# PRESSURE MANIFOLD SYSTEM
# FOR WASTEWATER TREATMENT

| | |
|---|---|
| **Owner:** | Corinthian Builders |
| **Address:** | |
| **Phone:** | |
| **County:** | Iredell |
| **Location:** | Wheatfield Lot 27 |
| **Source of Wastewater Flow:** | 3 bedroom home |
| **Estimated Daily Wastewater Production:** | 360 gpd |
| **System Flow:** | 29.03 |

**Design Specifications**

| | |
|---|---|
| **Drainfield Size:** | 325 |
| **Design Loading Rate:** | 0.300 |
| **Depth of Gravel in Trench:** | NA |
| **Gravel Size:** | N/A |
| **Trench Depth:** | 24 |
| **Trench Width:** | 36 in. |
| **Septic Tank Size:** | 1000 |
| **Pump Tank Size:** | 1000 |
| **Estimated Supply Line Length:** | 10 |
| **Supply Line Diameter:** | 2 in. SCH 40 PVC |
| **Supply Line Volume:** | 1.74 |
| **Dosing Volume:** | 146.27 |
| **Supply Manifold:** | *4* in. SCH 80 PVC |
| **Supply Manifold Length:** | 4.Ft. |
| **Supply Manifold Volume:** | 2.388 |
| **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:** | 0.17 |
| **Estimated elevation Head:** | 3.50 |
| **Total Dynamic Head:** | 6.52 |
| **Threaded Union:** | In Tank |
| **Gate Valves:** | 1 in Tank<br>1 at Pressure Manifold |
| **Check Valves:** | In Tank |
| **Anti-Siphon Hole:** | Yes |
| **Recommended Pump:** | Myers Model ME50 or County Approved Effluent Rated Pump Capable of Delivering ~7 ft.of Head at ~30 gpm Total Flow |

## Wheatfield
## PRESSURE MANIFOLD DESIGN

| | |
|---|---|
| **DESIGN FLOW:** | 360 |
| **SOIL APPLICATION RATE:** | 0.3 gpd/ft.$^2$ |
| **TOTAL AREA TRENCH BOTTOM:** | 975 |
| **TOTAL LATERAL LENGTH:** | 325 |
| **NUMBER OF FIELDS:** | 1 |
| **LATERAL LENGTH REQUIRED PER FIELD:** | 300 |
| **SUPPLY LINE LENGTH:** | 10 |
| **TOTAL DYNAMIC HEAD:** | 6.52 |
| **MANIFOLD SIZE:** | *4* in.SCH 80 PVC |
| **DOSING VOLUME:** | 146.27 |
| **PUMP TANK DRAW DOWN*:** | 7.0 |
| **SEPTIC TANK SIZE:** | 1000 |
| **PUMP TANK SIZE:** | 1000 |
| **RECOMMENDED PUMP:** | Myers Model ME50 or County Approved Effluent Rated Pump Capable of Delivering ~7 ft.of Head at ~30 gpm Total Flow |

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

## Wheatfield Lot 27

Project No. 5-1862

LAYOUT FOR 3 BEDROOM HOME

June-08

| LINE # | FLAG COLOR | BS | HI | FS | ELEVATION | FLAGGED LINE LENGTH |
|---|---|---|---|---|---|---|
| TBM | | 0.6 | | | 100.00 | |
| INSTR. 1 | | | 100.60 | | | |
| | | | **Repair** | | | |
| 1 | Pink | | | 4.10 | 96.50 | 35 |
| 2 | Red | | | 4.60 | 96.00 | 35 |
| 3 | Orange | | | 5.00 | 95.60 | 35 |
| 4 | Yellow | | | 5.70 | 94.90 | 35 |
| 5 | Blue | | | 6.30 | 94.30 | 40 |
| 6 | Pink | | | 6.90 | 93.70 | 40 |
| | | | | | **Total** | **220** |
| | | | **System** | | | |
| 7 | Red | | | 7.60 | 93.00 | 55 |
| 8 | Orange | | | 8.10 | 92.50 | 60 |
| 9 | Yellow | | | 9.20 | 91.40 | 65 |
| 10 | Blue | | | 9.90 | 90.70 | 85 |
| 11 | Pink | | | 10.50 | 90.10 | 60 |
| | | | | | **Total** | **325** |

| | LINE LENGTH | Soil LTAR | SYSTEM TYPE | Innovative Type | DISTRIBUTION | Trench Depth |
|---|---|---|---|---|---|---|
| **SYSTEM** | 325 | 0.3 | Innovative | 25% | Pressure Manifold | 24 |
| **REPAIR** | 220 | 0.3 | PPBPS | 50% | Low Pressure | 32 |

