# PRESSURE MANIFOLD SYSTEM
# FOR WASTEWATER TREATMENT

| | |
|---|---|
| **Owner:** | Nation Land Company LLC |
| **Address:** | 4330 Sterilite Street SE<br>Massillion, OH 44646 |
| **Phone:** | 330-832-4091 |
| **County:** | Iredell |
| **Location:** | Lakewood Crossing Subdivision Lot #16 |
| **Source of Wastewater Flow:** | 4 Bedroom Single Family Residence |
| **Estimated Daily Wastewater Production:** | 480 gpd |
| **System Flow:** | 28.44 |

## Design Specifications

| | |
|---|---|
| **Drainfield Size:** | 400 |
| **Loading Rate:** | .3 gpd/ft² |
| **Depth of Gravel in Trench:** | NA (25% reduction ) |
| **Gravel Size:** | NA (25% reduction ) |
| **Trench Depth:** | 36 in. |
| **Trench Width:** | 36 in. |
| **Septic Tank Size:** | 1000 |
| **Pump Tank Size:** | 1000 |
| **Estimated Supply Line Length:** | 110 |
| **Supply Line Diameter:** | 2 in. SCH 40 PVC |
| **Supply Line Volume:** | 19.14 |
| **Dosing Volume:** | 182.84 |
| **Supply Manifold:** | 4 in. SCH 80 PVC |
| **Supply Manifold Length:** | 4 ft. (minimum) |
| **Supply Manifold Volume:** | N/A |
| **Recommended Float Controls:** | SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents |
| **Recommended Control Panel:** | SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel. |
| **Pressure Head:** | 2 ft. |
| **Friction Head:** | 1.96 |
| **Elevation Head:** | 19.30 |
| **Total Dynamic Head:** | 26.75 |
| **Threaded Union:** | In Tank |
| **Gate Valves:** | 1 in Tank<br>1 at Pressure Manifold |
| **Check Valves:** | In Tank |
| **Anti-Siphon Hole:** | NA |
| **Additional Comments:** | Soil suitability was performed by Rollans Soil & Environmental Services. |

# LAKEWOOD CROSSING SUBDIVISION LOT 16
## PRESSURE MANIFOLD DESIGN

| | | |
|---|---|---|
| **DESIGN FLOW:** | 480 | |
| **SOIL APPLICATION RATE:** | .3 gpd/ft² | |
| **TOTAL AREA TRENCH BOTTOM:** | 1200 | |
| | | |
| **TOTAL LATERAL LENGTH:** | 400 | |
| **NUMBER OF FIELDS:** | 1 | |
| **LATERAL LENGTH REQUIRED PER FIELD:** | 400 | |
| | | |
| **SUPPLY LINE LENGTH:** | 110 | |
| **TOTAL DYNAMIC HEAD:** | 26.75 | |
| **MANIFOLD SIZE:** | 4 in.SCH 80 PVC | |
| | | |
| **DOSING VOLUME:** | 182.84 | |
| **PUMP TANK DRAW DOWN*:** | 8.7 | |
| **SEPTIC TANK SIZE:** | | 1000 |
| **PUMP TANK SIZE:** | | 1000 |

**Pump tank draw down based on a volume basis of 21 gallons per inch. Draw down may vary among pump tank manufacturers.*

# LAKEWOOD CROSSING LOT #16

Project #: 01-1089

LAYOUT FOR 4 BEDROOM HOME — October 7, 2005

| LINE # | FLAG COLOR | BS | HI | FS | ELEVATION | FLAGGED LINE LENGTH | DESIGN LINE LENGTH |
|---|---|---|---|---|---|---|---|
| TBM | | 1.8 | | | 100.00 | | |
| TANK | | 16.80 | 85.00 | | | | |
| HOUSE | | 5.90 | 95.90 | | | | |
| INSTR. 1 | | | 101.80 | | | | |
| *1* | ***BLUE*** | | | ***4.50*** | ***97.30*** | ***140*** | ***100*** |
| *2* | ***ORANGE*** | | | ***6.10*** | ***95.70*** | ***120*** | ***100*** |
| *3* | ***PINK*** | | | ***8.20*** | ***93.60*** | ***115*** | ***100*** |
| *4* | ***BLUE*** | | | ***9.20*** | ***92.60*** | ***115*** | ***100*** |
| 5 | ORANGE | | | 10.50 | 91.30 | 111 | 111 |
| 6 | PINK | | | 11.90 | 89.90 | 107 | 107 |
| 7 | BLUE | | | 13.80 | 88.00 | 80 | 80 |
| | | | | | **Total** | **788** | **698** |

