.345	3.45	0.053
15	60'	3.5'	6.5'	9	1/8"	.345	3.1	0.051
16	65'	3.5'	6.5'	10	1/8"	.345	3.45	0.053
Totals	1,000'			176			52.88	

Lateral lines to be 20 to 26" in depth.
Average line depth will be 23" in depth.



Phillip Marlar R.S.
#2604
SE#
6352
9/12/03

Phillip Marlar R.S.
Registered Professional Sanitarian
Certified Site Evaluator OS 6352
P.O. Box 274 Scurry, Texas 75158
Phone (972) 452-8487

Randy Johnson

SECR 2218
Corsicana, Texas

Class II Soil

LPD Design:

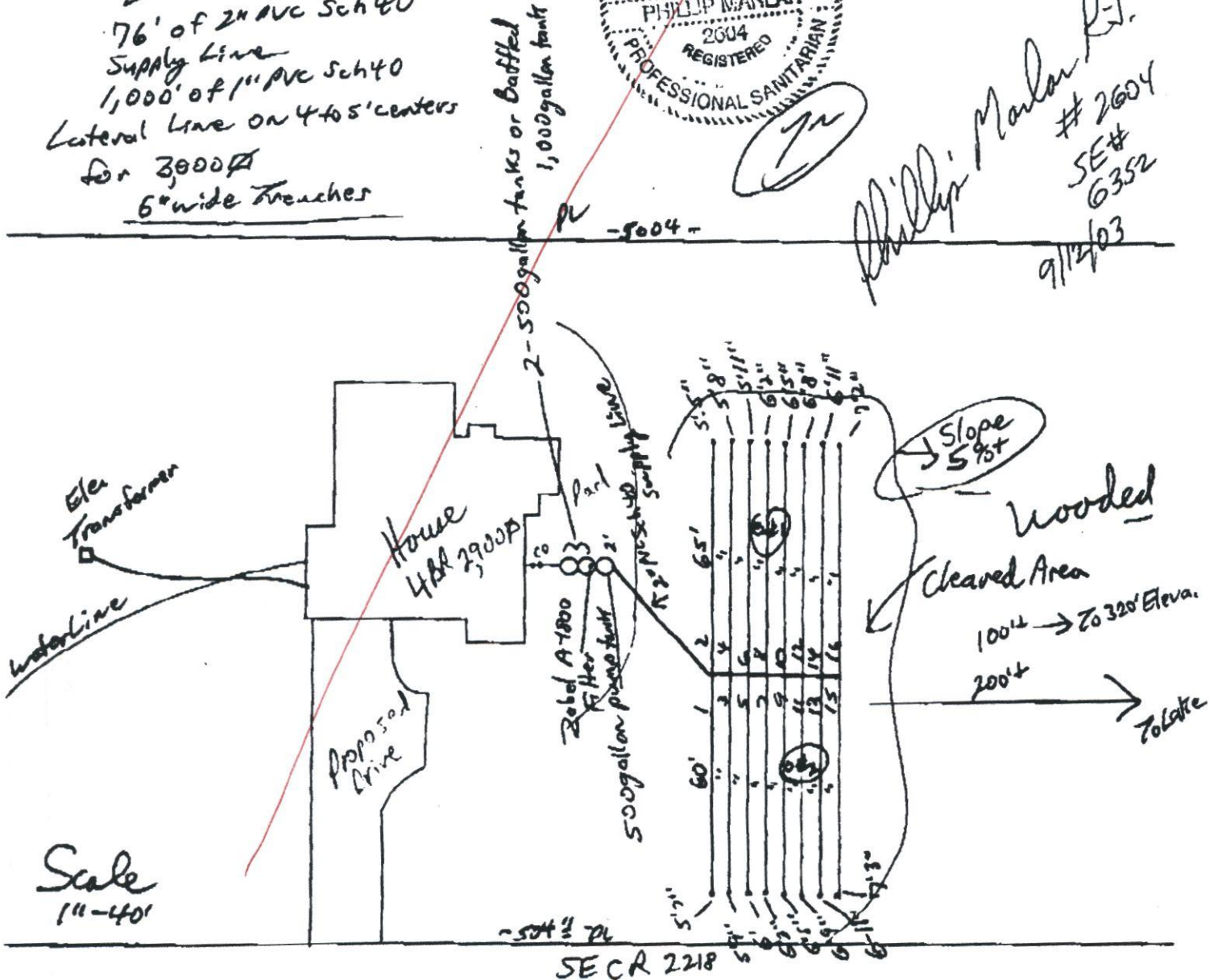
76' of 24" PVC Sch 40
Supply Line
1,000' of 1" PVC Sch 40
Lateral line on 4 to 5' centers
for 3000 ft
6" wide trenches

