September 22, 2017

Users of Lexington – Fayette Urban County Engineering Standard Drawings

Re: Standard Drawings 2017

Attached is the latest edition of the LFUCG Standard Drawings for construction of storm, sanitary sewers, streets and roads in Lexington – Fayette County. These drawings supersede any and all Standard Drawings previously issued by the Division of Engineering.

These drawings become effective as of September 22, 2017 and any projects dedicated to public use after the above date must comply with or contain references to these Standard Drawings or revisions thereof where applicable.

Questions or comments should be directed to:

Urban County Engineer
Division of Engineering
Fourth Floor
101 E. Vine Street
Lexington, KY 40507
859-258-3410

Sincerely,

W. Douglas Burton, P.E.
Urban County Engineer

WDB; MHF
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See Chapter 11 of *LFUCG Stormwater Manual* for Approved Design Details
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**GENERAL NOTES:**
1. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
2. MANHOLE FOR PIPE LARGER THAN 60" SHALL BE SPECIALLY DESIGNED.
3. IN CASES WHERE DEFORMATION EXTENDS MORE THAN SHOWN IN TABLE, MANHOLE SHALL BE INCREASED IN SIZE OR SPECIALLY DESIGNED.
4. BOTTOM SLAB OF MANHOLE SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
5. MANHOLE BENCH SHALL SLOPE AT LEAST 1" PER FT. FROM WALLS TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
6. ELEVATIONS OF PIPES IN MANHOLE SHALL BE SUCH THAT THE TOP OF ALL INFLUENT PIPES WILL BE AT AN ELEVATION EQUAL TO OR GREATER THAN THE TOP OF THE EFFLUENT PIPE.
7. INFLUENT PIPE MAY ENTER MANHOLE AT AN ELEVATION ABOVE THE CHANNELS AS REQUIRED TO AVOID CONFLICT WITH LARGER PIPES IN THE MANHOLE.

**TYPE “A” MANHOLE — CIRCULAR WALLS**
CAST-IN-PLACE OR PRECAST CONCRETE

**NOTES:**
1. PRECAST CONCRETE MANHOLE BASE SHALL BE ASTM C-478, CLASS II PIPE TO 12" DEPTH AND C-76 CLASS III GREATER THAN 12" DEPTH.
2. BASE SECTION OF CIRCULAR MANHOLES MAY BE CAST-IN-PLACE CONCRETE, CUSTOM PRECAST CONCRETE WITH OPENINGS FOR PIPE.
3. BASE SECTIONS MAY BE SIMILAR TO SANITARY SEWER MANHOLE.
4. PROVIDE STEPS WITHIN 18" OF BENCH.

**CIRCULAR MANHOLE NOTES:**
1. THE ANGLE BETWEEN ANY TWO PIPES (e.g. ANGLE A OR B) MUST BE GREATER THAN THE SUM OF THE PARTIAL ANGLES FROM TABLE 1 FOR THE MANHOLE SIZE SELECTED. FOR SMALLER ANGLES BETWEEN PIPES, LARGE MANHOLES MUST BE SELECTED. (SEE EXAMPLE BELOW)
2. THE MAXIMUM DEFORMATION ANGLE BETWEEN ANY INCOMING PIPE AND THE DEFORMATION PIPE SHALL BE NO MORE THAN 90° FOR PIPES UP TO 24" IN DIAMETER. THE MAXIMUM DEFORMATION ANGLE FOR 27" TO 42" PIPES SHALL BE 70° AND FOR PIPES LARGER THAN 42" THE MAXIMUM DEFORMATION ANGLE SHALL BE 60°.

**EXAMPLE FOR MANHOLE SIZE SELECTION:**
FOR MANHOLE SHOWN ABOVE, THE ANGLE BETWEEN 18" AND 30" PIPE IS 70° AND THE ANGLE BETWEEN 30" AND 36" PIPE IS 110°. THE TABLE INDICATES THAT FOR A 6" PIPE MANHOLE THE MINIMUM PARTIAL ANGLE FOR AN 18" PIPE IS 28° AND FOR A 30" PIPE IS 40°. THE SUM OF THE PARTIAL ANGLES IS 68° THIS SUM IS LESS THAN THE 70°. THEREFORE, A 6" MANHOLE DIAMETER IS ACCEPTABLE.
0°–22° DEFLECTION ANGLE

TYPE "B" MANHOLE — NON–CIRCULAR WALLS, CAST-IN–PLACE CONCRETE

ALTERNATE–22°–50°

CONCRETE WALLS

DEFL. ANGLE

22°–50° DEFLECTION ANGLE

ALTERNATE–50°–68°

CONCRETE WALLS

DEFL. ANGLE

50°–90° DEFLECTION ANGLE

TYPE "B" MANHOLE FOR DEFLECTION ANGLES BETWEEN 22° & 90°

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT

NOTES:
1. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
2. MANHOLES FOR PIPE LARGER THAN 60" SHALL BE SPECIALLY DESIGNED.
3. PIPES SHALL ENTER MANHOLE WALLS, NOT CORNERS. ALLOW 2" MINIMUM TO INSIDE CORNER FOR WALL CUT.
4. IN CASES WHERE DEFLECTION ANGLES EXCEED MAXIMUM SHOWN IN TABLES, MANHOLE SHALL BE SPECIALLY DESIGNED.
5. BOTTOM SLAB OF MANHOLES SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
6. MANHOLE BENCH SHALL SLOPE AT LEAST 1" PER FT. FROM WALLS TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
7. THE TOP OF ALL INFUENT PIPES WILL BE AT AN ELEVATION EQUAL TO THE TOP OF THE EFFLUENT PIPE.
8. INFUENT PIPES MAY ENTER MANHOLES AT AN ELEVATION ABOVE THE CHANNELS AS REQUIRED TO AVOID CONFLICT WITH LARGER PIPES IN THE MANHOLE.

LEXINGTON DIVISION OF ENGINEERING
STORM SEWER MANHOLE TYPE "B"—NON–CIRCULAR WALLS

STANDARD DRAWING NO. 101

APPROVED: 4/3/17

CONTRACTOR: 9/21/17

CONTRACT NO.

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
CIRCULAR AND NON-CIRCULAR WALLS
(TYPE "A" & TYPE "B")

STANDARD 4'-0" DIA. & 5'-0"
CIRCULAR WALLS
(TYPE "A")

NOTES:
1. BASE SECTION OF CIRCULAR MANHOLES
MAY BE CAST-IN-PLACE CONCRETE OR
CUSTOM PRECAST CONCRETE WITH OPENINGS
FOR PIPE.
2. 6" OVERHANG IN BOTTOM SLAB IS NOT
REQUIRED IF PRECAST MANHOLES ARE USED.
3. FLAT SLABS IN PAVED AREAS SHALL BE USED
ONLY AS APPROVED BY ENGINEER.

STANDARD CIRCULAR MANHOLE – 6'-0" DIAMETER & LARGER TYPE "A"
AND NON-CIRCULAR WALL MANHOLE – ALL SIZES TYPE "B"
MANHOLE FRAME AND COVERS

NOTES:
1. Minimum weight for the 9" frame shall be 185 lbs.
2. Minimum weight for the solid cover shall be 120 lbs.
3. Castings to meet ASTM A-48 class 35.

