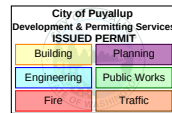


# Hydraulic Calculations

for



Project Name: BARNES AND NOBLE: (05532C)

Location: 3500 S. MERIDIAN ST UNIT 800, , PUYALLUP, WA 98373

Drawing Name: 05532c FP1.0 (barnes and noble update) JJ.cad

Calculation Date: 6/25/2025

## Design

Remote Area Number: FP1.0  
Remote Area Location: CAFE WORK ROOM  
Occupancy Classification: Ordinary Group II  
Commodity Classification: MERCANTILE

Density 0.200gpm/ft<sup>2</sup>  
Area of Application: 1500.00ft<sup>2</sup> (Actual 1502.08ft<sup>2</sup>)  
Coverage per Sprinkler: 100.00ft<sup>2</sup>  
Type of sprinklers calculated: Upright  
No. of sprinklers calculated: 16  
No. of nozzles calculated: 0

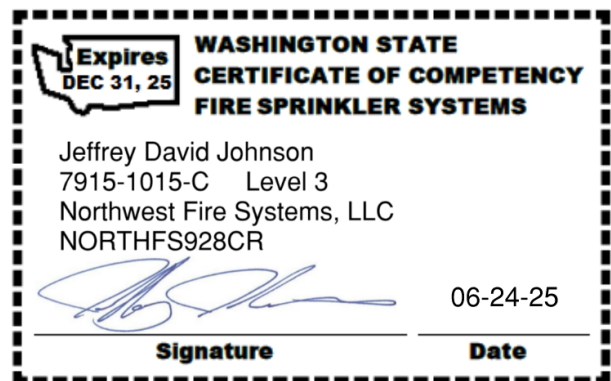
In-rack Demand: N/A gpm at Node: N/A  
Hose Streams: 250.00 at Node: 1 Type: Allowance at Source

Total Water Required (including Hose Streams where applicable):  
From Water Supply at Node 1: 591.82 @ 40.037 (Safety Margin = 6.260)

Type of System: WET  
Volume of Dry/PreAction/Antifreeze/OtherAgent System: N/A

for Node: 1 Date:  
Location:  
Source: Fruitland Mutual Water

Name of Contractor: NORTHWEST FIRE SYSTEMS  
Address: 22645 83rd Ave S. Bldg D, Kent, WA 98032  
Phone Number: 425.902.6697  
Name of designer: BRYAN FARMER  
Authority Having Jurisdiction: : PUYALLUP



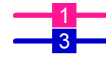
Notes:

Automatic peaking results Left: N/A Right: N/A

Summary Notes:



## Water Supply at Node 1



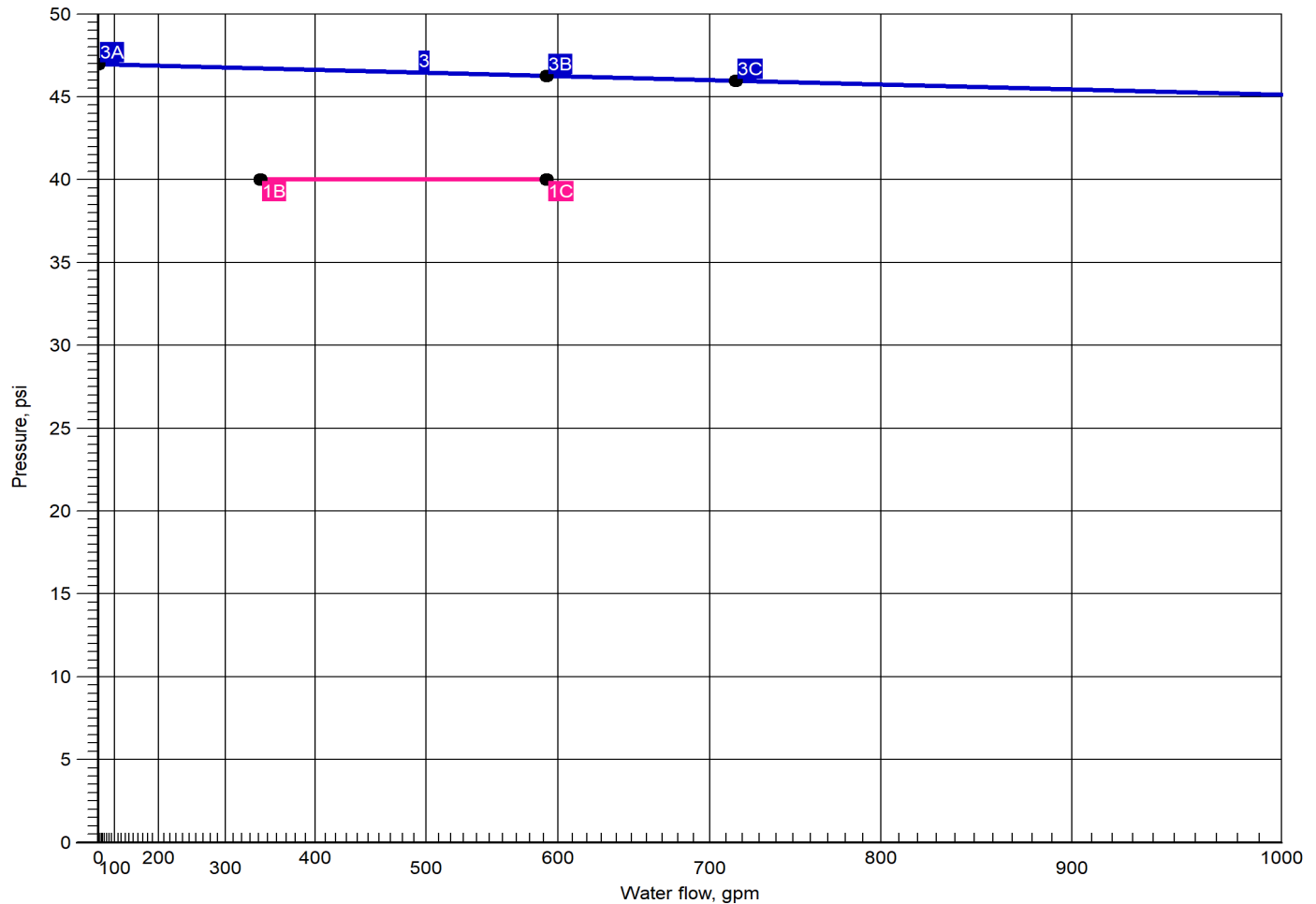
System Demand  
Available Water Supply

Job Name: BARNES AND NOBLE

Job Number: 05532C - BARNES AND NOBLE

Report Description: Ordinary Group II (FP1.0)

