

# **GARDEN CITY STORMWATER MASTER PLAN**

## **APPENDIX E**

### **CONTENTS:**

SMITH PIPEMAKER'S BASIN  
HYDROLOGIC PARAMETERS, EXHIBITS, & RESULTS

J-24540.0005

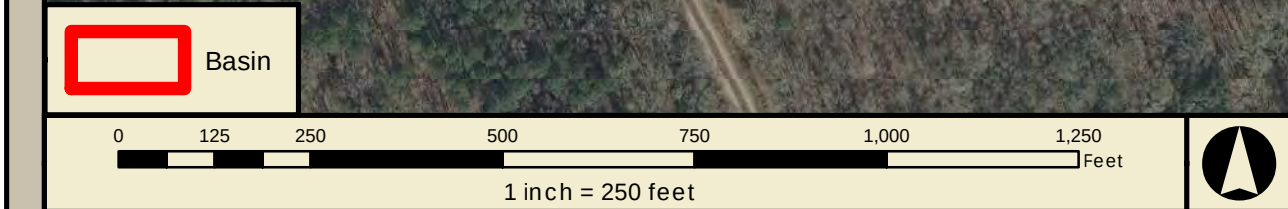


G A R D E N C I T Y



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|                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  |                     |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|---------------------|-----------------|
| Job Number: 24540.0005                                                                                                                                                                                                                                                                                                                                                          | Produced: 4/9/2014 | Produced By: JLR | Modified: 10/3/2014 | Modified By:    |
| File: Z:\24540\24540.0005\GIS\Map\Exhibits\Smith Pipemakers Basin Map.mxd                                                                                                                                                                                                                                                                                                       |                    |                  |                     | Vertical Datum: |
| Thomas & Hutton compiled the map information from the following sources:                                                                                                                                                                                                                                                                                                        |                    |                  |                     |                 |
| Data                                                                                                                                                                                                                                                                                                                                                                            | Source             |                  |                     | Date            |
| Basins                                                                                                                                                                                                                                                                                                                                                                          | Thomas & Hutton    |                  |                     | 2014            |
| Aerial Photography                                                                                                                                                                                                                                                                                                                                                              | GA DNR             |                  |                     | 2013            |
| DISCLAIMER                                                                                                                                                                                                                                                                                                                                                                      |                    |                  |                     |                 |
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# Garden City Stormwater Master Plan

Chatham County, Georgia

## Smith Pipemakers Basin Map

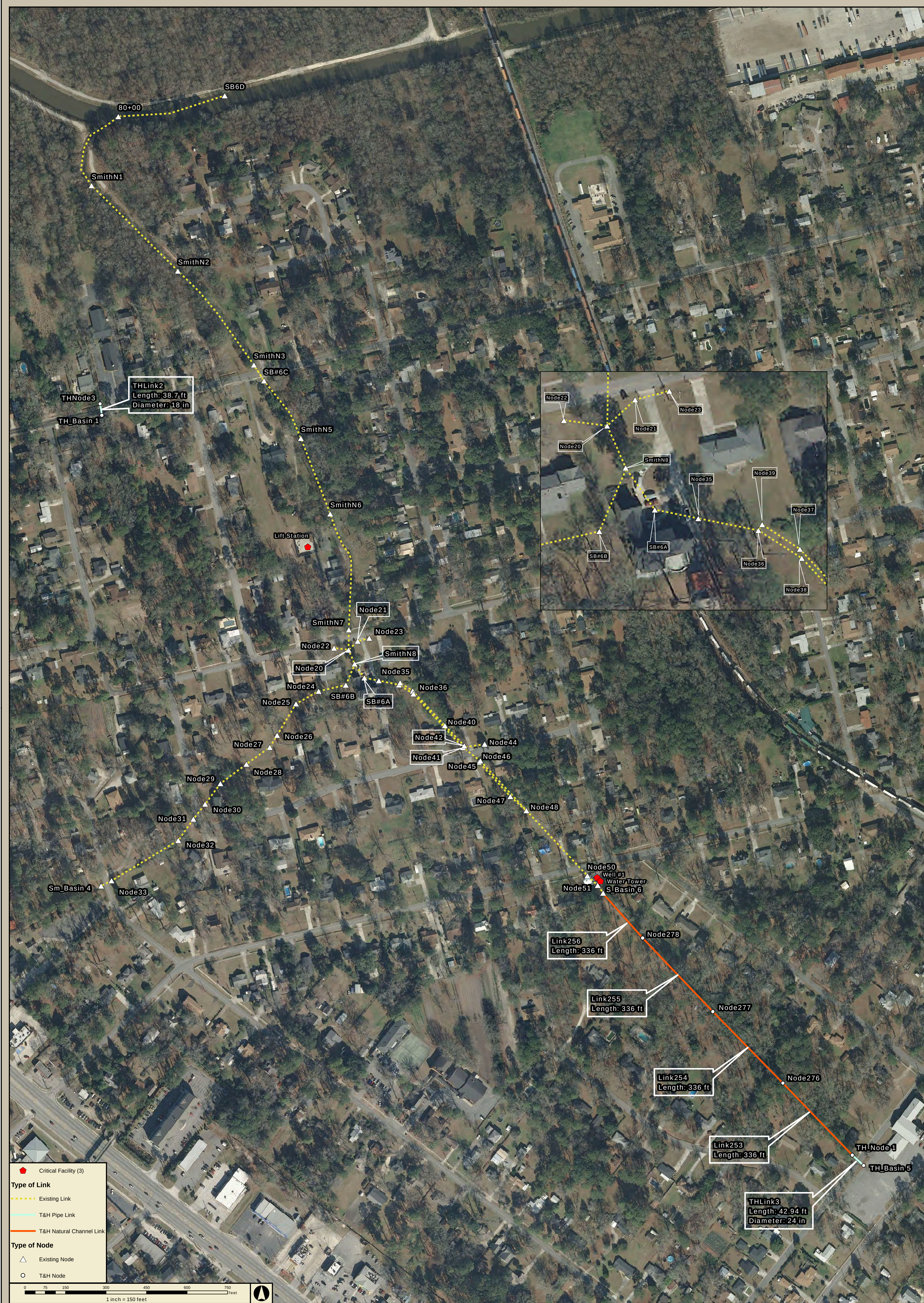
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|                                                                                                                                                                                                                                                                                                                                                                                 |                     |                  |                     |                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------|---------------------|------------------|
| Job Number: 24540.0005                                                                                                                                                                                                                                                                                                                                                          | Produced: 4/10/2014 | Produced By: JLR | Modified: 10/3/2014 | Modified By: JLR |
| File: Z:\24540\24540.0005\GIS\Map\Exhibits\Smith Pipemakers NodeLink Map.mxd                                                                                                                                                                                                                                                                                                    |                     |                  |                     | Vertical Datum:  |
| Thomas & Hutton compiled the map information from the following sources:                                                                                                                                                                                                                                                                                                        |                     |                  |                     |                  |
| Data                                                                                                                                                                                                                                                                                                                                                                            | Source              | Date             |                     |                  |
| Critical Facilities                                                                                                                                                                                                                                                                                                                                                             | Atkins Global       | 2014             |                     |                  |
| Nodes & Links                                                                                                                                                                                                                                                                                                                                                                   | Thomas & Hutton     | 2014             |                     |                  |
| Existing Nodes & Links                                                                                                                                                                                                                                                                                                                                                          | Moffatt & Nichol    | unknown          |                     |                  |
| Aerial Photography                                                                                                                                                                                                                                                                                                                                                              | GA DNR              | 2013             |                     |                  |
| FEMA DIRM                                                                                                                                                                                                                                                                                                                                                                       | FEMA                | 2013             |                     |                  |
| DISCLAIMER                                                                                                                                                                                                                                                                                                                                                                      |                     |                  |                     |                  |
| Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets. |                     |                  |                     |                  |
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# Garden City Stormwater Master Plan

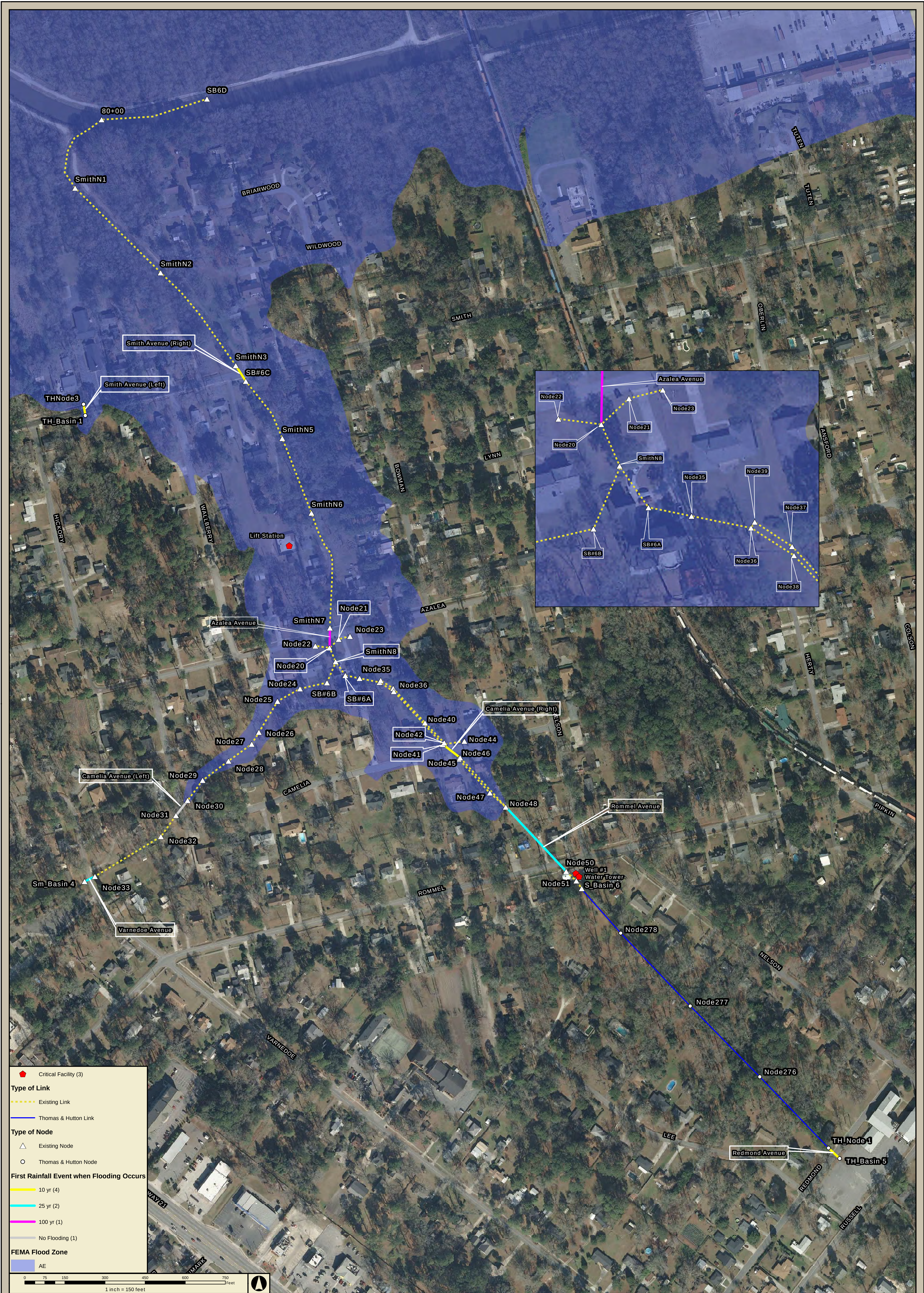
Chatham County, Georgia

## Smith Pipemakers Basin Node/Link Map



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|                                                                                                                                                                                                                                                                                                                                                                                 |                     |                  |                     |                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------|---------------------|------------------|
| Job Number: 24540.0005                                                                                                                                                                                                                                                                                                                                                          | Produced: 4/10/2014 | Produced By: JLR | Modified: 10/3/2014 | Modified By: JLR |
| File: Z:\24540\24540.0005\GIS\Map\Exhibits\Smith Pipemakers Flood Map.mxd                                                                                                                                                                                                                                                                                                       |                     |                  |                     | Vertical Datum:  |
| Thomas & Hutton compiled the map information from the following sources:                                                                                                                                                                                                                                                                                                        |                     |                  |                     |                  |
| Data                                                                                                                                                                                                                                                                                                                                                                            | Source              | Date             |                     |                  |
| Critical Facilities                                                                                                                                                                                                                                                                                                                                                             | Atkins Global       | 2014             |                     |                  |
| Nodes & Links                                                                                                                                                                                                                                                                                                                                                                   | Thomas & Hutton     | 2014             |                     |                  |
| Existing Nodes & Links                                                                                                                                                                                                                                                                                                                                                          | Moffatt & Nichol    | Unknown          |                     |                  |
| Aerial Photography                                                                                                                                                                                                                                                                                                                                                              | GA DNR              | 2013             |                     |                  |
| FEMA DIRM                                                                                                                                                                                                                                                                                                                                                                       | FEMA                | 2013             |                     |                  |
| DISCLAIMER                                                                                                                                                                                                                                                                                                                                                                      |                     |                  |                     |                  |
| Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets. |                     |                  |                     |                  |
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## Garden City Stormwater Master Plan