MANHOLE STEPS

NOTES:
1. Steps shall be polypropylene plastic coated steel rod or of a type and size approved by the engineer.
2. Steps shall be spaced 12" to 16" o.c. vertically so as to form a continuous ladder.
3. Steps shall be required in manholes when the structure is 4 feet and greater in depth. (Measure from flowline of lowest pipe to top of structure.)
4. The treads of all steps shall have anti-skid properties for hand and foot grips.
5. Manhole steps shall be installed in a vertical line and shall comply with OSHA standards in all respects.
6. For cast-in-place or precast circular and non-circular manholes.
7. First step shall be 12" - 18" from top of precast cone section, and shall be vertically located to maximize the distance of any step from the joint of a manhole section.

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT
### 4'-0" DIA. SHALLOW MANHOLES

**MARK** | **NO.** | **SIZE** | **LENGTH** | **TYPE**  
---|---|---|---|---
1 | 1 | 4 | 4'-5" | STR.
2 | 3 | 3 | 2'-0" | "
3 | 3 | 3 | 2'-8" | "
4 | 2 | 2 | 1'-6" | "
5 | 8 | 6 | 1'-0" | "

**NOTES:**
1. FOR PIPE SIZES 15" TO 24".
2. 6" O.C. SPACING EACH WAY.
3. 8" THICK SLAB.
4. 4'-10" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.
6. CIRCULAR REBAR MAY BE USED, OR MARK 5 BARS AS SHOWN.

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### 5'-0" DIA. SHALLOW MANHOLES

**MARK** | **NO.** | **SIZE** | **LENGTH** | **TYPE**  
---|---|---|---|---
1 | 1 | 4 | 5'-3" | STR.
2 | 3 | 3 | 5'-8" | "
3 | 2 | 2 | 4'-7" | "
4 | 3 | 3 | 4'-2" | "
5 | 4 | 4 | 2'-2" | "
6 | 5 | 5 | 1'-6" | "
7 | 2 | 2 | 1'-0" | "

**NOTES:**
1. FOR PIPE SIZES 21" TO 33".
2. 9" O.C. SPACING EACH WAY.
3. 8" THICK SLAB.
4. 6'-0" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.
6. CIRCULAR REBAR MAY BE USED, OR MARK 6 BARS AS SHOWN.

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**NOTE:**
SLAB OUTER DIAMETER TO VARY WITH MANHOLE WALL THICKNESS, TO COMPLETELY COVER MANHOLE WALLS.

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**LEXINGTON**

**DIVISION OF ENGINEERING**

**STORM SEWER MANHOLE CIRCULAR SLABS 4'-0" & 5'-0" DIAMETER**

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**LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT**
6'-0" DIA.
STANDARD MANHOLES

NOTES:
1. FOR PIPE SIZES 15" TO 48".
2. 6" O.C. SPACING EACH WAY.
3. 12" THICK SLAB.
4. 7"-2" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

SIDE VIEW

SPECIAL BAR BENDS

NOTE:
SLAB OUTER DIAMETER TO VARY WITH MANHOLE WALL THICKNESS, TO COMPLETELY COVER MANHOLE WALLS.

LEXINGTON
DIVISION OF ENGINEERING
STORM SEWER
MANHOLE CIRCULAR SLABS 6'-0" DIAMETER
7'-0" DIA.
STANDARD MANHOLES

MARK   NO.   SIZE   LENGTH   TYPE
----    ----    -----    ------    ----
   1     1       6      15'-10"    A
   2     6       7'-10"    STR.
   3     1       7'-7"     
   4     1       7'-2"     
   5     3       6'-8"     
   6     3       5'-11"    
   7     3       4'-11"    
   8     4       3'-0"     
   9     2       3'-6"     
  10     2       3'-7"     
  11     2       3'-5"     
  12     2       3'-4"     
  13     2       2'-10"    
  14     2       2'-3"     
  15     2       1'-11"    
  16     2       1'-8"     
  17     2       1'-6"     
  18     2       1'-4"     
  19     4       1'-3"     
  20     2       1'-0"     

NOTES:
1. FOR PIPE SIZES 15" TO 60".
2. 6" O.C. SPACING EACH WAY.
3. 12" THICK SLAB.
4. 8'-4" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

SIDE VIEW

7'-0" DIA.
SHALLOW MANHOLES

MARK   NO.   SIZE   LENGTH   TYPE
----    ----    -----    ------    ----
   1     1       6      9'-6"     A
   2     2       5      7'-10"    STR.
   3     1       8'-0"     
   4     3       7'-6"     
   5     3       6'-8"     
   6     2       5'-7"     
   7     3       5'-3"     
   8     1       5'-4"     
   9     2       2'-2"     
  10     2       1'-8"     
  11     4       2'-6"     
  12     2       3'-0"     

NOTES:
1. FOR PIPE SIZES 15" TO 36".
2. 9" O.C. SPACING EACH WAY.
3. 10" THICK SLAB.
4. 8'-4" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

SIDE VIEW

SPECIAL BAR BENDS

TYPE A  TYPE A1

NOTE:
SLAB OUTER DIAMETER TO VARY WITH MANHOLE WALL THICKNESS, TO COMPLETELY COVER MANHOLE WALLS.
8'-0" DIA.
STANDARD MANHOLE

MARK NO.  SIZE  LENGTH  TYPE
1  1    6    15'-10"  A
2  4    6    9'-0"    STR.
3  1    6    8'-10"    
4  1    6    8'-8"    
5  1    6    8'-6"    
6  3    6    7'-8"    
7  3    6    7'-0"    
8  3    6    6'-0"    
9  5    4    4'-6"    
10  4    3    3'-0"    
11  2    3    3'-0"    
12  2    3    2'-9"    
13  2    2    2'-4"    
14  2    2    2'-0"    
15  2    1    1'-9"    
16  2    1    1'-7"    
17  2    1    1'-6"    
18  4    1    1'-0"    
19  2    4    4'-6"    
20  2    4    5'-0"    
21  2    4    4'-8"    
22  1    4    4'-4"    

NOTES:
1. FOR PIPE SIZES 15" TO 60".
2. 6" O.C. SPACING EACH WAY.
3. 12" THICK SLAB.
4. 9'-6" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

SIDE VIEW

8'-0" DIA.
SHALLOW MANHOLE

MARK NO.  SIZE  LENGTH  TYPE
1  1    6    9'-8"    A
2  1    5    9'-3"    STR.
3  2    4    8'-9"    
4  4    4    8'-9"    
5  3    3    8'-3"    
6  3    3    7'-9"    
7  3    3    7'-0"    
8  3    3    6'-6"    
9  5    2    4'-6"    
10  4    2    3'-0"    
11  2    2    3'-0"    
12  2    2    2'-9"    
13  2    2    2'-4"    
14  2    2    2'-0"    
15  2    1    1'-9"    
16  2    1    1'-7"    
17  2    1    1'-6"    
18  4    1    1'-0"    
19  2    4    4'-6"    
20  2    4    5'-0"    
21  2    4    4'-8"    
22  1    4    4'-4"    

NOTES:
1. FOR PIPE SIZES 15" TO 60".
2. 9" O.C. SPACING EACH WAY.
3. 10" THICK SLAB.
4. 9'-6" O.D.
5. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

SIDE VIEW

SPECIAL BAR BENDS

NOTE:
SLAB OUTER DIAMETER TO VARY WITH MANHOLE WALL THICKNESS, TO COMPLETELY COVER MANHOLE WALLS.

STORM SEWER
MANHOLE CIRCULAR SLABS 8'-0" DIAMETER

LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT
SPECIAL BAR BENDS

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
---|---|---|---
1 | 1 | 6 | 9'-6"
2 | 12 | 5 | 8'-0"
3 | 4 | 5 | 3'-8"
4 | 2 | 5 | 3'-4"

* 4 X (HEIGHT OF WALL (INCH)/10) (ROUNDED UP TO THE NEXT WHOLE NUMBER)

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
---|---|---|---
5 | 4 | 6'-0" | STR.

