City of Raleigh

Standard Details

Stormwater
NOTES:
1. THE SLOPE OF THE GUTTER TO THE CATCH BASIN ON THE UPHILL SIDE SHALL BEGIN 10' FROM THE CATCH BASIN. THE SLOPE OF THE GUTTER TO THE CATCH BASIN ON THE DOWNHILL SIDE, SHALL BEGIN 10' FROM THE CATCH BASIN.
2. STEPS SHALL BE INSTALLED IN ALL CATCH BASINS OVER 3' IN DEPTH. DEPTH SHALL BE MEASURED FROM THE TOP OF CURB TO THE INVERT OF THE CATCH BASIN.
3. SOLID CONCRETE BRICKS MAY BE USED IN 4X4X8 OR 4X8X16 SIZES.
4. NCDOT APPROVED PRECAST CONCRETE BOXES ACCEPTABLE USING STANDARD 5' CASTINGS.
5. DOMESTIC CASTING REQUIRED WITHIN STREET RIGHT OF WAY.
6. 1" MAXIMUM EXTENSION OF PIPE INTO THE STORM BOX.
7. 6" UP TO 12' DEEP 12" OVER 12' DEEP

STANDARD C.B. STEP

3-#3 REBARS 8' LONG
2-2" PIPES 22" LONG ON A 3' SLOPE -16" BELOW TOP OF C.B.
8" MINIMUM, OVER 12' DEEP 12" MINIMUM UP TO 6" FROM TOP OF CURB.
IF STRUCTURE IS GREATER THAN 12' DEEP FOOTING IS TO EXTEND 6" BEYOND THE STRUCTURE

CITY OF RALEIGH
STANDARD DETAIL

5' OM CATCH BASIN

SW-10.01
NOTES:
1. THE SLOPE OF THE GUTTER TO THE CATCH BASIN ON THE UPHILL SIDE SHALL BEGIN 10' FROM THE CATCH BASIN. THE SLOPE OF THE GUTTER TO THE CATCH BASIN ON THE DOWNHILL SIDE, SHALL BEGIN 10' FROM THE CATCH BASIN.

2. STEPS SHALL BE INSTALLED IN ALL CATCH BASINS OVER 3' IN DEPTH. DEPTH SHALL BE MEASURED FROM THE TOP OF CURB TO THE INVERT OF THE CATCH BASIN.

3. SOLID CONCRETE BRICKS MAY BE USED IN 4" X 4" X 16" OR 4" X 8" X 16" SIZES.

4. NCDOT APPROVED PRECAST CONCRETE BOXES ACCEPTABLE, USING STANDARD 5' CASTINGS.

5. DOMESTIC CASTING REQUIRED WITHIN STREET RIGHT OF WAY.
GRATE PER CITY STANDARDS
USE STD. SW-10.08 OR SW-10.09

1/2" PLASTER

8" MINIMUM; OVER 8' DEEP,
12" MINIMUM UP TO 6' FROM TOP OF GRATE.

3000 PSI CONCRETE

NOTES:
1. FOR 24" RCP & LARGER USE PIPE DIAMETER PLUS 12" FOR MINIMUM INSIDE DIMENSION.
2. 24" X 24" CASTING WITH 12", 15" & 18" PIPE, 24" X 36" CASTING USED WITH 24" PIPE OR LARGER. IF PLACED WITHIN PUBLIC R/W CASTING MUST BE TRAFFIC BEARING TYPE PER NCDOT STANDARDS.
3. USE 4" X 4" X 8" OR 4" X 8" X 16" SOLID CONCRETE BLOCK CAST IN PLACE OR PRECAST CONCRETE TO MEET N.C.D.O.T. STANDARDS ACCEPTABLE.
4. STEPS SHALL BE INSTALLED IN ALL DROP INLETS OVER 3' IN DEPTH. DEPTH SHALL BE MEASURED FROM THE TOP OF GRATE TO THE INVERT OF THE DROP INLET.
NOTES:
1. FOR 24" PIPE & LARGER USE PIPE DIAMETER PLUS 12" FOR MINIMUM INSIDE DIMENSION.

2. USE 4" X 4" X 8" OR 4" X 8" X 16" SOLID CONCRETE BLOCK. CAST IN PLACE OR PRECAST CONCRETE TO MEET NCDOT STANDARDS ACCEPTABLE.