Chatham County, Georgia

### Smith Pipemakers Basin Existing Flooding at Roadways

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# Smith Basin Input

| Name       | Storm    | Subcatchment | Area ha;ac | Time of Concentration (min) | Curve Number | Routing Method |
|------------|----------|--------------|------------|-----------------------------|--------------|----------------|
| SB#6C      | 1-year   | 1            | 44.04      | 73.0                        | 81.3         | SCS Hydrology  |
| SB#6C      | 10-Year  | 1            | 44.04      | 73.0                        | 81.3         | SCS Hydrology  |
| SB#6C      | 25-year  | 1            | 44.04      | 73.0                        | 81.3         | SCS Hydrology  |
| SB#6C      | 50-Year  | 1            | 44.04      | 73.0                        | 81.3         | SCS Hydrology  |
| SB#6C      | 100-Year | 1            | 44.04      | 73.0                        | 81.3         | SCS Hydrology  |
| Sm_Basin 4 | 1-year   | 1            | 130.99     | 137.0                       | 87.6         | SCS Hydrology  |
| Sm_Basin 4 | 10-Year  | 1            | 130.99     | 137.0                       | 87.6         | SCS Hydrology  |
| Sm_Basin 4 | 25-year  | 1            | 130.99     | 137.0                       | 87.6         | SCS Hydrology  |
| Sm_Basin 4 | 50-Year  | 1            | 130.99     | 137.0                       | 87.6         | SCS Hydrology  |
| Sm_Basin 4 | 100-Year | 1            | 130.99     | 137.0                       | 87.6         | SCS Hydrology  |
| S_Basin 6  | 1-year   | 1            | 241.87     | 179.0                       | 85.2         | SCS Hydrology  |
| S_Basin 6  | 10-Year  | 1            | 241.87     | 179.0                       | 85.2         | SCS Hydrology  |
| S_Basin 6  | 25-year  | 1            | 241.87     | 179.0                       | 85.2         | SCS Hydrology  |
| S_Basin 6  | 50-Year  | 1            | 241.87     | 179.0                       | 85.2         | SCS Hydrology  |
| S_Basin 6  | 100-Year | 1            | 241.87     | 179.0                       | 85.2         | SCS Hydrology  |
| TH_Basin 1 | 1-year   | 1            | 10.71      | 17.0                        | 81.0         | SCS Hydrology  |
| TH_Basin 1 | 10-Year  | 1            | 10.71      | 17.0                        | 81.0         | SCS Hydrology  |
| TH_Basin 1 | 25-year  | 1            | 10.71      | 17.0                        | 81.0         | SCS Hydrology  |
| TH_Basin 1 | 50-Year  | 1            | 10.71      | 17.0                        | 81.0         | SCS Hydrology  |
| TH_Basin 1 | 100-Year | 1            | 10.71      | 17.0                        | 81.0         | SCS Hydrology  |
| TH_Basin 5 | 1-year   | 1            | 12.99      | 20.9                        | 87.0         | SCS Hydrology  |
| TH_Basin 5 | 10-Year  | 1            | 12.99      | 20.9                        | 87.0         | SCS Hydrology  |
| TH_Basin 5 | 25-year  | 1            | 12.99      | 20.9                        | 87.0         | SCS Hydrology  |
| TH_Basin 5 | 50-Year  | 1            | 12.99      | 20.9                        | 87.0         | SCS Hydrology  |
| TH_Basin 5 | 100-Year | 1            | 12.99      | 20.9                        | 87.0         | SCS Hydrology  |
| SB6D       | 1-year   | 1            | 39.70      | 26.0                        | 86.2         | SCS Hydrology  |
| SB6D       | 10-Year  | 1            | 39.70      | 26.0                        | 86.2         | SCS Hydrology  |
| SB6D       | 25-year  | 1            | 39.70      | 26.0                        | 86.2         | SCS Hydrology  |
| SB6D       | 50-Year  | 1            | 39.70      | 26.0                        | 86.2         | SCS Hydrology  |
| SB6D       | 100-Year | 1            | 39.70      | 26.0                        | 86.2         | SCS Hydrology  |



## Smith Existing Link Input

| Name    | Storm    | Weir Flag | Shape    | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|---------|----------|-----------|----------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| Smith7  | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | -0.030        | -0.920                 | -0.790                 | 0.000         | 0.000     |
| Smith7  | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | -0.030        | -0.920                 | -0.790                 | 0.000         | 0.000     |
| Smith7  | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | -0.030        | -0.920                 | -0.790                 | 0.000         | 0.000     |
| Smith7  | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | -0.030        | -0.920                 | -0.790                 | 0.000         | 0.000     |
| Smith7  | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | -0.030        | -0.920                 | -0.790                 | 0.000         | 0.000     |
| Smith6  | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 300.000   | 0.040         | -0.790                 | -0.900                 | 0.000         | 0.000     |
| Smith6  | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 300.000   | 0.040         | -0.790                 | -0.900                 | 0.000         | 0.000     |
| Smith6  | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 300.000   | 0.040         | -0.790                 | -0.900                 | 0.000         | 0.000     |
| Smith6  | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 300.000   | 0.040         | -0.790                 | -0.900                 | 0.000         | 0.000     |
| Smith6  | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 300.000   | 0.040         | -0.790                 | -0.900                 | 0.000         | 0.000     |
| Smith5  | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 235.000   | 0.040         | -0.900                 | -1.000                 | 0.000         | 0.000     |
| Smith5  | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 235.000   | 0.040         | -0.900                 | -1.000                 | 0.000         | 0.000     |
| Smith5  | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 235.000   | 0.040         | -0.900                 | -1.000                 | 0.000         | 0.000     |
| Smith5  | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 235.000   | 0.040         | -0.900                 | -1.000                 | 0.000         | 0.000     |
| Smith5  | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 235.000   | 0.040         | -0.900                 | -1.000                 | 0.000         | 0.000     |
| Smith3  | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.240         | -2.350                 | -3.440                 | 0.000         | 0.000     |
| Smith3  | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.240         | -2.350                 | -3.440                 | 0.000         | 0.000     |
| Smith3  | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.240         | -2.350                 | -3.440                 | 0.000         | 0.000     |
| Smith3  | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.240         | -2.350                 | -3.440                 | 0.000         | 0.000     |
| Smith3  | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.240         | -2.350                 | -3.440                 | 0.000         | 0.000     |
| Smith2  | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.040         | -3.440                 | -3.600                 | 0.000         | 0.000     |
| Smith2  | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.040         | -3.440                 | -3.600                 | 0.000         | 0.000     |
| Smith2  | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.040         | -3.440                 | -3.600                 | 0.000         | 0.000     |
| Smith2  | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.040         | -3.440                 | -3.600                 | 0.000         | 0.000     |
| Smith2  | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 450.000   | 0.040         | -3.440                 | -3.600                 | 0.000         | 0.000     |
| Smith1  | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.060         | -3.600                 | -3.850                 | 0.000         | 0.000     |
| Smith1  | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.060         | -3.600                 | -3.850                 | 0.000         | 0.000     |
| Smith1  | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.060         | -3.600                 | -3.850                 | 0.000         | 0.000     |
| Smith1  | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.060         | -3.600                 | -3.850                 | 0.000         | 0.000     |
| Smith1  | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.060         | -3.600                 | -3.850                 | 0.000         | 0.000     |
| Smith11 | 1-year   |           | Circular | 4.000    | 1.000          | 0.012     | 86.440    | 0.410         | -0.700                 | -1.050                 | 0.000         | 0.000     |
| Smith11 | 10-Year  |           | Circular | 4.000    | 1.000          | 0.012     | 86.440    | 0.410         | -0.700                 | -1.050                 | 0.000         | 0.000     |
| Smith11 | 25-year  |           | Circular | 4.000    | 1.000          | 0.012     | 86.440    | 0.410         | -0.700                 | -1.050                 | 0.000         | 0.000     |
| Smith11 | 50-Year  |           | Circular | 4.000    | 1.000          | 0.012     | 86.440    | 0.410         | -0.700                 | -1.050                 | 0.000         | 0.000     |



## Smith Existing Link Input

| Name    | Storm    | Weir Flag | Shape    | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|---------|----------|-----------|----------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| Smith11 | 100-Year |           | Circular | 4.000    | 1.000          | 0.012     | 86.440    | 0.410         | -0.700                 | -1.050                 | 0.000         | 0.000     |
| Smith12 | 1-year   |           | Circular | 3.500    | 1.000          | 0.012     | 64.320    | 0.420         | -0.680                 | -1.050                 | 0.000         | 0.000     |
| Smith12 | 10-Year  |           | Circular | 3.500    | 1.000          | 0.012     | 64.320    | 0.420         | -0.680                 | -1.050                 | 0.000         | 0.000     |
| Smith12 | 25-year  |           | Circular | 3.500    | 1.000          | 0.012     | 64.320    | 0.420         | -0.680                 | -1.050                 | 0.000         | 0.000     |
| Smith12 | 50-Year  |           | Circular | 3.500    | 1.000          | 0.012     | 64.320    | 0.420         | -0.680                 | -1.050                 | 0.000         | 0.000     |
| Smith12 | 100-Year |           | Circular | 3.500    | 1.000          | 0.012     | 64.320    | 0.420         | -0.680                 | -1.050                 | 0.000         | 0.000     |
| Link20  | 1-year   |           | Circular | 4.500    | 2.000          | 0.012     | 72.040    | 0.090         | -1.240                 | -1.310                 | 0.000         | 0.000     |
| Link20  | 10-Year  |           | Circular | 4.500    | 2.000          | 0.012     | 72.040    | 0.090         | -1.240                 | -1.310                 | 0.000         | 0.000     |
| Link20  | 25-year  |           | Circular | 4.500    | 2.000          | 0.012     | 72.040    | 0.090         | -1.240                 | -1.310                 | 0.000         | 0.000     |
| Link20  | 50-Year  |           | Circular | 4.500    | 2.000          | 0.012     | 72.040    | 0.090         | -1.240                 | -1.310                 | 0.000         | 0.000     |
| Link20  | 100-Year |           | Circular | 4.500    | 2.000          | 0.012     | 72.040    | 0.090         | -1.240                 | -1.310                 | 0.000         | 0.000     |
| Link21  | 1-year   |           | Circular | 4.500    | 2.000          | 0.012     | 60.780    | 0.150         | -1.020                 | -1.180                 | 0.000         | 0.000     |
| Link21  | 10-Year  |           | Circular | 4.500    | 2.000          | 0.012     | 60.780    | 0.150         | -1.020                 | -1.180                 | 0.000         | 0.000     |
| Link21  | 25-year  |           | Circular | 4.500    | 2.000          | 0.012     | 60.780    | 0.150         | -1.020                 | -1.180                 | 0.000         | 0.000     |
| Link21  | 50-Year  |           | Circular | 4.500    | 2.000          | 0.012     | 60.780    | 0.150         | -1.020                 | -1.180                 | 0.000         | 0.000     |
| Link21  | 100-Year |           | Circular | 4.500    | 2.000          | 0.012     | 60.780    | 0.150         | -1.020                 | -1.180                 | 0.000         | 0.000     |
| Link22  | 1-year   |           | Circular | 1.500    | 1.000          | 0.012     | 43.400    | 1.660         | 3.380                  | 2.660                  | 0.000         | 0.000     |
| Link22  | 10-Year  |           | Circular | 1.500    | 1.000          | 0.012     | 43.400    | 1.660         | 3.380                  | 2.660                  | 0.000         | 0.000     |
| Link22  | 25-year  |           | Circular | 1.500    | 1.000          | 0.012     | 43.400    | 1.660         | 3.380                  | 2.660                  | 0.000         | 0.000     |
| Link22  | 50-Year  |           | Circular | 1.500    | 1.000          | 0.012     | 43.400    | 1.660         | 3.380                  | 2.660                  | 0.000         | 0.000     |
| Link22  | 100-Year |           | Circular | 1.500    | 1.000          | 0.012     | 43.400    | 1.660         | 3.380                  | 2.660                  | 0.000         | 0.000     |
| Link23  | 1-year   |           | Circular | 1.500    | 1.000          | 0.012     | 47.300    | 8.250         | 2.660                  | -1.240                 | 0.000         | 0.000     |
| Link23  | 10-Year  |           | Circular | 1.500    | 1.000          | 0.012     | 47.300    | 8.250         | 2.660                  | -1.240                 | 0.000         | 0.000     |
| Link23  | 25-year  |           | Circular | 1.500    | 1.000          | 0.012     | 47.300    | 8.250         | 2.660                  | -1.240                 | 0.000         | 0.000     |
| Link23  | 50-Year  |           | Circular | 1.500    | 1.000          | 0.012     | 47.300    | 8.250         | 2.660                  | -1.240                 | 0.000         | 0.000     |
| Link23  | 100-Year |           | Circular | 1.500    | 1.000          | 0.012     | 47.300    | 8.250         | 2.660                  | -1.240                 | 0.000         | 0.000     |
| Link24  | 1-year   |           | Circular | 1.500    | 1.000          | 0.012     | 53.800    | 8.720         | 3.450                  | -1.240                 | 0.000         | 0.000     |
| Link24  | 10-Year  |           | Circular | 1.500    | 1.000          | 0.012     | 53.800    | 8.720         | 3.450                  | -1.240                 | 0.000         | 0.000     |
| Link24  | 25-year  |           | Circular | 1.500    | 1.000          | 0.012     | 53.800    | 8.720         | 3.450                  | -1.240                 | 0.000         | 0.000     |
| Link24  | 50-Year  |           | Circular | 1.500    | 1.000          | 0.012     | 53.800    | 8.720         | 3.450                  | -1.240                 | 0.000         | 0.000     |
| Link24  | 100-Year |           | Circular | 1.500    | 1.000          | 0.012     | 53.800    | 8.720         | 3.450                  | -1.240                 | 0.000         | 0.000     |
| Link25  | 1-year   |           | Circular | 2.500    | 1.000          | 0.012     | 42.900    | 0.930         | 6.210                  | 5.810                  | 0.000         | 0.000     |
| Link25  | 10-Year  |           | Circular | 2.500    | 1.000          | 0.012     | 42.900    | 0.930         | 6.210                  | 5.810                  | 0.000         | 0.000     |
| Link25  | 25-year  |           | Circular | 2.500    | 1.000          | 0.012     | 42.900    | 0.930         | 6.210                  | 5.810                  | 0.000         | 0.000     |