HORIZ. SECTION

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
---|---|---|---
6 | 16 | 4 | DIM. "H'-2" STR.

**NOTES:**

1. PROVIDE 2" x 4" KEY FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.

2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.

4. DEPTHS INDICATED IN TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.
SPECIAL BAR BENDS

**TOP SLAB**
4'-0" OPENING

<table>
<thead>
<tr>
<th>MARK NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1</td>
<td>6-0&quot;</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>6-0&quot;</td>
<td>STR</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>2'-4&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>1'-9&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>1'-5&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>1'-4&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>0'-10&quot;</td>
<td>A</td>
</tr>
</tbody>
</table>

*4 X (HEIGHT OF WALL (INCH)/10) (ROUNDED UP TO THE NEXT WHOLE NUMBER)*

**VERT. SECTION**

**BOTTOM SLAB**

<table>
<thead>
<tr>
<th>MARK NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>4</td>
<td>6'-0&quot;</td>
<td>STR</td>
</tr>
</tbody>
</table>

**HORIZ. SECTION**

<table>
<thead>
<tr>
<th>MARK NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>16</td>
<td>4</td>
<td>DIM. &quot;H&quot;-2&quot; STR.</td>
</tr>
</tbody>
</table>

**NOTES:**

1. PROVIDE 2" x 4" KEY FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.

2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.

4. DEPTHS INDICATED IN THE TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.
SPECIAL BAR BENDS

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
--- | --- | --- | ---
1 | 6 | 9'6" | A
2 | 14 | 7'-0" | STR.
3 | 4 | 4'-8" | "
4 | 2 | 4’-4" | "

**VERT. SECTION**

MARK NO. | SIZE | LENGTH | TYPE
--- | --- | --- | ---
5 | 4 | 7'-0" | STR.

*4 X (HEIGHT OF WALL (INCH)/10) (ROUNDED UP THE NEXT WHOLE NUMBER)*

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
--- | --- | --- | ---
6 | 10 | 8'-0" | STR.

**HORIZ. SECTION**

MARK NO. | SIZE | LENGTH | TYPE
--- | --- | --- | ---
7 | 4 | 8'-0" | STR.

**NOTES:**
1. PROVIDE 2" x 4" KEY FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.
2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.
3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.
4. DEPTHS INDICATED IN TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.

**LEIPANO**

**DIVISION OF ENGINEERING**

**REINFORCEMENT DETAIL**
6' NON-CIRCULAR M.H. LESS THAN 10' DEPTH, 8' WALLS, 10" SLAB
SPECIAL BAR BENDS

MARK NO. | SIZE | LENGTH | TYPE
--- | --- | --- | ---
1 | 6 | 15"-10" | A
2 | 5 | 7"-10" | STR.
3 | 4 | 5 | 3'-4"
4 | 4 | 5 | 2'-9"
5 | 4 | 5 | 2'-5"
6 | 4 | 5 | 2'-4"
7 | 6 | 5 | 0'-10"

TOP SLAB
4'-0" OPENING
7'-4"

VERT. SECTION

BOTTOM SLAB

HORIZ. SECTION

MARK NO. | SIZE | LENGTH | TYPE
--- | --- | --- | ---
8 | 4 | 7'-0" | STR.
9 | 20 | 4 | DIM."H-2" | STR.

NOTES:
1. PROVIDE 2" X 4" KEY FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.
2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.
3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.
4. DEPTHS INDICATED IN TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.
SPECIAL BAR BENDS

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
--- | --- | --- | ---
1 | 1 | 6 | 15'-10" | A
2 | 12 | 5 | 7'-4" | STR.
3 | 4 | 5 | 3'-3" | =
4 | 4 | 5 | 2'-9" | =
5 | 4 | 5 | 2'-7" | =
6 | 6 | 5 | 2'-6" | =
7 | 4 | 5 | 1'-2" | =
8 | 4 | 5 | 0'-10" | =

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
--- | --- | --- | ---
9 | *1* | 5 | 7'-4" | STR.
10 | *2* | 4 | 9'-0" | C

*1 4 X (WALL HEIGHT (INCH)/10)
*2 4 X (WALL HEIGHT (INCH)/12)
(ROUNDED UP TO THE NEXT WHOLE NUMBER)

**MARK NO.** | **SIZE** | **LENGTH** | **TYPE**
--- | --- | --- | ---
11 | 40 | 4 | DIM. H'-2" | STR.

**NOTES:**

1. PROVIDE 2" x 4" KEY FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.

2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.

4. DEPTHS INDICATED IN TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.

---

**LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT**
SPECIAL BAR BENDS

TYPE A₁

VERT. SECTION

MARK NO. SIZE LENGTH TYPE
1 1 6 9'-6" A₁
2 4 5 5'-5" STR.
3 18 5 8'-0" X

MARK NO. SIZE LENGTH TYPE
4 4 8'-0" STR.

* 4 X (HEIGHT OF WALL)
(INCH)/10 (ROUNDED TO THE NEXT WHOLE NUMBER.)

HORIZ. SECTION

MARK NO. SIZE LENGTH TYPE
5 24 4 DIM."H'-2" STR.

NOTES:

1. PROVIDE 2" X 4" KEYS FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.

2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.

4. DEPTHS INDICATED IN TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT
SPECIAL BAR BENDS

### Type A

<table>
<thead>
<tr>
<th>MARK NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>15'-10&quot;</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>5'</td>
<td>STR.</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>3'-4&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>5'</td>
<td>&quot;</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>5'</td>
<td>&quot;</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>5'</td>
<td>&quot;</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>6'-10&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>5'</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

*MARK NO. SIZE LENGTH TYPE
*8 *4 8'-0" STR.
*4 X (HEIGHT OF WALL (INCH)/10)
*(ROUNDED UP TO THE NEXT WHOLE NUMBER)

### Horiz. Section

<table>
<thead>
<tr>
<th>MARK NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>TYPE</th>
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<tbody>
<tr>
<td>9</td>
<td>24</td>
<td>4'</td>
<td>DIM. &quot;H&quot;-2&quot; STR.</td>
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### Vert. Section

<table>
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<th>MARK NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>20</td>
<td>4'</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**

1. PROVIDE 2" x 4" KEY FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.

2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.

3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.

4. DEPTHS INDICATED IN TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.
SPECIAL BAR BENDS

**Type A**

**Type C**

**Notes:**
1. Provide 2" x 4" key for all construction joints when manhole is cast in place.
2. 2" min. steel reinforcement cover all faces.
3. This manhole is intended for pipe as indicated on STD. DWG. 101, for manhole steps and other details not shown on this sheet, see STD. DWGS. 102 & 103.
4. Depths indicated in title are measured from surface to M.H. invert.

**Mark No.** | **Size** | **Length** | **Type**
--- | --- | --- | ---
1 | 3/8 | 6' 15-10" | A
2 | 3/8 | 6' 8-4" | STR.
3 | 3/8 | 6' 4-3" | "
4 | 3/8 | 6' 3-9" | "
5 | 3/8 | 6' 3-7" | "
6 | 3/8 | 6' 3-6" | "
7 | 3/8 | 6' 1-2" | "

**Mark No.** | **Size** | **Length** | **Type**
--- | --- | --- | ---
8 | 3/8 | 10'-0" | C
9 | 3/8 | 8'-4" | STR.

*14 X (WALL HEIGHT (INCH)/10)
*24 X (WALL HEIGHT (INCH)/12)
(ROUNDED UP TO THE NEXT WHOLE NUMBER)
1. 6:1 Slopes are with reference to ditch grade.
2. When a box inlet is placed in a sag, omit the earth dike and longitudinally slope of the grate, and provide a concrete apron on each side of the inlet.
3. Rate of increase or decrease 0.36 cu. yd. per foot in height.
4. Deduct approximately 0.1 cu. yd. of concrete per pipe.
5. Compact this volume with D.G.A. base or equivalent.
6. Steps are required for depths greater than 4' refer to Std. Dwg. 103.