Remote Area Number: FP1.0



| Curve | Data Point     | Hydraulic Calculation Results                                                                                                                                                                                 | Additional Data                  |
|-------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| 1     | 1B<br>1C       | Required Pressure at System Demand: 40.037 @ 341.82<br>Required Pressure at System Demand (Including Hose Allowance at Source): 40.037 @ 591.82                                                               | Available Flow @ 20 PSI: 4244.72 |
|       |                |                                                                                                                                                                                                               |                                  |
| 3     | 3A<br>3B<br>3C | Available Static Pressure at Water Supply at Node 1: 47.000<br>Available Residual Pressure at System Demand: 46.297 @ 591.82<br>Available Residual Pressure & Flow at Water Supply at Node 1: 46.000 @ 716.00 |                                  |
|       |                |                                                                                                                                                                                                               |                                  |
|       |                |                                                                                                                                                                                                               |                                  |
|       |                |                                                                                                                                                                                                               |                                  |



## Summary Of Outflowing Devices

Job Number: 05532C - BARNES AND NOBLE  
Report Description: Ordinary Group II (FP1.0)

| Device      |     | Actual Flow<br>(gpm) | Minimum Flow<br>(gpm) | K-Factor<br>(K) | Pressure<br>(psi) |  |  |  |
|-------------|-----|----------------------|-----------------------|-----------------|-------------------|--|--|--|
| ➡ Sprinkler | 100 | 20.00                | 20.00                 | 5.6             | 12.755            |  |  |  |
| Sprinkler   | 101 | 20.57                | 20.00                 | 5.6             | 13.496            |  |  |  |
| Sprinkler   | 102 | 20.59                | 20.00                 | 5.6             | 13.516            |  |  |  |
| Sprinkler   | 103 | 20.60                | 20.00                 | 5.6             | 13.528            |  |  |  |
| Sprinkler   | 104 | 20.69                | 20.00                 | 5.6             | 13.654            |  |  |  |
| Sprinkler   | 105 | 20.76                | 20.00                 | 5.6             | 13.747            |  |  |  |
| Sprinkler   | 106 | 20.79                | 20.00                 | 5.6             | 13.780            |  |  |  |
| Sprinkler   | 107 | 20.79                | 20.00                 | 5.6             | 13.786            |  |  |  |
| Sprinkler   | 108 | 20.84                | 20.00                 | 5.6             | 13.848            |  |  |  |
| Sprinkler   | 109 | 21.02                | 20.00                 | 5.6             | 14.095            |  |  |  |
| Sprinkler   | 110 | 21.77                | 20.00                 | 5.6             | 15.112            |  |  |  |
| Sprinkler   | 111 | 21.88                | 20.00                 | 5.6             | 15.259            |  |  |  |
| Sprinkler   | 112 | 22.05                | 20.00                 | 5.6             | 15.504            |  |  |  |
| Sprinkler   | 113 | 22.94                | 20.00                 | 5.6             | 16.782            |  |  |  |
| Sprinkler   | 114 | 23.15                | 20.00                 | 5.6             | 17.087            |  |  |  |
| Sprinkler   | 115 | 23.38                | 20.00                 | 5.6             | 17.428            |  |  |  |

➡ Most Demanding Sprinkler Data

| Supply Analysis |                  |              |                        |                         |                 |                      |                         |
|-----------------|------------------|--------------|------------------------|-------------------------|-----------------|----------------------|-------------------------|
| Node            | Name             | Static (psi) | Residual (psi)         | @ Flow (gpm)            | Available (psi) | @ Total Demand (gpm) | Required Pressure (psi) |
| 1               | Water Supply     | 47.000       | 46.000                 | 716.00                  | 46.297          | 591.82               | 40.037                  |
| Node Analysis   |                  |              |                        |                         |                 |                      |                         |
| Node Number     | Elevation (Foot) | Node Type    | Pressure at Node (psi) | Discharge at Node (gpm) | Notes           |                      |                         |
| 1               | -4-1             | Supply       | 40.037                 | 341.82                  |                 |                      |                         |
| 100             | 18-0             | Sprinkler    | 12.755                 | 20.00                   |                 |                      |                         |
| 101             | 18-8             | Sprinkler    | 13.496                 | 20.57                   |                 |                      |                         |
| 102             | 18-2½            | Sprinkler    | 13.516                 | 20.59                   |                 |                      |                         |
| 103             | 18-8             | Sprinkler    | 13.528                 | 20.60                   |                 |                      |                         |
| 104             | 18-8             | Sprinkler    | 13.654                 | 20.69                   |                 |                      |                         |
| 105             | 18-2½            | Sprinkler    | 13.747                 | 20.76                   |                 |                      |                         |
| 106             | 18-2½            | Sprinkler    | 13.780                 | 20.79                   |                 |                      |                         |
| 107             | 18-0             | Sprinkler    | 13.786                 | 20.79                   |                 |                      |                         |
| 108             | 18-0             | Sprinkler    | 13.848                 | 20.84                   |                 |                      |                         |
| 109             | 18-0             | Sprinkler    | 14.095                 | 21.02                   |                 |                      |                         |
| 110             | 18-8             | Sprinkler    | 15.112                 | 21.77                   |                 |                      |                         |
| 111             | 18-2½            | Sprinkler    | 15.259                 | 21.88                   |                 |                      |                         |
| 112             | 18-0             | Sprinkler    | 15.504                 | 22.05                   |                 |                      |                         |
| 113             | 18-0             | Sprinkler    | 16.782                 | 22.94                   |                 |                      |                         |
| 114             | 18-0             | Sprinkler    | 17.087                 | 23.15                   |                 |                      |                         |
| 115             | 18-0             | Sprinkler    | 17.428                 | 23.38                   |                 |                      |                         |
| 2               | -4-1             |              | 39.468                 |                         |                 |                      |                         |