3. FOR STEP REQUIREMENTS, SEE NOTE 4 ON STANDARD DETAIL SW-10.03.
TYPICAL MH FOR STORM SEWER

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>MH DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-24&quot;</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td>30-42&quot;</td>
<td>5'-0&quot;</td>
</tr>
<tr>
<td>48&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>54&quot;</td>
<td>8'-0&quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. DEPTH MEASURED FROM TOP OF CASTING TO INVERT OF MANHOLE.
2. PRECAST MANHOLE COMPONENTS SHALL MEET ASTM-C-478 REQUIREMENTS.
3. SEE STANDARD. SW-10.10 FOR MANHOLE COVER DETAIL.
4. DOMESTIC CASTINGS REQUIRED WITHIN STREET RIGHT-OF-WAY.
SITE OF RALEIGH

NO DUMPING!
DRAINS TO
NEUSE RIVER

NO TIRE BASURA!
DRENES AL
RIO NEUSE

COVER SECTION
ASSEMBLY SECTION

NOTE:
USE GRADE 8 BOLTS ONLY FOR BOLTING TOGETHER

USE EAST JORDAN IRON WORKS, INC.
V-4069-2
OR APPROVED EQUAL

BACK SIDE OF ASSEMBLY

SW-10.06.2
1/2" Ø STAINLESS STEEL DROP HANDLES

NOTES:
PAINT WITH RUST INHIBITING BLACK PAINT.

DETAIL OF pb1 PLATES

BILL OF MATERIAL
MATERIAL LIST FOR ONE UNIT - MAKE ( ) UNITS

<table>
<thead>
<tr>
<th></th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C15 X 33.9# CHANNEL 62 1/2&quot;</td>
<td>MK-ca1</td>
</tr>
<tr>
<td>4</td>
<td>1/8&quot; X 1&quot; H.R. FLAT BAR 3&quot;</td>
<td>MK-pa1</td>
</tr>
<tr>
<td>2</td>
<td>3/8&quot; x 3&quot; H.R. FLAT BAR 10&quot;</td>
<td>MK-pb1</td>
</tr>
<tr>
<td>2</td>
<td>1/2&quot; STAINLESS STEEL ROUND ROD 18&quot;</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1/2&quot; STAINLESS STEEL HEX NUTS</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1/2&quot; STAINLESS STEEL FLAT WASHERS</td>
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</table>

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS
DATE: 8/2020
NOT TO SCALE

CATCH BASIN
STEEL TOP

SW-10.07
SECTION B-B

SECTION A-A

STANDARD 24" X 24" DROP INLET CASTING
STANDARD 24" X 36" DROP INLET CASTING

SECTION A-A

SECTION B-B

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS

DATE 8/2020

STANDARD DROP INLET CASTING

SW-10.09
NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3. COVER SHALL WEIGH A MINIMUM OF 120 LBS.
4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACE SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH
STANDARD DETAIL

STANDARD STORM MANHOLE COVER

SW-10.10
NOTES:
ALL PIPE UNDERDRAINS ARE TO EXIT INTO DRAINAGE STRUCTURES SUCH AS CATCH BASINS OR JUNCTION BOXES. IF STRUCTURE IS NOT AVAILABLE, SPECIAL EXIT REQUIREMENTS WILL APPLY IN ACCORDANCE WITH THE DIRECTION OF ENGINEERING SERVICES DIRECTOR OR HIS/HER DESIGNEE.
CUT EXISTING DOWNSPOUT OR DOWNSPOUT SHOE TO DRAIN INTO SLICE BOX AS SHOWN

USE U.S. FOUNDARY 4000 ANGLE TYPE FRAME AND 6110 GRADE OR APPROVED EQUAL

4" Poured Concrete Basin Slab
3000 psi @ 28 Days
Concrete Sidewalk 3000 psi @ 28 Days
6" x 14 Gauge WMI Centered Galvanized Sump Tubing
Galvanized Sump Junction Box with Asphalt Mastic

COMPACTED ABC GRAVEL
FINISH GRADE INSTALL CHANNEL FLUSH WITH CURB AND GUTTER

BUILDING

CUT EXISTING DOWNSPOUT OR DOWNSPOUT SHOE TO DRAIN INTO SLICE BOX AS SHOWN

USE U.S. FOUNDARY 4000 ANGLE TYPE FRAME AND 6110 GRADE OR APPROVED EQUAL

4" Poured Concrete Basin Slab
3000 psi @ 28 Days
Concrete Sidewalk 3000 psi @ 28 Days
6" x 14 Gauge WMI Centered Galvanized Sump Tubing
Galvanized Sump Junction Box with Asphalt Mastic

COMPACTED ABC GRAVEL
FINISH GRADE INSTALL CHANNEL FLUSH WITH CURB AND GUTTER
NOTES:
1. IF STRUCTURE IS LESS THAN 5' IN DEPTH, BOX MUST BE REBUILT BEGINNING AT ORIGINAL FOOTING ELEVATION.