## Smith Existing Link Input

| Name   | Storm    | Weir Flag | Shape    | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|--------|----------|-----------|----------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| Link25 | 50-Year  |           | Circular | 2.500    | 1.000          | 0.012     | 42.900    | 0.930         | 6.210                  | 5.810                  | 0.000         | 0.000     |
| Link25 | 100-Year |           | Circular | 2.500    | 1.000          | 0.012     | 42.900    | 0.930         | 6.210                  | 5.810                  | 0.000         | 0.000     |
| Link26 | 1-year   |           | Circular | 3.500    | 1.000          | 0.010     | 288.500   | 0.750         | 5.660                  | 3.500                  | 0.000         | 0.000     |
| Link26 | 10-Year  |           | Circular | 3.500    | 1.000          | 0.010     | 288.500   | 0.750         | 5.660                  | 3.500                  | 0.000         | 0.000     |
| Link26 | 25-year  |           | Circular | 3.500    | 1.000          | 0.010     | 288.500   | 0.750         | 5.660                  | 3.500                  | 0.000         | 0.000     |
| Link26 | 50-Year  |           | Circular | 3.500    | 1.000          | 0.010     | 288.500   | 0.750         | 5.660                  | 3.500                  | 0.000         | 0.000     |
| Link26 | 100-Year |           | Circular | 3.500    | 1.000          | 0.010     | 288.500   | 0.750         | 5.660                  | 3.500                  | 0.000         | 0.000     |
| Link27 | 1-year   |           | Circular | 3.500    | 1.000          | 0.010     | 96.700    | 0.250         | 3.560                  | 3.320                  | 0.000         | 0.000     |
| Link27 | 10-Year  |           | Circular | 3.500    | 1.000          | 0.010     | 96.700    | 0.250         | 3.560                  | 3.320                  | 0.000         | 0.000     |
| Link27 | 25-year  |           | Circular | 3.500    | 1.000          | 0.010     | 96.700    | 0.250         | 3.560                  | 3.320                  | 0.000         | 0.000     |
| Link27 | 50-Year  |           | Circular | 3.500    | 1.000          | 0.010     | 96.700    | 0.250         | 3.560                  | 3.320                  | 0.000         | 0.000     |
| Link27 | 100-Year |           | Circular | 3.500    | 1.000          | 0.010     | 96.700    | 0.250         | 3.560                  | 3.320                  | 0.000         | 0.000     |
| Link28 | 1-year   |           | Circular | 3.500    | 1.000          | 0.012     | 70.500    | 1.040         | 3.330                  | 2.600                  | 0.000         | 0.000     |
| Link28 | 10-Year  |           | Circular | 3.500    | 1.000          | 0.012     | 70.500    | 1.040         | 3.330                  | 2.600                  | 0.000         | 0.000     |
| Link28 | 25-year  |           | Circular | 3.500    | 1.000          | 0.012     | 70.500    | 1.040         | 3.330                  | 2.600                  | 0.000         | 0.000     |
| Link28 | 50-Year  |           | Circular | 3.500    | 1.000          | 0.012     | 70.500    | 1.040         | 3.330                  | 2.600                  | 0.000         | 0.000     |
| Link28 | 100-Year |           | Circular | 3.500    | 1.000          | 0.012     | 70.500    | 1.040         | 3.330                  | 2.600                  | 0.000         | 0.000     |
| Link29 | 1-year   |           | Circular | 3.500    | 1.000          | 0.012     | 94.700    | 0.800         | 2.530                  | 1.770                  | 0.000         | 0.000     |
| Link29 | 10-Year  |           | Circular | 3.500    | 1.000          | 0.012     | 94.700    | 0.800         | 2.530                  | 1.770                  | 0.000         | 0.000     |
| Link29 | 25-year  |           | Circular | 3.500    | 1.000          | 0.012     | 94.700    | 0.800         | 2.530                  | 1.770                  | 0.000         | 0.000     |
| Link29 | 50-Year  |           | Circular | 3.500    | 1.000          | 0.012     | 94.700    | 0.800         | 2.530                  | 1.770                  | 0.000         | 0.000     |
| Link29 | 100-Year |           | Circular | 3.500    | 1.000          | 0.012     | 94.700    | 0.800         | 2.530                  | 1.770                  | 0.000         | 0.000     |
| Link30 | 1-year   |           | Circular | 4.000    | 1.000          | 0.010     | 120.700   | 0.700         | 1.730                  | 0.890                  | 0.000         | 0.000     |
| Link30 | 10-Year  |           | Circular | 4.000    | 1.000          | 0.010     | 120.700   | 0.700         | 1.730                  | 0.890                  | 0.000         | 0.000     |
| Link30 | 25-year  |           | Circular | 4.000    | 1.000          | 0.010     | 120.700   | 0.700         | 1.730                  | 0.890                  | 0.000         | 0.000     |
| Link30 | 50-Year  |           | Circular | 4.000    | 1.000          | 0.010     | 120.700   | 0.700         | 1.730                  | 0.890                  | 0.000         | 0.000     |
| Link30 | 100-Year |           | Circular | 4.000    | 1.000          | 0.010     | 120.700   | 0.700         | 1.730                  | 0.890                  | 0.000         | 0.000     |
| Link31 | 1-year   |           | Circular | 4.000    | 1.000          | 0.010     | 106.700   | 0.440         | 0.890                  | 0.420                  | 0.000         | 0.000     |
| Link31 | 10-Year  |           | Circular | 4.000    | 1.000          | 0.010     | 106.700   | 0.440         | 0.890                  | 0.420                  | 0.000         | 0.000     |
| Link31 | 25-year  |           | Circular | 4.000    | 1.000          | 0.010     | 106.700   | 0.440         | 0.890                  | 0.420                  | 0.000         | 0.000     |
| Link31 | 50-Year  |           | Circular | 4.000    | 1.000          | 0.010     | 106.700   | 0.440         | 0.890                  | 0.420                  | 0.000         | 0.000     |
| Link31 | 100-Year |           | Circular | 4.000    | 1.000          | 0.010     | 106.700   | 0.440         | 0.890                  | 0.420                  | 0.000         | 0.000     |
| Link32 | 1-year   |           | Circular | 4.000    | 1.000          | 0.010     | 52.100    | -0.440        | 0.330                  | 0.560                  | 0.000         | 0.000     |
| Link32 | 10-Year  |           | Circular | 4.000    | 1.000          | 0.010     | 52.100    | -0.440        | 0.330                  | 0.560                  | 0.000         | 0.000     |



## Smith Existing Link Input

| Name   | Storm    | Weir Flag | Shape       | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|--------|----------|-----------|-------------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| Link32 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 52.100    | -0.440        | 0.330                  | 0.560                  | 0.000         | 0.000     |
| Link32 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 52.100    | -0.440        | 0.330                  | 0.560                  | 0.000         | 0.000     |
| Link32 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 52.100    | -0.440        | 0.330                  | 0.560                  | 0.000         | 0.000     |
| Link33 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.010     | 135.800   | 0.290         | 0.560                  | 0.160                  | 0.000         | 0.000     |
| Link33 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 135.800   | 0.290         | 0.560                  | 0.160                  | 0.000         | 0.000     |
| Link33 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 135.800   | 0.290         | 0.560                  | 0.160                  | 0.000         | 0.000     |
| Link33 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 135.800   | 0.290         | 0.560                  | 0.160                  | 0.000         | 0.000     |
| Link33 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 135.800   | 0.290         | 0.560                  | 0.160                  | 0.000         | 0.000     |
| Link34 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.010     | 95.700    | 0.830         | 0.170                  | -0.620                 | 0.000         | 0.000     |
| Link34 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 95.700    | 0.830         | 0.170                  | -0.620                 | 0.000         | 0.000     |
| Link34 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 95.700    | 0.830         | 0.170                  | -0.620                 | 0.000         | 0.000     |
| Link34 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 95.700    | 0.830         | 0.170                  | -0.620                 | 0.000         | 0.000     |
| Link34 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 95.700    | 0.830         | 0.170                  | -0.620                 | 0.000         | 0.000     |
| Link35 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.012     | 103.500   | -0.110        | -0.620                 | -0.510                 | 0.000         | 0.000     |
| Link35 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.012     | 103.500   | -0.110        | -0.620                 | -0.510                 | 0.000         | 0.000     |
| Link35 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.012     | 103.500   | -0.110        | -0.620                 | -0.510                 | 0.000         | 0.000     |
| Link35 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.012     | 103.500   | -0.110        | -0.620                 | -0.510                 | 0.000         | 0.000     |
| Link35 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.012     | 103.500   | -0.110        | -0.620                 | -0.510                 | 0.000         | 0.000     |
| Link36 | 1-year   |           | Circular    | 3.500    | 1.000          | 0.012     | 54.800    | 1.550         | 0.210                  | -0.640                 | 0.000         | 0.000     |
| Link36 | 10-Year  |           | Circular    | 3.500    | 1.000          | 0.012     | 54.800    | 1.550         | 0.210                  | -0.640                 | 0.000         | 0.000     |
| Link36 | 25-year  |           | Circular    | 3.500    | 1.000          | 0.012     | 54.800    | 1.550         | 0.210                  | -0.640                 | 0.000         | 0.000     |
| Link36 | 50-Year  |           | Circular    | 3.500    | 1.000          | 0.012     | 54.800    | 1.550         | 0.210                  | -0.640                 | 0.000         | 0.000     |
| Link36 | 100-Year |           | Circular    | 3.500    | 1.000          | 0.012     | 54.800    | 1.550         | 0.210                  | -0.640                 | 0.000         | 0.000     |
| Link37 | 1-year   |           | Circular    | 3.500    | 1.000          | 0.012     | 75.600    | -0.130        | 0.100                  | 0.200                  | 0.000         | 0.000     |
| Link37 | 10-Year  |           | Circular    | 3.500    | 1.000          | 0.012     | 75.600    | -0.130        | 0.100                  | 0.200                  | 0.000         | 0.000     |
| Link37 | 25-year  |           | Circular    | 3.500    | 1.000          | 0.012     | 75.600    | -0.130        | 0.100                  | 0.200                  | 0.000         | 0.000     |
| Link37 | 50-Year  |           | Circular    | 3.500    | 1.000          | 0.012     | 75.600    | -0.130        | 0.100                  | 0.200                  | 0.000         | 0.000     |
| Link37 | 100-Year |           | Circular    | 3.500    | 1.000          | 0.012     | 75.600    | -0.130        | 0.100                  | 0.200                  | 0.000         | 0.000     |
| Link38 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.010     | 63.600    | 0.530         | -0.230                 | -0.570                 | 0.000         | 0.000     |
| Link38 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 63.600    | 0.530         | -0.230                 | -0.570                 | 0.000         | 0.000     |
| Link38 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 63.600    | 0.530         | -0.230                 | -0.570                 | 0.000         | 0.000     |
| Link38 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 63.600    | 0.530         | -0.230                 | -0.570                 | 0.000         | 0.000     |
| Link38 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 63.600    | 0.530         | -0.230                 | -0.570                 | 0.000         | 0.000     |
| Link40 | 1-year   |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.700     | 0.000         | -0.570                 | -0.570                 | 0.000         | 0.000     |