| Node Number | Elevation (Foot) | Node Type | Pressure at Node (psi) | Discharge at Node (gpm) | Notes |
|-------------|------------------|-----------|------------------------|-------------------------|-------|
| 3           | 13-8             |           | 31.289                 |                         |       |
| 4           | 2-0              | Gauge     | 36.585                 |                         |       |
| 5           | 13-8             |           | 29.599                 |                         |       |
| 6           | 12-5             |           | 27.448                 |                         |       |
| 7           | 12-5             |           | 27.400                 |                         |       |
| 8           | 12-5             |           | 27.386                 |                         |       |
| 9           | 14-4             |           | 27.554                 |                         |       |
| 10          | 18-0             |           | 18.383                 |                         |       |
| 11          | 18-0             |           | 18.025                 |                         |       |
| 12          | 18-0             |           | 17.704                 |                         |       |
| 13          | 18-0             |           | 16.344                 |                         |       |
| 14          | 18-2½            |           | 16.085                 |                         |       |
| 15          | 18-8             |           | 15.949                 |                         |       |
| 16          | 18-0             |           | 14.880                 |                         |       |
| 17          | 18-2½            |           | 14.821                 |                         |       |
| 18          | 18-8             |           | 14.416                 |                         |       |
| 19          | 18-0             |           | 14.619                 |                         |       |
| 20          | 12-5             |           | 17.044                 |                         |       |
| 21          | 18-0             |           | 14.646                 |                         |       |
| 22          | 12-5             |           | 17.044                 |                         |       |
| 23          | 18-2½            |           | 14.578                 |                         |       |
| 24          | 18-8             |           | 14.312                 |                         |       |

| Node Number | Elevation (Foot) | Node Type | Pressure at Node (psi) | Discharge at Node (gpm) | Notes |
|-------------|------------------|-----------|------------------------|-------------------------|-------|
| 25          | 18-2½            |           | 14.549                 |                         |       |
| 26          | 12-5             |           | 17.044                 |                         |       |
| 27          | 18-0             |           | 14.590                 |                         |       |
| 28          | 18-8             |           | 14.284                 |                         |       |
| 29          | 18-0             |           | 14.555                 |                         |       |
| 30          | 18-2½            |           | 14.514                 |                         |       |
| 31          | 18-8             |           | 14.250                 |                         |       |
| 81          | 18-2½            |           | 16.466                 |                         |       |
| 90          | 18-1             |           | 17.356                 |                         |       |
| 135         | 18-1             |           | 17.476                 |                         |       |
| 140         | 18-1             |           | 17.424                 |                         |       |
| 156         | 18-0             |           | 17.796                 |                         |       |
| 161         | 14-4             |           | 22.969                 |                         |       |
| 164         | 17-4             |           | 22.962                 |                         |       |
| 166         | 18-0½            |           | 17.750                 |                         |       |
| 212         | 17-4             |           | 23.073                 |                         |       |
| 241         | 17-4             |           | 23.219                 |                         |       |

| Pipe Information |                  |          |                                |            |                            |                   |                                       |              |                                                                                                                                                               |
|------------------|------------------|----------|--------------------------------|------------|----------------------------|-------------------|---------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node 1           | Elev 1<br>(Foot) | K-Factor | Flow added<br>this step<br>(q) | Nominal ID | Fittings &<br>Devices      | Length<br>(Foot)  | C Factor                              | Total(Pt)    | Notes<br><br>Fitting/Device (Equivalent Length)<br>Fixed Pressure Losses,<br>when applicable, are added<br>directly to (Pf) and shown as<br>a negative value. |
|                  | Elev 2<br>(Foot) |          | Total Flow<br>(Q)              | Actual ID  | Equiv.<br>Length<br>(Foot) | Fitting<br>(Foot) | Pf Friction<br>Loss Per Unit<br>(psi) | Elev(Pe)     |                                                                                                                                                               |
| Node 2           |                  |          |                                |            |                            | Total<br>(Foot)   |                                       | Friction(Pf) |                                                                                                                                                               |
| 100              | 18-0             | 5.6      | 20.00                          | 1          | (See Notes)                | 1-6½              | 120                                   | 12.755       | • • • • • Route 1 • • • • •<br>Sprinkler,<br><br>PO(5-0), mecT(8-0)                                                                                           |
| 21               | 18-0             |          | 20.00                          | 1.0490     |                            | 13-0              | 0.130131                              |              |                                                                                                                                                               |
|                  |                  |          |                                |            |                            | 14-6½             |                                       | 1.891        |                                                                                                                                                               |
| 21               | 18-0             |          | 38.28                          | 2          |                            | 6-9½              | 120                                   | 14.646       | Flow (q) from Route 8                                                                                                                                         |
|                  |                  |          |                                |            |                            |                   | 0.034606                              |              |                                                                                                                                                               |
| 16               | 18-0             |          | 58.28                          | 2.0670     |                            | 6-9½              |                                       | 0.235        |                                                                                                                                                               |
| 16               | 18-0             |          | 21.02                          | 1½         |                            | 10-0              | 120                                   | 14.880       | Flow (q) from Route 10                                                                                                                                        |
|                  |                  |          |                                |            |                            |                   | 0.146390                              |              |                                                                                                                                                               |
| 13               | 18-0             |          | 79.30                          | 1.7280     |                            | 10-0              |                                       | 1.464        |                                                                                                                                                               |
| 13               | 18-0             |          | 22.05                          | 2          | (See Notes)                | 7-1½              | 120                                   | 16.344       | Flow (q) from Route 13<br><br>T(14-0)                                                                                                                         |
|                  |                  |          |                                |            |                            | 14-0              | 0.068784                              |              |                                                                                                                                                               |
| 156              | 18-0             |          | 101.35                         | 2.2150     |                            | 21-1½             |                                       | 1.452        |                                                                                                                                                               |
| 156              | 18-0             |          | 34.40                          | 2          | (See Notes)                | 9-4               | 120                                   | 17.796       | Flow (q) from Route 2<br><br>3E(7-0)                                                                                                                          |
|                  |                  |          |                                |            |                            | 21-0              | 0.118107                              | 1.590        |                                                                                                                                                               |
| 161              | 14-4             |          | 135.75                         | 2.2150     |                            | 30-4              |                                       | 3.584        |                                                                                                                                                               |
| 161              | 14-4             |          |                                | 2½         | (See Notes)                | 53-10½            | 120                                   | 22.969       | 2E(6-0)                                                                                                                                                       |
|                  |                  |          |                                |            |                            | 12-0              | 0.069609                              |              |                                                                                                                                                               |
| 9                | 14-4             |          | 135.75                         | 2.4690     |                            | 65-10½            |                                       | 4.585        |                                                                                                                                                               |
| 9                | 14-4             |          | 206.07                         | 4          | (See Notes)                | 35-10             | 120                                   | 27.554       | Flow (q) from Route 14<br><br>2fE(6-9½)                                                                                                                       |
|                  |                  |          |                                |            |                            | 13-7              | 0.035518                              | 0.289        |                                                                                                                                                               |
| 5                | 13-8             |          | 341.82                         | 4.0260     |                            | 49-5½             |                                       | 1.756        |                                                                                                                                                               |
| 5                | 13-8             |          |                                | 5          | (See Notes)                | 82-0½             | 120                                   | 29.599       | C(25-0), 3E(12-0)                                                                                                                                             |
|                  |                  |          |                                |            |                            | 61-0              | 0.011814                              | -0.000       |                                                                                                                                                               |
| 3                | 13-8             |          | 341.82                         | 5.0470     |                            | 143-0½            |                                       | 1.690        |                                                                                                                                                               |
| 3                | 13-8             |          |                                | 6          | (See Notes)                | 11-8              | 120                                   | 31.289       | CV(40-3), BV(12-7), BOR                                                                                                                                       |
|                  |                  |          |                                |            |                            | 52-9½             | 0.003840                              | 5.049        |                                                                                                                                                               |
| 4                | 2-0              |          | 341.82                         | 6.3570     |                            | 64-5½             |                                       | 0.248        |                                                                                                                                                               |
| 4                | 2-0              |          |                                | 6          | (See Notes)                | 11-1              | 120                                   | 36.585       | 3E(17-7)                                                                                                                                                      |
|                  |                  |          |                                |            |                            | 52-9½             | 0.003840                              | 2.637        |                                                                                                                                                               |
| 2                | -4-1             |          | 341.82                         | 6.3570     |                            | 63-10½            |                                       | 0.245        |                                                                                                                                                               |
| 2                | -4-1             |          |                                | 6          | (See Notes)                | 137-0             | 140                                   | 39.468       | 2E(22-1), PIV(4-8½), S                                                                                                                                        |
|                  |                  |          |                                |            |                            | 48-10             | 0.003064                              |              |                                                                                                                                                               |
| 1                | -4-1             |          | 341.82                         | 6.2800     |                            | 185-10            |                                       | 0.569        |                                                                                                                                                               |

