

**EX. DRAINAGE AREA MAP**

EX. SITE DRAINAGE CONDITIONS:

Q=CIA  
 A=0.50 Ac.  
 TIME OF CONCENTRATION=20 MIN.  
 Q100=8.3 in/hr  
 "C"=0.5  
 Q=2.63 cfs

PROPOSED SITE DRAINAGE CONDITIONS:

TOTAL SITE AREA =1.07 AC  
 TIME OF CONCENTRATION=10 MIN.  
 Q100=9.85 in/hr  
 "C" IN PERVIOUS AREAS=0.5  
 "C" IN IMPERIOUS=0.90

PROPOSED COMPOSITE "C" FACTOR

0.27 AC x 0.90 =0.24 AC  
 0.17 AC x 0.50 =0.09 AC  
 0.47 AC x 0.86 =0.40 AC  
 0.10 AC x 0.70 =0.07 AC  
 0.002 AC x 0.90 =0.002 AC  
 0.05 AC x 0.50 =0.025 AC  
 0.01 AC x 0.70 =0.007 AC  
 0.81 AC

PROPOSED COMPOSITE "C"=0.81/1.07 = 0.76

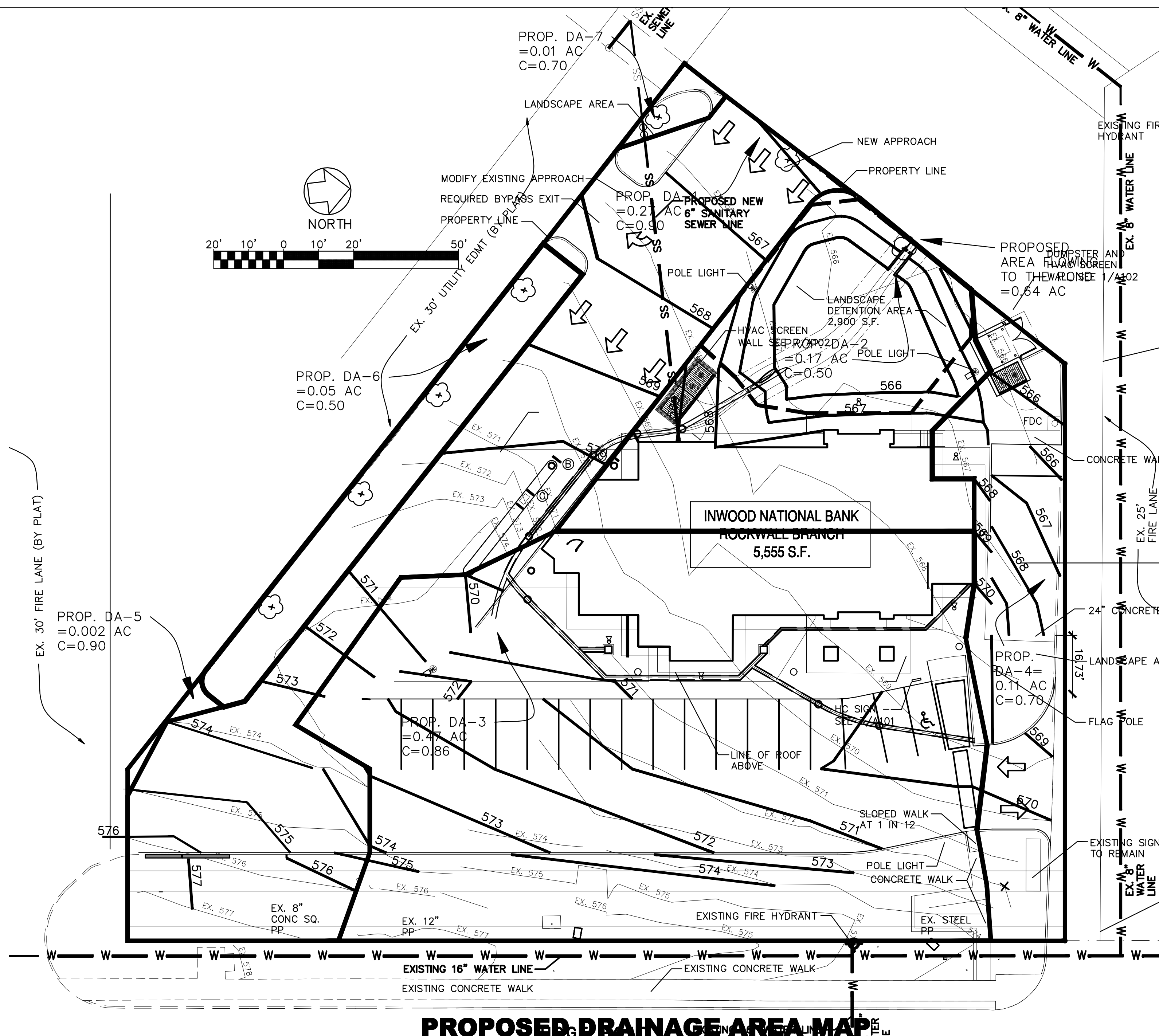
DEVELOPED OUTFLOW=

Q=CIA OR 0.76 X 9.8 in/hr X 1.07=7.96 in/hr

OUTFLOW BYPASSING POND

DA-7 0.01 x 0.70 x 9.8 =0.07 cfs  
 DA-6 0.05 x 0.50 x 9.8 =0.25 cfs  
 DA-5 0.002 x 0.90 x 9.8 =0.02 cfs  
 DA-4 0.11 x 0.90 x 9.8 =0.96 cfs  
 DA-1 0.27 x 0.90 x 9.8 =2.38 cfs  
 BYPASSING POND 3.68 cfs

ALLOWABLE OUTFLOW =7.24 cfs -3.68 cfs =3.56 cfs



**PROPOSED DRAINAGE AREA MAP**

FUTURE SITE DRAINAGE CONDITIONS:

Q=CIA  
 A=0.50 Ac.  
 TIME OF CONCENTRATION=20 MIN.  
 Q100=9.8 in/hr  
 "C"=0.9  
 Q=4.41 cfs

STORAGE CALCULATIONS:

| TIME    | INFLOW | STORAGE | OUTFLOW |
|---------|--------|---------|---------|
| 10 MIN. | 2646   | 1068    | 1578    |
| 15 MIN. | 3645   | 1672.5  | 1972.5  |
| 20 MIN. | 4482   | 2115    | 2367    |
