

| Inlet Design Calculations                            |                     |                        |                                    |                              |                 |             |                |                              |                   |                  |              |            |                |                            |                      |                               |
|--|---------------------|------------------------|------------------------------------|------------------------------|-----------------|-------------|----------------|------------------------------|-------------------|------------------|--------------|------------|----------------|----------------------------|----------------------|-------------------------------|
| Project Name: Methodist Hospital for Special Surgery |                     |                        |                                    |                              |                 |             |                |                              |                   | Date: 10/14/09   |              |            |                |                            |                      |                               |
| Project No.: 69302500                                |                     |                        |                                    |                              |                 |             |                |                              |                   | Designed By: LAN |              |            |                |                            |                      |                               |
| Project Description:                                 |                     |                        |                                    |                              |                 |             |                |                              |                   | Checked By: DKK  |              |            |                |                            |                      |                               |
| No.  | Inlet Drainage Area | Design Storm Frequency | RUNOFF (Q = CIA)                   |                              |                 |             |                | Caryover from Upstream Inlet | Total Gutter Flow | Gutter Capacity  | Gutter Slope | Crown Type | SELECTED INLET |                            |                      | Cary Over to Downstream Inlet |
|  |                     |                        | Time of Conc. T <sub>c</sub> (hrs) | Rainfall Intensity I (in/hr) | Runoff Coeff. C | Area A (ac) | Runoff Q (cfs) |                              |                   |                  |              |            | Type           | Length L <sub>i</sub> (ft) | Inlet Capacity (cfs) |                               |
| 1  | 2                   | 3                      | 4                                  | 5                            | 6               | 7           | 8              | 9                            | 10                | 11               | 12           | 13         | 14             | 15                         | 16                   | 17                            |
| A  | DA-3                | 100                    | 10                                 | 8.74                         | 0.90            | 0.24        | 1.9            | -                            | 1.9               | -                | -            | N/A        | 8'             | CURB INLET AT LOW POINT    | 14                   | -                             |
| A1   | DA-10               | 100                    | 10                                 | 8.74                         | 0.90            | 0.08        | 0.6            | -                            | 0.6               | -                | -            | N/A        | N/A            | STANDARD 2-GRATE INLET     | 2.7                  | -                             |
| A2   | DA-4                | 100                    | 10                                 | 8.74                         | 0.90            | 0.21        | 1.7            | -                            | 1.7               | -                | -            | N/A        | 8'             | CURB INLET AT LOW POINT    | 14                   | -                             |
| C  | DA-7                | 100                    | 10                                 | 8.74                         | 0.90            | 1.17        | 9.2            | -                            | 9.2               | -                | -            | N/A        | 8'             | CURB INLET AT LOW POINT    | 14                   | -                             |
| C1   | DA-8                | 100                    | 10                                 | 8.74                         | 0.90            | 0.57        | 4.5            | -                            | 4.5               | -                | -            | N/A        | 8'             | CURB INLET AT LOW POINT    | 14                   | -                             |
| E  | DA-6                | 100                    | 10                                 | 8.74                         | 0.90            | 0.46        | 3.6            | -                            | 3.6               | -                | -            | N/A        | 8'             | CURB INLET AT LOW POINT    | 14                   | -                             |
| F  | DA-2                | 100                    | 10                                 | 8.74                         | 0.90            | 0.46        | 3.6            | -                            | 3.6               | -                | -            | N/A        | 8'             | CURB INLET AT LOW POINT    | 14                   | -                             |