| Pipe Information |                  |          |                                |            |                            |                   |                                       |              |                                                                                                                                                               |
|------------------|------------------|----------|--------------------------------|------------|----------------------------|-------------------|---------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node 1           | Elev 1<br>(Foot) | K-Factor | Flow added<br>this step<br>(q) | Nominal ID | Fittings &<br>Devices      | Length<br>(Foot)  | C Factor                              | Total(Pt)    | Notes<br><br>Fitting/Device (Equivalent Length)<br>Fixed Pressure Losses,<br>when applicable, are added<br>directly to (Pf) and shown as<br>a negative value. |
|                  | Elev 2<br>(Foot) |          | Total Flow<br>(Q)              | Actual ID  | Equiv.<br>Length<br>(Foot) | Fitting<br>(Foot) | Pf Friction<br>Loss Per Unit<br>(psi) | Elev(Pe)     |                                                                                                                                                               |
| Node 2           |                  |          |                                |            |                            | Total<br>(Foot)   |                                       | Friction(Pf) |                                                                                                                                                               |
|                  |                  |          | 250.00                         |            |                            |                   |                                       | 40.037       | Hose Allowance At Source                                                                                                                                      |
| 1                |                  |          | 591.82                         |            |                            |                   |                                       |              | Total(Pt)    Route 1                                                                                                                                          |
| 101              | 18-8             | 5.6      | 20.57                          | 1          | (See Notes)                | 0-6               | 120                                   | 13.496       | ••••• Route 2 •••••<br>Sprinkler,<br><br>T(5-0)                                                                                                               |
| 31               | 18-8             |          | 20.57                          | 1.0490     |                            | 5-0               | 0.137104                              |              |                                                                                                                                                               |
|                  |                  |          |                                |            |                            | 5-6               |                                       | 0.754        |                                                                                                                                                               |
| 31               | 18-8             |          |                                | 2          |                            | 6-10              | 120                                   | 14.250       |                                                                                                                                                               |
|                  |                  |          |                                |            |                            |                   | 0.005041                              |              |                                                                                                                                                               |
| 28               | 18-8             |          | 20.57                          | 2.0670     |                            | 6-10              |                                       | 0.034        |                                                                                                                                                               |
| 28               | 18-8             |          | 20.60                          | 2          |                            | 1-6½              | 120                                   | 14.284       | Flow (q) from Route 4                                                                                                                                         |
|                  |                  |          |                                |            |                            |                   | 0.018193                              |              |                                                                                                                                                               |
| 24               | 18-8             |          | 41.17                          | 2.0670     |                            | 1-6½              |                                       | 0.028        |                                                                                                                                                               |
| 24               | 18-8             |          |                                | 2          | (See Notes)                | 6-3               | 120                                   | 14.312       | T(10-0)<br><br>PO(10-0)                                                                                                                                       |
|                  |                  |          |                                |            |                            | 20-0              | 0.000843                              | 2.710        |                                                                                                                                                               |
| 26               | 12-5             |          | 7.82                           | 2.0670     |                            | 26-3              |                                       | 0.022        |                                                                                                                                                               |
| 26               | 12-5             |          |                                | 4          |                            | 9-6               | 120                                   | 17.044       |                                                                                                                                                               |
|                  |                  |          |                                |            |                            |                   | 0.000024                              |              |                                                                                                                                                               |
| 22               | 12-5             |          | 7.82                           | 4.3100     |                            | 9-6               |                                       | 0.000        |                                                                                                                                                               |
| 22               | 12-5             |          | 3.35                           | 2          | (See Notes)                | 5-9½              | 120                                   | 17.044       | PO(10-0), Flow (q) from Route 18<br>T(10-0)                                                                                                                   |
|                  |                  |          |                                |            |                            | 20-0              | 0.001630                              | -2.508       |                                                                                                                                                               |
| 23               | 18-2½            |          | 11.18                          | 2.0670     |                            | 25-9½             |                                       | 0.042        |                                                                                                                                                               |
| 23               | 18-2½            |          | 41.55                          | 2          |                            | 8-5½              | 120                                   | 14.578       | Flow (q) from Route 6                                                                                                                                         |
|                  |                  |          |                                |            |                            |                   | 0.028754                              |              |                                                                                                                                                               |
| 17               | 18-2½            |          | 52.73                          | 2.0670     |                            | 8-5½              |                                       | 0.243        |                                                                                                                                                               |
| 17               | 18-2½            |          | 20.59                          | 1½         |                            | 10-0              | 120                                   | 14.821       | Flow (q) from Route 3                                                                                                                                         |
|                  |                  |          |                                |            |                            |                   | 0.126595                              | -0.002       |                                                                                                                                                               |
| 14               | 18-2½            |          | 73.31                          | 1.7280     |                            | 10-0              |                                       | 1.266        |                                                                                                                                                               |
| 14               | 18-2½            |          | 21.88                          | 2          | (See Notes)                | 6-11½             | 120                                   | 16.085       | Flow (q) from Route 12<br><br>T(14-0)                                                                                                                         |
|                  |                  |          |                                |            |                            | 14-0              | 0.061246                              | 0.055        |                                                                                                                                                               |
| 140              | 18-1             |          | 95.19                          | 2.2150     |                            | 21-0              |                                       | 1.285        |                                                                                                                                                               |
| 140              | 18-1             |          | 28.42                          | 2          |                            | 0-6               | 120                                   | 17.424       | Flow (q) from Route 5                                                                                                                                         |
|                  |                  |          |                                |            |                            |                   | 0.099308                              | 0.002        |                                                                                                                                                               |
| 135              | 18-1             |          | 123.61                         | 2.2150     |                            | 0-6               |                                       | 0.050        |                                                                                                                                                               |