## Smith Existing Link Input

| Name   | Storm    | Weir Flag | Shape       | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|--------|----------|-----------|-------------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| Link40 | 10-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.700     | 0.000         | -0.570                 | -0.570                 | 0.000         | 0.000     |
| Link40 | 25-year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.700     | 0.000         | -0.570                 | -0.570                 | 0.000         | 0.000     |
| Link40 | 50-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.700     | 0.000         | -0.570                 | -0.570                 | 0.000         | 0.000     |
| Link40 | 100-Year |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.700     | 0.000         | -0.570                 | -0.570                 | 0.000         | 0.000     |
| Link41 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.010     | 55.600    | 0.560         | -0.260                 | -0.570                 | 0.000         | 0.000     |
| Link41 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 55.600    | 0.560         | -0.260                 | -0.570                 | 0.000         | 0.000     |
| Link41 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 55.600    | 0.560         | -0.260                 | -0.570                 | 0.000         | 0.000     |
| Link41 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 55.600    | 0.560         | -0.260                 | -0.570                 | 0.000         | 0.000     |
| Link41 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 55.600    | 0.560         | -0.260                 | -0.570                 | 0.000         | 0.000     |
| Link42 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.010     | 175.200   | 0.620         | 0.810                  | -0.270                 | 0.000         | 0.000     |
| Link42 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 175.200   | 0.620         | 0.810                  | -0.270                 | 0.000         | 0.000     |
| Link42 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 175.200   | 0.620         | 0.810                  | -0.270                 | 0.000         | 0.000     |
| Link42 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 175.200   | 0.620         | 0.810                  | -0.270                 | 0.000         | 0.000     |
| Link42 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 175.200   | 0.620         | 0.810                  | -0.270                 | 0.000         | 0.000     |
| Link43 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.010     | 103.700   | 0.580         | 1.510                  | 0.910                  | 0.000         | 0.000     |
| Link43 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 103.700   | 0.580         | 1.510                  | 0.910                  | 0.000         | 0.000     |
| Link43 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 103.700   | 0.580         | 1.510                  | 0.910                  | 0.000         | 0.000     |
| Link43 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 103.700   | 0.580         | 1.510                  | 0.910                  | 0.000         | 0.000     |
| Link43 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 103.700   | 0.580         | 1.510                  | 0.910                  | 0.000         | 0.000     |
| Link44 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.010     | 270.000   | 0.550         | 1.460                  | -0.020                 | 0.000         | 0.000     |
| Link44 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 270.000   | 0.550         | 1.460                  | -0.020                 | 0.000         | 0.000     |
| Link44 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.010     | 270.000   | 0.550         | 1.460                  | -0.020                 | 0.000         | 0.000     |
| Link44 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.010     | 270.000   | 0.550         | 1.460                  | -0.020                 | 0.000         | 0.000     |
| Link44 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.010     | 270.000   | 0.550         | 1.460                  | -0.020                 | 0.000         | 0.000     |
| Link45 | 1-year   |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.100     | 0.620         | 1.510                  | 1.460                  | 0.000         | 0.000     |
| Link45 | 10-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.100     | 0.620         | 1.510                  | 1.460                  | 0.000         | 0.000     |
| Link45 | 25-year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.100     | 0.620         | 1.510                  | 1.460                  | 0.000         | 0.000     |
| Link45 | 50-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.100     | 0.620         | 1.510                  | 1.460                  | 0.000         | 0.000     |
| Link45 | 100-Year |           | Rectangular | 4.000    | 1.000          | 0.012     | 8.100     | 0.620         | 1.510                  | 1.460                  | 0.000         | 0.000     |
| Link46 | 1-year   |           | Rectangular | 4.000    | 1.000          | 0.012     | 75.700    | 0.520         | 1.850                  | 1.460                  | 0.000         | 0.000     |
| Link46 | 10-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 75.700    | 0.520         | 1.850                  | 1.460                  | 0.000         | 0.000     |
| Link46 | 25-year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 75.700    | 0.520         | 1.850                  | 1.460                  | 0.000         | 0.000     |
| Link46 | 50-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 75.700    | 0.520         | 1.850                  | 1.460                  | 0.000         | 0.000     |
| Link46 | 100-Year |           | Rectangular | 4.000    | 1.000          | 0.012     | 75.700    | 0.520         | 1.850                  | 1.460                  | 0.000         | 0.000     |



## Smith Existing Link Input

| Name   | Storm    | Weir Flag | Shape       | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|--------|----------|-----------|-------------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| Link47 | 1-year   |           | Circular    | 1.500    | 1.000          | 0.012     | 70.000    | 4.600         | 4.680                  | 1.460                  | 0.000         | 0.000     |
| Link47 | 10-Year  |           | Circular    | 1.500    | 1.000          | 0.012     | 70.000    | 4.600         | 4.680                  | 1.460                  | 0.000         | 0.000     |
| Link47 | 25-year  |           | Circular    | 1.500    | 1.000          | 0.012     | 70.000    | 4.600         | 4.680                  | 1.460                  | 0.000         | 0.000     |
| Link47 | 50-Year  |           | Circular    | 1.500    | 1.000          | 0.012     | 70.000    | 4.600         | 4.680                  | 1.460                  | 0.000         | 0.000     |
| Link47 | 100-Year |           | Circular    | 1.500    | 1.000          | 0.012     | 70.000    | 4.600         | 4.680                  | 1.460                  | 0.000         | 0.000     |
| Link48 | 1-year   |           | Rectangular | 4.000    | 1.000          | 0.012     | 7.200     | 2.220         | 2.010                  | 1.850                  | 0.000         | 0.000     |
| Link48 | 10-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 7.200     | 2.220         | 2.010                  | 1.850                  | 0.000         | 0.000     |
| Link48 | 25-year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 7.200     | 2.220         | 2.010                  | 1.850                  | 0.000         | 0.000     |
| Link48 | 50-Year  |           | Rectangular | 4.000    | 1.000          | 0.012     | 7.200     | 2.220         | 2.010                  | 1.850                  | 0.000         | 0.000     |
| Link48 | 100-Year |           | Rectangular | 4.000    | 1.000          | 0.012     | 7.200     | 2.220         | 2.010                  | 1.850                  | 0.000         | 0.000     |
| Link49 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.012     | 250.700   | 0.300         | 2.600                  | 1.850                  | 0.000         | 0.000     |
| Link49 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.012     | 250.700   | 0.300         | 2.600                  | 1.850                  | 0.000         | 0.000     |
| Link49 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.012     | 250.700   | 0.300         | 2.600                  | 1.850                  | 0.000         | 0.000     |
| Link49 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.012     | 250.700   | 0.300         | 2.600                  | 1.850                  | 0.000         | 0.000     |
| Link49 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.012     | 250.700   | 0.300         | 2.600                  | 1.850                  | 0.000         | 0.000     |
| Link50 | 1-year   |           | Circular    | 0.160    | 1.000          | 0.012     | 172.000   | 0.250         | 2.440                  | 2.010                  | 0.000         | 0.000     |
| Link50 | 10-Year  |           | Circular    | 0.160    | 1.000          | 0.012     | 172.000   | 0.250         | 2.440                  | 2.010                  | 0.000         | 0.000     |
| Link50 | 25-year  |           | Circular    | 0.160    | 1.000          | 0.012     | 172.000   | 0.250         | 2.440                  | 2.010                  | 0.000         | 0.000     |
| Link50 | 50-Year  |           | Circular    | 0.160    | 1.000          | 0.012     | 172.000   | 0.250         | 2.440                  | 2.010                  | 0.000         | 0.000     |
| Link50 | 100-Year |           | Circular    | 0.160    | 1.000          | 0.012     | 172.000   | 0.250         | 2.440                  | 2.010                  | 0.000         | 0.000     |
| Link51 | 1-year   |           | Circular    | 4.000    | 1.000          | 0.012     | 80.000    | 0.280         | 2.620                  | 2.400                  | 0.000         | 0.000     |
| Link51 | 10-Year  |           | Circular    | 4.000    | 1.000          | 0.012     | 80.000    | 0.280         | 2.620                  | 2.400                  | 0.000         | 0.000     |
| Link51 | 25-year  |           | Circular    | 4.000    | 1.000          | 0.012     | 80.000    | 0.280         | 2.620                  | 2.400                  | 0.000         | 0.000     |
| Link51 | 50-Year  |           | Circular    | 4.000    | 1.000          | 0.012     | 80.000    | 0.280         | 2.620                  | 2.400                  | 0.000         | 0.000     |
| Link51 | 100-Year |           | Circular    | 4.000    | 1.000          | 0.012     | 80.000    | 0.280         | 2.620                  | 2.400                  | 0.000         | 0.000     |
| Link52 | 1-year   |           | Circular    | 5.000    | 1.000          | 0.012     | 328.000   | 0.870         | 5.520                  | 2.650                  | 0.000         | 0.000     |
| Link52 | 10-Year  |           | Circular    | 5.000    | 1.000          | 0.012     | 328.000   | 0.870         | 5.520                  | 2.650                  | 0.000         | 0.000     |
| Link52 | 25-year  |           | Circular    | 5.000    | 1.000          | 0.012     | 328.000   | 0.870         | 5.520                  | 2.650                  | 0.000         | 0.000     |
| Link52 | 50-Year  |           | Circular    | 5.000    | 1.000          | 0.012     | 328.000   | 0.870         | 5.520                  | 2.650                  | 0.000         | 0.000     |
| Link52 | 100-Year |           | Circular    | 5.000    | 1.000          | 0.012     | 328.000   | 0.870         | 5.520                  | 2.650                  | 0.000         | 0.000     |
| Link53 | 1-year   |           | Circular    | 5.000    | 1.000          | 0.012     | 52.000    | 0.020         | 5.600                  | 5.590                  | 0.000         | 0.000     |
| Link53 | 10-Year  |           | Circular    | 5.000    | 1.000          | 0.012     | 52.000    | 0.020         | 5.600                  | 5.590                  | 0.000         | 0.000     |
| Link53 | 25-year  |           | Circular    | 5.000    | 1.000          | 0.012     | 52.000    | 0.020         | 5.600                  | 5.590                  | 0.000         | 0.000     |
| Link53 | 50-Year  |           | Circular    | 5.000    | 1.000          | 0.012     | 52.000    | 0.020         | 5.600                  | 5.590                  | 0.000         | 0.000     |



## Smith Existing Link Input

| Name    | Storm    | Weir Flag | Shape    | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|---------|----------|-----------|----------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| Link53  | 100-Year |           | Circular | 5.000    | 1.000          | 0.012     | 52.000    | 0.020         | 5.600                  | 5.590                  | 0.000         | 0.000     |
| Link54  | 1-year   |           | Circular | 5.000    | 1.000          | 0.012     | 35.000    | 0.460         | 5.760                  | 5.600                  | 0.000         | 0.000     |
| Link54  | 10-Year  |           | Circular | 5.000    | 1.000          | 0.012     | 35.000    | 0.460         | 5.760                  | 5.600                  | 0.000         | 0.000     |
| Link54  | 25-year  |           | Circular | 5.000    | 1.000          | 0.012     | 35.000    | 0.460         | 5.760                  | 5.600                  | 0.000         | 0.000     |
| Link54  | 50-Year  |           | Circular | 5.000    | 1.000          | 0.012     | 35.000    | 0.460         | 5.760                  | 5.600                  | 0.000         | 0.000     |
| Link54  | 100-Year |           | Circular | 5.000    | 1.000          | 0.012     | 35.000    | 0.460         | 5.760                  | 5.600                  | 0.000         | 0.000     |
| Link253 | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.036         | 8.710                  | 8.590                  | 0.200         | 0.200     |
| Link253 | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.036         | 8.710                  | 8.590                  | 0.200         | 0.200     |
| Link253 | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.036         | 8.710                  | 8.590                  | 0.200         | 0.200     |
| Link253 | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.036         | 8.710                  | 8.590                  | 0.200         | 0.200     |
| Link253 | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.036         | 8.710                  | 8.590                  | 0.200         | 0.200     |
| Link254 | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.375         | 8.590                  | 7.330                  | 0.200         | 0.200     |
| Link254 | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.375         | 8.590                  | 7.330                  | 0.200         | 0.200     |
| Link254 | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.375         | 8.590                  | 7.330                  | 0.200         | 0.200     |
| Link254 | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.375         | 8.590                  | 7.330                  | 0.200         | 0.200     |
| Link254 | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.375         | 8.590                  | 7.330                  | 0.200         | 0.200     |
| Link255 | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.134         | 7.330                  | 6.880                  | 0.200         | 0.200     |
| Link255 | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.134         | 7.330                  | 6.880                  | 0.200         | 0.200     |
| Link255 | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.134         | 7.330                  | 6.880                  | 0.200         | 0.200     |
| Link255 | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.134         | 7.330                  | 6.880                  | 0.200         | 0.200     |
| Link255 | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.134         | 7.330                  | 6.880                  | 0.200         | 0.200     |
| Link256 | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.333         | 6.880                  | 5.760                  | 0.200         | 0.200     |
| Link256 | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.333         | 6.880                  | 5.760                  | 0.200         | 0.200     |
| Link256 | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.333         | 6.880                  | 5.760                  | 0.200         | 0.200     |
| Link256 | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.333         | 6.880                  | 5.760                  | 0.200         | 0.200     |
| Link256 | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 336.000   | 0.333         | 6.880                  | 5.760                  | 0.200         | 0.200     |
| 15b     | 1-year   |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.110         | -6.030                 | -6.480                 | 0.000         | 0.000     |
| 15b     | 10-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.110         | -6.030                 | -6.480                 | 0.000         | 0.000     |
| 15b     | 25-year  |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.110         | -6.030                 | -6.480                 | 0.000         | 0.000     |
| 15b     | 50-Year  |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.110         | -6.030                 | -6.480                 | 0.000         | 0.000     |
| 15b     | 100-Year |           | Natural  | 0.000    | 1.000          | 0.014     | 400.000   | 0.110         | -6.030                 | -6.480                 | 0.000         | 0.000     |
| #1-54in | 1-year   |           | Circular | 4.500    | 1.000          | 0.014     | 69.700    | 1.050         | -2.850                 | -3.580                 | 0.000         | 0.000     |
| #1-54in | 10-Year  |           |          |          |                |           |           |               |                        |                        |               |           |
| #1-54in | 25-year  |           |          |          |                |           |           |               |                        |                        |               |           |