| G  | DA-1                | 100                    | 10                                 | 8.74                         | 0.30            | 2.00        | 5.2            | -                            | 5.2               | -                | -            | N/A        | 3x3'           | DROP INLET                 | 12                   | -                             |

**RECORD DRAWINGS (SEPTEMBER 2010)**  
 INFORMATION PROVIDED BY:  
 Rogers-O'Brien Construction Company

| Downstream Station   | Upstream Station | Distance Between Collection Points "L" (feet) | DRAINAGE AREA               |                    |                    | Runoff Coeff. "C" | Accum. "CA" (acres) | Intensity "I" (in/hr. 100 yr) | STORMWATER RUNOFF   |                     | PROPOSED STORM SEWER |                               |                                 | Proposed Storm Sewer Slope "S <sub>p</sub> " (ft/ft) | Slope of Hydraulic Gradient Based on Pipe Size "S" (ft/ft) | Full Flow Capacity "C" (c.f.s.) | Q <sub>0.5</sub> Flow Velocity "V <sub>c</sub> " (f.p.s.) | Head Loss Coeff. K <sub>j</sub> | Velocity Head Loss at Upstream Station $V^2/2g$ (feet) | Pipe Flowline Elev. Downstream (feet) | Pipe Flowline Elev. Upstream (feet) | Top of Pipe Elev. Downstream (feet) | Top of Pipe Elev. Upstream (feet) | Hg Elev. Downstream (feet) | Hg Elev. Upstream (feet) | Full/Partial Flow |                                  |        |        |        |        |        |         |         |      |
|----------------------|------------------|---|-----------------------------|--------------------|--------------------|-------------------|---------------------|-------------------------------|---------------------|---------------------|----------------------|-------------------------------|---------------------------------|--|--|---------------------------------|---|---------------------------------|--|---------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------|----------------------------|--------------------------|-------------------|----------------------------------|--------|--------|--------|--------|--------|---------|---------|------|
|                      |                  |   | Drainage Area Name          | Incum. "A" (acres) | Accum. "A" (acres) |                   |                     |                               | Incum. "Q" (c.f.s.) | Accum. "Q" (c.f.s.) | Pipe or Box          | Round Pipe Diameter "d" (in.) | Rectangular Box Width "w" (ft.) |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   | Rectangular Box Height "h" (ft.) |        |        |        |        |        |         |         |      |
| 1                    | 2                | 3   | 4                           | 5                  | 6                  | 7                 | 8                   | 9                             | 10                  | 11                  | 12                   | 13                            | 14                              | 15   | 16   | 17                              | 18  | 19                              | 20   | 21                                    | 22                                  | 23                                  | 24                                | 25                         | 26                       | 27                | 28                               | 29     | 30     | 31     | 32     | 33     | 34      | 35      |      |
| Storm Sewer Line A   |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 2+60.84              | 2+60.84          | 11.55   | 8' Curb Inlet A (DA-3)      | 0.24               | 0.24               | 0.90              | 0.22                | 8.74                          | 1.9                 | 1.9                 | Pipe                 | 18                            | -                               | -  | 0.0122   | 0.0003                          | 11.60   | 1.07                            | 1.25   | 0.02                                  | 634.80                              | 634.80                              | 636.30                            | 636.30                     | 635.97                   | 635.94            | 635.94                           | 635.94 | 635.94 | 635.94 | 635.94 | 635.94 | PARTIAL |         |      |
| 2+49.29              | 2+49.29          | 105.39  | 60 Degree Bend              | 0.00               | 0.24               | 0.90              | 0.22                | 8.74                          | 0.0                 | 1.9                 | Pipe                 | 18                            | -                               | -  | 0.0122   | 0.0003                          | 11.60   | 1.07                            | 0.43   | 0.01                                  | 634.66                              | 634.66                              | 636.16                            | 636.16                     | 635.94                   | 635.94            | 635.93                           | 635.93 | 635.93 | 635.93 | 635.93 | 635.93 | 635.93  | PARTIAL |      |
| 1+43.90              | 1+43.90          | 34.85   | 4' Manhole (Lat A2)         | 0.21               | 0.45               | 0.90              | 0.41                | 8.74                          | 1.7                 | 3.6                 | Pipe                 | 18                            | -                               | -  | 0.0122   | 0.0012                          | 11.60   | 2.03                            | 0.55   | 0.05                                  | 633.38                              | 633.38                              | 634.88                            | 634.88                     | 635.90                   | 635.84            | 635.84                           | 635.84 | 635.84 | 635.84 | 635.84 | 635.84 | 635.84  | FULL    |      |