| Pipe Information |                  |              |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                      |
|------------------|------------------|--------------|--------------------------------|-------------------|-----------------------|----------------------------|-------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node 1           | Elev 1<br>(Foot) | K-Factor     | Flow added<br>this step<br>(q) | Nominal ID        | Fittings &<br>Devices | Length<br>(Foot)           | C Factor          | Total(Pt)                             | Notes<br><br>Fitting/Device (Equivalent<br>Length)<br><br>Fixed Pressure Losses,<br>when applicable, are added<br>directly to (Pf) and shown as<br>a negative value. |
|                  | Node 2           |              | Elev 2<br>(Foot)               | Total Flow<br>(Q) | Actual ID             | Equiv.<br>Length<br>(Foot) | Fitting<br>(Foot) | Pf Friction<br>Loss Per Unit<br>(psi) |                                                                                                                                                                      |
| Total<br>(Foot)  |                  | Friction(Pf) |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                      |
| 135              | 18-1             |              |                                | 2                 |                       | 5-10                       | 120               | 17.476                                |                                                                                                                                                                      |
| 166              | 18-0½            |              | 78.05                          | 2.2030            |                       |                            | 0.043560          | 0.021                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-10                       |                   | 0.253                                 |                                                                                                                                                                      |
| 166              | 18-0½            |              |                                | 2                 |                       | 3-6                        | 120               | 17.750                                |                                                                                                                                                                      |
| 156              | 18-0             |              | 34.40                          | 2.2030            |                       |                            | 0.009568          | 0.012                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 3-6                        |                   | 0.034                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 17.796                                | Total(Pt)    Route 2                                                                                                                                                 |
| 102              | 18-2½            | 5.6          | 20.59                          | 1                 | (See<br>Notes)        | 2-6                        | 120               | 13.516                                | *****Route 3*****<br>Sprinkler,<br><br>E(2-0), T(5-0)                                                                                                                |
| 17               | 18-2½            |              | 20.59                          | 1.0490            |                       | 7-0                        | 0.137298          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 9-6                        |                   | 1.305                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 14.821                                | Total(Pt)    Route 3                                                                                                                                                 |
| 103              | 18-8             | 5.6          | 20.60                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 13.528                                | *****Route 4*****<br>Sprinkler,<br><br>T(5-0)                                                                                                                        |
| 28               | 18-8             |              | 20.60                          | 1.0490            |                       | 5-0                        | 0.137412          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.756                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 14.284                                | Total(Pt)    Route 4                                                                                                                                                 |
| 104              | 18-8             | 5.6          | 20.69                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 13.654                                | *****Route 5*****<br>Sprinkler,<br><br>T(5-0)                                                                                                                        |
| 18               | 18-8             |              | 20.69                          | 1.0490            |                       | 5-0                        | 0.138594          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.762                                 |                                                                                                                                                                      |
| 18               | 18-8             |              | 33.35                          | 1½                | (See<br>Notes)        | 10-0                       | 120               | 14.416                                | Flow (q) from Route 17<br><br>T(11-3½)                                                                                                                               |
| 15               | 18-8             |              | 54.04                          | 1.7280            |                       | 11-3½                      | 0.071999          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 21-3½                      |                   | 1.533                                 |                                                                                                                                                                      |
| 15               | 18-8             |              | 21.77                          | 2                 | (See<br>Notes)        | 0-10                       | 120               | 15.949                                | Flow (q) from Route 11<br><br>E(6-10)                                                                                                                                |
| 81               | 18-2½            |              | 75.81                          | 2.2030            |                       | 6-10                       | 0.041272          | 0.201                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 7-7½                       |                   | 0.315                                 |                                                                                                                                                                      |
| 81               | 18-2½            |              |                                | 2                 | (See<br>Notes)        | 6-10                       | 120               | 16.466                                | T(14-0)                                                                                                                                                              |
| 90               | 18-1             |              | 75.81                          | 2.2150            |                       | 14-0                       | 0.040194          | 0.052                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 20-10                      |                   | 0.837                                 |                                                                                                                                                                      |
| 90               | 18-1             |              |                                | 2                 |                       | 10-2                       | 120               | 17.356                                |                                                                                                                                                                      |
| 140              | 18-1             |              | 28.42                          | 2.2030            |                       |                            | 0.006720          | 0.000                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 10-2                       |                   | 0.068                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 17.424                                | Total(Pt)    Route 5                                                                                                                                                 |

