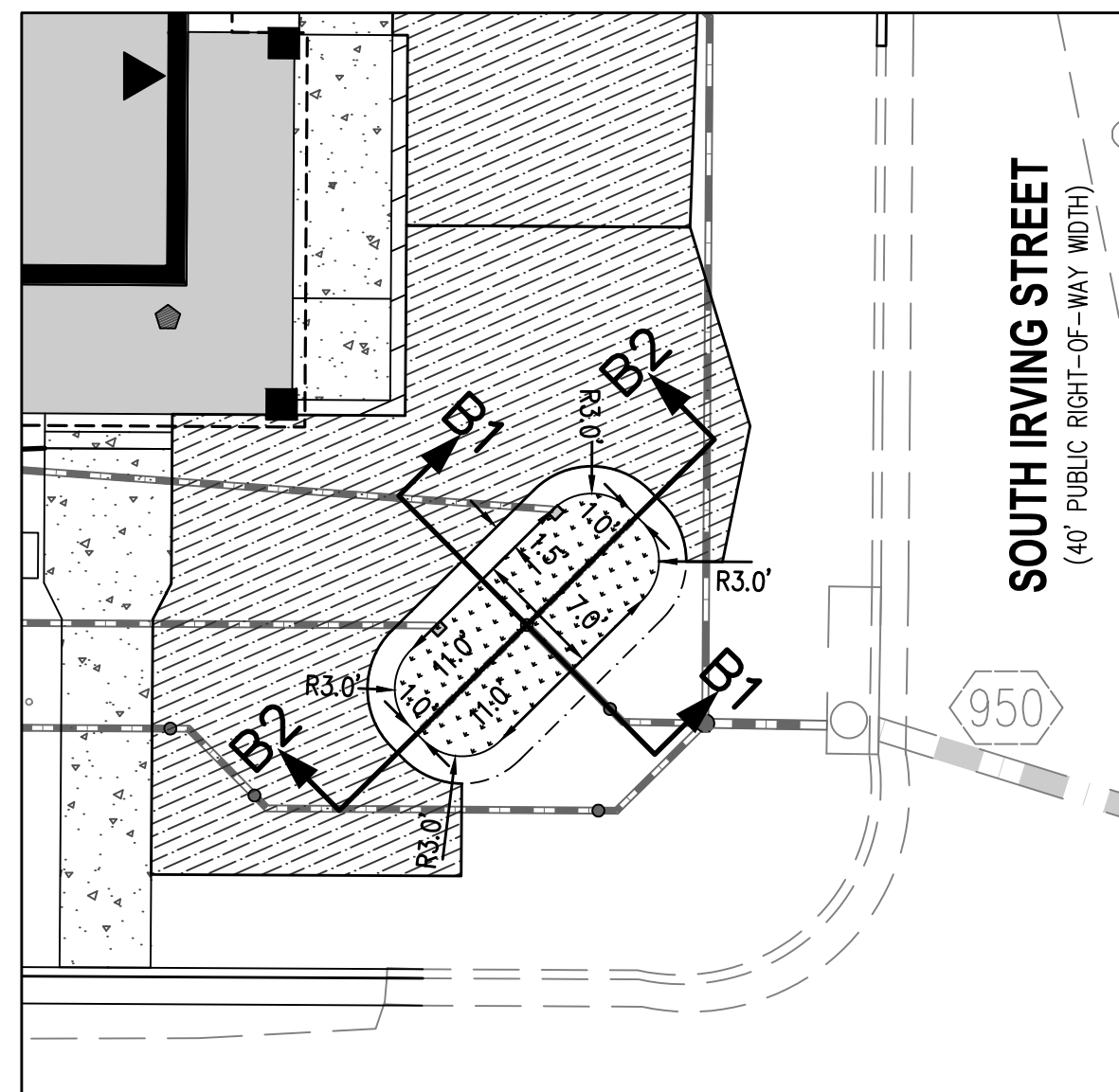
