

# DRC

PZ23-12000003

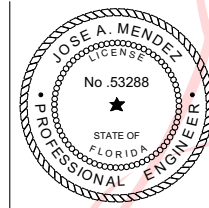
03/06/2024



## Hydraulic Calculations by HydraCALC

Firetech Services, Inc.  
7750 W 24th Avenue #27  
Hialeah, FL 33016  
786.201.1303

Jose A Mendez P.E 53288



Digitally  
signed by jose  
a mendez  
Date:  
2024.01.26  
11:58:56<sup>®</sup>  
-05'00'

Job Name : Seabird Hallandale beach  
Drawing :  
Location : 3225 NE 6th STREET. POMPAÑO BEACH  
Remote Area :  
Contract :  
Data File : CALC- 3 FLOOR.wxtmp

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## HYDRAULIC DESIGN INFORMATION SHEET

03/06/2024

Name - Seabird Hallandale beach Date - 1-15-24  
Location - 3225 NE 6th STREET. POMPANO BEACH  
Building - System No. -  
Contractor - FIRETECH SERVICES, INC Contract No. -  
Calculated By - V. CASADEVALL Drawing No. -  
Construction: ( ) Combustible (X) Non-Combustible Ceiling Height 8'  
OCCUPANCY - RESIDENTIAL - LIGHT HAZARD

S Type of Calculation: (X)NFPA 13 Residential (X)NFPA 13R ( )NFPA 13D  
Y Number of Sprinklers Flowing: ( )1 ( )2 (X)4 ( )  
S ( )Other  
T ( )Specific Ruling Made by NFPA13R Date 2016  
E  
M Listed Flow at Start Point - 12.03Gpm System Type  
Listed Pres. at Start Point - 8.2 Psi (X) Wet ( ) Dry  
D MAXIMUM LISTED SPACING 12 x 12 ( ) Deluge ( ) PreAction  
E Domestic Flow Added - Gpm Sprinkler or Nozzle  
S Additional Flow Added - 100 Gpm Make TYCO Model LFII  
I Elevation at Highest Outlet - 31 Feet Size 1/2" K-Factor 4.2  
G Note: Temperature Rating 155  
N

Calculation Gpm Required 155.69 Psi Required 60.668 At Test  
Summary C-Factor Used: Overhead 150 Underground 150

W Water Flow Test: Pump Data: Tank or Reservoir:  
A Date of Test - 1/17/2024 Rated Cap. Cap.  
T Time of Test - 8:00AM @ Psi Elev.  
E Static (Psi) - 75 Elev.  
R Residual (Psi) - 70 Other Well  
Flow (Gpm) - 1280 Proof Flow Gpm  
S Elevation - 0

