

PRACTICAL HYDRAULICS FOR KOI PONDS

TABLE 1 — CARRYING CAPACITY AND FRICTION LOSS FOR SCHEDULE 40 THERMOPLASTIC PIPE

(Independent variables: Gallons per minute and nominal pipe size O.D.
 Dependent variables: Velocity, friction head and pressure drop per 100 feet of pipe, interior smooth.)

| VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH | VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH | VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH | VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH | VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH | VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH | VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH | VELOCITY FEET PER SECOND | FRICTION HEAD FEET | FRICTION LOSS POUNDS PER SQUARE INCH |
|-----------------------------|-----------------------|--|-----------------------------|-----------------------|--|-----------------------------|-----------------------|--|-----------------------------|-----------------------|--|-----------------------------|-----------------------|--|-----------------------------|-----------------------|--|-----------------------------|-----------------------|--|-----------------------------|-----------------------|--|
| 1.13 | 2.08 | 0.90 | 0.63 | 0.51 | 0.22 | 0.77 | 0.55 | 0.24 | 0.44 | 0.14 | 0.06 | 0.33 | 0.07 | 0.03 | 0.49 | 0.066 | 0.029 | 0.30 | 0.038 | 0.016 | 0.22 | 0.015 | 0.007 |
| 2.26 | 4.16 | 1.80 | 1.26 | 1.02 | 0.44 | 1.93 | 1.72 | 0.75 | 1.11 | 0.44 | 0.19 | 0.81 | 0.22 | 0.09 | 0.69 | 0.11 | 0.048 | 0.49 | 0.051 | 0.023 | 0.31 | 0.021 | 0.009 |
| 5.64 | 23.44 | 10.15 | 3.16 | 5.73 | 2.48 | 4.43 | 10.52 | 3.17 | 1.55 | 0.81 | 0.35 | 1.13 | 0.38 | 0.17 | 0.69 | 0.21 | 0.091 | 0.68 | 0.09 | 0.039 | 0.44 | 0.03 | 0.013 |
| 7.90 | 43.06 | 18.64 | 4.43 | 10.52 | 4.56 | 6.32 | 20.04 | 8.68 | 2.21 | 1.55 | 0.67 | 1.62 | 0.72 | 0.31 | 0.98 | 0.21 | 0.091 | 1.03 | 0.19 | 0.082 | 0.66 | 0.07 | 0.030 |
| 11.28 | 82.02 | 35.51 | 6.32 | 20.04 | 8.68 | 9.48 | 42.46 | 18.39 | 3.31 | 3.28 | 1.42 | 2.42 | 1.53 | 0.66 | 1.46 | 0.45 | 0.19 | 1.03 | 0.19 | 0.082 | 0.66 | 0.07 | 0.030 |
| 0.51 | 0.03 | 0.013 | 12.65 | 72.34 | 31.32 | 7.72 | 21.75 | 9.42 | 4.42 | 5.59 | 2.42 | 3.23 | 2.61 | 1.13 | 1.95 | 0.76 | 0.33 | 1.37 | 0.32 | 0.14 | 0.88 | 0.11 | 0.048 |
| 0.64 | 0.04 | 0.017 | 9.65 | 32.88 | 14.22 | 5.52 | 8.45 | 3.66 | 4.04 | 3.95 | 1.71 | 2.44 | 1.15 | 0.50 | 1.71 | 0.49 | 0.21 | 3.08 | 1.44 | 0.62 | 1.99 | 0.50 | 0.22 |