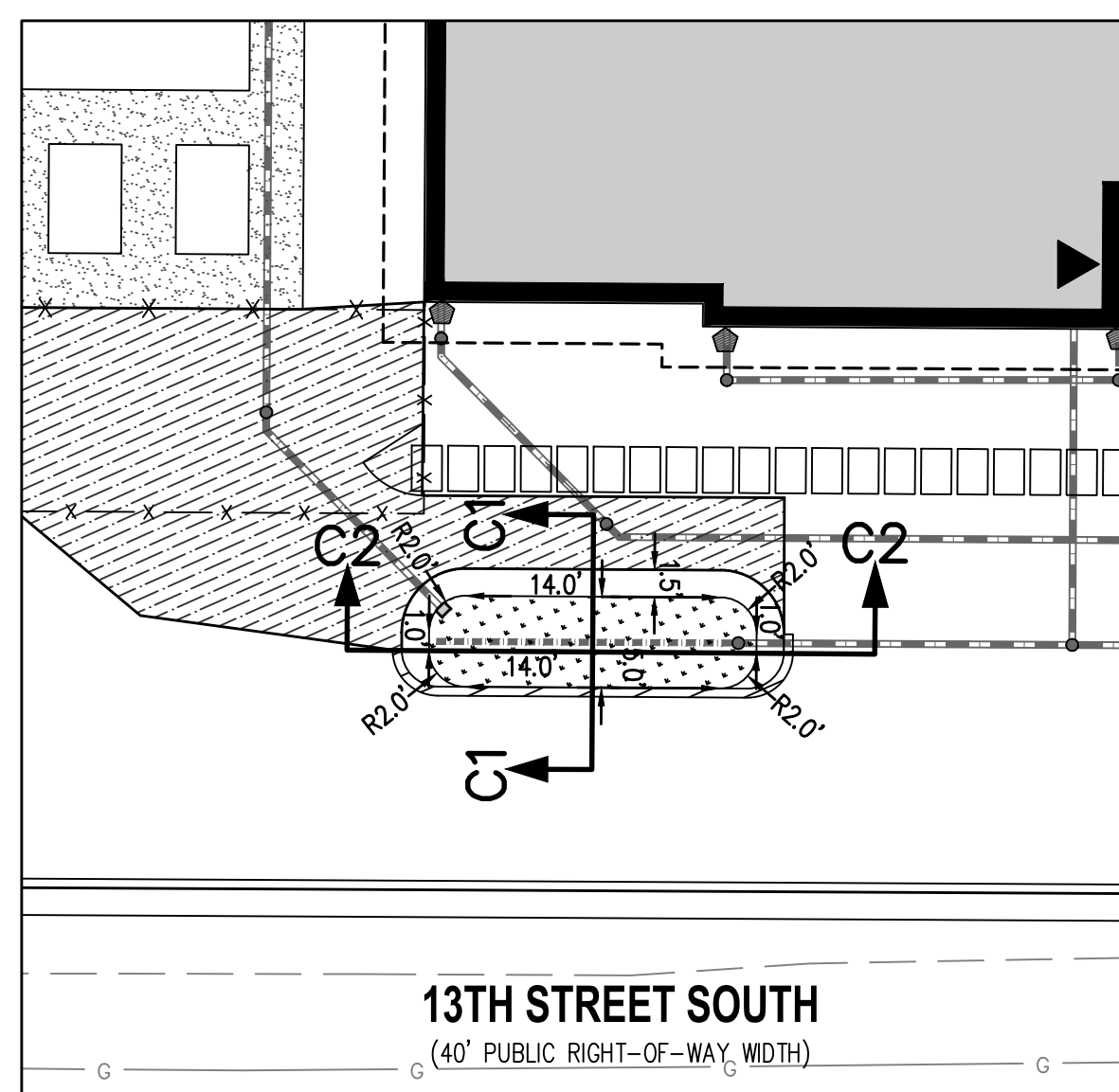