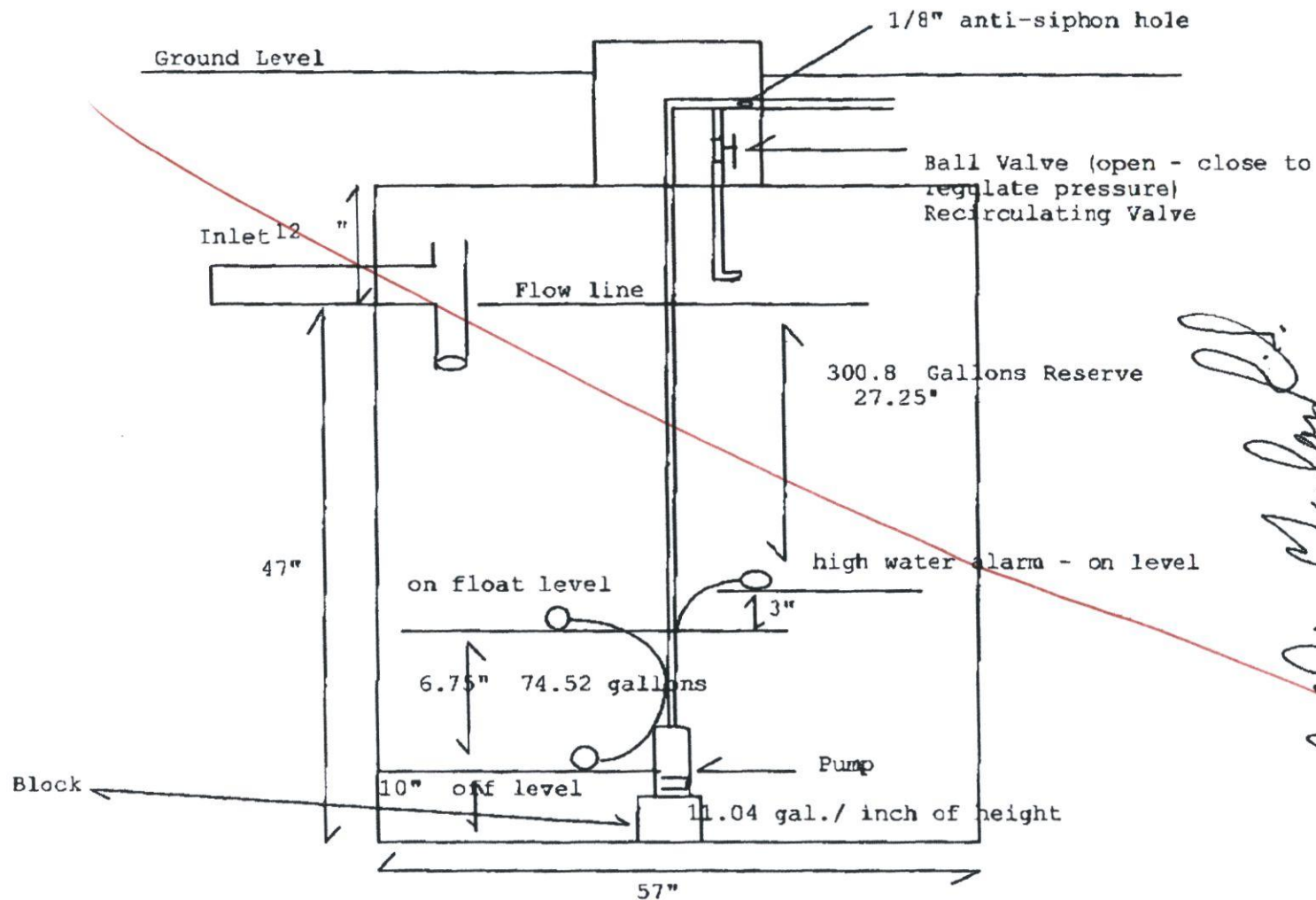
Bay Oaks Est.
Lot 4

6.703 AC Tract



Phillip Marlar P.E.
#2604
SE#
6352
9/12/03



500 Gallon Tyler-Products
Tank

Phillip Marlar P.E.
 #2604
 SE# 6352
 9/12/03

Pump Time 1.40 minutes for
 74.52 gallons at 52.88 gpm
 at .86 psi (2ft).

Total Head 11.05 FT at 52.88
 gpm for 2" Sch 40 PVC
 piping.

1/2 HP Barnes EH-L @
 54.88 gpm will deliver 28
 FT total head.

Approx. 4 doses per day