

EXISTING CONDITIONS

IMPERVIOUS AREA  
84,460 SF = 1.94 ACRES  
PERMEABLE PLAYGROUND AREA  
8,935 SF = 0.21 ACRES  
SYNTHETIC TURF AREA  
3,690 SF = 0.08 ACRES  
PERVIOUS AREA  
76,620 SF = 1.76 ACRES  
RUNOFF COEFFICIENT  
C = 0.74

PROPOSED CONDITIONS

IMPERVIOUS AREA  
85,895 SF = 1.97 ACRES  
PERMEABLE PLAYGROUND AREA  
8,770 SF = 0.20 ACRES  
SYNTHETIC TURF AREA  
7,930 SF = 0.18 ACRES  
PERVIOUS AREA  
80,935 SF = 1.86 ACRES  
RUNOFF COEFFICIENT  
C = 0.73

SUMMARY

DEVELOPMENT AREA  
= +0.22 ACRES  
IMPERVIOUS AREA  
= +0.03 ACRES  
PERMEABLE PLAYGROUND AREA  
= -0.01 ACRES  
SYNTHETIC TURF AREA  
= +0.10 ACRES  
PERVIOUS AREA  
= +0.10 ACRES  
EXISTING SWM FACILITY (2015-16 AS-BUILT)

SWM REQUIREMENTS

EXISTING CONDITIONS (Site, MRM B-70, Village Allowable Release)  
= 1,130 AC-FT  
EXISTING CONDITIONS (Site, MRM B-75, Village Allowable Release)  
= 1,228 AC-FT  
Record Basin Designed To Provide 1.25 AC-FT Of Storage At HWL = 684.87  
As-Built Basin Provides 1.25 AC-FT Of Storage At HWL = 684.87  
Release Rate = 0.69 CFS  
As-Built Basin Provides 1.36 AC-FT Of Storage At HWL<sub>max</sub> = 685.09  
Release Rate = 0.70 CFS  
PROPOSED CONDITIONS (Site, MRM B-75, Village Allowable Release)  
= 1,278 AC-FT  
This Calculation Summary is Conservative As The Record Development Area Was  
Analyzed Utilizing Bulletin 75 Rainfall Data Rather Than Bulletin 70 (Design  
Rainfall Data At Time Of 2015-16 Design Efforts)  
The As-Built Basin Volume Also Does Not Account For An Additional 0.182  
AC-FT Of Volume Control Storage Provided Under MWRD 15-342.  
Total Available Storage For Village Requirements = 1,432 AC-FT @ HWL = 684.87  
Or 1.542 AC-FT @ 685.09.