BIORETENTION A ENLARGEMENT
SCALE: 1"=10'



BIORETENTION B ENLARGEMENT
SCALE: 1"=10'



BIORETENTION C ENLARGEMENT
SCALE: 1"=10'

BIORETENTION BASIN DESIGN (BIORETENTION RAIN GARDEN A)
DESIGN BASIS: LEVEL 1 DESIGN - BIORETENTION RAIN GARDEN

NOTE: NO BEDROCK OR GROUND WATER WAS ENCOUNTERED WITHIN 2' OF THE BOTTOM OF THE BIORETENTION FACILITY PER INFILTRATION TEST ON C-0706

| DRAINAGE AREA | SF | Rv |
|-----------------|-------|------|
| IMPERVIOUS AREA | 1,419 | 0.95 |
| PERVIOUS AREA | 746 | 0.25 |

$$\text{MINIMUM REQUIRED } T_v = \frac{(1.0 \times R_v \times A)}{12} = \frac{1.0[0.95(1,419)]}{12} + \frac{1.0[0.25(746)]}{12} = 112 + 16 = 128 \text{ CF}$$

TOTAL TREATMENT VOLUME REQUIRED = 128 CF

PRE-TREATMENT PROVIDED:
GRASS FILTER STRIP & LEAF SCREENING

BASIN SECTION DESIGN

SURFACE AREA PROVIDED = 110 SF

V1 (PONDING DEPTH) = 0.5'
V2 (SOIL MEDIA) = 1.5'
V3 (GRAVEL MEDIA) = 1.0'

WATER STORED/TREATED IN FILTER MEDIA AND GRAVEL STORAGE LAYERS
EQUIVALENT STORAGE DEPTH = $(0.5 \times 1.0) + (1.5 \times 0.25) + (1.0 \times 0.40) = 1.28'$

TOTAL VOLUME OF TREATMENT PROVIDED IN BASIN (V1, V2, V3)
PLANTER AREA VOLUME = $(110 \text{ SF})(1.28') = (0.5')(71 \text{ SF})(0.5)$
3:1 PONDING VOLUME = 140 CF + 17 CF = 157 CF

TOTAL OVERALL VOLUME OF TREATMENT PROVIDED IN BASIN

TOTAL VOLUME = 157 CF > TREATMENT VOL. (Tv) VOL. REQUIRED

BIORETENTION BASIN DESIGN (BIORETENTION RAIN GARDEN B)
DESIGN BASIS: LEVEL 1 DESIGN - BIORETENTION RAIN GARDEN

NOTE: NO BEDROCK OR GROUND WATER WAS ENCOUNTERED WITHIN 2' OF THE BOTTOM OF THE BIORETENTION FACILITY PER INFILTRATION TEST ON C-0706

| DRAINAGE AREA | SF | Rv |
|-----------------|-------|------|
| IMPERVIOUS AREA | 1,359 | 0.95 |
| PERVIOUS AREA | 704 | 0.25 |

$$\text{MINIMUM REQUIRED } T_v = \frac{(1.0 \times R_v \times A)}{12} = \frac{1.0[0.95(1,359)]}{12} + \frac{1.0[0.25(704)]}{12} = 108 + 15 = 123 \text{ CF}$$

TOTAL TREATMENT VOLUME REQUIRED = 123 CF

PRE-TREATMENT PROVIDED:
GRASS FILTER STRIP & LEAF SCREENING

BASIN SECTION DESIGN

SURFACE AREA PROVIDED = 110 SF

V1 (PONDING DEPTH) = 0.5'
V2 (SOIL MEDIA) = 1.5'
V3 (GRAVEL MEDIA) = 1.0'

WATER STORED/TREATED IN FILTER MEDIA AND GRAVEL STORAGE LAYERS
EQUIVALENT STORAGE DEPTH = $(0.5 \times 1.0) + (1.5 \times 0.25) + (1.0 \times 0.40) = 1.28'$

TOTAL VOLUME OF TREATMENT PROVIDED IN BASIN (V1, V2, V3)
PLANTER AREA VOLUME = $(110 \text{ SF})(1.28') = (0.5')(71 \text{ SF})(0.5)$
3:1 PONDING VOLUME = 140 CF + 17 CF = 157 CF

TOTAL OVERALL VOLUME OF TREATMENT PROVIDED IN BASIN

TOTAL VOLUME = 157 CF > TREATMENT VOL. (Tv) VOL. REQUIRED

BIORETENTION BASIN DESIGN (BIORETENTION RAIN GARDEN C)
DESIGN BASIS: LEVEL 1 DESIGN - BIORETENTION RAIN GARDEN

NOTE: NO BEDROCK OR GROUND WATER WAS ENCOUNTERED WITHIN 2' OF THE BOTTOM OF THE BIORETENTION FACILITY PER INFILTRATION TEST ON C-0706

| DRAINAGE AREA | SF | Rv |
|-----------------|-------|------|
| IMPERVIOUS AREA | 889 | 0.95 |
| PERVIOUS AREA | 1,552 | 0.25 |

$$\text{MINIMUM REQUIRED } T_v = \frac{(1.0 \times R_v \times A)}{12} = \frac{1.0[0.95(889)]}{12} + \frac{1.0[0.25(1,552)]}{12} = 70 + 32 = 102 \text{ CF}$$