2. IF STRUCTURE IS GREATER THAN 5' IN DEPTH, THE ELEVATED FOOTING DESIGN AS INDICATED ABOVE MAY BE USED.

3. DOMESTIC CASTING REQUIRED WITHIN STREET RIGHT-OF-WAY.

4. FOR STEP REQUIREMENTS, SEE NOTE 4 ON STANDARD DETAIL SW-10.03.

GRATE: USE EAST JORDAN IRON WORKS V-4530-02 OR APPROVED EQUAL FOR VALLEY CURB. USE USF 5120 FRAME AND 6167 GRATE OR APPROVED EQUAL FOR STANDARD CURB. FRAME AND GRATE PLACEMENT WILL VARY DEPENDING UPON TYPE USED.
### Pipe Clearance from Invert to Subgrade

<table>
<thead>
<tr>
<th>Pipe Size (in)</th>
<th>Clearance Distance (ft)</th>
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<tbody>
<tr>
<td>15</td>
<td>2.4</td>
</tr>
<tr>
<td>18</td>
<td>2.7</td>
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<tr>
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</tr>
<tr>
<td>30</td>
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</tr>
<tr>
<td>36</td>
<td>4.4</td>
</tr>
<tr>
<td>42</td>
<td>4.9</td>
</tr>
<tr>
<td>48</td>
<td>5.4</td>
</tr>
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<tr>
<td>60</td>
<td>6.5</td>
</tr>
<tr>
<td>66</td>
<td>7.0</td>
</tr>
<tr>
<td>72</td>
<td>7.6</td>
</tr>
</tbody>
</table>

- Class I, II or III material densely compacted, backfill tamped in 6" lifts
- Undisturbed soil
- #57 Stone material
- Pipe Spring Line
- 6" Min / 12" Max when no trench box required (typical)
**NOTES:**

1. Flow shall not run parallel with the fence.
2. End of silt fence needs to be turned uphill.
3. See NC Department of Environment for Construction Specifications, where practice applies and planning considerations.
4. Silt fence should not be used alone below graded slopes greater than 10' in height.

**Maintenence:** Clean out at 50% capacity of fencing: 6-9 months.

**Life of fencing:** 6-9 months.

**Woven Wire Fabric**

**Silt Fence Geotextile Fabric**

**Grade**

**Steel Post**

**Side View**

**Fill Slope**

**MIN 12/12 G.A. Wires**

**MIN 16 G.A. Line Wires**

**VARIABLE AS DIRECTED BY THE ENGINEER**

**PLASTIC OR WIRE TIES**

**SILT FENCE INSTALLED TO SECOND MIN 10 G.A. WIRE FROM TOP**

**SILT FENCE SHOULD NOT BE USED ABOVE GRADED SLOPES GREAT THAN 10' IN HEIGHT.**

**City of Raleigh**

**Standard Detail**

**Standard Temporary (Sediment/Silt) Fence**

**SW-20.01**
NOTES:
1. USE NO. 5 OR NO. 97 STONE FOR SEDIMENT CONTROL STONE.
2. PROVIDE STABILIZED OUTLET TO STREAM BANK.
3. WOOD PALLETS MAY BE USED IN LIEU OF STONE AND GEOTEXTILE AS DIRECTED. A SUFFICIENT NUMBER OF PALLETS MUST BE PROVIDED TO ELEVATE THE ENTIRE SPECIAL STILLING BASIN ABOVE NATURAL GROUND.
4. THE SIZE AND NUMBER OF SILT BAGS SHOULD BE BASED ON THE Dewatering PUMP AND MANUFACTURER RECOMMENDATIONS.
5. TIGHTLY SECURE THE PUMP DISCHARGE TO THE SILT BAG SLEEVE WITH A STRAP OR SIMILAR DEVICE TO PREVENT WATER-SEDIMENT FROM LEAKING WITHOUT TREATMENT.
6. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE SILT BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE THE PUMP RATE.
7. REPLACE THE SILT BAG WHEN ONE HALF (1/2) FULL OF SEDIMENT.
8. SILT BAG DEVICE MUST BE 20 FT FROM THE TOP OF THE STREAM BANK AND WATER MUST BE DISCHARGED IN A DIFFUSE MANNER.
TEMPORARY SEDIMENT TRAP

CITY OF RALEIGH

STANDARD DETAIL

SW-20.05.1

DATE: 8/2020

REVISIONS

NOT TO SCALE

INLET FLOW

STABLE TRANSITION REQUIRED TO THE BASE OF THE SLOPE

INLET ZONE 25% OF SURFACE AREA

FIRST CHAMBER 25% OF SURFACE AREA

SECOND CHAMBER 25% OF SURFACE AREA

OUTLET ZONE 25% OF SURFACE AREA

INLET ZONE 25% OF SURFACE AREA

MAINTENANCE:
REPAIR/REPLACE BAFFLES WHEN THEY COLLAPSE, TEAR OR DECOMPOSE.
REMOVE SEDIMENT WHEN CELL IS 1/2 FULL.