**APPRAOCH QUANTITIES**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CONCRETE</th>
<th>REINF. STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAG</td>
<td>4.4 CU. YD.</td>
<td>282 LBS.</td>
</tr>
<tr>
<td>GRADE</td>
<td>3.4 CU. YD.</td>
<td>192 LBS.</td>
</tr>
</tbody>
</table>

**BILL OF REINFORCEMENT**

<table>
<thead>
<tr>
<th>BAR</th>
<th>NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>APPROX. SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>40 OR 56</td>
<td>#5</td>
<td>3'-0&quot;</td>
<td>12&quot; C TO C</td>
</tr>
<tr>
<td>b</td>
<td>25 OR 40</td>
<td>#4</td>
<td>4'-0&quot;</td>
<td>AS SHOWN</td>
</tr>
</tbody>
</table>
NOTES:
1. NO. 5 STEEL SHALL BE USED THROUGHOUT ON 12" CENTERS.
2. ALL STEEL SHALL HAVE A 2" MINIMUM CLEARANCE TO ANY CONCRETE FACE.
3. NO STEEL IS REQUIRED IN THE BOTTOM SLAB.
4. ALL VERTICAL STEEL SHALL EXTEND 4" INTO BOTTOM SLAB.
5. FOR USE IN PAVED AREAS ONLY.
6. PROVIDE MINIMUM 0.1" SLOPE THROUGH STRUCTURE FOR PIPES IN SERIES. CARRY THROUGH THROUGH. ONLY STRAIGHT THROUGH CONNECTIONS ARE ALLOWED.

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT
# BILL OF REINFORCEMENT

<table>
<thead>
<tr>
<th>MARK</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>LENGTH</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>5</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>10</td>
<td>FOOTING</td>
</tr>
<tr>
<td>A2</td>
<td>5</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>10</td>
<td>CHAMBER WALLS</td>
</tr>
<tr>
<td>A3</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>H-(&quot;-4&quot;)</td>
</tr>
<tr>
<td>A5</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>CHAMBER WALLS</td>
</tr>
<tr>
<td>A6</td>
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<td>2</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>CHAMBER ABOVE THROAT</td>
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<tr>
<td>A7</td>
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<td>10</td>
<td>4</td>
<td>2</td>
<td>10</td>
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</tr>
<tr>
<td>A8</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>CHAMBER WALLS &amp; TOP</td>
</tr>
<tr>
<td>A9</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>TOP SLAB &amp; APRON</td>
</tr>
<tr>
<td>AG1</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>THROAT</td>
</tr>
<tr>
<td>A12</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>END THROAT</td>
</tr>
<tr>
<td>A13</td>
<td>5</td>
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<td>5</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>END THROAT</td>
</tr>
</tbody>
</table>

* NO. OF BARS REQUIRED FOR H+4" = 0" ADD OR DEDUCT 4-A5 & 4-A7 FOR EACH 1" = 0" INCREASE OR DECREASE IN H.

## BAR TYPES

- **TYPE 1**
- **TYPE 2**
- **TYPE 3**
- **TYPE 4**
- **TYPE 5**

### NOTES:
1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. STEEL REINFORCEMENT SHALL BE ASTM A-615, GRADE 60. ALL EXPOSED EDGES SHALL BE BEVELED 1/4" UNLESS OTHERWISE SHOWN.
2. THIS DRAWING DEPICTS A CURB BOX INLET IN A GRADE SITUATION. FOR CURB BOX IN AG SITUATION, DETAILS SHALL BE MODIFIED AS INDICATED IN DETAIL "A".
3. THE STANDARD OPENING LENGTH IS 10" = 0" AS DETAILED HERE. THIS LENGTH MAY BE INCREASED OR DECREASED BASED ON HYDRAULIC ANALYSIS AND APPROVAL BY THE LEXINGTON--FAYETTE COUNTY URBAN GOVERNMENT ENGINEER. MODIFICATION TO THE OPENING LENGTH WILL REQUIRE MODIFICATION OF LENGTH OF BARS A9 & A10 AND INCREASE OR DECREASE IN NUMBER OF BARS A12, A13 & A14 MAINTAINING THE SAME MAXIMUM SPACING SHOWN ON THIS DRAWING.
4. MAXIMUM "H" FOR APPLICATION OF THIS DRAWING SHALL BE 10 FEET.
5. FIELD BEND OR CUT BARS A2, A4, AND A5 AS NECESSARY WHERE PIPES PENETRATE CHAMBER WALLS.
6. FOR CURB BOX INLET IN CURVE WITH CURB RADIUS OF LESS THAN 25', LONGITUDINAL BARS A9, A10 SHALL BE SHOP FABRICATED RADIALY.

**LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT**

**LEXINGTON DIVISION OF ENGINEERING**

**CURB BOX INLET TYPE "A" 4"X4" BOX 15'-18" PIPES**

**STANDARD DRAWING NO.:** 122-2

**APPROVED:** 9/28/17

**CONSTRUCTED:** 9/28/17
BILL OF REINFORCEMENT

<table>
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<td>0</td>
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* NO. OF BARS REQUIRED FOR H=4"-0"
ADD OR DEDUCT 4-95 & 4-97 FOR EACH 1"-0" INCREASE OR DECREASE IN H.

BAR TYPES

NOTE:
1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSL.
2. STEEL REINFORCEMENT SHALL BE ASTM A-615, GRADE 60. ALL EXPOSED EDGES
   SHALL BE ROUNDED 1/8" UNLESS OTHERWISE SHOWN.
3. THE STANDARD OPENING LENGTH IS 10"-0" AS DETAILED HERE. THIS LENGTH
   MAY BE INCREASED OR DECREASED BASED ON HYDRAULIC ANALYSIS AND APPROVAL
   BY THE DIVISION OF ENGINEERING. MODIFICATION TO THE
   OPENING LENGTH WILL REQUIRE MODIFICATION OF LENGTH OF BARS B9 & B10
   AND INCREASE OR DECREASE IN NUMBER OF BARS B12, B13 & B14 MAINTAINING
   THE SAME MAXIMUM SPACING SHOWN ON THIS DRAWING.
4. MAXIMUM "H" FOR APPLICATION OF THIS DRAWING SHALL BE 10 FEET.
5. FIELD BEND OR CUT BARS B2, B4, AND B5 AS NECESSARY WHERE PIPES PENETRATE
   CHAMBER WALLS.
6. FOR CURB BOX INLET IN CURVE WITH CURB RADIUS OF LESS THAN 25', LONGITUDINAL
   BARS B9, B10 SHALL BE SHOP FABRICATED RADIALY.
7. 30° PIPE MAY BE APPROVED IF BOTH PIPES ARE INSTALLED ON THE SAME LINE.

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
## BILL OF REINFORCEMENT

<table>
<thead>
<tr>
<th>MARK</th>
<th>N</th>
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* NO. OF BARS REQUIRED FOR H=4'-0" ADD OR DEDUCT 2-C6, 2-C7 & 4-C8 FOR EACH 1'-0" INCREASE OR DECREASE IN H.

