DETENTION POND CALCULATIONS

DETENTION PROVIDED SUCH THAT POST-DEVELOPED FLOWS DO NOT EXCEED PRE-DEVELOPED FLOWS

Q5(PRE) = 3.5 CFS
Q5(BYPASS) = 0.4 CFS
Q5(ALLOWABLE) = QPRE-QBYPASS = 3.5 - 0.4 = **3.1 CFS**

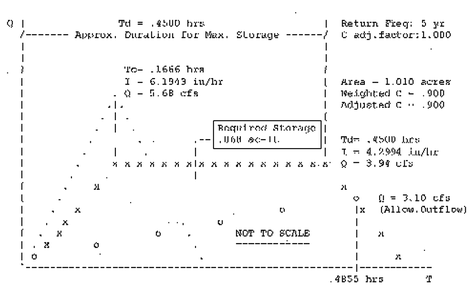
DEVELOPED FLOW TO POND:

AREA = 1.01 ACRES
C = 0.90
TC 10 MIN.

MODIFIED RATIONAL METHOD
---- Graphical Summary for Maximum Required Storage ----
Method 1

Q = CiA * Units Conversion; Where Conversion = 43560 / (12 * 3600)

```
*****************************************************************
*  RETURN FREQUENCY: 5 yr      |  Allowable Outflow: 3.10 cfs   *
*  'C' Adjustment: 1.000       |  Required Storage: .068 ac-ft  *
*                                                               *
*  Peak Inflow: 3.94 cfs                                        *
*  .HYG File:   5 YR                                            *
*****************************************************************
```



LEVEL POOL ROUTING SUMMARY

```
HYG Dir          - C:\Users\Keith\Documents\
Inflow  HYG file - work pad.hyg - POND 10      IN  5 YR
Outflow HYG file = work pad.hyg - POND 10      OUT 5 YR

Pond Node   Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS
------------------------------------
Starting WS Elev   =   553.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =     .00 cfs
Starting Infiltr.  =     .00 cfs
Starting Total Qout=     .00 cfs
Time Increment     =   .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=================================================================
Peak Inflow      =    3.94 cfs    at    .2000 hrs
Peak Outflow     =    2.73 cfs    at    .5000 hrs
-----------------------------------------------------------------
Peak Elevation   =   555.89 ft
Peak Storage     =     .052 ac-ft
=================================================================
```

DETENTION POND CALCULATIONS

DETENTION PROVIDED SUCH THAT POST-DEVELOPED FLOWS DO NOT EXCEED PRE-DEVELOPED FLOWS

Q10(PRE) = 4.2 CFS
Q10(BYPASS) = 0.5 CFS
Q10(ALLOWABLE) = QPRE-QBYPASS = 4.2 - 0.5 = **3.7 CFS**

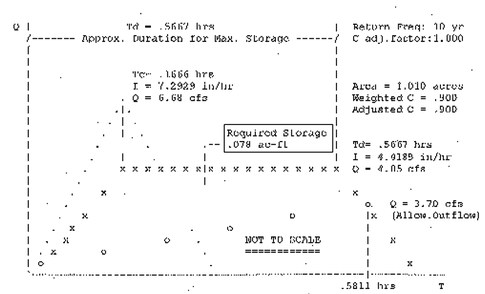
DEVELOPED FLOW TO POND:

AREA = 1.01 ACRES
C = 0.90
TC 10 MIN.

MODIFIED RATIONAL METHOD
---- Graphical Summary for Maximum Required Storage ----
Method 1

Q = CiA * Units Conversion; Where Conversion = 43560 / (12 * 3600)

```
*****************************************************************
*  RETURN FREQUENCY: 10 yr     |  Allowable Outflow: 3.70 cfs   *
*  'C' Adjustment: 1.000       |  Required Storage: .078 ac-ft  *
*                                                               *
*  Peak Inflow: 4.05 cfs                                        *
*  .HYG File:   10 YR                                           *
*****************************************************************
```