PERSPECTIVE VIEW

MIN. LENGTH:WIDTH RATIO - 2:1

TOP VIEW

SUPPORT ROPE TO WIRE TO PREVENT SAGGING

SUPPORT POST 24' INTO BOTTOM OR SIDES

STAKE TO SUPPORT WIRE

4'L MAX

3'min

DESIGN LIFE OF FABRIC IS 6-12 MONTHS

BAFFLE DETAIL

COIR MESH OR JUTE, TRENCHED INTO BOTTOM AND SIDE

NOTES:

1. 3 BAFFLES (MIN) BETWEEN INLET & OUTLET.

2. SEE N.C. DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATION & DESIGN CRITERIA.

3. LOCATE SEDIMENT INFLOW TO THE BASIN AWAY FROM THE DAM TO PREVENT SHORT CIRCUITS FROM INLETS TO OUTLETS.

4. AT A MINIMUM, SEED, STRAW & TACK APPLICATION REQUIRED FOR SITE INSPECTION APPROVAL.

5. TRAPS MUST BE STABILIZED IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO SITE INSPECTION APPROVAL.

OUTLET, SEE DETAIL 20.05.2

SW-20.05.1

REVISIONS

DATE 8/2020

NOT TO SCALE

TEMPORARY SEDIMENT TRAP

CITY OF RALEIGH

STANDARD DETAIL
DESIGN CRITERIA

SUMMARY:
- Primary Spillway: Stone Spillway
- Maximum Drainage Area: 3600 CU FT PER ACRE OF DISTURBED AREA
- Minimum Volume: 435 SQ FT PER CFS OF Q25 PEAK FLOW
- Minimum Law Ratio: 2:1
- Minimum Depth: 3.5 FEET, 1.5 FEET EXCAVATED BELOW GRADE
- Minimum Embankment Height: 3.5 FEET ABOVE GRADE
- Stone Spillway
- Minimum Weir (COR): 3 MINIMUM (COR OR JUTE) MESH 10" (N/A)

NOTE: TRAPS LESS THAN 20' IN LENGTH MAY USE BARRIERS.

NOTES:
- Basins Less Than 20' in Length May Use Baffles.

STRUCTURE LIFE LIMITED TO 2 YEARS

MAINTENANCE:
- Remove Sediment and Restore Trap to its Original Dimensions When the Sediment Has Accumulated to One-Half the Design Depth of the Trap. Place the Sediment That Is Removed in a Designated Disposal Area and Replace the Contaminated Portion of the Gravel Facing.
- Check the Structure for Damage From Erosion or Piping. Periodically Check the Depth of the Spillway to Ensure It is a Minimum of 1.5 FT Below the Low Point of the Embankment. Immediately Fill Any Settlement of the Embankment to Slightly Above Design Grade.

ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
Maintenance:
Remove sediment & restore the sediment storage area to its original dimension when sediment has accumulated to 1/2 design depth of the trap.

Any rip-rap displaced from the stone horseshoe must be replaced immediately.

Notes:
If excavated storage area is used as temporary sediment trap, the design criteria for temporary sediment trap must be satisfied.

MAXDia PIPE IS 36".
RIP RAP HEADWALL (1' MIN HEIGHT FROM ROAD SHOULDER).

CLASS 1 RIP/RAP

FLOW

MINIMUM

3'

1.5'

FLOW

FLOW

FILTER FABRIC

#57 WASHED STONE. 1" MIN THICKNESS.

CROSS SECTION
No. 57 WASHED STONE FILL AGAINST HARDWARE CLOTH (1:1 MAX. SLOPE)

CLEAN OUT POINT (1/2 DEPTH SEDIMENT STORAGE ZONE)

GALVANIZED HARDWARE CLOTH W/ 1/2" GRID

SEDIMENT STORAGE ZONE

CONCRETE BLOCK CATCH BASIN

No. 57 WASHED STONE BERM

Sediment Storage Zone

(Future Storm Drain Pipe)

GALVANIZED HARDWARE CLOTH 1/2" X 1/2" GRID

FLOOD STORAGE ZONE

FLOW

OVER

FLOW

FLOW

CONCRETE FOOTING PAD

BAFFLES

(SEEN STD. SW-20.05.1)

FUTURE STORM DRAIN PIPE

(See Std. SW-20.05.1)

CLEAN OUT POINT (1/2 DEPTH SEDIMENT STORAGE ZONE)

SECTION VIEW

CATCH BASIN RISER

NOTES:
1. AT END OF PROJECT, CATCH BASIN CAN BE RAISED AS NEEDED PLUGGING OPEN COURSE OF BLOCK WITH MORTAR.