| Pipe Information |                  |              |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                  |
|------------------|------------------|--------------|--------------------------------|-------------------|-----------------------|----------------------------|-------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node 1           | Elev 1<br>(Foot) | K-Factor     | Flow added<br>this step<br>(q) | Nominal ID        | Fittings &<br>Devices | Length<br>(Foot)           | C Factor          | Total(Pt)                             | Notes<br><br>Fitting/Device (Equivalent<br>Length)<br>Fixed Pressure Losses,<br>when applicable, are added<br>directly to (Pf) and shown as<br>a negative value. |
|                  | Node 2           |              | Elev 2<br>(Foot)               | Total Flow<br>(Q) | Actual ID             | Equiv.<br>Length<br>(Foot) | Fitting<br>(Foot) | Pf Friction<br>Loss Per Unit<br>(psi) |                                                                                                                                                                  |
| Total<br>(Foot)  |                  | Friction(Pf) |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                  |
| 105              | 18-2½            | 5.6          | 20.76                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 13.747                                | ***** Route 6 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                  |
| 30               | 18-2½            |              | 20.76                          | 1.0490            |                       | 5-0                        | 0.139467          |                                       |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.767                                 |                                                                                                                                                                  |
| 30               | 18-2½            |              |                                | 2                 |                       | 6-10                       | 120               | 14.514                                |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            | 0.005128          |                                       |                                                                                                                                                                  |
| 25               | 18-2½            |              | 20.76                          | 2.0670            |                       | 6-10                       |                   | 0.035                                 |                                                                                                                                                                  |
| 25               | 18-2½            |              | 20.79                          | 2                 |                       | 1-6½                       | 120               | 14.549                                | Flow (q) from Route 7                                                                                                                                            |
|                  |                  |              |                                |                   |                       |                            | 0.018507          |                                       |                                                                                                                                                                  |
| 23               | 18-2½            |              | 41.55                          | 2.0670            |                       | 1-6½                       |                   | 0.029                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 14.578                                | Total(Pt)    Route 6                                                                                                                                             |
| 106              | 18-2½            | 5.6          | 20.79                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 13.780                                | ***** Route 7 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                  |
| 25               | 18-2½            |              | 20.79                          | 1.0490            |                       | 5-0                        | 0.139779          |                                       |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.769                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 14.549                                | Total(Pt)    Route 7                                                                                                                                             |
| 107              | 18-0             | 5.6          | 20.79                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 13.786                                | ***** Route 8 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                  |
| 29               | 18-0             |              | 20.79                          | 1.0490            |                       | 5-0                        | 0.139832          |                                       |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.769                                 |                                                                                                                                                                  |
| 29               | 18-0             |              |                                | 2                 |                       | 6-10                       | 120               | 14.555                                |                                                                                                                                                                  |
| 27               | 18-0             |              | 20.79                          | 2.0670            |                       |                            | 0.005141          |                                       |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 6-10                       |                   | 0.035                                 |                                                                                                                                                                  |
| 27               | 18-0             |              | 20.84                          | 2                 |                       | 1-6½                       | 120               | 14.590                                | Flow (q) from Route 9                                                                                                                                            |
|                  |                  |              |                                |                   |                       |                            | 0.018573          |                                       |                                                                                                                                                                  |
| 19               | 18-0             |              | 41.63                          | 2.0670            |                       | 1-6½                       |                   | 0.029                                 |                                                                                                                                                                  |
| 19               | 18-0             |              |                                | 2                 |                       | 1-8                        | 120               | 14.619                                |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            | 0.015901          |                                       |                                                                                                                                                                  |
| 21               | 18-0             |              | 38.28                          | 2.0670            |                       | 1-8                        |                   | 0.027                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 14.646                                | Total(Pt)    Route 8                                                                                                                                             |
| 108              | 18-0             | 5.6          | 20.84                          | 1                 | (See<br>Notes)        | 0-3½                       | 120               | 13.848                                | ***** Route 9 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                  |
| 27               | 18-0             |              | 20.84                          | 1.0490            |                       | 5-0                        | 0.140408          | -0.000                                |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 5-3½                       |                   | 0.743                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 14.590                                | Total(Pt)    Route 9                                                                                                                                             |