### BAR TYPES

- **TYPE 1**
- **TYPE 2**
- **TYPE 3**
- **TYPE 4**

**NOTES:**

1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.
2. STEEL REINFORCEMENT SHALL BE ASTM A-615, GRADE 60. ALL EXPOSED EDGES SHALL BE REVELED 3/4" UNLESS OTHERWISE SHOWN.
3. THIS DRAWING DEPICTS A CURB BOX INLET IN A GRADE SITUATION. FOR CURB BOX INLET IN SAG SITUATION, DETAILS SHALL BE MODIFIED AS INDICATED IN DETAIL 'A'.
4. THE STANDARD OPENING LENGTH IS 10'-0" AS DETAILED HERE. THIS LENGTH MAY BE INCREASED OR DECREASED BASED ON HYDRAULIC ANALYSIS AND APPROVAL BY THE LEXINGTON-FAYETTE URBAN COUNTY ENGINEER. MODIFICATION TO THE OPENING LENGTH WILL REQUIRE MODIFICATION OF LENGTH OF BARS C10, C11 & C12 AND INCREASE OR DECREASE IN NUMBER OF BARS C14 & C15 MAINTAINING THE SAME MAXIMUM SPACING SHOWN ON THIS DRAWING.
5. MAXIMUM "H" FOR APPLICATION OF THIS DRAWING SHALL BE 5 FEET.
6. FIELD BEND OR CUT BARS C3, C5, C6 & C7 AS NECESSARY WHERE PIPES PENETRATE CHAMBER WALLS.
7. FOR CURB BOX INLET IN CURVE WITH CURB RADIUS OF LESS THAN 25', LONGITUDINAL BARS C10, C11 & C12 SHALL BE SHOP FABRICATED RADIALY.

**LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT**

**DIVISION OF ENGINEERING**

**CURB BOX INLET TYPE C**
4"X3" BOX
SINGLE PIPE
15" OR LESS

**LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT**
NOTES:
1. CURB BOX ADJUSTABLE 6" TO 9" TO MATCH TOP OF CURB.
2. NO. 5 STEEL SHALL BE USED THROUGHOUT ON 12" CENTERS. 2" CLEARANCE ON ALL EXTERIOR WALL BARS. EXTERIOR HORIZ. WALL BARS SHALL HAVE A 12" MIN. LAP AT CORNERS.
3. ALL EXPOSED FLATWORK SHALL HAVE A HAND FLOATED AND BROomed FINISH.
4. NO STEEL IS REQUIRED IN BOTTOM SLAB.
5. ALL VERTICAL STEEL SHALL EXTEND 4" INTO BOTTOM SLAB. VERTICAL STEEL SHALL HAVE A 12" LAP INTO BOTTOM SLAB WITH 3" CLEARANCE FROM EXTERIOR BOTTOM.
6. SET BACK OF FRAME IN CONCRETE TO ANCHOR IN PLACE AFTER IT HAS BEEN ADJUSTED.
7. 18" MAX. PIPE DIAMETER.
8. EAST JORDAN IRON WORKS CATCH BASIN CURB INLET 7035 WITH TYPE M6 GRATE OR EQUIVALENT.
9. TOP OF CURB SECTION SHALL BE CAST WITH "DUMP NO WASTE DRAINS TO STREAM".

SECTION C-C
2"x4" KEY AT CONSTRUCTION JOINTS

SECTION D-D
8" 24" 8" 5" MAX

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
BILL OF REINFORCEMENT

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<tr>
<td>A</td>
<td>10</td>
<td>1½&quot;Ø</td>
<td>4'-7&quot;</td>
<td>TOP SLAB</td>
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<td>C</td>
<td>6</td>
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<td>BENT</td>
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<tr>
<td>D</td>
<td>16</td>
<td>-</td>
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STEEL REINFORCEMENT
12" CLASS "A" CONCRETE 4.61 CU. YDS.
13" CLASS "A" CONCRETE 4.59 CU. YDS.
18" CLASS "A" CONCRETE 4.56 CU. YDS.

NOTES:
1. LOCATION OF OPENING MAY BE DETERMINED IN THE FIELD FOR A SIDE OR BOTTOM SPRING INLET.
2. TYPE "A" TO BE USED WHEN FILL OVER TOP IS 10' OR MORE.

LEXINGTON
DIVISION OF ENGINEERING

SPRING BOX INLET
TYPE "A"

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
NOTES:
1. SPRING BOX INLET TYPE "B" MAY BE USED WHEN FILL OVER TOP IS LESS THAN 10'.
   12", 15", OR 18" DIAMETER PIPE OUTLET (SEE PIPE SECTIONS FOR SIZE AND TYPE)
2. MORTAR AROUND PIPE TO PREVENT SEEPAGE.
3. STEEL REINFORCEMENT PLACED 6" ON CENTERS.

STEEL REINFORCEMENT 13 LBS.
CLASS "A" CONCRETE 1.54 CU. YDS.

BILL OF REINFORCEMENT

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<tr>
<td>D</td>
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MARK LOCATION DESCRIPTION
A TOP STRAIGHT
B " "
C " "
D " "

SECTION A-A
36" R.C. PIPE CLASS III
PRECAST REINFORCED CONCRETE COVER CLASS "A"

SECTION B-B

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
TYPICAL ILLUSTRATIONS FOR CASTINGS

NOTES:
1. CHAIN SHACKLE, OR COLD SHUT, OF AN APPROVED TYPE.
2. 3/8" PROOF COIL CHAIN OF SUFFICIENT LENGTH TO ALLOW REMOVAL AND DISPLACEMENT OF GRATE, 18" MIN.
3. 3/8" x 6" EYE BOLT, NUT, AND WASHER.
4. 3/8" HEX HEAD CAP SCREW, GRADE 2, NUT AND WASHERS. LENGTH DETERMINED BY THICKNESS OF FRAME OR GRATE.
5. 3/8" DIA. HOLE FOR CAP SCREW. BATTER THREADS ON CAP SCREW TO PREVENT REMOVAL OF NUT.
6. ALL EYE BOLTS SHALL HAVE A CONTINUOUS OR S OUD EYE.
7. ALL HARDWARE SHALL BE GALVANIZED AND OF COMMERCIAL QUALITY AND SHALL BE APPROVED BY THE ENGINEER.
8. THE COST OF THE COMPLETE SECURITY DEVICE, INSTALLED, SHALL BE INCIDENTAL TO THE COST OF THE STRUCTURE.
9. THE DESIGNS SHOWN ARE ACCEPTABLE; HOWEVER ARE SUBJECT TO CHANGE IF APPROVED IN WRITING BY THE ENGINEER.

LEXINGTON
DIVISION OF ENGINEERING
SECURITY DEVICES FOR FRAMES AND GRATRES

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
TYPICAL SECTION

NOTES:
1. AGGREGATE CHANNEL LINING WILL NOT BE REQUIRED IN THE BOTTOM OF THE DITCH WHERE SOLID ROCK IS ENCOUNTERED. SIDE SLOPES SHALL BE LINED.
2. AGGREGATE ESTIMATED ON THE BASIS OF 0.50 TON/SQ. YD. PER FOOT OF DEPTH.