| 0.77 | 0.06 | 0.026 | 0.49 | 0.02 | 0.009 | 11.58 | 46.08 | 19.95 | 6.63 | 11.85 | 5.13 | 4.85 | 5.53 | 2.39 | 2.93 | 1.62 | 0.70 | 2.05 | 0.68 | 0.29 | 1.33 | 0.23 | 0.10 |
| 0.89 | 0.08 | 0.035 | 0.57 | 0.03 | 0.013 | 7.73 | 15.76 | 6.82 | 7.63 | 15.76 | 6.82 | 5.66 | 7.36 | 3.41 | 3.41 | 2.15 | 0.93 | 2.39 | 0.91 | 0.39 | 1.55 | 0.31 | 0.13 |
| 1.02 | 0.11 | 0.048 | 0.65 | 0.03 | 0.013 | 8.84 | 20.18 | 8.74 | 8.84 | 20.18 | 8.74 | 6.47 | 9.43 | 4.08 | 3.90 | 2.75 | 1.19 | 2.73 | 1.16 | 0.50 | 1.77 | 0.40 | 0.17 |
| 1.15 | 0.13 | 0.056 | 0.73 | 0.04 | 0.017 | 9.94 | 25.10 | 10.87 | 9.94 | 25.10 | 10.87 | 7.27 | 11.73 | 5.08 | 4.39 | 3.43 | 1.49 | 3.08 | 1.44 | 0.62 | 1.99 | 0.50 | 0.22 |
| 1.28 | 0.16 | 0.069 | 0.81 | 0.05 | 0.022 | 11.05 | 30.51 | 13.21 | 11.05 | 30.51 | 13.21 | 8.08 | 14.25 | 6.17 | 4.88 | 4.16 | 1.80 | 3.42 | 1.75 | 0.76 | 2.21 | 0.60 | 0.26 |
| 1.53 | 0.22 | 0.095 | 0.97 | 0.07 | 0.030 | 0.67 | 0.03 | 0.013 | 0.67 | 0.03 | 0.013 | 9.70 | 19.98 | 8.65 | 5.85 | 5.84 | 2.53 | 4.10 | 2.46 | 1.07 | 2.65 | 0.85 | 0.37 |
| 1.79 | 0.30 | 0.13 | 1.14 | 0.10 | 0.043 | 0.79 | 0.04 | 0.017 | 0.79 | 0.04 | 0.017 | 6.83 | 7.76 | 3.36 | 6.83 | 7.76 | 3.36 | 4.79 | 3.27 | 1.42 | 3.09 | 1.13 | 0.49 |
| 1.92 | 0.34 | 0.15 | 1.22 | 0.11 | 0.048 | 0.84 | 0.05 | 0.022 | 0.84 | 0.05 | 0.022 | 7.32 | 8.82 | 3.82 | 7.32 | 8.82 | 3.82 | 5.13 | 3.71 | 1.61 | 3.31 | 1.28 | 0.55 |
| 2.05 | 0.38 | 0.16 | 1.30 | 0.13 | 0.056 | 0.90 | 0.05 | 0.022 | 0.90 | 0.05 | 0.022 | 7.80 | 9.94 | 4.30 | 7.80 | 9.94 | 4.30 | 5.47 | 4.19 | 1.81 | 3.53 | 1.44 | 0.62 |
| 2.30 | 0.47 | 0.20 | 1.46 | 0.16 | 0.069 | 1.01 | 0.06 | 0.026 | 1.01 | 0.06 | 0.026 | 8.78 | 12.37 | 5.36 | 8.78 | 12.37 | 5.36 | 6.15 | 5.21 | 2.26 | 3.98 | 1.80 | 0.78 |
| 2.56 | 0.58 | 0.25 | 1.62 | 0.19 | 0.082 | 1.12 | 0.08 | 0.035 | 1.12 | 0.08 | 0.035 | 9.75 | 15.03 | 6.51 | 9.75 | 15.03 | 6.51 | 6.84 | 6.33 | 2.74 | 4.42 | 2.18 | 0.94 |
| 3.20 | 0.88 | 0.38 | 2.03 | 0.29 | 0.125 | 1.41 | 0.12 | 0.052 | 0.81 | 0.035 | 0.015 | 10.26 | 13.41 | 5.81 | 10.26 | 13.41 | 5.81 | 8.55 | 9.58 | 4.15 | 5.52 | 3.31 | 1.43 |
| 3.84 | 1.22 | 0.53 | 2.44 | 0.40 | 0.17 | 1.69 | 0.16 | 0.069 | 0.97 | 0.04 | 0.017 | 0.82 | 0.027 | 0.012 | 1.01 | 0.027 | 0.012 | 10.26 | 13.41 | 5.81 | 6.63 | 4.63 | 2.00 |