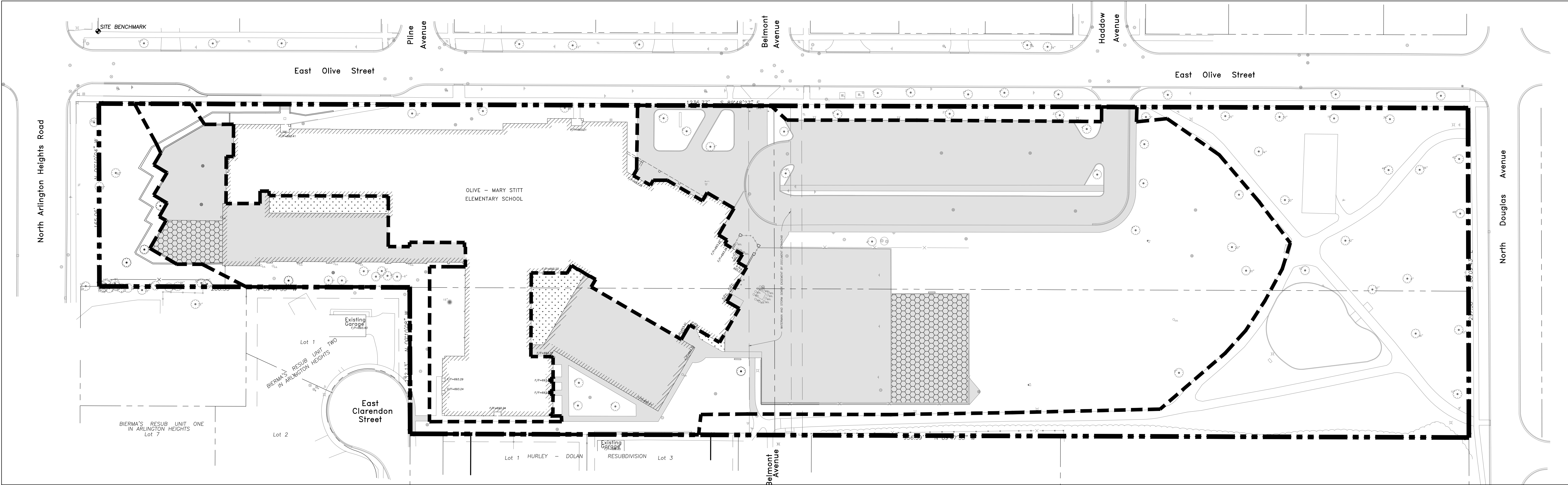
EXHIBIT LEGEND

IMPERVIOUS AREA  
PERMEABLE PLAYGROUND AREA  
SYNTHETIC TURF AREA  
PROPERTY LINE  
330,622 SF  
7.59 ACRES  
EXISTING DEVELOPMENT AREA  
(Previously Detained 2015-16)  
173,705 SF  
3.99 ACRES  
PROPOSED DEVELOPMENT AREA  
183,530 SF  
4.21 ACRES

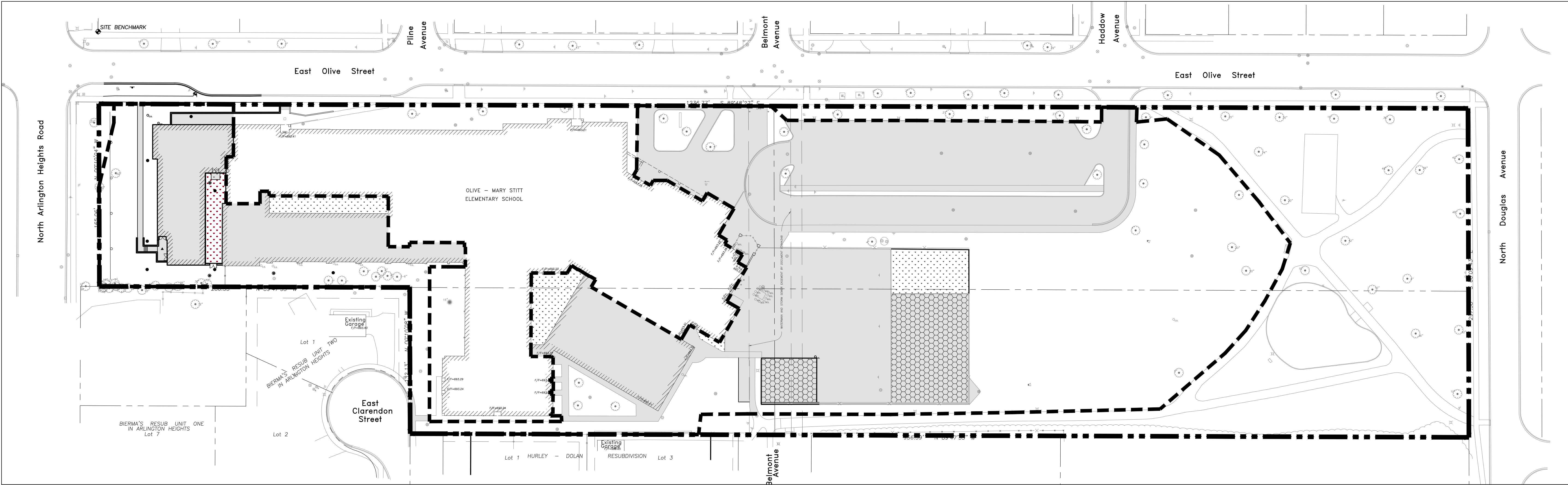


40 0 40 80 120

Scale: 1"=40'