| 1+09.05              | 1+09.05          | 9.05  | 60 Degree Wye (Lat A1)      | 0.08               | 0.53               | 0.90              | 0.48                | 8.74                          | 0.6                 | 4.2                 | Pipe                 | 18                            | -                               | -  | 0.0122   | 0.0016                          | 11.60   | 2.39                            | 1.00   | 0.02                                  | 632.95                              | 632.95                              | 634.45                            | 634.45                     | 635.80                   | 635.80            | 635.78                           | 635.78 | 635.78 | 635.78 | 635.78 | 635.78 | 635.78  | FULL    |      |
| 1+00.00              |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       | 632.84                              | 632.84                              | 634.34                            | 634.34                     | 635.76                   | 635.76            | 635.76                           | 635.76 | 635.76 | 635.76 | 635.76 | 635.76 | FULL    |         |      |
| Storm Sewer Lat. A-1 |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 1+07.41              | 1+07.41          | 7.41  | 2-Grate Inlet A1 (DA-10)    | 0.08               | 0.08               | 0.90              | 0.07                | 8.74                          | 0.6                 | 0.6                 | Pipe                 | 12                            | -                               | -  | 0.2876   | 0.0002                          | 19.11   | 0.80                            | 1.25   | 0.01                                  | 635.33                              | 635.33                              | 636.33                            | 636.33                     | 635.88                   | 635.88            | 635.86                           | 635.86 | 635.86 | 635.86 | 635.86 | 635.86 | 635.86  | PARTIAL |      |
| 1+00.00              |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       | 633.20                              | 633.20                              | 634.20                            | 634.20                     | 635.86                   | 635.86            | 635.86                           | 635.86 | 635.86 | 635.86 | 635.86 | 635.86 | 635.86  | FULL    |      |
| Storm Sewer Lat. A-2 |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 2+57.87              | 2+57.87          | 22.62   | 8' Curb Inlet A2 (DA-4)     | 0.21               | 0.21               | 0.90              | 0.19                | 8.74                          | 1.7                 | 1.7                 | Pipe                 | 18                            | -                               | -  | 0.0055   | 0.0002                          | 7.79  | 0.93                            | 1.25   | 0.02                                  | 634.25                              | 634.25                              | 635.75                            | 635.75                     | 635.96                   | 635.94            | 635.94                           | 635.94 | 635.94 | 635.94 | 635.94 | 635.94 | 635.94  | FULL    |      |
| 2+35.25              | 2+35.25          | 135.25  | 45 Degree Bend              | 0.00               | 0.21               | 0.90              | 0.19                | 8.74                          | 0.0                 | 1.7                 | Pipe                 | 18                            | -                               | -  | 0.0055   | 0.0002                          | 7.79  | 0.93                            | 0.37   | 0.01                                  | 634.12                              | 634.12                              | 635.62                            | 635.62                     | 635.94                   | 635.94            | 635.93                           | 635.93 | 635.93 | 635.93 | 635.93 | 635.93 | 635.93  | 635.93  | FULL |
| 1+00.00              |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       | 633.38                              | 633.38                              | 634.88                            | 634.88                     | 635.90                   | 635.90            | 635.90                           | 635.90 | 635.90 | 635.90 | 635.90 | 635.90 | 635.90  | FULL    |      |
| Storm Sewer Line B   |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 1+46.17              | 1+46.17          | 22.17   | Connect to Detention Pond 2 | 0.44               | 0.44               | 0.90              | 0.40                | 8.74                          | 3.5                 | 3.5                 | Pipe                 | 18                            | -                               | -  | 0.0050   | 0.0011                          | 7.43  | 1.96                            | 1.25   | 0.07                                  | 627.73                              | 627.73                              | 629.23                            | 629.23                     | 631.11                   | 631.11            | 631.11                           | 631.11 | 631.11 | 631.11 | 631.11 | 631.11 | 631.11  | FULL    |      |