## Smith Existing Link Input

| Name      | Storm    | Weir Flag                           | Shape    | Diam. ft | No. of Barrels | Roughness | Length ft | Conduit Slope | US Invert Elevation ft | DS Invert Elevation ft | Entrance Loss | Exit Loss |
|-----------|----------|-------------------------------------|----------|----------|----------------|-----------|-----------|---------------|------------------------|------------------------|---------------|-----------|
| #1-54in   | 50-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| #1-54in   | 100-Year |                                     |          |          |                |           |           |               |                        |                        |               |           |
| #2-54in   | 1-year   |                                     | Circular | 4.500    | 1.000          | 0.014     | 69.500    | 1.180         | -2.780                 | -3.600                 | 0.000         | 0.000     |
| #2-54in   | 10-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| #2-54in   | 25-year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| #2-54in   | 50-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| #2-54in   | 100-Year |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_P | 1-year   |                                     | Circular | 1.500    | 1.000          | 0.010     | 38.700    | 0.207         | 6.000                  | 5.920                  | 0.200         | 0.200     |
| THLink2_P | 10-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_P | 25-year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_P | 50-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_P | 100-Year |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_R | 1-year   | <input checked="" type="checkbox"/> |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_R | 10-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_R | 25-year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_R | 50-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink2_R | 100-Year |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_P | 1-year   |                                     | Circular | 2.000    | 1.000          | 0.013     | 42.940    | 0.210         | 8.800                  | 8.710                  | 0.200         | 0.200     |
| THLink3_P | 10-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_P | 25-year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_P | 50-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_P | 100-Year |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_R | 1-year   | <input checked="" type="checkbox"/> |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_R | 10-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_R | 25-year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_R | 50-Year  |                                     |          |          |                |           |           |               |                        |                        |               |           |
| THLink3_R | 100-Year |                                     |          |          |                |           |           |               |                        |                        |               |           |



# Smith Existing Node Input

| Name    | Storm    | Ponding Type | Invert Elevation ft | Top of Frame/Bank ft | Storage Node Data Flag |  |  |
|---------|----------|--------------|---------------------|----------------------|------------------------|--|--|
| SmithN8 | 1-year   | Allowed      | -1.050              | 5.940                |                        |  |  |
| SmithN8 | 10-Year  | Allowed      | -1.050              | 5.940                |                        |  |  |
| SmithN8 | 25-year  | Allowed      | -1.050              | 5.940                |                        |  |  |
| SmithN8 | 50-Year  | Allowed      | -1.050              | 5.940                |                        |  |  |
| SmithN8 | 100-Year | Allowed      | -1.050              | 5.940                |                        |  |  |
| SmithN7 | 1-year   | Allowed      | -1.310              | 13.000               |                        |  |  |
| SmithN7 | 10-Year  | Allowed      | -1.310              | 13.000               |                        |  |  |
| SmithN7 | 25-year  | Allowed      | -1.310              | 13.000               |                        |  |  |
| SmithN7 | 50-Year  | Allowed      | -1.310              | 13.000               |                        |  |  |
| SmithN7 | 100-Year | Allowed      | -1.310              | 13.000               |                        |  |  |
| SmithN6 | 1-year   | Allowed      | -0.790              | 15.750               |                        |  |  |
| SmithN6 | 10-Year  | Allowed      | -0.790              | 15.750               |                        |  |  |
| SmithN6 | 25-year  | Allowed      | -0.790              | 15.750               |                        |  |  |
| SmithN6 | 50-Year  | Allowed      | -0.790              | 15.750               |                        |  |  |
| SmithN6 | 100-Year | Allowed      | -0.790              | 15.750               |                        |  |  |
| SmithN5 | 1-year   | Allowed      | -0.900              | 15.640               |                        |  |  |
| SmithN5 | 10-Year  | Allowed      | -0.900              | 15.640               |                        |  |  |
| SmithN5 | 25-year  | Allowed      | -0.900              | 15.640               |                        |  |  |
| SmithN5 | 50-Year  | Allowed      | -0.900              | 15.640               |                        |  |  |
| SmithN5 | 100-Year | Allowed      | -0.900              | 15.640               |                        |  |  |
| SmithN3 | 1-year   | Allowed      | -3.600              | 9.300                |                        |  |  |
| SmithN3 | 10-Year  | Allowed      | -3.600              | 9.300                |                        |  |  |
| SmithN3 | 25-year  | Allowed      | -3.600              | 9.300                |                        |  |  |
| SmithN3 | 50-Year  | Allowed      | -3.600              | 9.300                |                        |  |  |
| SmithN3 | 100-Year | Allowed      | -3.600              | 9.300                |                        |  |  |
| SmithN2 | 1-year   | Allowed      | -3.440              | 8.750                |                        |  |  |
| SmithN2 | 10-Year  | Allowed      | -3.440              | 8.750                |                        |  |  |
| SmithN2 | 25-year  | Allowed      | -3.440              | 8.750                |                        |  |  |
| SmithN2 | 50-Year  | Allowed      | -3.440              | 8.750                |                        |  |  |
| SmithN2 | 100-Year | Allowed      | -3.440              | 8.750                |                        |  |  |
| SmithN1 | 1-year   | Allowed      | -3.600              | 15.250               |                        |  |  |
| SmithN1 | 10-Year  | Allowed      | -3.600              | 15.250               |                        |  |  |
| SmithN1 | 25-year  | Allowed      | -3.600              | 15.250               |                        |  |  |
| SmithN1 | 50-Year  | Allowed      | -3.600              | 15.250               |                        |  |  |
| SmithN1 | 100-Year | Allowed      | -3.600              | 15.250               |                        |  |  |
| SB#6C   | 1-year   | Allowed      | -2.850              | 13.000               |                        |  |  |
| SB#6C   | 10-Year  | Allowed      | -2.850              | 13.000               |                        |  |  |
| SB#6C   | 25-year  | Allowed      | -2.850              | 13.000               |                        |  |  |
| SB#6C   | 50-Year  | Allowed      | -2.850              | 13.000               |                        |  |  |
| SB#6C   | 100-Year | Allowed      | -2.850              | 13.000               |                        |  |  |
| SB#6B   | 1-year   | Allowed      | -0.700              | 3.880                |                        |  |  |
| SB#6B   | 10-Year  | Allowed      | -0.700              | 3.880                |                        |  |  |
| SB#6B   | 25-year  | Allowed      | -0.700              | 3.880                |                        |  |  |
| SB#6B   | 50-Year  | Allowed      | -0.700              | 3.880                |                        |  |  |
| SB#6B   | 100-Year | Allowed      | -0.700              | 3.880                |                        |  |  |
| SB#6A   | 1-year   | Allowed      | -0.680              | 7.570                |                        |  |  |
| SB#6A   | 10-Year  | Allowed      | -0.680              | 7.570                |                        |  |  |
| SB#6A   | 25-year  | Allowed      | -0.680              | 7.570                |                        |  |  |
| SB#6A   | 50-Year  | Allowed      | -0.680              | 7.570                |                        |  |  |
| SB#6A   | 100-Year | Allowed      | -0.680              | 7.570                |                        |  |  |
| Node20  | 1-year   | Allowed      | -1.240              | 6.290                |                        |  |  |



# Smith Existing Node Input

| Name   | Storm    | Ponding Type | Invert Elevation ft | Top of Frame/Bank ft | Storage Node Data Flag |  |  |
|--------|----------|--------------|---------------------|----------------------|------------------------|--|--|
| Node20 | 10-Year  | Allowed      | -1.240              | 6.290                |                        |  |  |
| Node20 | 25-year  | Allowed      | -1.240              | 6.290                |                        |  |  |
| Node20 | 50-Year  | Allowed      | -1.240              | 6.290                |                        |  |  |
| Node20 | 100-Year | Allowed      | -1.240              | 6.290                |                        |  |  |
| Node21 | 1-year   | Allowed      | 2.660               | 6.480                |                        |  |  |
| Node21 | 10-Year  | Allowed      | 2.660               | 6.480                |                        |  |  |
| Node21 | 25-year  | Allowed      | 2.660               | 6.480                |                        |  |  |
| Node21 | 50-Year  | Allowed      | 2.660               | 6.480                |                        |  |  |
| Node21 | 100-Year | Allowed      | 2.660               | 6.480                |                        |  |  |
| Node22 | 1-year   | Allowed      | 3.450               | 5.450                |                        |  |  |
| Node22 | 10-Year  | Allowed      | 3.450               | 5.450                |                        |  |  |
| Node22 | 25-year  | Allowed      | 3.450               | 5.450                |                        |  |  |
| Node22 | 50-Year  | Allowed      | 3.450               | 5.450                |                        |  |  |
| Node22 | 100-Year | Allowed      | 3.450               | 5.450                |                        |  |  |
| Node23 | 1-year   | Allowed      | 3.380               | 5.190                |                        |  |  |
| Node23 | 10-Year  | Allowed      | 3.380               | 5.190                |                        |  |  |
| Node23 | 25-year  | Allowed      | 3.380               | 5.190                |                        |  |  |
| Node23 | 50-Year  | Allowed      | 3.380               | 5.190                |                        |  |  |
| Node23 | 100-Year | Allowed      | 3.380               | 5.190                |                        |  |  |
| Node24 | 1-year   | Allowed      | -0.620              | 5.230                |                        |  |  |
| Node24 | 10-Year  | Allowed      | -0.620              | 5.230                |                        |  |  |
| Node24 | 25-year  | Allowed      | -0.620              | 5.230                |                        |  |  |
| Node24 | 50-Year  | Allowed      | -0.620              | 5.230                |                        |  |  |
| Node24 | 100-Year | Allowed      | -0.620              | 5.230                |                        |  |  |
| Node25 | 1-year   | Allowed      | 0.160               | 5.390                |                        |  |  |
| Node25 | 10-Year  | Allowed      | 0.160               | 5.390                |                        |  |  |
| Node25 | 25-year  | Allowed      | 0.160               | 5.390                |                        |  |  |
| Node25 | 50-Year  | Allowed      | 0.160               | 5.390                |                        |  |  |
| Node25 | 100-Year | Allowed      | 0.160               | 5.390                |                        |  |  |
| Node26 | 1-year   | Allowed      | 0.560               | 7.370                |                        |  |  |
| Node26 | 10-Year  | Allowed      | 0.560               | 7.370                |                        |  |  |
| Node26 | 25-year  | Allowed      | 0.560               | 7.370                |                        |  |  |
| Node26 | 50-Year  | Allowed      | 0.560               | 7.370                |                        |  |  |
| Node26 | 100-Year | Allowed      | 0.560               | 7.370                |                        |  |  |
| Node27 | 1-year   | Allowed      | 0.330               | 6.820                |                        |  |  |
| Node27 | 10-Year  | Allowed      | 0.330               | 6.820                |                        |  |  |
| Node27 | 25-year  | Allowed      | 0.330               | 6.820                |                        |  |  |
| Node27 | 50-Year  | Allowed      | 0.330               | 6.820                |                        |  |  |
| Node27 | 100-Year | Allowed      | 0.330               | 6.820                |                        |  |  |
| Node28 | 1-year   | Allowed      | 0.890               | 9.040                |                        |  |  |
| Node28 | 10-Year  | Allowed      | 0.890               | 9.040                |                        |  |  |
| Node28 | 25-year  | Allowed      | 0.890               | 9.040                |                        |  |  |
| Node28 | 50-Year  | Allowed      | 0.890               | 9.040                |                        |  |  |
| Node28 | 100-Year | Allowed      | 0.890               | 9.040                |                        |  |  |
| Node29 | 1-year   | Allowed      | 1.730               | 8.840                |                        |  |  |
| Node29 | 10-Year  | Allowed      | 1.730               | 8.840                |                        |  |  |
| Node29 | 25-year  | Allowed      | 1.730               | 8.840                |                        |  |  |
| Node29 | 50-Year  | Allowed      | 1.730               | 8.840                |                        |  |  |
| Node29 | 100-Year | Allowed      | 1.730               | 8.840                |                        |  |  |
| Node30 | 1-year   | Allowed      | 2.530               | 9.180                |                        |  |  |
| Node30 | 10-Year  | Allowed      | 2.530               | 9.180                |                        |  |  |