2. RISER CAN BE BUILT AS A STANDARD CATCH BASIN/JUNCTION BOX (WITH WEEP HOLES) IN RECEIVING WALL AND BE UTILIZED AS SUCH WHEN PROJECT IS STABLE.

3. IF DRAINAGE AREA IS < 1 ACRE THEN THIS STRUCTURE NEEDS TO BE TREATED AS A RISER STRUCTURE AND ALL RELATED INFORMATION NEEDS TO BE SUPPLIED, (TRASH RACK, ELEVATIONS, AND ANTI-FLOATABLE)

4. IF THIS DEVICE IS TREATED AS A SEDIMENT TRAP THEN IT SHALL MEET THE SPECIFICATION AS OUTLINED IN SW-20.05.1 AND SW-20.05.2.

PERSPECTIVE VIEW
NOTES:
1. ENSURE THAT CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.
2. THE DRAINAGE AREA IS LIMITED TO ONE HALF ACRE.
3. KEY THE STONE INTO THE DITCH BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 1.5 FEET TO AVOID WASHOUT FROM OVERFLOW AROUND THE DAM.

PURPOSE: TO REDUCE EROSION IN A CHANNEL BY REDUCING THE VELOCITY OF FLOW.

DO NOT USE CHECK DAM IN INTermittENT OR PERENNIAL STREAMS.

SEE N.C. DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES.

PLANNING CONSIDERATION & DESIGN CRITERIA.

CHECK DAM

SW-20.08

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS DATE: 8/2020
NOT TO SCALE

1.5' MIN (SEE NOTE 3)
NOTES:
1. SLIT FENCE SHOULD BE INSTALLED TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF MUD IS NOT REMOVED FROM THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLE MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD OR THE LENGTH OF THE CONSTRUCTION ENTRANCE EXTENDED.

1. Silt fence should be installed to ensure construction entrance is used.
2. If mud is not removed from the vehicle traveling over the stone, then the tires of the vehicle must be washed before entering the public road or the length of the construction entrance extended.

25' OR FULL WIDTH OF PROPOSED STREET OR ENTRANCE, WHICHER IS GREATER.

3" - 4" STONE TO BE USED (SUGAR STONE OR RAILROAD BALAST)

NOTE 1: SEE N.C. DEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES;
PLANNING CONSIDERATION & DESIGN CRITERIA.
NOTES:
1. THIS DETAIL APPLIES ONLY TO ENTRANCES OF INDIVIDUAL SINGLE FAMILY RESIDENTIAL UNITS.
2. SILT FENCE SHOULD BE INSTALLED TO ENSURE CONSTRUCTION ENTRANCE IS USED.

EXISTING ROADWAY

2'-3" STONE TO BE USED (SURGE STONE OR RAILROAD BALLAST)

SILT FENCE (SEE NOTE 2)

NOTE: CITY OF RALEIGH
STANDARD DETAIL

REVISIONS DATE: 8/2020
NOT TO SCALE

RESIDENTIAL CONSTRUCTION
ENTRANCE

SW-20.10
NOTES:
1. STABILIZE IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO SITE INSPECTION APPROVAL.
2. STABILIZE DIVERSION DITCH BASED ON DESIGN VELOCITY. IF DESIGN VELOCITIES (Q) IN BARE EARTH CONDITIONS EXCEEDS 2 FT/S, A TEMPORARY LINER IS REQUIRED.
3. MAXIMUM 5 ACRE DRAINAGE AREA TO TEMPORARY DIVERSION.
TYPICAL RIP RAP CHANNEL

NOTES:
1. TO BE USED WHERE EXCESSIVE STORMWATER VELOCITIES PROHIBIT VEGETATIVE LININGS.
2. DIMENSIONS FOR d & w AND SIZE OF STONE MUST BE DETERMINED BY APPROPRIATE DESIGN CRITERIA.

### TABLE

<table>
<thead>
<tr>
<th>d MAX</th>
<th>STONE CLASSIFICATION</th>
<th>RIP RAP DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>8&quot;</td>
<td>A</td>
<td>12&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>B</td>
<td>18&quot;</td>
</tr>
<tr>
<td>18&quot;</td>
<td>CLASS 1</td>
<td>27&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>CLASS 2</td>
<td>36&quot;</td>
</tr>
</tbody>
</table>
FLOW PLAN