LEVEL POOL ROUTING SUMMARY

```
HYG Dir          - C:\Users\Keith\Documents\
Inflow  HYG file = work pad.hyg   POND 10      IN  10 YR
Outflow HYG file - work pad.hyg - POND 10      OUT 10 YR

Pond Node   Data = POND 10
Pond Volume Data - POND 10
Pond Outlet Data - Outlet 1

No Infiltration

INITIAL CONDITIONS
------------------------------------
Starting WS Elev   =   553.00 ft
Starting Volume    =     .000 ac ft
Starting Outflow   =     .00 cfs
Starting Infiltr.  =     .00 cfs
Starting Total Qout=     .00 cfs
Time Increment     =   .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=================================================================
Peak Inflow      =    4.05 cfs    at    .2000 hrs
Peak Outflow     =    2.90 cfs    at    .6000 hrs
-----------------------------------------------------------------
Peak Elevation   =   556.22 ft
Peak Storage     =     .067 ac-ft
=================================================================
```

DETENTION POND CALCULATIONS

DETENTION PROVIDED SUCH THAT POST-DEVELOPED FLOWS DO NOT EXCEED PRE-DEVELOPED FLOWS

Q25(PRE) = 4.7 CFS
Q25(BYPASS) = 0.5 CFS
Q25(ALLOWABLE) = QPRE-QBYPASS = 4.7 - 0.5 = **4.2 CFS**

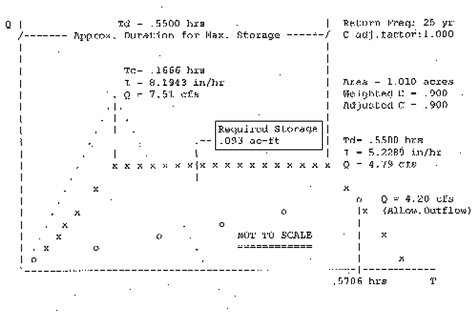
DEVELOPED FLOW TO POND:

AREA = 1.01 ACRES
C = 0.90
TC 10 MIN.

MODIFIED RATIONAL METHOD
---- Graphical Summary for Maximum Required Storage ----
Method 1

Q = CiA * Units Conversion; Where Conversion = 43560 / (12 * 3600)

```
*****************************************************************
*  RETURN FREQUENCY: 25 yr     |  Allowable Outflow: 4.20 cfs   *
*  'C' Adjustment: 1.000       |  Required Storage: .093 ac-ft  *
*                                                               *
*  Peak Inflow: 4.79 cfs                                        *
*  .HYG File:   25 YR                                           *
*****************************************************************
```



LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = C:\Users\Keith\Documents\
Inflow  HYG file = work pad.hyg - POND 10      IN  25 YR
Outflow HYG file - work pad.hyg   POND 10      OUT 25 YR

Pond Node   Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data - Outlet 1

No Infiltration

INITIAL CONDITIONS
------------------------------------
Starting WS Elev   =   553.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =     .00 cfs
Starting Infiltr.  =     .00 cfs
Starting Total Qout=     .00 cfs
Time Increment     =   .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=================================================================
Peak Inflow      =    4.79 cfs    at    .2000 hrs
Peak Outflow     =    3.11 cfs    at    .6000 hrs
-----------------------------------------------------------------
Peak Elevation   =   556.64 ft
Peak Storage     =     .087 ac-ft
=================================================================
```

As Builts 7/13.17

HAMILTON DUFFY, PC
CONSULTING
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SITE CONSTRUCTION PLANS

CARMEL CAR WASH
2003 SOUTH GOLIAD STREET
CITY OF ROCKWALL, TEXAS

DETENTION POND CALCULATIONS

AS-BUILT DRAWINGS
THIS DOES NOT IMPLY A GROUND SURVEY. THESE DOCUMENTS WERE PREPARED FROM ORIGINAL DESIGN DRAWINGS AND CONSTRUCTION MODIFICATIONS NOTED BY CONTRACTOR.
KEITH M. HAMILTON 87384 DATE 7-13-17
PE-NO.

JOB	048-019
DATE	7/13/2017
DESIGNED	K.M.H.
DRAWN	J.B.E.
CHECKED	K.M.H.
TEXAS REGISTRATION NO. F-005260	

NO.	REVISION	BY	DATE

SHEET
C1.01B