TOTAL TREATMENT VOLUME REQUIRED = 102 CF

PRE-TREATMENT PROVIDED:
GRASS FILTER STRIP & LEAF SCREENING

BASIN SECTION DESIGN

SURFACE AREA PROVIDED = 85 SF

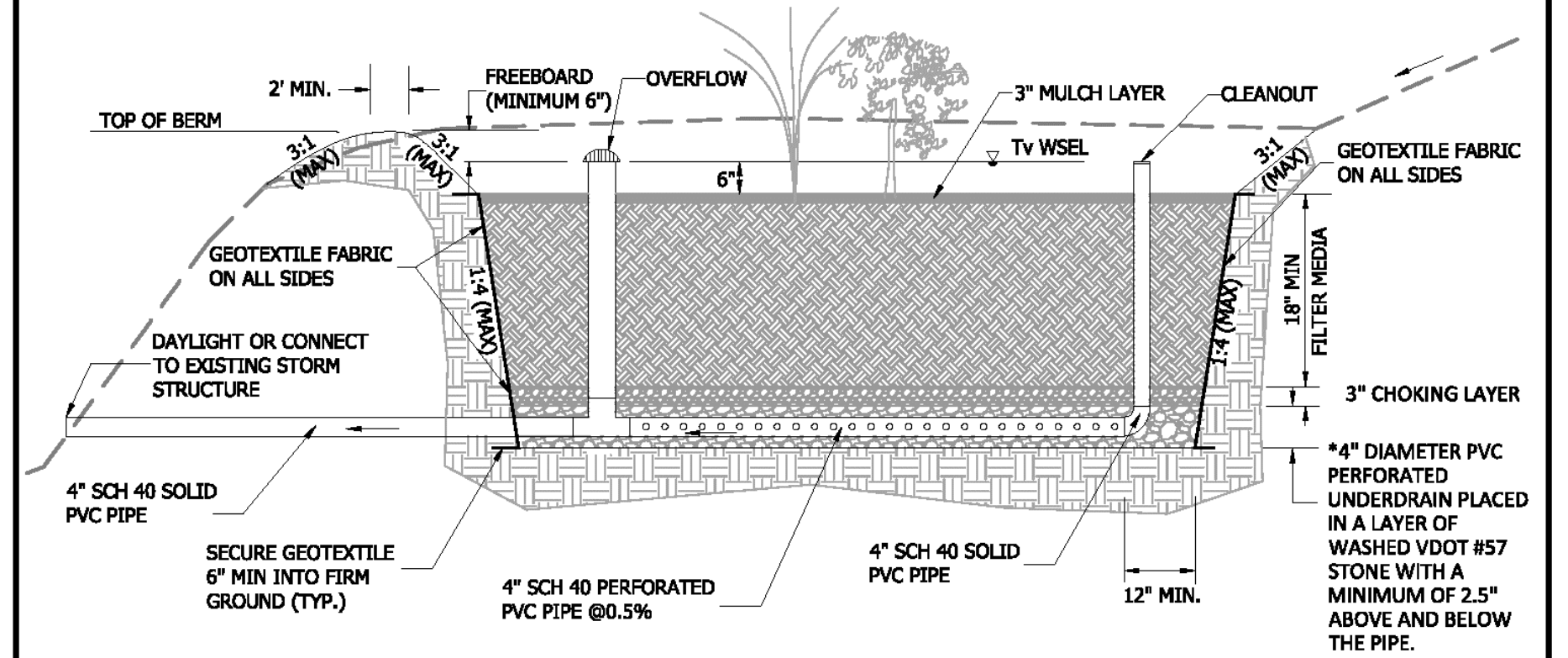
V1 (PONDING DEPTH) = 0.5'
V2 (SOIL MEDIA) = 1.5'
V3 (GRAVEL MEDIA) = 1.0'