| Pipe Information |                  |              |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                      |
|------------------|------------------|--------------|--------------------------------|-------------------|-----------------------|----------------------------|-------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node 1           | Elev 1<br>(Foot) | K-Factor     | Flow added<br>this step<br>(q) | Nominal ID        | Fittings &<br>Devices | Length<br>(Foot)           | C Factor          | Total(Pt)                             | Notes<br><br>Fitting/Device (Equivalent<br>Length)<br><br>Fixed Pressure Losses,<br>when applicable, are added<br>directly to (Pf) and shown as<br>a negative value. |
|                  | Node 2           |              | Elev 2<br>(Foot)               | Total Flow<br>(Q) | Actual ID             | Equiv.<br>Length<br>(Foot) | Fitting<br>(Foot) | Pf Friction<br>Loss Per Unit<br>(psi) |                                                                                                                                                                      |
| Total<br>(Foot)  |                  | Friction(Pf) |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                      |
| 109              | 18-0             | 5.6          | 21.02                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 14.095                                | ***** Route 10 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                     |
| 16               | 18-0             |              | 21.02                          | 1.0490            |                       | 5-0                        | 0.142730          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.785                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 14.880                                | Total(Pt)    Route 10                                                                                                                                                |
| 110              | 18-8             | 5.6          | 21.77                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 15.112                                | ***** Route 11 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                     |
| 15               | 18-8             |              | 21.77                          | 1.0490            |                       | 5-0                        | 0.152227          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.837                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 15.949                                | Total(Pt)    Route 11                                                                                                                                                |
| 111              | 18-2½            | 5.6          | 21.88                          | 1                 | (See<br>Notes)        | 0-4½                       | 120               | 15.259                                | ***** Route 12 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                     |
| 14               | 18-2½            |              | 21.88                          | 1.0490            |                       | 5-0                        | 0.153601          | -0.002                                |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-4½                       |                   | 0.827                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 16.085                                | Total(Pt)    Route 12                                                                                                                                                |
| 112              | 18-0             | 5.6          | 22.05                          | 1                 | (See<br>Notes)        | 0-4½                       | 120               | 15.504                                | ***** Route 13 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                     |
| 13               | 18-0             |              | 22.05                          | 1.0490            |                       | 5-0                        | 0.155881          | 0.000                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-4½                       |                   | 0.839                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       |                            |                   | 16.344                                | Total(Pt)    Route 13                                                                                                                                                |
| 113              | 18-0             | 5.6          | 22.94                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 16.782                                | ***** Route 14 *****<br>Sprinkler,<br><br>T(5-0)                                                                                                                     |
| 12               | 18-0             |              | 22.94                          | 1.0490            |                       | 5-0                        | 0.167727          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.922                                 |                                                                                                                                                                      |
| 12               | 18-0             |              | 47.39                          | 1½                |                       | 30-0                       | 120               | 17.704                                | Flow (q) from Route 21                                                                                                                                               |
| 164              | 17-4             |              | 70.33                          | 1.6100            |                       |                            | 0.165429          | 0.294                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 30-0                       |                   | 4.964                                 |                                                                                                                                                                      |
| 164              | 17-4             |              |                                | 2                 | (See<br>Notes)        | 21-10½                     | 120               | 22.962                                | T(10-0), E(5-0), PO(10-0)                                                                                                                                            |
| 8                | 12-5             |              | 70.33                          | 2.0670            |                       | 25-0                       | 0.048994          | 2.127                                 |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 46-10½                     |                   | 2.297                                 |                                                                                                                                                                      |
| 8                | 12-5             |              |                                | 4                 |                       | 10-2                       | 120               | 27.386                                |                                                                                                                                                                      |
| 7                | 12-5             |              | 70.33                          | 4.3100            |                       |                            | 0.001368          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 10-2                       |                   | 0.014                                 |                                                                                                                                                                      |
| 7                | 12-5             |              | 68.71                          | 4                 |                       | 9-10                       | 120               | 27.400                                | Flow (q) from Route 15                                                                                                                                               |
| 6                | 12-5             |              | 139.04                         | 4.3100            |                       |                            | 0.004825          |                                       |                                                                                                                                                                      |
|                  |                  |              |                                |                   |                       | 9-10                       |                   | 0.047                                 |                                                                                                                                                                      |

| Pipe Information |                  |              |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                  |
|------------------|------------------|--------------|--------------------------------|-------------------|-----------------------|----------------------------|-------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node 1           | Elev 1<br>(Foot) | K-Factor     | Flow added<br>this step<br>(q) | Nominal ID        | Fittings &<br>Devices | Length<br>(Foot)           | C Factor          | Total(Pt)                             | Notes<br><br>Fitting/Device (Equivalent<br>Length)<br>Fixed Pressure Losses,<br>when applicable, are added<br>directly to (Pf) and shown as<br>a negative value. |
|                  | Node 2           |              | Elev 2<br>(Foot)               | Total Flow<br>(Q) | Actual ID             | Equiv.<br>Length<br>(Foot) | Fitting<br>(Foot) | Pf Friction<br>Loss Per Unit<br>(psi) |                                                                                                                                                                  |
| Total<br>(Foot)  |                  | Friction(Pf) |                                |                   |                       |                            |                   |                                       |                                                                                                                                                                  |
| 6                | 12-5             |              | 67.03                          | 4                 | (See<br>Notes)        | 38-0½                      | 120               | 27.448                                | Flow (q) from Route 16<br><br>2E(13-11), T(27-10½)                                                                                                               |
| 9                | 14-4             |              | 206.07                         | 4.3100            |                       | 55-9                       | 0.009992          | -0.831                                |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 93-9½                      |                   | 0.937                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 27.554                                | Total(Pt)    Route 14                                                                                                                                            |
| 114              | 18-0             | 5.6          | 23.15                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 17.087                                | ••••• Route 15 •••••<br>Sprinkler,<br><br>T(5-0)                                                                                                                 |
| 11               | 18-0             |              | 23.15                          | 1.0490            |                       | 5-0                        | 0.170548          |                                       |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.938                                 |                                                                                                                                                                  |
| 11               | 18-0             |              | 45.56                          | 1½                |                       | 30-0                       | 120               | 18.025                                | Flow (q) from Route 20                                                                                                                                           |
| 212              | 17-4             |              | 68.71                          | 1.6100            |                       |                            | 0.158437          | 0.294                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 30-0                       |                   | 4.754                                 |                                                                                                                                                                  |
| 212              | 17-4             |              |                                | 2                 | (See<br>Notes)        | 21-10½                     | 120               | 23.073                                | T(10-0), E(5-0), PO(10-0)                                                                                                                                        |
| 7                | 12-5             |              | 68.71                          | 2.0670            |                       | 25-0                       | 0.046923          | 2.127                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 46-10½                     |                   | 2.200                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 27.400                                | Total(Pt)    Route 15                                                                                                                                            |
| 115              | 18-0             | 5.6          | 23.38                          | 1                 | (See<br>Notes)        | 0-6                        | 120               | 17.428                                | ••••• Route 16 •••••<br>Sprinkler,<br><br>T(5-0)                                                                                                                 |
| 10               | 18-0             |              | 23.38                          | 1.0490            |                       | 5-0                        | 0.173691          |                                       |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 5-6                        |                   | 0.955                                 |                                                                                                                                                                  |
| 10               | 18-0             |              | 43.65                          | 1½                |                       | 30-0                       | 120               | 18.383                                | Flow (q) from Route 19                                                                                                                                           |
| 241              | 17-4             |              | 67.03                          | 1.6100            |                       |                            | 0.151363          | 0.294                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 30-0                       |                   | 4.542                                 |                                                                                                                                                                  |
| 241              | 17-4             |              |                                | 2                 | (See<br>Notes)        | 21-10½                     | 120               | 23.219                                | T(10-0), E(5-0), PO(10-0)                                                                                                                                        |
| 6                | 12-5             |              | 67.03                          | 2.0670            |                       | 25-0                       | 0.044828          | 2.127                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 46-10½                     |                   | 2.102                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 27.448                                | Total(Pt)    Route 16                                                                                                                                            |
| 24               | 18-8             |              | 7.82                           | 2                 |                       | 8-5½                       | 120               | 14.312                                | ••••• Route 17 •••••<br>Flow (q) from Route 2                                                                                                                    |
| 18               | 18-8             |              | 33.35                          | 2.0670            |                       |                            | 0.012319          |                                       |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 8-5½                       |                   | 0.104                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       |                            |                   | 14.416                                | Total(Pt)    Route 17                                                                                                                                            |
| 19               | 18-0             |              |                                | 2                 | (See<br>Notes)        | 5-7                        | 120               | 14.619                                | ••••• Route 18 •••••<br>T(10-0)<br><br>PO(10-0)                                                                                                                  |
| 20               | 12-5             |              | 3.35                           | 2.0670            |                       | 20-0                       | 0.000176          | 2.421                                 |                                                                                                                                                                  |
|                  |                  |              |                                |                   |                       | 25-7                       |                   | 0.004                                 |                                                                                                                                                                  |