SHEET NOTES:
① WIDEN CHANNEL LINING AT STRUCTURES TO PREVENT EROSION.
② ALTERNATE LOCATION OF GROUNDLINE.
③ MINIMUM DEPTH OF CHANNEL LINING SHALL BE 24". LESSER DEPTHS SHALL HAVE APPROVAL FROM THE ENGINEER. STONE SHALL BE WELL GRADED SO THAT OPENINGS BETWEEN LARGER STONES ARE FILLED WITH SMALLER STONES.
NOTES:

1. BEDDING MATERIAL SHOULD NOT BE SMALLER THAN KOOT NO. 2 COARSE AGGREGATE STONE. THE REQUIREMENTS FOR KOOT NO. 2 COARSE AGGREGATE STONE ARE AS FOLLOWS:

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<tr>
<td>2 1/2</td>
<td>70-85</td>
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<td>1 1/2</td>
<td>0-10</td>
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2. BEDDING SHOULD BE AT LEAST THREE INCHES AND SPREAD UNIFORMLY.

3. PLASTIC FILTER FABRIC MAY BE USED IN PLACE OF OR IN CONJUNCTION WITH GRAVEL FILTERS. THE FOLLOWING PARTICLE SIZE RELATIONSHIPS MUST EXIST:

A. FOR FILTER FABRIC ADJACENT TO GRANULAR MATERIALS CONTAINING 50 PERCENT OR LESS (BY WEIGHT) OF FINE PARTICLES (LESS THAN 0.074 mm):

1.) \[
\frac{\text{D}}{\text{EOS* FILTER FABRIC (mm)}} > 1
\]

2.) TOTAL OPEN AREA OF FILTER IS LESS THAN 36 PERCENT.

B. FOR FILTER FABRIC ADJACENT TO ALL OTHER SOILS:

1.) EOS* LESS THAN U.S. STANDARD SIEVE NO. 70
2.) TOTAL OPEN AREA OF FILTER IS LESS THAN 10 PERCENT.

4. NO FILTER FABRIC SHOULD BE USED WITH LESS THAN 4 PERCENT OPEN AREA OR AN EOS* LESS THAN U.S. STANDARD SIEVE NO. 100.

5. *EOS = EQUIVALENT OPENING SIZE TO A U.S. STANDARD SIEVE SIZE.

6. THE FOLLOWING CHART SHOWS HOW TO DETERMINE THE DIAMETER OF STONE IN RELATION TO DESIGN VELOCITY.

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SEE SHEET 130-1 FOR AGGREGATE CHANNEL LINING MATERIAL DRAWINGS
SHEET NOTES:

1. Anchors required when lining is placed on 5% grade or greater.

NOTES:

1. Secure the lacing wire at the corner of the basket by looping and twisting. Continue lacing throughout with double loops at approximately 5 inch intervals. Each unit shall consist of linings supplied in widths of 6'-0" as shown and lengths in multiples of 3'-0".

2. Aggregate estimated on the basis of 0.375 tons per sq. yd.

3. Mattress shall be manufactured from wire with a minimum tensile strength of 40,000 psi.

4. Stone size per manufacturer specifications.
NOTES:
1. USE "CLASS A" CONCRETE THROUGHOUT.
2. COMPACTION, FINISHING AND CURING SHALL BE THE SAME AS REQUIRED FOR CONCRETE SIDEWALK (USE WHITE COMPOUND).
3. IF THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT IN THE POURING OF THE PAVED DITCH, NO. 4 TIE BARS SPACED 6" C.C. SHALL BE USED (SEE SECTION C-C).
4. INTERMEDIATE ANCHORS MAY BE REQUIRED BY THE ENGINEER FOR SPECIAL CASES. A SPECIAL DESIGN WILL BE REQUIRED IN THIS SITUATION.
5. SHOULD THE TERRAIN OF THE EXISTING GROUND BE SO THAT WATER WOULD DRAIN INTO THE DITCH FROM ONE SIDE ONLY, THEN SODDING WILL BE REQUIRED ON THAT ONE SIDE ONLY OF THE DITCH.
6. EXPANSION JOINTS & SEALER REQUIRED ON ENDS ABUTTING STRUCTURES AND ANCHORS ON ENDS NOT ABUTTING STRUCTURES.
7. IF FIBER REINFORCED CONCRETE IS USED THE WWF 6 x 6 MAY BE ELIMINATED.
8. DO NOT PLACE PAVED DITCH ON DISTURBED SOIL.
<table>
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<td>A</td>
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<tr>
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<td>18&quot;</td>
<td>1'-9&quot;</td>
</tr>
<tr>
<td></td>
<td>21&quot;</td>
<td>1'-9 ½&quot;</td>
</tr>
<tr>
<td></td>
<td>24&quot;</td>
<td>1'-10&quot;</td>
</tr>
<tr>
<td>5 RAISED</td>
<td>27&quot;</td>
<td>1'-10 ½&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Height of footer shall be 18" for soil and 12" in rock.
2. All exposed edges to be chamfered ¾".
3. All exposed surfaces to have a rubbed finish.
4. Standard headwalls are flush with soil fill.
5. Raised headwalls protrude 6" above soil fill.
6. Chain link fence is required on all headwalls when vertical face "D" is greater than 30°.
**Headwall Dimensions**

<table>
<thead>
<tr>
<th>Headwall Type</th>
<th>Dia. of Pipe</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Ell</td>
<td>15&quot;</td>
<td>1'-8 1/2&quot;</td>
<td>4'-3&quot;</td>
<td>2'-9&quot;</td>
<td>2'-3&quot;</td>
<td>3'-11 1/2&quot;</td>
<td>3'-6&quot;</td>
<td>2'-9&quot;</td>
<td>5'-2 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18&quot;</td>
<td>1'-9&quot;</td>
<td>4'-6&quot;</td>
<td>3'-0&quot;</td>
<td>2'-6&quot;</td>
<td>4'-3&quot;</td>
<td>4'-0&quot;</td>
<td>3'-0&quot;</td>
<td>5'-9&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21&quot;</td>
<td>1'-9 1/2&quot;</td>
<td>4'-9&quot;</td>
<td>3'-3&quot;</td>
<td>2'-9&quot;</td>
<td>4'-6 1/2&quot;</td>
<td>4'-6&quot;</td>
<td>3'-3&quot;</td>
<td>6'-3 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24&quot;</td>
<td>1'-10&quot;</td>
<td>5'-0&quot;</td>
<td>3'-6&quot;</td>
<td>3'-0&quot;</td>
<td>4'-10&quot;</td>
<td>5'-0&quot;</td>
<td>3'-6&quot;</td>
<td>6'-10&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27&quot;</td>
<td>1'-10 1/2&quot;</td>
<td>5'-3&quot;</td>
<td>3'-9&quot;</td>
<td>3'-3&quot;</td>
<td>5'-1 1/2&quot;</td>
<td>5'-6&quot;</td>
<td>3'-9&quot;</td>
<td>7'-4 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td>Raised Ell</td>
<td>15&quot;</td>
<td>1'-8 1/2&quot;</td>
<td>4'-9&quot;</td>
<td>3'-3&quot;</td>
<td>3'-0&quot;</td>
<td>4'-8 1/2&quot;</td>
<td>4'-3&quot;</td>
<td>3'-6&quot;</td>
<td>5'-11 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>18&quot;</td>
<td>1'-9&quot;</td>
<td>5'-0&quot;</td>
<td>3'-3&quot;</td>
<td>3'-0&quot;</td>
<td>5'-0&quot;</td>
<td>4'-9&quot;</td>
<td>3'-9&quot;</td>
<td>6'-6&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21&quot;</td>
<td>1'-9 1/2&quot;</td>
<td>5'-3&quot;</td>
<td>3'-9&quot;</td>
<td>3'-6&quot;</td>
<td>5'-3 1/2&quot;</td>
<td>5'-3&quot;</td>
<td>4'-0&quot;</td>
<td>7'-0 1/2&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24&quot;</td>
<td>1'-10&quot;</td>
<td>5'-6&quot;</td>
<td>4'-0&quot;</td>
<td>3'-9&quot;</td>
<td>5'-7&quot;</td>
<td>5'-9&quot;</td>
<td>4'-3&quot;</td>
<td>7'-7&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27&quot;</td>
<td>1'-10 1/2&quot;</td>
<td>5'-9&quot;</td>
<td>4'-3&quot;</td>
<td>4'-0&quot;</td>
<td>5'-10 1/2&quot;</td>
<td>6'-3&quot;</td>
<td>4'-6&quot;</td>
<td>8'-1 1/2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. Height of footer shall be 18" for soil and 12" in rock.
2. All exposed edges to be chamfered 1/4".
3. All exposed surfaces to have a rubbed finish.
4. Standard headwalls are flush with soil fill.
5. Raised headwalls protrude 6" above soil fill.
6. Chain link fence is required on all headwalls when vertical face "D" is greater than 30".
**PLAN**