WATER STORED/TREATED IN FILTER MEDIA AND GRAVEL STORAGE LAYERS
EQUIVALENT STORAGE DEPTH = $(0.5 \times 1.0) + (1.5 \times 0.25) + (1.0 \times 0.40) = 1.28'$

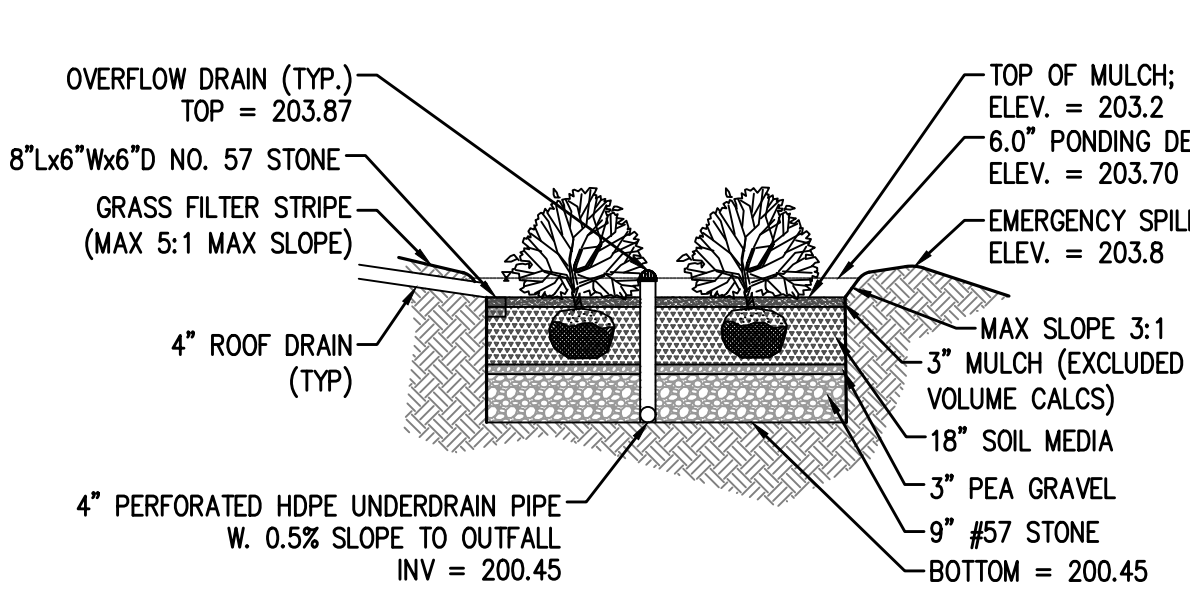
TOTAL VOLUME OF TREATMENT PROVIDED IN BASIN (V1, V2, V3)
PLANTER AREA VOLUME = $(85 \text{ SF})(1.28') = (0.5')(43 \text{ SF})(0.5)$
3:1 PONDING VOLUME = 108 CF + 10 CF = 118 CF

TOTAL OVERALL VOLUME OF TREATMENT PROVIDED IN BASIN

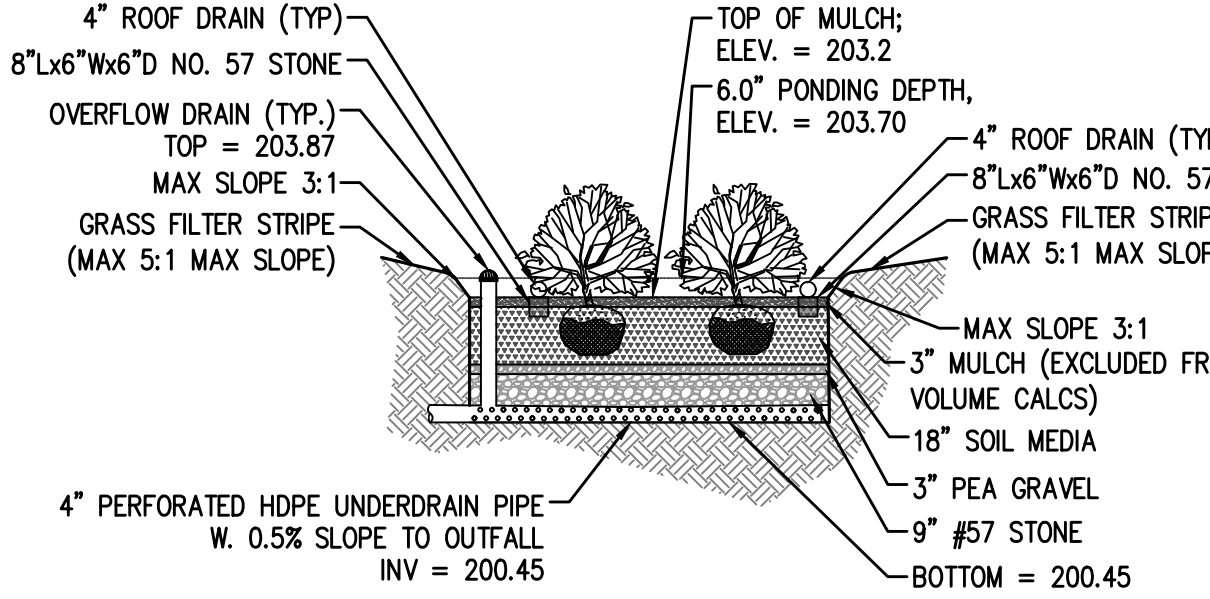
TOTAL VOLUME = 118 CF > TREATMENT VOL. (Tv) VOL. REQUIRED