# Smith Existing Node Input

| Name       | Storm    | Ponding Type | Invert Elevation ft | Top of Frame/Bank ft | Storage Node Data Flag |  |  |
|------------|----------|--------------|---------------------|----------------------|------------------------|--|--|
| Node30     | 25-year  | Allowed      | 2.530               | 9.180                |                        |  |  |
| Node30     | 50-Year  | Allowed      | 2.530               | 9.180                |                        |  |  |
| Node30     | 100-Year | Allowed      | 2.530               | 9.180                |                        |  |  |
| Node31     | 1-year   | Allowed      | 3.320               | 9.790                |                        |  |  |
| Node31     | 10-Year  | Allowed      | 3.320               | 9.790                |                        |  |  |
| Node31     | 25-year  | Allowed      | 3.320               | 9.790                |                        |  |  |
| Node31     | 50-Year  | Allowed      | 3.320               | 9.790                |                        |  |  |
| Node31     | 100-Year | Allowed      | 3.320               | 9.790                |                        |  |  |
| Node32     | 1-year   | Allowed      | 3.500               | 8.370                |                        |  |  |
| Node32     | 10-Year  | Allowed      | 3.500               | 8.370                |                        |  |  |
| Node32     | 25-year  | Allowed      | 3.500               | 8.370                |                        |  |  |
| Node32     | 50-Year  | Allowed      | 3.500               | 8.370                |                        |  |  |
| Node32     | 100-Year | Allowed      | 3.500               | 8.370                |                        |  |  |
| Node33     | 1-year   | Allowed      | 5.660               | 11.140               |                        |  |  |
| Node33     | 10-Year  | Allowed      | 5.660               | 11.140               |                        |  |  |
| Node33     | 25-year  | Allowed      | 5.660               | 11.140               |                        |  |  |
| Node33     | 50-Year  | Allowed      | 5.660               | 11.140               |                        |  |  |
| Node33     | 100-Year | Allowed      | 5.660               | 11.140               |                        |  |  |
| Sm_Basin 4 | 1-year   | Allowed      | 6.210               | 8.710                |                        |  |  |
| Sm_Basin 4 | 10-Year  | Allowed      | 6.210               | 8.710                |                        |  |  |
| Sm_Basin 4 | 25-year  | Allowed      | 6.210               | 8.710                |                        |  |  |
| Sm_Basin 4 | 50-Year  | Allowed      | 6.210               | 8.710                |                        |  |  |
| Sm_Basin 4 | 100-Year | Allowed      | 6.210               | 8.710                |                        |  |  |
| Node35     | 1-year   | Allowed      | 0.200               | 5.410                |                        |  |  |
| Node35     | 10-Year  | Allowed      | 0.200               | 5.410                |                        |  |  |
| Node35     | 25-year  | Allowed      | 0.200               | 5.410                |                        |  |  |
| Node35     | 50-Year  | Allowed      | 0.200               | 5.410                |                        |  |  |
| Node35     | 100-Year | Allowed      | 0.200               | 5.410                |                        |  |  |
| Node36     | 1-year   | Allowed      | -0.570              | 6.450                |                        |  |  |
| Node36     | 10-Year  | Allowed      | -0.570              | 6.450                |                        |  |  |
| Node36     | 25-year  | Allowed      | -0.570              | 6.450                |                        |  |  |
| Node36     | 50-Year  | Allowed      | -0.570              | 6.450                |                        |  |  |
| Node36     | 100-Year | Allowed      | -0.570              | 6.450                |                        |  |  |
| Node37     | 1-year   | Allowed      | -0.270              | 5.560                |                        |  |  |
| Node37     | 10-Year  | Allowed      | -0.270              | 5.560                |                        |  |  |
| Node37     | 25-year  | Allowed      | -0.270              | 5.560                |                        |  |  |
| Node37     | 50-Year  | Allowed      | -0.270              | 5.560                |                        |  |  |
| Node37     | 100-Year | Allowed      | -0.270              | 5.560                |                        |  |  |
| Node38     | 1-year   | Allowed      | -0.230              | 5.390                |                        |  |  |
| Node38     | 10-Year  | Allowed      | -0.230              | 5.390                |                        |  |  |
| Node38     | 25-year  | Allowed      | -0.230              | 5.390                |                        |  |  |
| Node38     | 50-Year  | Allowed      | -0.230              | 5.390                |                        |  |  |
| Node38     | 100-Year | Allowed      | -0.230              | 5.390                |                        |  |  |
| Node39     | 1-year   | Allowed      | -1.510              | 6.490                |                        |  |  |
| Node39     | 10-Year  | Allowed      | -1.510              | 6.490                |                        |  |  |
| Node39     | 25-year  | Allowed      | -1.510              | 6.490                |                        |  |  |
| Node39     | 50-Year  | Allowed      | -1.510              | 6.490                |                        |  |  |
| Node39     | 100-Year | Allowed      | -1.510              | 6.490                |                        |  |  |
| Node40     | 1-year   | Allowed      | 0.810               | 5.660                |                        |  |  |
| Node40     | 10-Year  | Allowed      | 0.810               | 5.660                |                        |  |  |
| Node40     | 25-year  | Allowed      | 0.810               | 5.660                |                        |  |  |



# Smith Existing Node Input

| Name      | Storm    | Ponding Type | Invert Elevation ft | Top of Frame/Bank ft | Storage Node Data Flag |  |  |
|-----------|----------|--------------|---------------------|----------------------|------------------------|--|--|
| Node40    | 50-Year  | Allowed      | 0.810               | 5.660                |                        |  |  |
| Node40    | 100-Year | Allowed      | 0.810               | 5.660                |                        |  |  |
| Node41    | 1-year   | Allowed      | 1.230               | 7.080                |                        |  |  |
| Node41    | 10-Year  | Allowed      | 1.230               | 7.080                |                        |  |  |
| Node41    | 25-year  | Allowed      | 1.230               | 7.080                |                        |  |  |
| Node41    | 50-Year  | Allowed      | 1.230               | 7.080                |                        |  |  |
| Node41    | 100-Year | Allowed      | 1.230               | 7.080                |                        |  |  |
| Node42    | 1-year   | Allowed      | 1.510               | 6.840                |                        |  |  |
| Node42    | 10-Year  | Allowed      | 1.510               | 6.840                |                        |  |  |
| Node42    | 25-year  | Allowed      | 1.510               | 6.840                |                        |  |  |
| Node42    | 50-Year  | Allowed      | 1.510               | 6.840                |                        |  |  |
| Node42    | 100-Year | Allowed      | 1.510               | 6.840                |                        |  |  |
| Node44    | 1-year   | Allowed      | 4.620               | 6.380                |                        |  |  |
| Node44    | 10-Year  | Allowed      | 4.620               | 6.380                |                        |  |  |
| Node44    | 25-year  | Allowed      | 4.620               | 6.380                |                        |  |  |
| Node44    | 50-Year  | Allowed      | 4.620               | 6.380                |                        |  |  |
| Node44    | 100-Year | Allowed      | 4.620               | 6.380                |                        |  |  |
| Node45    | 1-year   | Allowed      | 2.010               | 7.530                |                        |  |  |
| Node45    | 10-Year  | Allowed      | 2.010               | 7.530                |                        |  |  |
| Node45    | 25-year  | Allowed      | 2.010               | 7.530                |                        |  |  |
| Node45    | 50-Year  | Allowed      | 2.010               | 7.530                |                        |  |  |
| Node45    | 100-Year | Allowed      | 2.010               | 7.530                |                        |  |  |
| Node46    | 1-year   | Allowed      | 1.220               | 7.530                |                        |  |  |
| Node46    | 10-Year  | Allowed      | 1.220               | 7.530                |                        |  |  |
| Node46    | 25-year  | Allowed      | 1.220               | 7.530                |                        |  |  |
| Node46    | 50-Year  | Allowed      | 1.220               | 7.530                |                        |  |  |
| Node46    | 100-Year | Allowed      | 1.220               | 7.530                |                        |  |  |
| Node47    | 1-year   | Allowed      | 2.400               | 7.710                |                        |  |  |
| Node47    | 10-Year  | Allowed      | 2.400               | 7.710                |                        |  |  |
| Node47    | 25-year  | Allowed      | 2.400               | 7.710                |                        |  |  |
| Node47    | 50-Year  | Allowed      | 2.400               | 7.710                |                        |  |  |
| Node47    | 100-Year | Allowed      | 2.400               | 7.710                |                        |  |  |
| Node48    | 1-year   | Allowed      | 2.600               | 8.850                |                        |  |  |
| Node48    | 10-Year  | Allowed      | 2.600               | 8.850                |                        |  |  |
| Node48    | 25-year  | Allowed      | 2.600               | 8.850                |                        |  |  |
| Node48    | 50-Year  | Allowed      | 2.600               | 8.850                |                        |  |  |
| Node48    | 100-Year | Allowed      | 2.600               | 8.850                |                        |  |  |
| Node50    | 1-year   | Allowed      | 5.450               | 12.410               |                        |  |  |
| Node50    | 10-Year  | Allowed      | 5.450               | 12.410               |                        |  |  |
| Node50    | 25-year  | Allowed      | 5.450               | 12.410               |                        |  |  |
| Node50    | 50-Year  | Allowed      | 5.450               | 12.410               |                        |  |  |
| Node50    | 100-Year | Allowed      | 5.450               | 12.410               |                        |  |  |
| Node51    | 1-year   | Allowed      | 5.600               | 11.630               |                        |  |  |
| Node51    | 10-Year  | Allowed      | 5.600               | 11.630               |                        |  |  |
| Node51    | 25-year  | Allowed      | 5.600               | 11.630               |                        |  |  |
| Node51    | 50-Year  | Allowed      | 5.600               | 11.630               |                        |  |  |
| Node51    | 100-Year | Allowed      | 5.600               | 11.630               |                        |  |  |
| S_Basin 6 | 1-year   | Allowed      | 5.760               | 11.940               |                        |  |  |
| S_Basin 6 | 10-Year  | Allowed      | 5.760               | 11.940               |                        |  |  |
| S_Basin 6 | 25-year  | Allowed      | 5.760               | 11.940               |                        |  |  |
| S_Basin 6 | 50-Year  | Allowed      | 5.760               | 11.940               |                        |  |  |



# Smith Existing Node Input

| Name       | Storm    | Ponding Type | Invert Elevation ft | Top of Frame/Bank ft | Storage Node Data Flag |  |  |
|------------|----------|--------------|---------------------|----------------------|------------------------|--|--|
| S_Basin 6  | 100-Year | Allowed      | 5.760               | 11.940               |                        |  |  |
| TH_Node 1  | 1-year   | Allowed      | 8.710               | 13.370               |                        |  |  |
| TH_Node 1  | 10-Year  | Allowed      | 8.710               | 13.370               |                        |  |  |
| TH_Node 1  | 25-year  | Allowed      | 8.710               | 13.370               |                        |  |  |
| TH_Node 1  | 50-Year  | Allowed      | 8.710               | 13.370               |                        |  |  |
| TH_Node 1  | 100-Year | Allowed      | 8.710               | 13.370               |                        |  |  |
| TH_Basin 1 | 1-year   | Allowed      | 6.000               | 9.550                |                        |  |  |
| TH_Basin 1 | 10-Year  | Allowed      | 6.000               | 9.550                |                        |  |  |
| TH_Basin 1 | 25-year  | Allowed      | 6.000               | 9.550                |                        |  |  |
| TH_Basin 1 | 50-Year  | Allowed      | 6.000               | 9.550                |                        |  |  |
| TH_Basin 1 | 100-Year | Allowed      | 6.000               | 9.550                |                        |  |  |
| THNode3    | 1-year   | Allowed      | 5.920               | 9.000                |                        |  |  |
| THNode3    | 10-Year  | Allowed      | 5.920               | 9.000                |                        |  |  |
| THNode3    | 25-year  | Allowed      | 5.920               | 9.000                |                        |  |  |
| THNode3    | 50-Year  | Allowed      | 5.920               | 9.000                |                        |  |  |
| THNode3    | 100-Year | Allowed      | 5.920               | 9.000                |                        |  |  |
| TH_Basin 5 | 1-year   | Allowed      | 8.800               | 12.600               |                        |  |  |
| TH_Basin 5 | 10-Year  | Allowed      | 8.800               | 12.600               |                        |  |  |
| TH_Basin 5 | 25-year  | Allowed      | 8.800               | 12.600               |                        |  |  |
| TH_Basin 5 | 50-Year  | Allowed      | 8.800               | 12.600               |                        |  |  |
| TH_Basin 5 | 100-Year | Allowed      | 8.800               | 12.600               |                        |  |  |
| Node276    | 1-year   | Allowed      | 8.590               | 13.000               |                        |  |  |
| Node276    | 10-Year  | Allowed      | 8.590               | 13.000               |                        |  |  |
| Node276    | 25-year  | Allowed      | 8.590               | 13.000               |                        |  |  |
| Node276    | 50-Year  | Allowed      | 8.590               | 13.000               |                        |  |  |
| Node276    | 100-Year | Allowed      | 8.590               | 13.000               |                        |  |  |
| Node277    | 1-year   | Allowed      | 7.330               | 11.520               |                        |  |  |
| Node277    | 10-Year  | Allowed      | 7.330               | 11.520               |                        |  |  |
| Node277    | 25-year  | Allowed      | 7.330               | 11.520               |                        |  |  |
| Node277    | 50-Year  | Allowed      | 7.330               | 11.520               |                        |  |  |
| Node277    | 100-Year | Allowed      | 7.330               | 11.520               |                        |  |  |
| Node278    | 1-year   | Allowed      | 6.880               | 13.100               |                        |  |  |
| Node278    | 10-Year  | Allowed      | 6.880               | 13.100               |                        |  |  |
| Node278    | 25-year  | Allowed      | 6.880               | 13.100               |                        |  |  |
| Node278    | 50-Year  | Allowed      | 6.880               | 13.100               |                        |  |  |
| Node278    | 100-Year | Allowed      | 6.880               | 13.100               |                        |  |  |
| SB6D       | 1-year   | Allowed      | -6.480              | 10.370               |                        |  |  |
| SB6D       | 10-Year  | Allowed      | -6.480              | 10.370               |                        |  |  |
| SB6D       | 25-year  | Allowed      | -6.480              | 10.370               |                        |  |  |
| SB6D       | 50-Year  | Allowed      | -6.480              | 10.370               |                        |  |  |
| SB6D       | 100-Year | Allowed      | -6.480              | 10.370               |                        |  |  |
| 80+00      | 1-year   | Allowed      | -6.030              | 15.000               |                        |  |  |
| 80+00      | 10-Year  | Allowed      | -6.030              | 15.000               |                        |  |  |
| 80+00      | 25-year  | Allowed      | -6.030              | 15.000               |                        |  |  |
| 80+00      | 50-Year  | Allowed      | -6.030              | 15.000               |                        |  |  |
| 80+00      | 100-Year | Allowed      | -6.030              | 15.000               |                        |  |  |