P Location: NE 6th STREET AND OCEAN BLVD

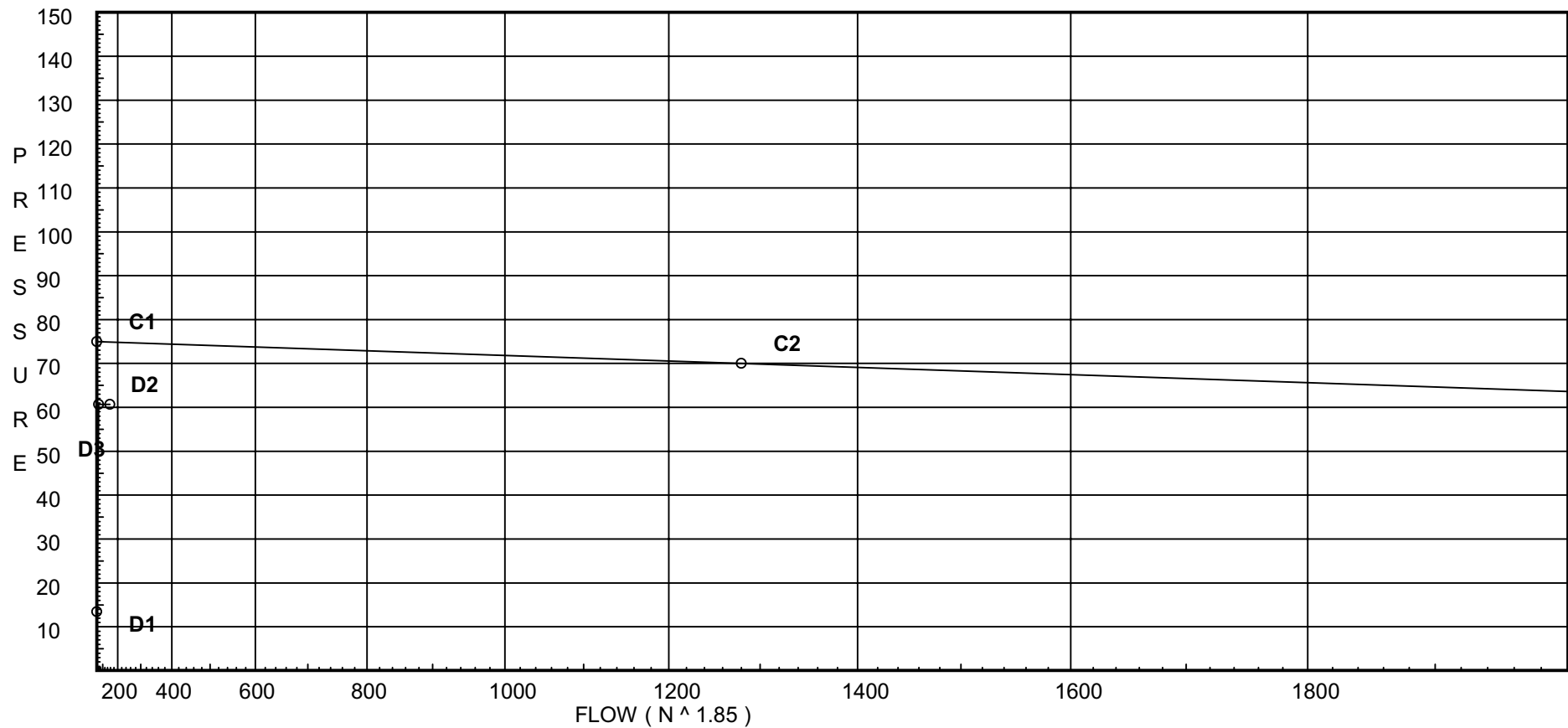
P  
L Source of Information: CITY OF POMPANO BEACH FIRE DPT  
Y

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Water Supply:  
C1 - Static Pressure : 75  
C2 - Residual Pressure: 70  
C2 - Residual Flow : 1280

Demand:  
D1 - Elevation : 13.426  
D2 - System Flow : 55.69  
D2 - System Pressure : 60.668  
Hose ( Demand ) : 100  
D3 - System Demand : 155.69  
Safety Margin : 14.231



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Fittings Used Summary

Fletcher Services, Inc.  
Sealord Hall, Seal Beach

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| Fitting Legend |                            | 1/2  | 3/4 | 1 | 1 1/4 | 1 1/2 | 2  | 2 1/2 | 3  | 3 1/2 | 4  | 5  | 6  | 8  | 10 | 12 | 14 | 16 | 18 | 20  | 24  |
|----------------|----------------------------|--|-----|---|-------|-------|----|-------|----|-------|----|----|----|----|----|----|----|----|----|-----|-----|
| Abbrev.        | Name                       |  |     |   |       |       |    |       |    |       |    |    |    |    |    |    |    |    |    |     |     |
| E              | NFPA 13 90' Standard Elbow | 1  | 2   | 2 | 3     | 4     | 5  | 6     | 7  | 8     | 10 | 12 | 14 | 18 | 22 | 27 | 35 | 40 | 45 | 50  | 61  |
| Fsp            | Flow Switch Potter VSR     | Fitting generates a Fixed Loss Based on Flow |     |   |       |       |    |       |    |       |    |    |    |    |    |    |    |    |    |     |     |
| G              | NFPA 13 Gate Valve         | 0  | 0   | 0 | 0     | 0     | 1  | 1     | 1  | 1     | 2  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 10 | 11  | 13  |
| N *            | CPVC 90'Ell Harvel-Spears  |  | 7   | 7 | 8     | 9     | 11 | 12    | 13 | 0     | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| O *            | CPVC Tee - Branch          | 3  | 3   | 5 | 6     | 8     | 10 | 12    | 15 | 0     | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| T              | NFPA 13 90' Flow thru Tee  | 3  | 4   | 5 | 6     | 8     | 10 | 12    | 15 | 17    | 20 | 25 | 30 | 35 | 50 | 60 | 71 | 81 | 91 | 101 | 121 |
| Zaf            | Ames 3000SS                | Fitting generates a Fixed Loss Based on Flow |     |   |       |       |    |       |    |       |    |    |    |    |    |    |    |    |    |     |     |