| 1+24.00              | 1+24.00          | 24.00   | Outlet Structure            | 0.00               | 0.00               | 0.90              | 0.00                | 8.74                          | 0.0                 | 3.5                 | Pipe                 | 18                            | -                               | -  | 0.0050   | 0.0011                          | 7.43  | 1.96                            | 1.25   | 0.07                                  | 627.62                              | 627.62                              | 629.12                            | 629.12                     | 631.11                   | 631.11            | 630.03                           | 630.03 | 630.03 | 630.03 | 630.03 | 630.03 | 630.03  | FULL    |      |
| 1+00.00              |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       | 627.50                              | 627.50                              | 629.00                            | 629.00                     | 630.00                   | 630.00            | 630.00                           | 630.00 | 630.00 | 630.00 | 630.00 | 630.00 | 630.00  | FULL    |      |
| Storm Sewer Line C   |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 2+21.49              | 2+21.49          | 20.81   | Curb Inlet (DA-7)           | 1.17               | 1.17               | 0.90              | 1.05                | 8.74                          | 9.2                 | 9.2                 | Pipe                 | 21                            | -                               | -  | 0.0134   | 0.0034                          | 18.34   | 3.83                            | 1.25   | 0.28                                  | 629.35                              | 629.35                              | 630.83                            | 631.10                     | 632.28                   | 632.28            | 632.00                           | 632.00 | 632.00 | 632.00 | 632.00 | 632.00 | 632.00  | FULL    |      |
| 2+00.68              | 2+00.68          | 21.88   | 45 Degree Bend              | 0.00               | 0.00               | 0.90              | 0.00                | 8.74                          | 0.0                 | 9.2                 | Pipe                 | 21                            | -                               | -  | 0.0134   | 0.0034                          | 18.34   | 3.83                            | 0.37   | 0.08                                  | 629.08                              | 629.08                              | 630.83                            | 630.83                     | 631.93                   | 631.84            | 631.84                           | 631.84 | 631.84 | 631.84 | 631.84 | 631.84 | 631.84  | FULL    |      |
| 1+78.80              | 1+78.80          | 70.66   | 45 Degree Bend              | 0.00               | 0.00               | 0.90              | 0.00                | 8.74                          | 0.0                 | 9.2                 | Pipe                 | 21                            | -                               | -  | 0.0134   | 0.0034                          | 18.34   | 3.83                            | 0.37   | 0.08                                  | 628.79                              | 628.79                              | 630.54                            | 630.54                     | 631.77                   | 631.68            | 631.68                           | 631.68 | 631.68 | 631.68 | 631.68 | 631.68 | 631.68  | FULL    |      |
| 1+08.14              | 1+08.14          | 8.14  | 60 Degree Wye (Lat C1)      | 0.57               | 0.57               | 0.90              | 0.51                | 8.74                          | 4.5                 | 13.7                | Pipe                 | 21                            | -                               | -  | 0.0134   | 0.0075                          | 18.34   | 5.69                            | 1.00   | 0.28                                  | 627.84                              | 627.84                              | 629.59                            | 629.59                     | 631.45                   | 631.45            | 631.17                           | 631.17 | 631.17 | 631.17 | 631.17 | 631.17 | 631.17  | FULL    |      |
| 1+00.00              |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       | 627.73                              | 627.73                              | 629.48                            | 629.48                     | 631.11                   | 631.11            | 631.11                           | 631.11 | 631.11 | 631.11 | 631.11 | 631.11 | 631.11  | FULL    |      |
| Storm Sewer Lat C1   |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 1+37.87              | 1+37.87          | 37.87   | Curb Inlet (DA-6)           | 0.57               | 0.57               | 0.90              | 0.51                | 8.74                          | 4.5                 | 4.5                 | Pipe                 | 21                            | -                               | -  | 0.0070   | 0.0008                          | 13.26   | 1.86                            | 1.25   | 0.07                                  | 628.10                              | 628.10                              | 629.85                            | 629.85                     | 631.75                   | 631.68            | 631.68                           | 631.68 | 631.68 | 631.68 | 631.68 | 631.68 | 631.68  | FULL    |      |
| 1+00.00              |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       | 627.84                              | 627.84                              | 629.59                            | 629.59                     | 631.65                   | 631.65            | 631.65                           | 631.65 | 631.65 | 631.65 | 631.65 | 631.65 | 631.65  | FULL    |      |