**SECTION A-A**

**SECTION B-B**

**DIMENSIONS AND QUANTITIES**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Diameter of Pipe</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>15&quot; 18&quot; 24&quot; 30&quot; 36&quot;</td>
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<td>A</td>
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</tr>
<tr>
<td>B</td>
<td>4'-3&quot; 4'-6&quot; 5'-0&quot; 5'-6&quot; 6'-0&quot;</td>
</tr>
<tr>
<td>C</td>
<td>1'-6&quot; 1'-6&quot; 1'-6&quot; 1'-6&quot; 2'-0&quot;</td>
</tr>
<tr>
<td>D</td>
<td>2'-9&quot; 3'-0&quot; 3'-6&quot; 4'-0&quot; 4'-6&quot;</td>
</tr>
<tr>
<td>E</td>
<td>3'-9&quot; 4'-0&quot; 4'-6&quot; 4'-9&quot; 5'-0&quot;</td>
</tr>
<tr>
<td>F</td>
<td>6'-2&quot; 6'-6&quot; 7'-2&quot; 7'-7&quot; 8'-0&quot;</td>
</tr>
<tr>
<td>G</td>
<td>3'-9&quot; 4'-0&quot; 4'-6&quot; 4'-9&quot; 5'-0&quot;</td>
</tr>
<tr>
<td>H</td>
<td>5'-2&quot; 5'-9&quot; 6'-10&quot; 7'-11&quot; 9'-0&quot;</td>
</tr>
<tr>
<td>C.Y. Conc. One Headwall</td>
<td>2.96 3.53 4.72 6.03 8.79</td>
</tr>
</tbody>
</table>

**Notes:**

1. Volume displaced by barrel of pipe has been computed using inside diameter of pipe.
2. Chain link fence is required on all headwalls when vertical face "D" is greater than 30".

**Sheet Note:**

1. Solid concrete bottom required.
**PIPE Culvert Headwalls 0° Skew 15"—27" Circular Pipe**

Sheet Notes:
1. Reinforcing Steel Minimum Grade 40, Evenly Spaced (Min. Spacing 12" O.C.)
3. Wing Angles and/or Dimensions May Be Altered During Construction to Accommodate Flow of Water.
4. Apron Between Wings Shall Be Sloped in Direction of Flow Equal to Slope of Pipe, But Not to Exceed 5%. Front Face of Headwall Shall Remain Vertical.
5. Chain Link Fence Is Required on All Headwalls When Vertical Face "C" Is Greater Than 30°.
6. All Exposed Edges Are to Have 3/4" Chamfer.
7. Skewed Pipe Requires Special Design.
NOTES:
1. Applies to 66" diameter and greater, (circular pipe)
2. See sheets 2, 3, and 4 of current std. dwg. 154 for dimensions, quantities, and bill of reinforcement.
3. Dimensions from face of concrete to steel shall be 2" clear distance unless otherwise noted.
4. Encircled letters indicate steel bar locations.
5. Bars B, C, D, F, M, K, L, and V are spaced 1'-0" O.C. All other bars shall be evenly spaced.
6. Bars B and V are placed in order of increasing lengths, beginning at the end of each wing.
7. Bars C are placed in order of increasing lengths, beginning at top of each wing.
8. Headwalls located at edge of shoulder shall be parallel to centerline of the road.
9. Apron between wings shall be sloped in direction of flow equal to slope of pipe, not to exceed 5%.
10. Front of headwall and ends of wings shall remain vertical.
11. Fence and / or handrail is required for all headwalls, see std. dwg. 308.
12. All exposed edges are to have 3/8" chamfer.
<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>DIAMETER OF PIPE</th>
<th>DIMENSION</th>
</tr>
</thead>
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<tr>
<td></td>
<td>30&quot; 36&quot; 42&quot; 48&quot; 54&quot; 60&quot; 66&quot; 72&quot; 78&quot; 84&quot; 90&quot; 96&quot; 102&quot; 108&quot;</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>3'-9&quot; 4'-4&quot; 4'-11&quot; 5'-6&quot; 6'-1&quot; 6'-8&quot; 7'-6&quot; 8'-0&quot; 8'-7&quot; 9'-2&quot; 9'-9&quot; 10'-4&quot; 10'-11&quot; 11'-6&quot;</td>
<td>A</td>
</tr>
<tr>
<td>B</td>
<td>1'-3&quot; 1'-6&quot; 1'-9&quot; 2'-0&quot; 2'-3&quot; 2'-6&quot; 2'-9&quot; 3'-0&quot; 3'-3&quot; 3'-6&quot; 3'-9&quot; 4'-0&quot; 4'-3&quot; 4'-6&quot;</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>3'-6&quot; 4'-0&quot; 4'-7&quot; 5'-1&quot; 5'-8&quot; 6'-2&quot; 7'-0&quot; 7'-5&quot; 8'-0&quot; 8'-6&quot; 9'-1&quot; 9'-7&quot; 10'-2&quot; 10'-8&quot;</td>
<td>C</td>
</tr>
<tr>
<td>D</td>
<td>3'-1&quot; 3'-8&quot; 4'-3&quot; 4'-10&quot; 5'-5&quot; 6'-0&quot; 6'-7&quot; 7'-2&quot; 7'-9&quot; 8'-4&quot; 8'-11&quot; 9'-6&quot; 10'-1&quot; 10'-8&quot;</td>
<td>D</td>
</tr>
<tr>
<td>E</td>
<td>4'-4&quot; 5'-0&quot; 5'-8&quot; 6'-4&quot; 7'-0&quot; 7'-8&quot; 8'-7&quot; 9'-3&quot; 9'-11&quot; 10'-7&quot; 11'-3&quot; 11'-11&quot; 12'-7&quot; 13'-3&quot;</td>
<td>E</td>
</tr>
<tr>
<td>F</td>
<td>7'-6&quot; 8'-8&quot; 10'-0&quot; 11'-2&quot; 12'-6&quot; 13'-8&quot; 15'-2&quot; 16'-6&quot; 17'-8&quot; 19'-0&quot; 20'-2&quot; 21'-6&quot; 22'-8&quot; 24'-0&quot;</td>
<td>F</td>
</tr>
<tr>
<td>G</td>
<td>3'-9&quot; 4'-4&quot; 5'-0&quot; 5'-7&quot; 6'-3&quot; 6'-10&quot; 7'-7&quot; 8'-3&quot; 8'-10&quot; 9'-6&quot; 10'-1&quot; 10'-9&quot; 11'-4&quot; 12'-0&quot;</td>
<td>G</td>
</tr>
<tr>
<td>H</td>
<td>0'-5&quot; 0'-6&quot;</td>
<td>H</td>
</tr>
<tr>
<td>I</td>
<td>0'-3.5&quot; 0'-4.0&quot; 0'-4.5&quot; 0'-5.0&quot; 0'-5.5&quot; 0'-6.0&quot; 0'-6.5&quot; 0'-7.0&quot; 0'-7.5&quot; 0'-8.0&quot; 0'-8.5&quot; 0'-9.0&quot; 0'-9.5&quot; 0'-10.0&quot;</td>
<td>I</td>
</tr>
<tr>
<td>J</td>
<td>0'-8&quot; 1'-0&quot;</td>
<td>J</td>
</tr>
<tr>
<td>K</td>
<td>0'-8&quot; 0'-10&quot;</td>
<td>K</td>
</tr>
<tr>
<td>L</td>
<td>2'-0&quot; 2'-6&quot;</td>
<td>L</td>
</tr>
<tr>
<td>M</td>
<td>2'-0&quot; 3'-0&quot;</td>
<td>M</td>
</tr>
<tr>
<td>N</td>
<td>1'-3&quot; 1'-9&quot;</td>
<td>N</td>
</tr>
</tbody>
</table>