| | LINE LENGTH | LTAR GPD/FT$^2$ | SYSTEM TYPE | SOIL LTAR GPD/FT$^2$ | TRENCH SYSTEM | DISTRIBUTION |
|---|---|---|---|---|---|---|
| ****System*** | ***400*** | ***0.30*** | ***ACCEPT.*** | ***0.30*** | ***25% RED.*** | **PRESSURE MANIFOLD** |
| Repair | 298 | 0.30 | *MOD.* | 0.30 | PPBPS | LOW PRESSURE |

**Notes:**

** TBM located on corner of lot 15 and 16 (see site plan)
**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS, HI, and FS indicate rod readings

# PRESSURE MANIFOLD TAPSHEET - LAKEWOOD CROSSING LOT#16

## SYSTEM

| Line # | Color | Elevation | Length | Hole Size | Flow/Tap | Trench Area |
|---|---|---|---|---|---|---|
| 1 | ***BLUE*** | 97.3 | **100** | SCH 40 1/2 | **7.11** | 300 |
| 2 | ***ORANGE*** | 95.7 | **100** | SCH 40 1/2 | **7.11** | 300 |
| 3 | ***PINK*** | 93.6 | **100** | SCH 40 1/2 | **7.11** | 300 |
| 4 | ***BLUE*** | 92.6 | **100** | SCH 40 1/2 | **7.11** | 300 |
| | **total** | **feet =** | **400** | **gal/min =** | **28.44** | |
| | | | **Des. Flow** | **480** | | |
| | | | **Pump Run=** | **6.43** | | |
| | | | **soil LTAR** | **0.3** | | |
| | | | **LTAR +5%** | **0.315** | | |
| | | | **LTAR with ACCEPTED** | **0.4** | | |
| | | | **LTAR with ACCEPTED + 5%** | **0.42** | | |

## CALCULATIONS

Location LAKEWOOD CROSSING SUBDIVISION

Project Number 01-1089

Lot No: Lot 16

| | | |
|---|---|---|
| No. of Bedrooms | 4 | |
| Design Flow | 480 | $^{gal}/_{day}$ |
| LTAR | .3 gpd/ft² | |
| 25% RED.? (YES OR NO) | YES | |
| Supply Line Length | 110 | ft. |
| Supply Line Volume | 19.14 | gal. |
| Required Feet of Line | 400 | ft. |
| Amount of Line from Layout | 400 | ft. |
| Gallons per Minute | 28.44 | $^{gal}/_{min}$ |
| Required Septic Tank Capacity | 1000 | gal. |
| Minimum Standard Tank Size | 1000 | |
| Lateral Line Volume | 261.2 | gal. |
| Dosing Volume | 182.84 | gal. |

*Note: Dosing Volume based on70% of lateral line volume*

| | | |
|---|---|---|
| Tank Draw Down | 8.7 | *Generic Draw Down of 21 gal.per in.* |
| Pump Run Time | 6.43 | minutes |
| Elevation Head | 19.3 | ft. |
| Pressure Head | 2 | ft. |
| Friction Factor | 1.78 | ft./100 ft. *(From the interpolater.)* |
| Friction Head | 1.96 | ft. |
| Total Dynamic Head (+15%) | 26.75 | ft. |

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

| GPM | *f* |
|---|---|
| 20 | 0.84 |
| | -0.88 |
| 25 | 1.27 |
| | -1.28 |
| 30 | 1.78 |
| | -1.76 |
| 35 | 2.37 |
| | -2.25 |
| 40 | 3.03 |
| 43.07 | 3.48 |
| 45 | 3.77 |
| 48.14 | 4.28 |
| 50 | 4.58 |
| 57.11 | 5.89 |
| 60 | 6.42 |