| Pipe Information |                  |          |                                |            |                            |                   |                                       |              |                                                                                                                                                                      |
|------------------|------------------|----------|--------------------------------|------------|----------------------------|-------------------|---------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node 1           | Elev 1<br>(Foot) | K-Factor | Flow added<br>this step<br>(q) | Nominal ID | Fittings &<br>Devices      | Length<br>(Foot)  | C Factor                              | Total(Pt)    | Notes<br><br>Fitting/Device (Equivalent<br>Length)<br><br>Fixed Pressure Losses,<br>when applicable, are added<br>directly to (Pf) and shown as<br>a negative value. |
|                  |                  |          |                                |            |                            | Fitting<br>(Foot) | Pf Friction<br>Loss Per Unit<br>(psi) | Elev(Pe)     |                                                                                                                                                                      |
| Node 2           | Elev 2<br>(Foot) |          | Total Flow<br>(Q)              | Actual ID  | Equiv.<br>Length<br>(Foot) | Total<br>(Foot)   |                                       | Friction(Pf) |                                                                                                                                                                      |
| 20               | 12-5             |          |                                | 4          |                            | 9-10              | 120                                   | 17.044       |                                                                                                                                                                      |
| 22               | 12-5             |          | 3.35                           | 4.3100     |                            |                   | 0.000005                              |              |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            | 9-10              |                                       | 0.000        |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            |                   |                                       | 17.044       | Total(Pt)    Route 18                                                                                                                                                |
| 166              | 18-0½            |          |                                | 2          | (See<br>Notes)             | 7-10½             | 120                                   | 17.750       | ••••• Route 19 •••••<br><br>T(14-0)<br><br>E(7-0), T(14-0)                                                                                                           |
| 10               | 18-0             |          | 43.65                          | 2.2150     |                            | 35-0              | 0.014478                              | 0.012        |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            | 42-10½            |                                       | 0.621        |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            |                   |                                       | 18.383       | Total(Pt)    Route 19                                                                                                                                                |
| 135              | 18-1             |          |                                | 2          | (See<br>Notes)             | 4-11½             | 120                                   | 17.476       | ••••• Route 20 •••••<br><br>T(14-0)<br><br>2E(7-0)                                                                                                                   |
| 11               | 18-0             |          | 45.56                          | 2.2150     |                            | 28-0              | 0.015668                              | 0.033        |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            | 32-11½            |                                       | 0.516        |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            |                   |                                       | 18.025       | Total(Pt)    Route 20                                                                                                                                                |
| 90               | 18-1             |          |                                | 2          | (See<br>Notes)             | 4-7               | 120                                   | 17.356       | ••••• Route 21 •••••<br><br>T(14-0)                                                                                                                                  |
| 12               | 18-0             |          | 47.39                          | 2.2150     |                            | 14-0              | 0.016853                              | 0.035        |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            | 18-7½             |                                       | 0.314        |                                                                                                                                                                      |
|                  |                  |          |                                |            |                            |                   |                                       | 17.704       | Total(Pt)    Route 21                                                                                                                                                |

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)

C Value Multiplier

$$\left( \frac{\text{Actual Inside Diameter}}{\text{Schedule 40 Steel Pipe Inside Diameter}} \right)^{4.87} = \text{Factor}$$

|                    |       |      |      |      |
|--------------------|-------|------|------|------|
| Value Of C         | 100   | 130  | 140  | 150  |
| Multiplying Factor | 0.713 | 1.16 | 1.33 | 1.51 |

Fittings Legend

|      |                            |      |                        |      |                        |
|------|----------------------------|------|------------------------|------|------------------------|
| ALV  | Alarm Valve                | AngV | Angle Valve            | b    | Bushing                |
| BaIV | Ball Valve                 | BFP  | Backflow Preventer     | BV   | Butterfly Valve        |
| C    | Cross Flow Turn 90°        | cplg | Coupling               | Cr   | Cross Run              |
| CV   | Check Valve                | DelV | Deluge Valve           | DPV  | Dry Pipe Valve         |
| E    | 90° Elbow                  | EE   | 45° Elbow              | Ee1  | 11¼° Elbow             |
| Ee2  | 22½° Elbow                 | f    | Flow Device            | fd   | Flex Drop              |
| FDC  | Fire Department Connection | fE   | 90° FireLock(TM) Elbow | fEE  | 45° FireLock(TM) Elbow |
| flg  | Flange                     | FN   | Floating Node          | fT   | FireLock(TM) Tee       |
| g    | Gauge                      | GloV | Globe Valve            | GV   | Gate Valve             |
| Ho   | Hose                       | Hose | Hose                   | HV   | Hose Valve             |
| Hyd  | Hydrant                    | LtE  | Long Turn Elbow        | mecT | Mechanical Tee         |
| Noz  | Nozzle                     | P1   | Pump In                | P2   | Pump Out               |
| PIV  | Post Indicating Valve      | PO   | Pipe Outlet            | PrV  | Pressure Relief Valve  |
| PRV  | Pressure Reducing Valve    | red  | Reducer/Adapter        | S    | Supply                 |
| sCV  | Swing Check Valve          | SFx  | Seismic Flex           | Spr  | Sprinkler              |
| St   | Strainer                   | T    | Tee Flow Turn 90°      | Tr   | Tee Run                |
| U    | Union                      | WirF | Wirsbo                 | WMV  | Water Meter Valve      |
| Z    | Cap                        |      |                        |      |                        |