EXISTING CONDITIONS



PROPOSED CONDITIONS

OLIVE-MARY STITT SCHOOL  
BUILDING ADDITION AND RENOVATIONS  
303 E OLIVE STREET  
ARLINGTON HEIGHTS, ILLINOIS



Reserved for Seal:

| No.      | Date     | Description               |
|----------|----------|---------------------------|
| 11/17/22 | 11/17/22 | ISSUE FOR PLAN COMMISSION |
|          |          |                           |
|          |          |                           |
|          |          |                           |
|          |          |                           |
|          |          |                           |
|          |          |                           |
|          |          |                           |
|          |          |                           |
|          |          |                           |

|            |              |          |
|------------|--------------|----------|
| Design By: | Approved By: | Date:    |
| MC         | JC           | 11/17/22 |

Sheet Title:  
EXISTING VS.  
PROPOSED  
DEVELOPMENT  
AREA

Sheet No:

CX101

NOT FOR CONSTRUCTION

## COMPOSITE RUNOFF COEFFICIENT (C)

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: OLIVE-MARY STITT ELEMENTARY - EXISTING

DATE: 12/13/2022

### TYPE OF AREA (SELECT WITH DROP-DOWN)

☒ DETAINED AREA

☐ MAJOR STORMWATER SYSTEM

☐ UNRESTRICTED AREA

☐ OTHER:

☐ UPSTREAM AREA

### CONDITION (SELECT WITH DROP-DOWN)

☐ PROPOSED CONDITION

☒ EXISTING CONDITION

### RUNOFF COEFFICIENT

| Surface Description    | C    | Area<br>(acres) | Product<br>(C)(Area) |
|------------------------|------|-----------------|----------------------|
| Impervious (Village C) | 0.95 | 1.94            | 1.84                 |
| Permeable Playground   | 0.75 | 0.21            | 0.16                 |
| Synthetic Turf         | 0.75 | 0.08            | 0.06                 |
| Pervious (Village C)   | 0.50 | 1.76            | 0.88                 |
|                        |      |                 |                      |
|                        |      |                 |                      |
|                        |      |                 |                      |
|                        |      |                 |                      |

TOTALS:

3.99

2.94

### COMPOSITE RUNOFF COEFFICIENT

$$\text{Composite C} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{2.94}{3.99} \rightarrow \text{Composite C} = 0.74$$

## MODIFIED RATIONAL METHOD: BULLETIN 70 RAINFALL DATA

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: OLIVE-MARY STITT ELEMENTARY - EXISTING

DATE: 12/13/2022

### DEVELOPMENT INFORMATION

1. Detained Area

3.990

acres

2. Composite Runoff Coefficient

0.740

3. Actual Release Rate

0.720

cfs

### REQUIRED DETENTION VOLUME

4. Required Detention Volume

1.130

ac-ft

### CALCULATION TABLE

| Storm Duration | Rainfall Intensity<br>(in/hr) | Inflow Rate<br>(cfs) | Stored Rate<br>(cfs) | Required Storage<br>(ac-ft) |
|----------------|-------------------------------|----------------------|----------------------|-----------------------------|
| 5 min          | 10.92                         | 32.24                | 31.52                | 0.217                       |
| 10 min         | 10.02                         | 29.59                | 28.87                | 0.398                       |
| 15 min         | 8.20                          | 24.21                | 23.49                | 0.485                       |
| 20 min         | 7.30                          | 21.55                | 20.83                | 0.574                       |
| 30 min         | 5.60                          | 16.53                | 15.81                | 0.653                       |
| 40 min         | 4.58                          | 13.52                | 12.80                | 0.705                       |
| 50 min         | 3.97                          | 11.72                | 11.00                | 0.758                       |
| 1 hr           | 3.56                          | 10.51                | 9.79                 | 0.809                       |
| 1.5 hr         | 2.68                          | 7.91                 | 7.19                 | 0.892                       |
| 2 hr           | 2.24                          | 6.61                 | 5.89                 | 0.974                       |
| 3 hr           | 1.62                          | 4.78                 | 4.06                 | 1.007                       |
| 4 hr           | 1.40                          | 4.13                 | 3.41                 | 1.128                       |
| 5 hr           | 1.17                          | 3.45                 | 2.73                 | 1.130                       |
| 6 hr           | 0.95                          | 2.80                 | 2.08                 | 1.034                       |
| 7 hr           | 0.83                          | 2.45                 | 1.73                 | 1.001                       |
| 8 hr           | 0.75                          | 2.21                 | 1.49                 | 0.988                       |
| 9 hr           | 0.68                          | 2.01                 | 1.29                 | 0.958                       |
| 10 hr          | 0.63                          | 1.86                 | 1.14                 | 0.942                       |
| 11 hr          | 0.59                          | 1.74                 | 1.02                 | 0.929                       |
| 12 hr          | 0.55                          | 1.62                 | 0.90                 | 0.896                       |
| 18 hr          | 0.39                          | 1.15                 | 0.43                 | 0.642                       |
| 24 hr          | 0.32                          | 0.94                 | 0.22                 | 0.446                       |