25' MINIMUM TO TOP OF BANK

MINIMUM TO TOP OF BANK

STREET CHANNEL

FLOW

CLASS B

CITY OF RALEIGH
STANDARD DETAIL

TEMPORARY STREAM CROSSING

SW-20.13

1/2 DIAMETER OF PIPE OR 12" WHICHER IS GREATER

1/2 DIAMETER OF PIPE OR 12" WHICHER IS GREATER

CAPACITY OF PIPE CULVERTS TOGETHER = BAFKFULL FLOW

FILTER FABRIC

NC DOT #5 OR #57 WASHED STONE

NC DOT #5 OR #57 WASHED STONE

6" DEEP

CLASS B

NC DOT #5 OR #57 WASHED STONE

NC DOT #5 OR #57 WASHED STONE

NOT TO SCALE

25' MINIMUM TO TOP OF BANK
1. Lay one block on each side of the structure on its side in the bottom row to allow pool drainage. Place the bottom row of blocks against the edge of the storm drain for lateral support and to avoid washouts when overflow occurs.

2. Carefully fit hardware cloth or comparable wire mesh with 1/2-inch openings over all block openings to hold gravel in place.

3. Use clean gravel, placed 2 inches below the top of the block on a 2:1 slope or flatter and smoothed to an even grade. Dot No. 57 washed stone is recommended.

4. Not to be used for sediment storage or on roadways open to public traffic.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS

DATE: 8/2020
NOT TO SCALE

SW-20.14

BLOCK AND GRAVEL
DROP INLET PROTECTION
GALVANIZED HARDWARE WIRE EXTENDS TO THE TOP OF BOX.
(19 GAUGE, 1/4" MESH OPENINGS.)

#57 WASHED STONE PLACED AGAINST HARDWARE WIRE TO A HEIGHT OF 16" MIN. ABOVE TOP OF BOX.

SECTION VIEW

STANDARD METAL POSTS
(MINIMUM LENGTH 5')

HARDWARE WIRE

#57 WASHED STONE

2' Bury IN SOLID GROUND

6'-8"

CONCRETE BLOCKS

NOT TO SCALE

DRAINAGE AREA = < 1 ACRE (MAXIMUM).

CITY OF RALEIGH
STANDARD DETAIL

STANDARD CATCH BASIN
YARD INLET PROTECTION

SW-20.15
DATE: 8/2020

TEMPORARY SILT DITCH

FILL S

LOW

SEED & MULCH AFTER CONSTRUCTION OF DITCH

2:1 MAX.

COMPACT EXCAVATED MATERIAL, SEED & MULCH AFTER CONSTRUCTION OF DITCH

VAR. 2'-10'

MIN.

W

M A I N T E N A N C E:

1. REMOVE SILT WHEN DITCH IS 1/2 FULL.

2. STABILIZE IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO INSPECTION APPROVAL.

NOTES:

DIMENSIONS d & w AND LINER TO BE DETERMINED BY ENGINEER.

CITY OF RALEIGH

STANDARD DETAIL

REVISIONS

DATE: 8/2020

NOT TO SCALE

TEMPORARY SILT DITCH

SW-20.16
1. Stripes on barricade rails slope at an angle of 45 degrees in the direction traffic is to pass.
2. Barricade rail stripe shall be 6 inches.
3. The sides of the barricade facing traffic shall have retroreflective rail faces.

NOTES:

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS
DATE: 8/2020
NOT TO SCALE

STANDARD TEMPORARY
BARRICADE

SW-20.17
**DESIGN NOTES:**

1. MAXIMUM DRAINAGE AREA WHEN UTILIZING RISER IS 100 ACRES.
2. DAM HEIGHT BEHIND RISER IS 15 FEET OR LESS FROM TOP OF DAM TO LOW POINT OF DOWNSTREAM TOE.
3. MAY OR MAY NOT BE "FLASHBOARD" RISER.

**FLASHBOARD RISER:**

- **CITY OF RALEIGH**
- **STANDARD DETAIL**
- **SW-20.18**

- **REVISIONS:**
- **DATE:** 8/2020
- **NOT TO SCALE**

- **GRANULATED EARTH DAM**
- **COMPACTED EARTH DAM**
- **WATER LEVEL**
- **RISER**
- **TRASH GUARD**
- **ANTISEEP COLLAR**
- **FLASHBOARD RISER**
- **PLANNING CONSIDERATION & DESIGN CRITERIA**

- **REVISIONS:**
- **NOT TO SCALE**

- **MINIMUM TOP WIDTH**
  - LESS THAN 10 FT: 8.0 FT
  - 10 FT TO 15 FT: 10.00 FT

- **FLASHBOARD RISER**
NOTE: SKIMMER TO BE TETHERED
DESIGN CRITERIA

TEMPORARY SEDIMENT BASIN
RISER BARREL PIPE
100 CURF FEET PER ACRE OF DISTURBED AREA
435 SQUARE FEET PER CF OF 25 PEAK INFLOW
24 HOURS
3 YEARS MAX
16 FEET OR LESS FROM TOP OF DRAIN TO LOW POINT OF DOWNSTREAM TOE

NOTE: BASINS LESS THAN 20' IN LENGTH MAY USE 2 BARRIERS.