| Storm Sewer Line D   |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 1+65.24              | 1+65.24          | 23.72   | Connect to Detention Pond 1 | 0.58               | 0.58               | 0.90              | 0.52                | 8.74                          | 4.6                 | 4.6                 | Pipe                 | 24                            | -                               | -  | 0.0061   | 0.0004                          | 17.67   | 1.45                            | 1.25   | 0.04                                  | 630.00                              | 630.00                              | 631.85                            | 632.00                     | 635.42                   | 635.42            | 635.42                           | 635.42 | 635.42 | 635.42 | 635.42 | 635.42 | 635.42  | FULL    |      |
| 1+41.52              | 1+41.52          | 17.52   | 60 Degree Bend              | 0.00               | 0.00               | 0.90              | 0.00                | 8.74                          | 0.0                 | 4.6                 | Pipe                 | 24                            | -                               | -  | 0.0061   | 0.0004                          | 17.67   | 1.45                            | 0.43   | 0.01                                  | 629.85                              | 629.85                              | 631.85                            | 631.85                     | 635.42                   | 635.42            | 635.42                           | 635.42 | 635.42 | 635.42 | 635.42 | 635.42 | 635.42  | FULL    |      |
| 1+24.00              | 1+24.00          | 11.13   | Manhole (Outlet Structure)  | 0.00               | 0.00               | 0.90              | 0.00                | 8.74                          | 0.0                 | 4.6                 | Pipe                 | 24                            | -                               | -  | 0.0061   | 0.0004                          | 17.67   | 1.45                            | 1.25   | 0.04                                  | 629.75                              | 629.75                              | 631.75                            | 631.75                     | 635.42                   | 635.42            | 635.42                           | 635.42 | 635.42 | 635.42 | 635.42 | 635.42 | 635.42  | FULL    |      |
| 1+12.87              | 1+12.87          | 12.87   | 45 Degree Bend              | 0.00               | 0.00               | 0.90              | 0.00                | 8.74                          | 0.0                 | 4.6                 | Pipe                 | 24                            | -                               | -  | 0.0061   | 0.0004                          | 17.67   | 1.45                            | 0.37   | 0.01                                  | 629.68                              | 629.68                              | 631.68                            | 631.68                     | 632.62                   | 632.62            | 632.62                           | 632.62 | 632.62 | 632.62 | 632.62 | 632.62 | 632.62  | FULL    |      |
| 1+00.00              |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       | 629.60                              | 629.60                              | 631.60                            | 631.60                     | 632.60                   | 632.60            | 632.60                           | 632.60 | 632.60 | 632.60 | 632.60 | 632.60 | 632.60  | FULL    |      |
| Storm Sewer Line E   |                  |   |                             |                    |                    |                   |                     |                               |                     |                     |                      |                               |                                 |  |  |                                 |   |                                 |  |                                       |                                     |                                     |                                   |                            |                          |                   |                                  |        |        |        |        |        |         |         |      |
| 1+41.77              | 1+41.77          | 33.16   | Curb Inlet E (DA-6)         | 0.46               | 0.46               | 0.90              | 0.41                | 8.74                          | 3.6                 | 3.6                 | Pipe                 | 18                            | -                               | -  | 0.0395   | 0.0012                          | 20.88   | 2.05                            | 1.25   | 0.08                                  | 631.85                              | 631.85                              | 633.15                            | 633.15                     | 635.57                   | 635.49            | 635.49                           | 635.49 | 635.49 | 635.49 | 635.49 | 635.49 | 635.49  | FULL    |      |
| 1+08.61              | 1+08.61          | 8.61  | 30 Degree Bend              | 0.00               | 0.00               | 0.90              | 0.00                | 8.74                          | 0.0                 | 3.6                 | Pipe                 | 18                            | -                               | -  | 0.0395   | 0.0012                          | 20.88   | 2.05                            | 0.25   | 0.02                                  | 630.34                              | 630.34                              | 631.84                            | 631.84                     | 635.45                   | 635.45            |                                  |        |        |        |        |        |         |         |      |