| 30 MIN. | 5589   | 2433    | 3156    |
| 40 MIN. | 6264   | 2319    | 3945    |
| 50 MIN. | 6750   | 2016    | 4734    |

FLOW FOR STORM DURATIONS

| TIME     | I   | C    | Q    |
|----------|-----|------|------|
| 10 MIN.  | 9.8 | 0.90 | 4.41 |
| 15 MIN.  | 9.0 | 0.90 | 4.05 |
| 20 MIN.  | 8.3 | 0.90 | 3.74 |
| 30 MIN.  | 6.9 | 0.90 | 3.11 |
| 40 MIN.  | 5.8 | 0.90 | 2.61 |
| 50 MIN.  | 5.0 | 0.90 | 2.25 |
| 60 MIN.  | 4.5 | 0.90 | 2.03 |
| 70 MIN.  | 4.0 | 0.90 | 1.80 |
| 80 MIN.  | 3.7 | 0.90 | 1.67 |
| 90 MIN.  | 3.5 | 0.90 | 1.56 |
| 100 MIN. | 3.3 | 0.90 | 1.49 |
| 110 MIN. | 2.9 | 0.90 | 0.51 |



|  |   |                |
|--|---|----------------|
| DATE   | REFLECTS CITY COMMENTS THROUGH 12-11-12 | MNP            |
| NO.  | REVISION                                | BY             |
| <b>RECORD DRAWINGS 12-19-13</b>  |   |                |
| <b>DRAINAGE AREA MAP<br/>DETENTION DESIGN</b>  |   |                |
| INWOOD NATIONAL BANK   |   |                |
| CITY OF ROCKWALL, TEXAS  |   |                |
| <b>M.P.</b> MICHAEL PEEPLES 1930 E. Rosemeade Suite 205<br>Engineers and Planners Carrollton, Texas 75007<br>Firm Number: F-3754 |   | (214) 731-9948 |
| DATE PLOTTED: 12/23/2013   | DRAWN BY: MNP                           | <b>DA-1</b>    |
| DRAWING NO.  | SCALE: AS SHOWN                         |                |