PERSPECTIVE VIEW

BAFFLE DETAIL

INLET ZONE 25% OF SURFACE AREA
FIRST CHAMBER 25% OF SURFACE AREA
SECOND CHAMBER 25% OF SURFACE AREA
OUTLET ZONE 25% OF SURFACE AREA

EXTEND BAFFLES UP SIDES AS TO ALLOW LOW FLOW AROUND THE ENDS.

DESIGN LIFE OF FABRIC IS 6-12 MONTHS

INLET SUPPORT ROPES TO WIRE TO PREVENT SAGGING

EXTENDED BAFFLES UP SIDES AS TO NOT ALLOW FLOW AROUND THE ENDS.

SUMMARY:

PRIMARY SPILLWAY:

HIGH

MINIMUM SEDIMENT STORAGE VOLUME

MINIMUM SURFACE AREA

MINIMUM DEWATERING TIME

MINIMUM DEWATERING MECHANISM

DESIGN LIFE:

DAM HEIGHT

EMERGENCY OUTLET ZONE 25% OF SURFACE AREA

NOTE: BASINS MUST BE STABILIZED IMMEDIATELY FROM INLETS TO OUTLETS

INLET SUPPORT POST 24" INTO BOTTOM ON SIDES


CITY OF RALEIGH
STANDARD DETAIL

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DATE: 8/2020

NOT TO SCALE

SEDIMENT BASIN

SW-20.20
**DESIGN CRITERIA**

**SUMMARY:**
- Primary Spillway Drainage Area:
- Minimum Drainage Area:
- Maximum Sediment Storage Volume:
- Minimum Surface Area:
- Minimum Low Water Ratio: 2:1
- Maximum Depth:
- Maximum Erosion Mechanism:
- Minimum Flowing Time:
- Minimum Design Basin Life:
- Minimum Dam Height:

**REVISIONS**

**SUMMARY:**
- Temporary Sediment Basin
- Stone Spillway
- <1 Acre
- 3600 Cubic Feet Per Acre of Disturbed Area
- 2:1
- 3.5 Feet, 1.5 Feet Excavation Below Grade
- 6 Feet Above Grade
- N/A
- 3 Minimum
- 3 Years or Less Limited to 8 Feet

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Note: Device should not be located in any intermittent or perennial stream.

**CITY OF RALEIGH**

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**SW-20.21**
NOTES:
1. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
2. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
4. FOR WATERCOURSE BUFFER PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
5. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
6. MAINTAIN WATERCOURSE BUFFER PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
7. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH BASED ON ACTUAL FIELD CONDITIONS.
8. PLACE A SIGN AT EACH END OF LINEAR WATERCOURSE BUFFER PROTECTION AND 50' ON CENTER THEREAFTER.
9. END OF SILT FENCE SHALL BE TURNED UPHILL.
10. SEE N.C. STATE DENR PRACTICE & SPECIFICATION SEDIMENTS FENCE SECTION FOR CONDITIONS WHERE PRACTICE APPLIES AND PLANNING CONSIDERATIONS.
NOTES:
1. WATTLES SHALL BE FILLED WITH STRAW OR OTHER APPROVED MATERIAL.
2. SPACING FOR WATTLES SHALL BE DETERMINED BY THE SITE ENGINEER.
3. WATTLES MAY BE USED FOR PROTECTION OF CATCH BASINS AND DROP INLETS WITH APPROVAL BY THE STORMWATER PROGRAM MANAGER OR DESIGNEE.
4. FOR USE OF WATTLE IN A DITCH, GRADE OF DITCH MUST BE <2.5%.
SW-20.24

Top of Silt Fence Must be at least 1' above the top of the Washed Stone.

Steel Post Set Max 2' Apart Min 2' into Solid Ground

Bury Wire Fence, Filter Fabric and Hardware Cloth in Trench.

3' Filter Fabric Apron on Ground

1. Remove Sediment When Half of Stone Outlet is Covered.
2. Replace Stone as Needed to Ensure Drainage.
NOTES:

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.

2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.

4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

5. MUST BE LOCATED >50 FT AWAY FROM INLETS/WATERWAYS UNLESS THERE IS NO OTHER PRACTICAL ALTERNATIVE.
NOTES:

1. TWO CONCRETE BLOCKS SHALL BE PLACED ON THEIR SIDES ABUTTING THE CURB AT EITHER SIDE OF THE INLET OPENING, A 2" X 4" STUD SHALL BE CUT AND PLACED THROUGH THE OUTER HOLES OF THE SPACER BLOCKS TO BRACE THE FRONT BLOCKS. FRONT BLOCKS ARE PLACED ON THEIR SIDES ACROSS THE INLET AND ABUTTING THE SPACER BLOCKS.