←

## MODIFIED RATIONAL METHOD: BULLETIN 75 RAINFALL DATA

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: OLIVE-MARY STITT ELEMENTARY - EXISTING

DATE: 12/13/2022

### DEVELOPMENT INFORMATION

1. Detained Area

3.990

acres

2. Composite Runoff Coefficient

0.740

3. Actual Release Rate

0.720

cfs

### REQUIRED DETENTION VOLUME

4. Required Detention Volume

1.228

ac-ft

### CALCULATION TABLE

| Storm Duration | Rainfall Intensity<br>(in/hr) | Inflow Rate<br>(cfs) | Stored Rate<br>(cfs) | Required Storage<br>(ac-ft) |
|----------------|-------------------------------|----------------------|----------------------|-----------------------------|
| 5 min          | 12.36                         | 36.49                | 35.77                | 0.246                       |
| 10 min         | 10.80                         | 31.89                | 31.17                | 0.429                       |
| 15 min         | 9.28                          | 27.40                | 26.68                | 0.551                       |
| 20 min         | 8.04                          | 23.74                | 23.02                | 0.634                       |
| 30 min         | 6.34                          | 18.72                | 18.00                | 0.744                       |
| 40 min         | 5.28                          | 15.59                | 14.87                | 0.819                       |
| 50 min         | 4.55                          | 13.43                | 12.71                | 0.876                       |
| 1 hr           | 4.03                          | 11.90                | 11.18                | 0.924                       |
| 1.5 hr         | 3.03                          | 8.95                 | 8.23                 | 1.020                       |
| 2 hr           | 2.49                          | 7.35                 | 6.63                 | 1.096                       |
| 3 hr           | 1.83                          | 5.40                 | 4.68                 | 1.161                       |
| 4 hr           | 1.48                          | 4.37                 | 3.65                 | 1.207                       |
| 5 hr           | 1.25                          | 3.69                 | 2.97                 | 1.228                       |
| 6 hr           | 1.07                          | 3.16                 | 2.44                 | 1.210                       |
| 7 hr           | 0.96                          | 2.83                 | 2.11                 | 1.223                       |
| 8 hr           | 0.86                          | 2.54                 | 1.82                 | 1.203                       |
| 9 hr           | 0.79                          | 2.33                 | 1.61                 | 1.199                       |
| 10 hr          | 0.72                          | 2.13                 | 1.41                 | 1.162                       |
| 11 hr          | 0.67                          | 1.98                 | 1.26                 | 1.144                       |
| 12 hr          | 0.62                          | 1.83                 | 1.11                 | 1.105                       |
| 18 hr          | 0.45                          | 1.32                 | 0.60                 | 0.895                       |
| 24 hr          | 0.36                          | 1.05                 | 0.33                 | 0.663                       |

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## COMPOSITE RUNOFF COEFFICIENT (C)

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: OLIVE-MARY STITT ELEMENTARY - PROPOSED