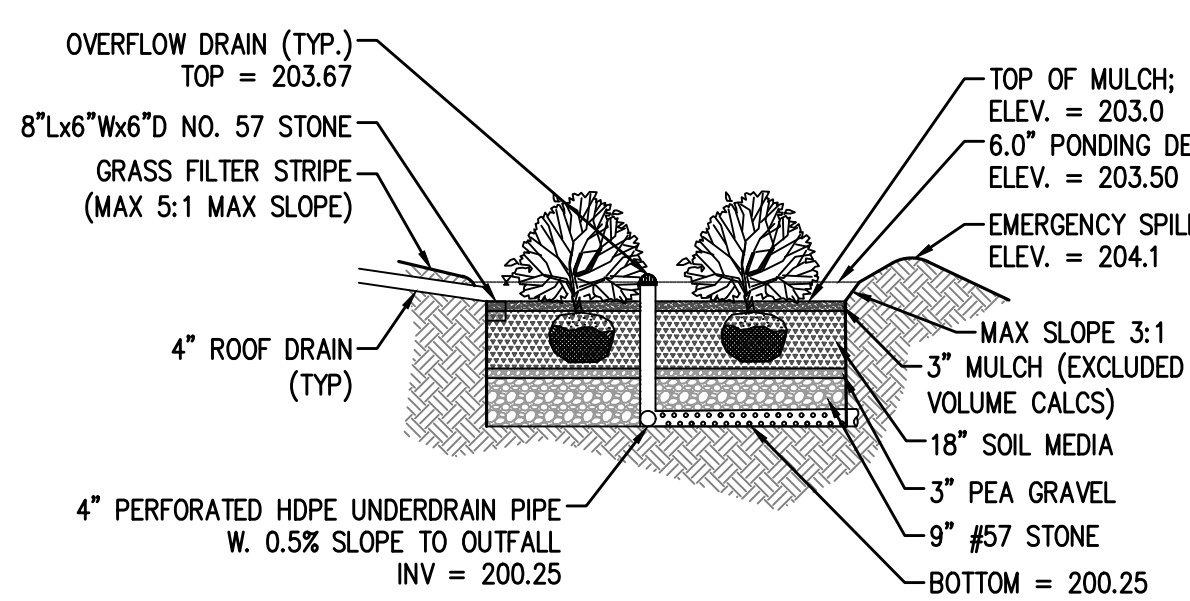
MICRO-BIORETENTION CONSTRUCTION DETAIL
N.T.S.