## Smith Road Crossings

| Name      | Storm    | Weir Flag                           | Weir Length<br>ft | Top of Road<br>ft | Max Flow over<br>Road<br>cfs | US Max Water<br>Elevation<br>ft | DS Max Water<br>Elevation<br>ft |
|-----------|----------|-------------------------------------|-------------------|-------------------|------------------------------|---------------------------------|---------------------------------|
| THLink2_R | 1-year   | <input checked="" type="checkbox"/> | 200.000           | 9.500             | 0.000                        | 8.022                           | 7.420                           |
| THLink2_R | 10-Year  |                                     |                   |                   | 7.796                        | 9.555                           | 7.420                           |
| THLink2_R | 25-year  |                                     |                   |                   | 14.950                       | 9.585                           | 7.420                           |
| THLink2_R | 50-Year  |                                     |                   |                   | 20.681                       | 9.606                           | 7.420                           |
| THLink2_R | 100-Year |                                     |                   |                   | 26.413                       | 9.625                           | 7.420                           |
| THLink3_R | 1-year   | <input checked="" type="checkbox"/> | 60.000            | 12.800            | 0.000                        | 10.825                          | 10.306                          |
| THLink3_R | 10-Year  |                                     |                   |                   | 0.625                        | 12.823                          | 12.565                          |
| THLink3_R | 25-year  |                                     |                   |                   | 11.087                       | 13.697                          | 13.695                          |
| THLink3_R | 50-Year  |                                     |                   |                   | 18.733                       | 14.368                          | 14.367                          |
| THLink3_R | 100-Year |                                     |                   |                   | 26.167                       | 14.891                          | 14.890                          |



## Smith Pipe Crossings

| Name      | Scenario | Storm    | Conduit Flag                        | Diam.<br>ft | No. of Barrels | US Invert<br>Elevation<br>ft | DS Invert<br>Elevation<br>ft |
|-----------|----------|----------|-------------------------------------|-------------|----------------|------------------------------|------------------------------|
| THLink3_P | Proposed | 1-year   | <input checked="" type="checkbox"/> | 2.00        | 2.000          | 8.800                        | 8.710                        |
| THLink3_P | Proposed | 10-Year  |                                     |             |                |                              |                              |
| THLink3_P | Proposed | 25-year  |                                     |             |                |                              |                              |
| THLink3_P | Proposed | 50-Year  |                                     |             |                |                              |                              |
| THLink3_P | Proposed | 100-Year |                                     |             |                |                              |                              |
| THLink3_R | Proposed | 10-Year  |                                     |             |                |                              |                              |
| THLink3_R | Proposed | 25-year  |                                     |             |                |                              |                              |
| THLink3_R | Proposed | 50-Year  |                                     |             |                |                              |                              |
| THLink3_R | Proposed | 100-Year |                                     |             |                |                              |                              |
| THLink2_P | Proposed | 1-year   | <input checked="" type="checkbox"/> | 2.00        | 1.000          | 5.500                        | 5.420                        |
| THLink2_P | Proposed | 10-Year  |                                     |             |                |                              |                              |
| THLink2_P | Proposed | 25-year  |                                     |             |                |                              |                              |
| THLink2_P | Proposed | 50-Year  |                                     |             |                |                              |                              |
| THLink2_P | Proposed | 100-Year |                                     |             |                |                              |                              |
| THLink2_R | Proposed | 10-Year  |                                     |             |                |                              |                              |
| THLink2_R | Proposed | 25-year  |                                     |             |                |                              |                              |
| THLink2_R | Proposed | 50-Year  |                                     |             |                |                              |                              |
| THLink2_R | Proposed | 100-Year |                                     |             |                |                              |                              |



## Smith Road Crossings

| Name      | Scenario | Storm    | Weir Flag                           | Weir Length<br>ft | Top of Road<br>ft | Max Flow over<br>Road<br>cfs | US Max Water<br>Elevation<br>ft | DS Max Water<br>Elevation<br>ft |
|-----------|----------|----------|-------------------------------------|-------------------|-------------------|------------------------------|---------------------------------|---------------------------------|
| THLink2_R | Proposed | 1-year   | <input checked="" type="checkbox"/> | 200.000           | 9.500             | 0.000                        | 7.157                           | 6.928                           |
| THLink2_R | Proposed | 10-Year  |                                     |                   |                   | 0.000                        | 8.444                           | 7.420                           |
| THLink2_R | Proposed | 25-year  |                                     |                   |                   | 0.000                        | 8.980                           | 7.420                           |
| THLink2_R | Proposed | 50-Year  |                                     |                   |                   | 0.000                        | 9.490                           | 7.420                           |
| THLink2_R | Proposed | 100-Year |                                     |                   |                   | 5.260                        | 9.543                           | 7.420                           |
| THLink3_R | Proposed | 1-year   | <input checked="" type="checkbox"/> | 60.000            | 12.800            | 0.000                        | 10.440                          | 10.306                          |
| THLink3_R | Proposed | 10-Year  |                                     |                   |                   | 0.000                        | 11.752                          | 11.749                          |
| THLink3_R | Proposed | 25-year  |                                     |                   |                   | 0.000                        | 12.727                          | 12.722                          |
| THLink3_R | Proposed | 50-Year  |                                     |                   |                   | 2.081                        | 13.363                          | 13.362                          |
| THLink3_R | Proposed | 100-Year |                                     |                   |                   | 2.987                        | 13.924                          | 13.923                          |



# **GARDEN CITY STORMWATER MASTER PLAN**

## **APPENDIX F**

### **CONTENTS:**

CAPITAL IMPROVEMENT PROJECTS LIST AND MAP

J-24540.0005





| ID     | Basin            | Project Name                                                         |
|--------|------------------|----------------------------------------------------------------------|
| 01     | Chatham City     | Minis Avenue Pipe Crossing Replacement                               |
| 02     | Chatham City     | Chatham Villa Community Drainage Improvements                        |
| 03     | Chatham City     | Channel Increased Sizing and Bank Stabilization                      |
| 04     | Chatham City     | Davis Avenue Roadway Improvements                                    |
| 05     | Chatham City     | Davis Avenue - Option - Stormwater Detention Facility                |
| 06     | Heddi-Telfair    | Highway 80 Pipe Crossing Replacement                                 |
| 07     | Heddi-Telfair    | SW Quadrant Highway 80/West Chatham Avenue Pipe Crossing Replacement |
| 08     | Heddi-Telfair    | Telfair Place (West) - 1 Roadway & Pipe Crossing Replacement         |
| 09     | Heddi-Telfair    | Telfair Place (West) - 2 Roadway & Pipe Crossing Improvements        |
| 10     | Heddi-Telfair    | Chatham Parkway Pipe Crossing Replacement                            |
| 11     | Heddi-Telfair    | Chatham Parkway Channel Construction                                 |
| 12     | Heddi-Telfair    | Stormwater Detention Facility                                        |
| 13     | Talmdge          | Old Louisville Road Pipe Crossing Improvement 1                      |
| 14     | Talmdge          | Old Louisville Road Pipe Crossing Improvement 2                      |
| 15     | Talmdge          | Stormwater Detention Facility                                        |
| 16     | Talmdge          | Channel Increased Sizing and Bank Stabilization                      |
| 17     | Smith Pipemakers | Redmond Avenue Pipe Crossing Improvements                            |
| 18     | Smith Pipemakers | Smith Avenue Roadway Improvements                                    |
| 19     | Smith Pipemakers | Smith Avenue Pipe Crossing Replacement                               |
| 20     | Smith Pipemakers | Rommel Avenue Improvements                                           |
| 21     | Smith Pipemakers | Varnedee Avenue Improvements                                         |
| 22     | Smith Pipemakers | Carroll Avenue Improvements                                          |
| HGBD 1 | Heddi-Telfair    | Telfair Road                                                         |
| HGBD 2 | Heddi-Telfair    | Chatham Parkway (South) Stage 1 Phase 1                              |



| Job Number: 24540.0005                                                   | Produced: 1/16/2015 | Produced By: JLR | Modified: 01/16/15 | Modified By: JLR |
|--------------------------------------------------------------------------|---------------------|------------------|--------------------|------------------|
| File: Z:\24540\24540.0005\GIS\Map\Exhibits\Captial Improvements Map.mxd  |                     |                  |                    | Vertical Datum:  |
| Thomas & Hutton compiled the map information from the following sources: |                     |                  |                    |                  |
| Data                                                                     | Source              |                  | Date               |                  |
| Aerial Photography                                                       | GA DNR              |                  | 2013               |                  |
| Garden City Boundary                                                     | Thomas & Hutton     |                  | 2014               |                  |

# Garden City Stormwater Master Plan

Chatham County, Georgia

## Capital Improvements Map



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GEOGRAPHIC INFORMATION SYSTEMS