Units Summary

|                |                        |
|----------------|------------------------|
| Diameter Units | Inches                 |
| Length Units   | Feet                   |
| Flow Units     | US Gallons per Minute  |
| Pressure Units | Pounds per Square Inch |

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with \*. The fittings marked with a \* show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a \* will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

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Flow Summary NFPA

Fleet Services, Inc.  
Seaford Hallandale beach

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SUPPLY ANALYSIS

| <i>Node at Source</i> | <i>Static Pressure</i> | <i>Residual Pressure</i> | <i>Flow</i> | <i>Available Pressure</i> | <i>Total Demand</i> | <i>Required Pressure</i> |
|-----------------------|------------------------|--------------------------|-------------|---------------------------|---------------------|--------------------------|
| TEST                  | 75.0                   | 70                       | 1280.0      | 74.899                    | 155.69              | 60.668                   |

NODE ANALYSIS

| <i>Node Tag</i> | <i>Elevation</i> | <i>Node Type</i> | <i>Pressure at Node</i> | <i>Discharge at Node</i> | <i>Notes</i> |     |
|-----------------|------------------|------------------|-------------------------|--------------------------|--------------|-----|
| S1              | 31.0             | 4.2              | 8.2                     | 12.03                    | 0.05         | 144 |
| S2              | 30.0             | 4.9              | 8.71                    | 14.46                    | 0.05         | 144 |
| L1              | 31.0             |                  | 8.5                     |                          |              |     |
| S3              | 30.0             | 4.9              | 8.77                    | 14.51                    | 0.05         | 144 |
| S4              | 30.0             | 4.9              | 8.99                    | 14.69                    | 0.05         | 144 |
| L2              | 31.0             |                  | 9.04                    |                          |              |     |
| L3              | 31.0             |                  | 10.02                   |                          |              |     |
| L4              | 31.0             |                  | 12.34                   |                          |              |     |
| L5              | 31.0             |                  | 14.13                   |                          |              |     |
| L6              | 21.0             |                  | 20.76                   |                          |              |     |
| L7              | 21.0             |                  | 24.43                   |                          |              |     |
| L8              | 11.0             |                  | 31.35                   |                          |              |     |
| M1              | 11.0             |                  | 32.28                   |                          |              |     |
| M2              | 11.0             |                  | 43.47                   |                          |              |     |
| TOR             | 11.0             |                  | 44.65                   |                          |              |     |
| BOR             | 0.0              |                  | 53.87                   |                          |              |     |
| BK1             | 0.0              |                  | 55.03                   |                          |              |     |
| BK2             | 0.0              |                  | 60.65                   |                          |              |     |
| TEST            | 0.0              |                  | 60.67                   | 100.0                    |              |     |

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Final Calculations : Hazen-Williams