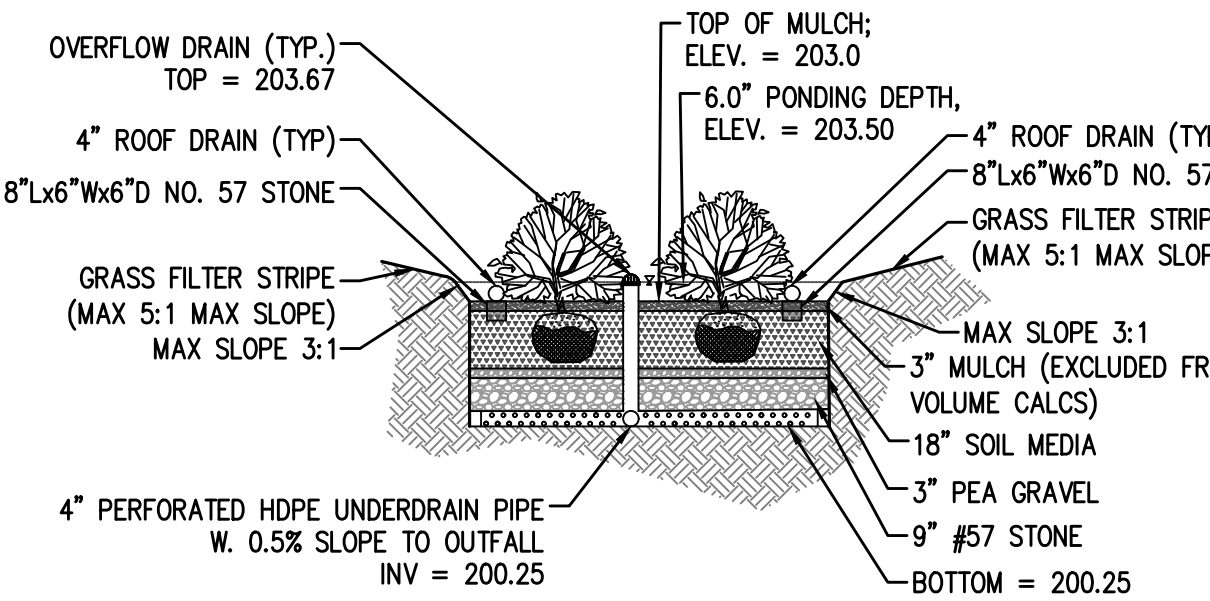
RAIN GARDEN A DETAIL- SECTION A1-A1
NTS



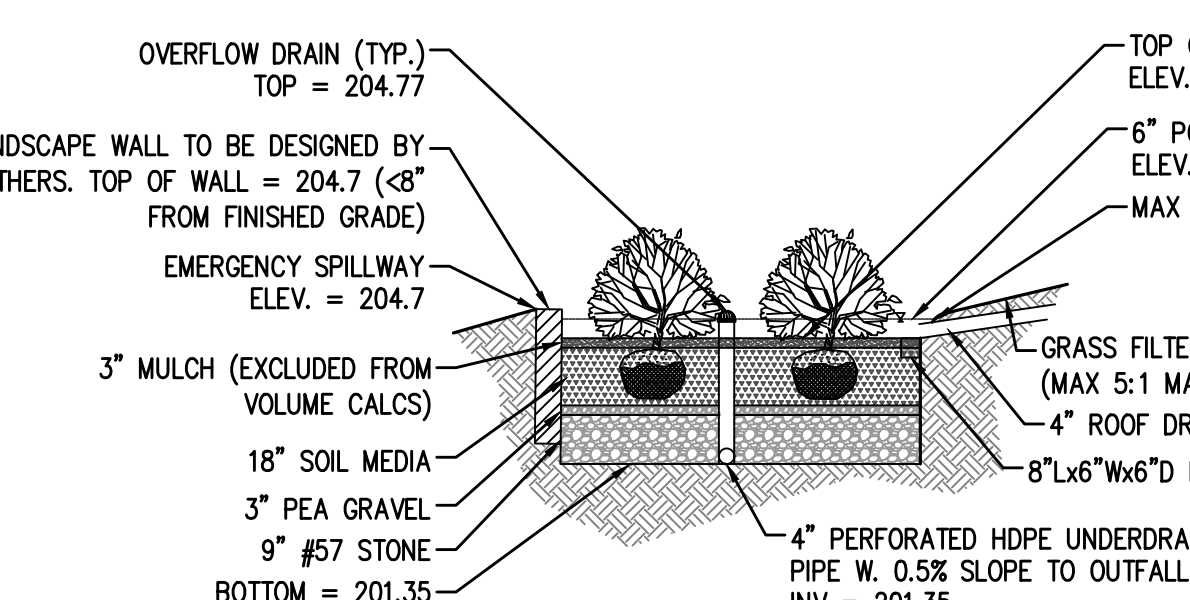
RAIN GARDEN A DETAIL- SECTION A2-A2
NTS



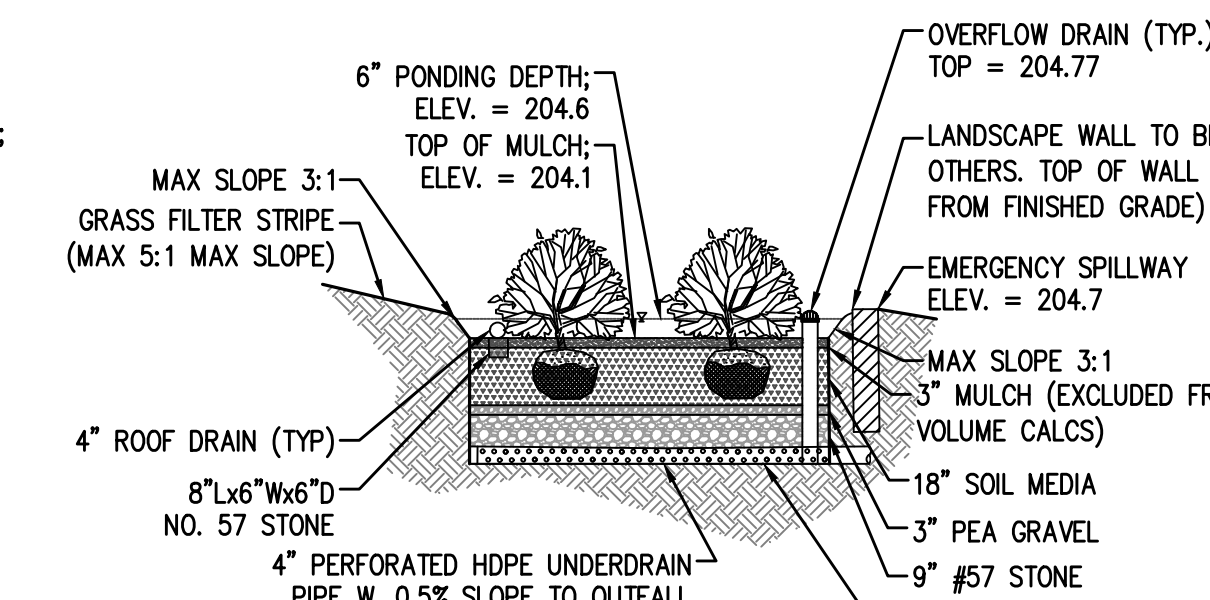
RAIN GARDEN A DETAIL- SECTION B1-B1
NTS



RAIN GARDEN A DETAIL- SECTION B2-B2
NTS



RAIN GARDEN C DETAIL- SECTION C1-C1
NTS



RAIN GARDEN C DETAIL- SECTION C2-C2
NTS

MICRO-BIORETENTION CONSTRUCTION DETAIL

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES
OFFICE OF SUSTAINABILITY AND ENVIRONMENTAL MANAGEMENT

REVISION & DATE

DRAWING NO. SWM # 6

LEGEND

GRASS FILTER (MAX 5:1 SLOPE)

10 0 5 10 20 40
(IN FEET)
1 INCH = 10'

RAIN GARDEN DETAILS AND CALCULATIONS

WALTER L. PHILLIPS INCORPORATED ESTABLISHED 1945

Engineers • Surveyors • Planners
Landscape Architects • Arborists
207 PARK AVENUE
FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 Fax (703) 533-1301
www.WLPINC.com email: bschitter@wlpinc.com

ARLINGTON, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES
1212 SOUTH IRVING STREET
LOT 41-B AND PARCEL 10, C.B. MUNSON'S 2ND ADDITION TO ARLINGTON
GRADING PLAN
ARLINGTON COUNTY, VIRGINIA

| | | |
|---------------------------------|----------|------------------------------------|
| SCALE: AS NOTED | DRAWN DL | CHECKED KW |
| SUBMITTED DATE | | |
| REVISION FOR PERMIT: 05/21/2021 | | |
| | | APPROVED DATE |
| | | DIRECTOR OF ENVIRONMENTAL SERVICES |

ADVANCE COPY