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GARDEN CITY DRAINAGE CAPITAL IMPROVEMENT PROJECTS

| ID              | Watershed    | Basin         | Project Name                                                         | Project Type   |                             |                      |                        |                                          |                                     |                                 |                               |                       | Project Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Cost Opinion     |
|-----------------|--------------|---------------|----------------------------------------------------------------------|----------------|-----------------------------|----------------------|------------------------|------------------------------------------|-------------------------------------|---------------------------------|-------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                 |              |               |                                                                      |                |                             |                      |                        |                                          |                                     |                                 |                               |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |
|                 |              |               |                                                                      |                | In City R.O.W. or property? | Historical flooding? | Water quality benefit? | Requires property /easement acquisition? | Near a critical facility or access? | Significant cost benefit ratio? | Interim strategies available? | Multi-jurisdictional? |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |
| Project Factors |              |               |                                                                      |                |                             |                      |                        |                                          |                                     |                                 |                               |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |
| 1               | Dundee Canal | Chatham City  | Minis Avenue Pipe Crossing Replacement                               | Improvement    | Y                           | N                    | N                      | N                                        | N                                   | Y                               | Y                             | N                     | Project involves drainage improvements to the pipe crossing at Minis Avenue between 3rd Street and Shady Lane Drive. Project includes replacing one 18-inch pipe with a 36-inch pipe to accommodate larger flows and clearing of all debris with scheduled maintenance to follow.                                                                                                                                                                                                                                   | \$ 50,000        |
| 2               | Dundee Canal | Chatham City  | Chatham Villa Community Drainage Improvements                        | Improvement    | Y                           | Y                    | Y                      | Y                                        | N                                   | Y                               | N                             | N                     | Project involves replacing the old swale/driveway culvert system with new drainage system and adding drainage along areas without an existing system within residential subdivision. Property owner coordination and easement acquisition may be required.                                                                                                                                                                                                                                                          | \$ 800,000       |
| 3               | Dundee Canal | Chatham City  | Chatham City Channel Increased Sizing and Bank Stabilization         | Volume Control | N                           | Y                    | Y                      | Y                                        | Y                                   | Y                               | N                             | N                     | Chatham City needs improvements with increased detention volume capacity and possible bank stabilization. Remediation will consist of broadening and deepening the channel to increase storage capacity. Further studies will be required to determine existing condition of channel and improvements.                                                                                                                                                                                                              | \$ 125,000       |
| 4               | Dundee Canal | Chatham City  | Davis Avenue Roadway Improvements                                    | Improvement    | Y                           | Y                    | N                      | Y                                        | N                                   | N                               | Y                             | N                     | Project includes raising roadway elevations along Davis Avenue at two pipe crossing. Existing roadway elevations will be increased from approximately 10 ft to approximately 14 ft to prevent roadway overtopping.                                                                                                                                                                                                                                                                                                  | \$ 200,000       |
| 5               | Dundee Canal | Chatham City  | Davis Avenue - Option -Stormwater Detention Facility                 | Volume Control | N                           | Y                    | Y                      | Y                                        | N                                   | Y                               | N                             | N                     | Project includes developing an area behind Davis Avenue near Chatham City Channel to create detention and alleviate upstream flooding. This project requires property acquisition by the City and will require further study.                                                                                                                                                                                                                                                                                       | \$ 500,000       |
| 6 (GDOT)        | Dundee Canal | Heidt-Telfair | Highway 80 Pipe Crossing Replacement                                 | Improvement    | N                           | N                    | N                      | Y                                        | Y                                   | Y                               | N                             | Y                     | Project involves drainage improvements to the pipe crossing at Highway 80 near Heidt Avenue. Project includes replacing one 24-inch pipe with a 36-inch pipe to accommodate larger flows and clearing of all debris with scheduled maintenance to follow.                                                                                                                                                                                                                                                           | TO BE DETERMINED |
| 7 (GDOT)        | Dundee Canal | Heidt-Telfair | SW Quadrant Highway 80/West Chatham Avenue Pipe Crossing Replacement | Improvement    | Y                           | N                    | N                      | Y                                        | Y                                   | Y                               | N                             | N                     | Project involves drainage improvements to the pipe crossing at West Chatham Avenue near Highway 80. Project includes replacing one 24-inch pipe with a 30-inch pipe to accommodate larger flows and prevent upstream flooding on Highway 80. Clearing of all debris with scheduled maintenance to follow.                                                                                                                                                                                                           | TO BE DETERMINED |
| 8               | Dundee Canal | Heidt-Telfair | Telfair Place (West) -1 Roadway & Pipe Crossing Replacement          | Improvement    | Y                           | Y                    | N                      | N                                        | N                                   | N                               | N                             | N                     | Project involves drainage improvements to the pipe crossing at the end of Telfair Place (West). Project includes replacing one 18-inch pipe with a 36-inch pipe to accommodate larger flows and raising the roadway elevation an additional 18" to 24". Approximately 1,000 linear feet of a roadside drainage system will be installed to alleviate flooding in conjunction with scheduled maintenance to follow.                                                                                                  | \$ 650,000       |
| 9               | Dundee Canal | Heidt-Telfair | Telfair Place (West) - 2 Roadway & Pipe Crossing Improvements        | Improvement    | Y                           | Y                    | N                      | Y                                        | Y                                   | Y                               | N                             | N                     | Project involves drainage improvements to the pipe crossing and roadway at Telfair Place near Chatham Parkway. Project includes replacing two 24-inch pipe with two 30-inch pipe to accommodate larger flows and raising the roadway elevation by half a foot at the crossing. Approximately 750 linear feet of a roadside drainage system will be installed to alleviate flooding in conjunction with scheduled maintenance to follow. This project may coincide with a channel improvement along Chatham Parkway. | \$ 300,000       |
| 10              | Dundee Canal | Heidt-Telfair | Chatham Parkway Pipe Crossing Replacement                            | Improvement    | Y                           | Y                    | N                      | N                                        | Y                                   | Y                               | N                             | N                     | Project involves drainage improvements to the pipe at Chatham Parkway near Telfair Place. Project includes replacing one 24-inch pipe with one 30-inch pipe to accommodate larger flows. This project may coincide with a channel improvement along Chatham Parkway.                                                                                                                                                                                                                                                | \$ 75,000        |
| 11              | Dundee Canal | Heidt-Telfair | Chatham Parkway Channel Construction                                 | Improvement    | Y                           | Y                    | Y                      | Y                                        | Y                                   | Y                               | N                             | N                     | Project involves establishing approximately 800 linear feet of channel that runs from the Heidt Canal south to the existing drainage channel. The channel will alleviate upstream flooding and streamline runoff to wetlands where higher storage capacity is available. This project will require further study to form design criteria.                                                                                                                                                                           | \$ 60,000        |



GARDEN CITY DRAINAGE CAPITAL IMPROVEMENT PROJECTS

| ID              | Watershed        | Basin            | Project Name                                                                                    | Project Type   |                             |                      |                        |                                           |                                     |                                 |                               |                       | Project Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Cost Opinion |
|-----------------|------------------|------------------|-------------------------------------------------------------------------------------------------|----------------|-----------------------------|----------------------|------------------------|-------------------------------------------|-------------------------------------|---------------------------------|-------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|                 |                  |                  |                                                                                                 |                |                             |                      |                        |                                           |                                     |                                 |                               |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
|                 |                  |                  |                                                                                                 |                | In City R.O.W. or property? | Historical flooding? | Water quality benefit? | Requires property / easement acquisition? | Near a critical facility or access? | Significant cost benefit ratio? | Interim strategies available? | Multi-jurisdictional? |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
| Project Factors |                  |                  |                                                                                                 |                |                             |                      |                        |                                           |                                     |                                 |                               |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
| 12              | Dundee Canal     | Heidt-Telfair    | Stormwater Detention Facility                                                                   | Volume Control | N                           | Y                    | Y                      | Y                                         | Y                                   | Y                               | N                             | Y                     | Project includes developing an area in the wetlands near the basin outfall pipe under the Amtrak tracks to create a ±10-acre detention pond top assist in alleviating upstream flooding. Because upsizing the 42-inch pipe under the railroad tracks would potentially cause flooding to downstream systems, detaining the runoff in this area is suggested. This project may require property acquisition by the City and will require further study.                                              | \$ 2,750,000 |
| 2008 HGBD CIP 1 | Dundee Canal     | Heidt-Telfair    | Chatham Parkway (South) Stage 1 Phase 1 (formerly Telfair West Basin in Telfair Drainage Study) | Improvement    | Y                           | Y                    | N                      | Y                                         | N                                   | Y                               | N                             | N                     | Improvements recommended by HGBD generally consist of the jack and bore of a 36-inch pipe under the CSX rail bed immediately north of Chatham Condominiums, widening of the outfall ditch to 6 feet and deepen by 6-inches on average, the replacement of an existing 18-inch pipe with a double 30-inch pipes and the replacement of a non-functional 24-inch pipe with a 42-inch pipe. For full and accurate detail of CIP, refer to Telfair Drainage Study, prepared by HGBD, dated August 2008. | \$ 107,900   |
| 13              | Talmadge         | Talmadge         | Old Louisville Pipe Crossing Improvement 1                                                      | Improvement    | Y                           | Y                    | N                      | Y                                         | Y                                   | Y                               | Y                             | N                     | Project consists of drainage improvements to a pipe crossings under Old Louisville Road. Project includes adding one 36 inch pipe underneath the roadway at a pipe crossing to provide double 36 inch pipes. The addition of this pipe would allow for larger flows to be accommodated at this pipe crossing.                                                                                                                                                                                       | \$ 50,000    |
| 14              | Talmadge         | Talmadge         | Old Louisville Pipe Crossing Improvement 2                                                      | Improvement    | Y                           | Y                    | N                      | N                                         | N                                   | Y                               | Y                             | N                     | Project consists of drainage improvements to a pipe crossings under Old Louisville Road. Project includes adding one 24 inch pipe underneath the roadway to provide double 24 inch pipes. The addition of this pipe would allow for larger flows to be accommodated at this pipe crossing. This project may coincide with a channel improvement downstream.                                                                                                                                         | \$ 50,000    |
| 15              | Talmadge         | Talmadge         | Stormwater Detention Facility                                                                   | Volume Control | N                           | Y                    | Y                      | Y                                         | Y                                   | Y                               | N                             | Y                     | Project includes developing an area in the wetlands near the basin outfall pipe under the railroad tracks to create detention and alleviate upstream flooding. Because upsizing the 84-inch pipe under the railroad tracks would potentially cause flooding to downstream systems, detaining the runoff in this area is suggested. This project will require property acquisition by the City and will require further study.                                                                       | \$ 1,100,000 |
| 16              | Talmadge         | Talmadge         | Channel Increased Sizing and Bank Stabilization                                                 | Volume Control | N                           | Y                    | Y                      | Y                                         | Y                                   | Y                               | N                             | N                     | The channel that runs from Old Louisville Road to Highway 80 and outfalls into Salt Creek Tributary needs improvements with increased detention volume capacity and possible bank stabilization. Remediation will consist of broadening and deepening the channel to increase storage capacity as well as channel re-grading to streamline runoff to Salt Creek Tributary. Further studies will be required to determine existing condition of channel and improvements.                            | \$ 160,000   |
| 17              | Pipemakers Canal | Smith Pipemakers | Redmond Avenue Pipe Crossing Improvements                                                       | Improvement    | Y                           | Y                    | N                      | Y                                         | N                                   | N                               | Y                             | N                     | Project consists of drainage improvements to the pipe crossings under Redmond Avenue. Project includes adding one 24 inch pipe underneath the roadway at a pipe crossing to provide double 24 inch pipes. The addition of this pipe would allow for larger flows to be accommodated at this pipe crossing.                                                                                                                                                                                          | \$ 50,000    |
| 18              | Pipemakers Canal | Smith Pipemakers | Smith Avenue Roadway Improvements                                                               | Improvement    | Y                           | Y                    | N                      | Y                                         | N                                   | Y                               | Y                             | N                     | Project involves drainage improvements to the Smith Avenue roadway between Wallberry Street and Wildwood Drive/Bowman Avenue. The project involves raising the roadway elevation from approximately 5.6 ft to 7.0 at a pipe crossing location along Smith Avenue to prevent flooding in the roadway.                                                                                                                                                                                                | \$ 275,000   |
| 19              | Pipemakers Canal | Smith Pipemakers | Smith Avenue Pipe Crossing Replacement                                                          | Improvement    | Y                           | Y                    | N                      | Y                                         | N                                   | Y                               | Y                             | N                     | Project involves drainage improvements to a pipe crossings along Smith Avenue. Project includes replacing one 18-inch pipe with one 24-inch pipe to accommodate larger flows at the pipe crossing between Hickory Drive and Wallberry Street.                                                                                                                                                                                                                                                       | \$ 50,000    |



GARDEN CITY DRAINAGE CAPITAL IMPROVEMENT PROJECTS

| ID                                    | Watershed         | Basin                   | Project Name                                                         | Project Type | <div><div>In City R.O.W. or property?</div><div>Historical flooding?</div><div>Water quality benefit?</div><div>Requires property /easement acquisition?</div><div>Near a critical facility or access?</div><div>Significant cost benefit ratio?</div><div>Interim strategies available?</div><div>Multi-jurisdictional?</div></div> |   |   |   |   |   |   |   | Project Description                                                                                                                                                                                                                                                                                                                                                           | Cost Opinion |
|---------------------------------------|-------------------|-------------------------|----------------------------------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|                                       |                   |                         |                                                                      |              | Project Factors                                                                                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                               |              |
|                                       |                   |                         |                                                                      |              |                                                                                                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                               |              |
| 20                                    | Pipemakers Canal  | Smith Pipemakers        | Rommel Avenue Improvements                                           | Improvement  | Y                                                                                                                                                                                                                                                                                                                                    | N | N | Y | Y | N | Y | N | Project includes conducting further investigations at the 60 inch pipe crossing underneath Rommel Avenue. An existing model, completed by Moffatt & Nichol, was used to analyze this area. The model shows possible flooding at this pipe crossing. Revisions and analysis of this model are outside of the project scope. This project will require further study.           | \$ 100,000   |
| 21                                    | Pipemakers Canal  | Smith Pipemakers        | Varnedoe Avenue Improvements                                         | Improvement  | Y                                                                                                                                                                                                                                                                                                                                    | N | N | Y | N | N | Y | N | Project includes conducting further investigations at the 30 inch pipe crossing underneath Varnedoe Avenue. An existing model, completed by Moffatt & Nichol, was used to analyze this area. The model shows possible flooding at this pipe crossing. Revisions and analysis of this model are outside of the project scope. This project will require further study.         |              |
| 22                                    | Pipemakers Canal  | Smith Pipemakers        | Camellia Avenue Improvements                                         | Improvement  | N                                                                                                                                                                                                                                                                                                                                    | Y | N | Y | N | N | N | N | Project includes conducting further investigations at the 4'x6' box culvert crossing underneath Camellia Avenue. An existing model, completed by Moffatt & Nichol, was used to analyze this area. The model shows possible flooding at this culvert crossing. Revisions and analysis of this model are outside of the project scope. This project will require further study. |              |
| 2008 HGBD CIP 2                       | Springfield Canal | North Springfield Canal | Telfair Road (formerly Telfair East Basin in Telfair Drainage Study) | Improvement  | Y                                                                                                                                                                                                                                                                                                                                    | Y | N | Y | Y | Y | Y | N | Improvements include those recommended in the Telfair Drainage Study, prepared by HGBD, dated August 2008 - Telfair East Basin. For purposes of this study, the proposed HGBD Telfair East Basin is renamed to Telfair Road.                                                                                                                                                  | \$ 946,050   |
| Total Cost of Improvement Projects    |                   |                         |                                                                      |              |                                                                                                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                               | \$ 3,867,900 |
| Total Cost of Volume Control Projects |                   |                         |                                                                      |              |                                                                                                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                               | \$ 4,635,000 |
| Total Cost                            |                   |                         |                                                                      |              |                                                                                                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                               | \$8,502,900  |

Costs for each project are preliminary and may not reflect the actual cost related to construction of projects. The costs listed above do not include costs associated with easement or property acquisition which could vary greatly. Costs are to be used for budgeting purposes only. All projects are conceptual and subject to further engineering study and design. Conceptual projects identified and costs associated therewith may vary significantly after survey, engineering study and design.

Critical Facilities consist of water wells, water tanks, pump stations, and wastewater treatments plants within the City limits.