Flowline Services, Inc.  
Seaford Hallandale Beach

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| Node1           | Elev1 | K    | Qa    | Nom   | Fitting<br>or<br>Equiv | Len   | Pipe<br>Ftngs<br>Total | CFact  | Pt<br>Pe<br>Pf  | *****      | Notes | ***** |
|-----------------|-------|------|-------|-------|------------------------|-------|------------------------|--------|-----------------|------------|-------|-------|
| Node2           | Elev2 | Fact | Qt    | Act   |                        |       |                        | Pf/Ft  |                 |            |       |       |
| S1<br>to<br>L1  | 31    | 4.20 | 12.03 | 1     | N                      | 7.0   | 4.160<br>7.000         | 150    | 8.200<br>0.0    |            |       |       |
|                 | 31    |      | 12.03 | 1.101 |                        |       | 11.160                 | 0.0265 | 0.296           | Vel =      | 4.05  |       |
|                 |       |      | 0.0   |       |                        |       |                        |        |                 |            |       |       |
| L1              |       |      | 12.03 |       |                        |       |                        |        | 8.496           | K Factor = | 4.13  |       |
| S2<br>to<br>L1  | 30    | 4.90 | 14.46 | 1     | O                      | 5.0   | 1.000<br>5.000         | 150    | 8.705<br>-0.433 |            |       |       |
|                 | 31    |      | 14.46 | 1.101 |                        |       | 6.000                  | 0.0373 | 0.224           | Vel =      | 4.87  |       |
| L1<br>to<br>L3  | 31    |      | 12.02 | 1     | O                      | 5.0   | 8.330<br>5.000         | 150    | 8.496<br>0.0    |            |       |       |
|                 | 31    |      | 26.48 | 1.101 |                        |       | 13.330                 | 0.1144 | 1.525           | Vel =      | 8.92  |       |
|                 |       |      | 0.0   |       |                        |       |                        |        |                 |            |       |       |
| L3              |       |      | 26.48 |       |                        |       |                        |        | 10.021          | K Factor = | 8.36  |       |
| S3<br>to<br>L2  | 30    | 4.90 | 14.51 | 1     | 2N                     | 14.0  | 4.660<br>14.000        | 150    | 8.771<br>-0.433 |            |       |       |
|                 | 31    |      | 14.51 | 1.101 |                        |       | 18.660                 | 0.0376 | 0.702           | Vel =      | 4.89  |       |
|                 |       |      | 0.0   |       |                        |       |                        |        |                 |            |       |       |
| L2              |       |      | 14.51 |       |                        |       |                        |        | 9.040           | K Factor = | 4.83  |       |
| S4<br>to<br>L2  | 30    | 4.90 | 14.69 | 1     | N                      | 7.0   | 5.500<br>7.000         | 150    | 8.992<br>-0.433 |            |       |       |
|                 | 31    |      | 14.69 | 1.101 |                        |       | 12.500                 | 0.0385 | 0.481           | Vel =      | 4.95  |       |
| L2<br>to<br>L3  | 31    |      | 14.52 | 1     | O                      | 5.0   | 2.160<br>5.000         | 150    | 9.040<br>0.0    |            |       |       |
|                 | 31    |      | 29.21 | 1.101 |                        |       | 7.160                  | 0.1370 | 0.981           | Vel =      | 9.84  |       |
| L3<br>to<br>L4  | 31    |      | 26.48 | 1.25  | O                      | 6.0   | 10.160<br>6.000        | 150    | 10.021<br>0.0   |            |       |       |
|                 | 31    |      | 55.69 | 1.394 |                        |       | 16.160                 | 0.1434 | 2.317           | Vel =      | 11.71 |       |
| L4<br>to<br>L5  | 31    |      | 0.0   | 1.25  | N                      | 8.0   | 4.500<br>8.000         | 150    | 12.338<br>0.0   |            |       |       |
|                 | 31    |      | 55.69 | 1.394 |                        |       | 12.500                 | 0.1434 | 1.793           | Vel =      | 11.71 |       |
| L5<br>to<br>L6  | 31    |      | 0.0   | 1.25  | O                      | 6.0   | 10.000<br>6.000        | 150    | 14.131<br>4.331 |            |       |       |
|                 | 21    |      | 55.69 | 1.394 |                        |       | 16.000                 | 0.1434 | 2.294           | Vel =      | 11.71 |       |
| L6<br>to<br>L7  | 21    |      | 0.0   | 1.25  | 2N                     | 16.0  | 9.660<br>16.000        | 150    | 20.756<br>0.0   |            |       |       |
|                 | 21    |      | 55.69 | 1.394 |                        |       | 25.660                 | 0.1434 | 3.679           | Vel =      | 11.71 |       |
| L7<br>to<br>L8  | 21    |      | 0.0   | 1.25  | N                      | 8.0   | 10.000<br>8.000        | 150    | 24.435<br>4.331 |            |       |       |
|                 | 11    |      | 55.69 | 1.394 |                        |       | 18.000                 | 0.1434 | 2.581           | Vel =      | 11.71 |       |
| L8<br>to<br>M1  | 11    |      | 0.0   | 1.25  | O                      | 6.0   | 0.500<br>6.000         | 150    | 31.347<br>0.0   |            |       |       |
|                 | 11    |      | 55.69 | 1.394 |                        |       | 6.500                  | 0.1434 | 0.932           | Vel =      | 11.71 |       |
| M1<br>to<br>M2  | 11    |      | 0.0   | 1.5   | N                      | 9.0   | 142.750<br>9.000       | 150    | 32.279<br>0.0   |            |       |       |
|                 | 11    |      | 55.69 | 1.598 |                        |       | 151.750                | 0.0737 | 11.188          | Vel =      | 8.91  |       |
| M2<br>to<br>TOR | 11    |      | 0.0   | 1.5   | E                      | 5.022 | 8.750<br>5.022         | 120    | 43.467<br>0.0   |            |       |       |
|                 | 11    |      | 55.69 | 1.687 |                        |       | 13.772                 | 0.0856 | 1.179           | Vel =      | 7.99  |       |