| 4.48 | 1.63 | 0.71 | 2.84 | 0.54 | 0.235 | 1.97 | 0.22 | 0.096 | 1.14 | 0.055 | 0.024 | 0.82 | 0.027 | 0.012 | 1.01 | 0.027 | 0.012 | 10.26 | 13.41 | 5.81 | 7.73 | 6.16 | 2.67 |
| 5.11 | 2.08 | 0.90 | 3.25 | 0.69 | 0.30 | 2.25 | 0.28 | 0.12 | 1.30 | 0.07 | 0.030 | 1.03 | 0.035 | 0.015 | 1.16 | 0.04 | 0.017 | 10.26 | 13.41 | 5.81 | 8.83 | 7.88 | 3.41 |
| 6.40 | 3.15 | 1.36 | 4.06 | 1.05 | 0.45 | 2.81 | 0.43 | 0.19 | 1.63 | 0.11 | 0.048 | 1.23 | 0.05 | 0.022 | 1.30 | 0.05 | 0.022 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| 7.67 | 4.41 | 1.91 | 4.87 | 1.45 | 0.63 | 3.37 | 0.60 | 0.26 | 1.94 | 0.16 | 0.069 | 1.44 | 0.065 | 0.028 | 1.45 | 0.06 | 0.026 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| 8.95 | 5.87 | 2.55 | 5.69 | 1.95 | 0.85 | 3.94 | 0.79 | 0.34 | 2.27 | 0.21 | 0.091 | 1.64 | 0.09 | 0.039 | 1.64 | 0.09 | 0.039 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| 10.23 | 7.52 | 3.26 | 6.50 | 2.49 | 1.08 | 4.49 | 1.01 | 0.44 | 2.59 | 0.27 | 0.12 | 1.85 | 0.11 | 0.048 | 1.85 | 0.11 | 0.048 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | 7.31 | 3.09 | 1.34 | 5.06 | 1.26 | 0.55 | 2.92 | 0.33 | 0.14 | 2.05 | 0.13 | 0.056 | 2.05 | 0.13 | 0.056 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | 8.12 | 3.76 | 1.63 | 5.62 | 1.53 | 0.66 | 3.24 | 0.40 | 0.17 | 2.17 | 0.12 | 0.052 | 2.17 | 0.12 | 0.052 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | 8.43 | 3.25 | 1.41 | 6.48 | 1.45 | 0.85 | 3.08 | 0.28 | 0.12 | 2.17 | 0.12 | 0.052 | 2.17 | 0.12 | 0.052 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | 11.24 | 5.54 | 2.40 | 6.48 | 1.45 | 0.63 | 4.11 | 0.48 | 0.21 | 2.89 | 0.20 | 0.087 | 2.89 | 0.20 | 0.087 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | | | | 8.11 | 2.20 | 0.95 | 5.14 | 0.73 | 0.32 | 3.62 | 0.31 | 0.13 | 3.62 | 0.31 | 0.13 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | | | | 9.72 | 3.07 | 1.33 | 6.16 | 1.01 | 0.44 | 4.34 | 0.43 | 0.19 | 4.34 | 0.43 | 0.19 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | | | | 10.27 | 2.61 | 1.13 | 10.27 | 2.61 | 1.13 | 7.23 | 1.11 | 0.49 | 7.23 | 1.11 | 0.49 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | | | | 8.68 | 1.55 | 0.67 | 8.68 | 1.55 | 0.67 | 10.12 | 2.07 | 0.90 | 10.12 | 2.07 | 0.90 | 10.26 | 13.41 | 5.81 | 11.04 | 11.93 | 5.17 |
| | | | | | | 11.07 | 2.66 | 1.15 | 11.07 | 2.66 | 1.15 | 11.07 | 2.66 | 1.15 | 11.07 | 2.66 | 1.15 | 11.07 | 2.66 | 1.15 | 11.07 | 2.66 | 1.15 |

TABLE 1