**Notes:**

**TBM is top of back left property stake

**Nitrification lines are demonstrated on contour via colored pin flags

**BS, HI, and FS indicate rod readings

**Lines may be longer in field than design requires

# Wheatfield Lot 27

## SYSTEM

| Line # | Color | Elevation | Length | Hole Size | Flow/Tap | gpd (36.75) | Trench Area | Line LTAR |
|---|---|---|---|---|---|---|---|---|
| 7 | Red | 93 | 55 | SCH 80 1/2 | 5.48 | 67.96 | 165 | 0.41 |
| 8 | Orange | 92.5 | 60 | SCH 80 1/2 | 5.48 | 67.96 | 180 | 0.38 |
| 9 | Yellow | 91.4 | 65 | SCH 80 1/2 | 5.48 | 67.96 | 195 | 0.35 |
| 10 | Blue | 90.7 | 85 | SCH 40 1/2 | 7.11 | 88.17 (55.25) | 255 | 0.35 |
| 11 | Pink | 90.1 | 60 | SCH 80 1/2 | 5.48 | 67.96 | 180 | 0.38 |
| | total | feet = | 325 | gal/min = | 29.03 | | | |

| | |
|---|---|
| Des. Flow | 360 |
| Pump Run= | 12.40 |
| soil LTAR | 0.3 |
| Innovative LTAR | 0.40 |
| Innovative +5% | 0.42 |

120
55
175
85
260
65
325

# Wheatfield Lot 27

## REPAIR

| Line # | Color | Elev | Length | Hole Size | # Panels | Head | Flow |
|---|---|---|---|---|---|---|---|
| 1 | Pink | 96.5 | **35** | 5/32' | **8** | 3.00 | 4 |
| 2 | Red | 96 | **35** | 5/32' | **8** | 3.00 | 4 |
| 3 | Orange | 95.6 | **35** | 5/32' | **8** | 3.00 | 4 |
| 4 | Yellow | 94.9 | **35** | 5/32' | **8** | 3.00 | 4 |
| 5 | Blue | 94.3 | **40** | 5/32' | **9** | 3.00 | 4.5 |
| 6 | Pink | 93.7 | **40** | 5/32' | **9** | 3.00 | 4.5 |
| | | | **220** | | **50** | | **25** |

## CALCULATIONS

Location Wheatfield

Project Number 5-1862

Lot No: 27

| | | |
|---|---|---|
| No. of Bedrooms | 3 | |
| Design Flow | 360 | $^{gal}/_{day}$ |
| Soil LTAR | 0.3 | $^{gal}/_{ft^2\ day}$ |
| EZ-Lay? (YES OR NO) | yes | |
| Supply Line Length | 10 | ft. |
| Supply Line Volume | 1.74 | gal. |
| Required Feet of Line | 300 | ft. |
| Amount of Line from Layout | 325 | ft. |
| Gallons per Minute | 29.03 | $^{gal}/_{min}$ |
| Required Septic Tank Capacity | 1000 | gal. |
| Minimum Standard Tank Size | 1000 | |
| Lateral Line Volume | 211.225 | gal. |
| Dosing Volume | 146.27 | gal. |

*Note: Dosing Volume based on 70% of the lateral line volume.*

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

| GPM | *f* |
|---|---|
| 20 | 0.84 |
| 21.33 | 0.95 |
| 25 | 1.27 |
| 29.03 | 1.68 |
| 30 | 1.78 |
| 33.96 | 2.25 |
| 35 | 2.37 |
| 38.53 | 2.84 |
| 40 | 3.03 |
| | -2.89 |
| 45 | 3.77 |
| 45.98 | 3.93 |
| 50 | 4.58 |
| | -4.62 |
| 60 | 6.42 |

| | | |
|---|---|---|
| Tank Draw Down | 7.0 | *Generic Draw Down of 21 gal.per in.* |
| Pump Run Time | 5.04 | minutes |
| Estimated Elevation Head | 3.5 | ft. |
| Pressure Head | 2 | ft. |
| Friction Factor | 1.68 | ft./100 ft. |
| Friction Head | 0.168 | ft. |
| Total Dynamic Head (+15%) | 6.52 | ft. |