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Final Calculations : Hazen-Williams

French Services, Inc.  
Seaford Hallandale beach

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| Node1 | Node2 | Elev1 | Elev2 | K | Fact | Qa     | Qt | Nom   | Act | Fitting<br>or<br>Equiv | Len    | Pipe<br>Ftngs<br>Total | CFact  | Pf/Ft | Pt<br>Pe<br>Pf | ***** | Notes                  | ***** |
|-------|-------|-------|-------|---|------|--------|----|-------|-----|------------------------|--------|------------------------|--------|-------|----------------|-------|------------------------|-------|
| TOR   | 11    |       |       |   |      | 0.0    |    | 1.5   |     | E                      | 5.022  | 12.000                 | 120    |       | 44.646         |       |                        |       |
| to    |       |       |       |   |      |        |    |       |     | Fsp                    | 0.0    | 5.022                  |        |       | 7.764          |       | * * Fixed Loss = 3     |       |
| BOR   | 0     |       |       |   |      | 55.69  |    | 1.687 |     |                        |        | 17.022                 | 0.0855 |       | 1.456          |       | Vel = 7.99             |       |
| BOR   | 0     |       |       |   |      | 0.0    |    | 2.5   |     | 6E                     | 49.637 | 70.420                 | 150    |       | 53.866         |       |                        |       |
| to    |       |       |       |   |      |        |    |       |     |                        |        | 49.637                 |        |       | 0.0            |       |                        |       |
| BK1   | 0     |       |       |   |      | 55.69  |    | 2.423 |     |                        |        | 120.057                | 0.0097 |       | 1.166          |       | Vel = 3.87             |       |
| BK1   | 0     |       |       |   |      | 0.0    |    | 2.5   |     | 2E                     | 16.474 | 10.000                 | 120    |       | 55.032         |       |                        |       |
| to    |       |       |       |   |      |        |    |       |     | Zaf                    | 0.0    | 16.474                 |        |       | 5.363          |       | * * Fixed Loss = 5.363 |       |
| BK2   | 0     |       |       |   |      | 55.69  |    | 2.635 |     |                        |        | 26.474                 | 0.0097 |       | 0.258          |       | Vel = 3.28             |       |
| BK2   | 0     |       |       |   |      | 0.0    |    | 6     |     | E                      | 20.084 | 55.000                 | 140    |       | 60.653         |       |                        |       |
| to    |       |       |       |   |      |        |    |       |     | G                      | 4.304  | 67.425                 |        |       | 0.0            |       |                        |       |
| TEST  | 0     |       |       |   |      | 55.69  |    | 6.16  |     | T                      | 43.037 | 122.425                | 0.0001 |       | 0.015          |       | Vel = 0.60             |       |
|       |       |       |       |   |      | 100.00 |    |       |     |                        |        |                        |        |       |                |       | Qa = 100.00            |       |
| TEST  |       |       |       |   |      | 155.69 |    |       |     |                        |        |                        |        |       | 60.668         |       | K Factor = 19.99       |       |