DATE: 12/13/2022

### TYPE OF AREA (SELECT WITH DROP-DOWN)

☒ DETAINED AREA

☐ MAJOR STORMWATER SYSTEM

☐ UNRESTRICTED AREA

☐ OTHER:

☐ UPSTREAM AREA

### CONDITION (SELECT WITH DROP-DOWN)

☒ PROPOSED CONDITION

☐ EXISTING CONDITION

### RUNOFF COEFFICIENT

| Surface Description    | C    | Area (acres) | Product (C)(Area) |
|------------------------|------|--------------|-------------------|
| Impervious (Village C) | 0.95 | 1.97         | 1.87              |
| Permeable Playground   | 0.75 | 0.20         | 0.15              |
| Synthetic Turf         | 0.75 | 0.18         | 0.14              |
| Pervious (Village C)   | 0.50 | 1.86         | 0.93              |
|                        |      |              |                   |
|                        |      |              |                   |
|                        |      |              |                   |
|                        |      |              |                   |

TOTALS:

4.21

3.09

### COMPOSITE RUNOFF COEFFICIENT

$$\text{Composite C} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{3.09}{4.21} \rightarrow \text{Composite C} = 0.73$$

## MODIFIED RATIONAL METHOD: BULLETIN 75 RAINFALL DATA

PROJECT: AHSD 25 KINDERGARTEN ADDITIONS

PERMIT NUMBER:

LOCATION: OLIVE-MARY STITT ELEMENTARY - PROPOSED

DATE: 12/13/2022

### DEVELOPMENT INFORMATION

1. Detained Area

4.210

acres

2. Composite Runoff Coefficient

0.730

3. Actual Release Rate

0.750

cfs

### REQUIRED DETENTION VOLUME

4. Required Detention Volume

1.278

ac-ft

### CALCULATION TABLE

| Storm Duration | Rainfall Intensity<br>(in/hr) | Inflow Rate<br>(cfs) | Stored Rate<br>(cfs) | Required Storage<br>(ac-ft) |
|----------------|-------------------------------|----------------------|----------------------|-----------------------------|
| 5 min          | 12.36                         | 37.99                | 37.24                | 0.256                       |
| 10 min         | 10.80                         | 33.19                | 32.44                | 0.447                       |
| 15 min         | 9.28                          | 28.52                | 27.77                | 0.574                       |
| 20 min         | 8.04                          | 24.71                | 23.96                | 0.660                       |
| 30 min         | 6.34                          | 19.48                | 18.73                | 0.774                       |
| 40 min         | 5.28                          | 16.23                | 15.48                | 0.853                       |
| 50 min         | 4.55                          | 13.98                | 13.23                | 0.911                       |
| 1 hr           | 4.03                          | 12.39                | 11.64                | 0.962                       |
| 1.5 hr         | 3.03                          | 9.31                 | 8.56                 | 1.061                       |
| 2 hr           | 2.49                          | 7.65                 | 6.90                 | 1.141                       |
| 3 hr           | 1.83                          | 5.62                 | 4.87                 | 1.208                       |
| 4 hr           | 1.48                          | 4.55                 | 3.80                 | 1.256                       |
| 5 hr           | 1.25                          | 3.84                 | 3.09                 | 1.278                       |
| 6 hr           | 1.07                          | 3.29                 | 2.54                 | 1.259                       |
| 7 hr           | 0.96                          | 2.95                 | 2.20                 | 1.273                       |
| 8 hr           | 0.86                          | 2.64                 | 1.89                 | 1.252                       |
| 9 hr           | 0.79                          | 2.43                 | 1.68                 | 1.248                       |
| 10 hr          | 0.72                          | 2.21                 | 1.46                 | 1.209                       |
| 11 hr          | 0.67                          | 2.06                 | 1.31                 | 1.190                       |
| 12 hr          | 0.62                          | 1.91                 | 1.16                 | 1.150                       |
| 18 hr          | 0.45                          | 1.38                 | 0.63                 | 0.930                       |
| 24 hr          | 0.36                          | 1.10                 | 0.35                 | 0.689                       |

←