2. WIRE MESH OR HARDWARE CLOTH WITH 1/4" - 1/2" OPENINGS SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE BLOCKS, TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS.

3. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK. (NO. 57 WASHED STONE)

4. CHECK DEVICE AFTER EACH RAIN AND REPLACE WASHED STONE IF IT CLOGS WITH SEDIMENT.
NOTES:
- All partially completed storm drains shall be protected at the end of each day in accordance with these details.
**DESIGN CRITERIA**

**SUMMARY:**
- **SKIMMER SEDIMENT BASIN**
- TRAPEZOIDAL SPILLWAY WITH IMPERMEABLE MEMBRANE
- **PRIMARY SPILLWAY:** TRAPEZOIDAL SPILLWAY
- **MAXIMUM DRAINAGE AREA:** 10 ACRES
- **MINIMUM VOLUME:** 1800 CUBIC FEET PER ACRE OF DISTURBED AREA
- **MINIMUM SURFACE AREA:** 325 SQUARE FEET PER CFS OF Q25 PEAK INFLOW
- **MINIMUM L/W RATIO:** 2:1
- **MAXIMUM L/W RATIO:** 6:1
- **MINIMUM DEPTH:** 2 FEET
- **MINIMUM DEWATERING TIME:** 2 DAYS
- **DESIGN BASIN LIFE:** 3 YEARS OR LESS
- **DAM HEIGHT:** 5 FEET MAXIMUM
- **BAFFLES REQUIRED:** 3 BAFFLES

SEE NC EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

*NOTE: BASINS LESS THAN 20' IN LENGTH MAY USE 2 BAFFLES.*

**DEwATERING MECANISM:**
- **MINIMUM DEWATERING TIME:** 2 DAYS
- **MAXIMUM DEWATERING TIME:** 2 DAYS

**OUTLET ZONE 25% OF SURFACE AREA**

**SECOND CHAMBER 25% OF SURFACE AREA**

**FIRST CHAMBER 25% OF SURFACE AREA**

**INLET ZONE 25% OF SURFACE AREA**

**EMBANKMENT**

**STONE ENERGY DISSIPATOR**

**BAFFLE DETAIL**

**NOTES:**
1. LOCATE SEDIMENT INFLOW TO THE BASIN AWAY FROM THE DAM TO PREVENT SHORT CIRCUITS FROM INLETS TO OUTLETS.
2. BASIN MUST BE STABILIZED IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO SITE INSPECTION APPROVAL.

**SUPPORT ROPE**
- TO WIRE TO PREVENT SAGGING

**SUPPORT POST**
- 24" INTO BOTTOM OR SIDES

**STAKE TO SUPPORT WIRE**
- 3'MIN

**DESIGN LIFE OF FABRIC IS 6-12 MONTHS**

**COIR MESH OR JUTE, TRENCHED INTO BOTTOM AND SIDE**

**STABLE TRANSITION REQUIRED TO THE BASE OF THE SLOPE**

**EXTEND BAFFLES UP SIDES AS TO NOT ALLOW FLOW AROUND THE ENDS.**
NOTES:
1. MAINTENANCE SHALL OCCUR WHEN NECESSARY. SILT FENCE SHALL BE REPLACED EVERY 6 MONTHS AND POSTS SHALL BE INSPECTED WEEKLY. MAINTENANCE ISSUES SHALL BE CORRECTED AT THAT TIME.
2. SILT FENCE SHOULD BE A MINIMUM OF 5 FEET FROM THE TOE OF SLOPE.

1 1/2" - 2 1/2" DIA GALVANIZED OR ALUMINUM POSTS

6" BETWEEN FASTENERS (TYP)

2' - 3'
3'-0"

TOP RAIL

10' O.C. MAX.

1/2"-2 1/2" DIA GALVANIZED OR ALUMINUM POSTS

1/2"-2 1/2" DIA GALVANIZED OR ALUMINUM POSTS

TOP RAIL

FASTENERS BETWEEN (TYP)

6" TOP RAIL BETWEEN
FASTENERS (TYP)

SILT FENCE EXTENDED INTO TRENCH

8X4" TRENCH EXCAVATED UP TO 8' FROM SLOPE, BACKFILL AND COMPACT

SILT FENCE OVER TOP AT ENDS

6" AT ENDS

TOP RAIL

CHAINLINK CONSTRUCTION FENCE

SILT FENCE OF TYPICAL

10' O.C. MAX.

DATE: 8/2020

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS

SW-20.29

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