**CU.YDS.CNC.**

| HEADWALLS | 3.36 | 4.30 | 5.35 | 6.53 | 7.82 | 9.22 | 18.76 | 20.95 | 23.25 | 25.67 | 31.48 | 34.31 | 37.25 | 40.32 |
| LBS.STEEL | HEADWALLS | 281 | 363 | 430 | 496 | 583 | 687 | 1320 | 1571 | 1815 | 2043 | 2451 | 2753 | 3050 | 3379 |

**LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT**
| MARK | S | E | NO | FT | LGTH | K | MARK | S | E | NO | FT | LGTH | K | MARK | S | E | NO | FT | LGTH | K | MARK | S | E | NO | FT | LGTH | K | MARK | S | E | NO | FT | LGTH | K |
|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|----|------|---|------|---|---|----|---- |
### BENT BAR SHAPES

**NOTES:**

1. **NUMBER OF BARS IN ONE HEADWALL.**

2. **DIMENSIONS ARE OUT TO OUT OF BARS.**

3. **ALL BARS ARE STRAIGHT EXCEPT THOSE SHOWN BELOW.**

<table>
<thead>
<tr>
<th>Mark</th>
<th>Size</th>
<th>No.</th>
<th>Lgth 1</th>
<th>K</th>
<th>Mark</th>
<th>Size</th>
<th>No.</th>
<th>Lgth 1</th>
<th>K</th>
<th>Mark</th>
<th>Size</th>
<th>No.</th>
<th>Lgth 1</th>
<th>K</th>
</tr>
</thead>
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<td>5</td>
<td>4</td>
<td>13</td>
<td></td>
<td>A</td>
<td>5</td>
<td>4</td>
<td>14</td>
<td>6</td>
</tr>
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<td>4</td>
<td>1</td>
<td>B1</td>
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<td>4</td>
<td>1</td>
<td>B1</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>7</td>
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<td>8</td>
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<td>6</td>
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<tr>
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<td>8</td>
<td>5.5</td>
<td>11</td>
<td>B3</td>
<td>5</td>
<td>8</td>
<td>5.5</td>
<td>11</td>
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<td>5</td>
<td>8</td>
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**SHEET 4 OF 4**

**LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT**

**BILL OF REINFORCEMENT**

96"—108" DIAMETER CIRCULAR PIPE HEADWALLS 0° SKEW

**STANDARD DRAWING NO.**

154-4

**APPROVED:**

**DEPARTMENT ENGINEER:**

**COMPLETED: 4/16/19**

**DIVISION OF ENGINEERING**

**LEXINGTON, KY**
### Dimensions and Quantities

<table>
<thead>
<tr>
<th>Headwall Type</th>
<th>Pipe Dia.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>Cu. Yd. Conc.</th>
<th>2 Headwalls</th>
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<td>1&quot;-3&quot;</td>
<td>4&quot;-6&quot;</td>
<td>3&quot;-0&quot;</td>
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**Notes:**

1. All volumes are in cubic yards for two headwalls; volume displaced by barrel of pipe has been computed using inside diameter of pipe. No deduction has been made for beveled edges.
2. Where headwalls are located at the edge of the shoulder, the top of the headwalls shall be parallel to the edge of shoulder.
3. Where a raised headwall is used on the outlet end of the pipe, the tops of both walls shall be at the same elevation.
4. Chain link fence is required on all headwalls when vertical face "E" is greater than 30'.

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**Plan**

**Section A-A**

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**Elevation**

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**Lexington - Fayette Urban County Government**
NOTES:
1. SEE SHEETS 2 AND 3 OF CURRENT STD. DWG. 159 FOR DIMENSIONS, QUANTITIES, AND BILL OF REINFORCEMENT.
2. ENCIRCLED LETTERS, ©, INDICATE STEEL BAR LOCATIONS.
3. BARS ©, ©, © ARE SPACED 1'-0" O.C. ALL OTHER BARS SHALL BE EVENLY SPACED.
4. BARS © ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE END OF EACH WING.
5. BARS © ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE TOP OF EACH WING.
6. HEADWALLS LOCATED AT THE EDGE OF SHOULDERS SHALL BE PARALLEL TO CENTERLINE OF THE ROAD.
7. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE. FRONT FACE AND ENDS OF WINGS SHALL REMAIN VERTICAL.
8. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" CLEAR DISTANCE.
9. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE "C" IS GREATER THAN 30°. SEE STD. DWG. 308.
<table>
<thead>
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<th>DIMENSION</th>
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<tr>
<td>B</td>
<td>1'-3&quot;</td>
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<td>8'-4&quot;</td>
</tr>
<tr>
<td>F</td>
<td>4'-4&quot;</td>
<td>5'-0&quot;</td>
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<td>H</td>
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</tr>
<tr>
<td>J</td>
<td>-</td>
<td>-</td>
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<td>M</td>
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</tr>
<tr>
<td>V</td>
<td>0'-8&quot;</td>
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</tr>
<tr>
<td>Y</td>
<td>2'-0&quot;</td>
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**CLASS "A" CONC. CU. YDS. 2 HEADWALLS**

| LBS. STEEL 2 HEADWALLS | 379 | 480 | 561 | 660 | 475 | 594 | 702 | 797 |

**CLASS "A" CONC. CU. YDS. 2 HEADWALLS**


**LBS. STEEL 2 HEADWALLS**

| 379 | 480 | 561 | 660 | 475 | 594 | 702 | 797 |
NOTES:
1. NUMBER OF BARS IN ONE HEADWALL.
2. DIMENSIONS ARE OUT TO OUT OF BARS.
3. ALL BARS ARE STRAIGHT EXCEPT THOSE SHOWN BELOW.

BENT BAR SHAPES

TO BE FIELD BENT

K

1'-6"

BARS (E)

V

K

6"

BARS (F)

V

K

1'-8"

BARS (H)

V

1'-3"

BARS (V)

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
PLAN VIEW OF STRUCTURE LOCATIONS

CONDITION NO. 1
0° SKEW

CONDITION NO. 2
1° TO 30° SKEW

CONDITION NO. 3
GREATER THAN 30° SKEW

WARP SLOPE TO
FIT NORMAL SLOPE
IN THIS AREA

EXTEND TOE OF
NORMAL SLOPE

NOTES:
1. THE MINIMUM REQUIREMENT FOR REINFORCING STEEL SHALL BE GRADE 40. FIELD BENDING WILL BE PERMITTED.

2. ONE ADDITIONAL BAR WILL BE REQUIRED FOR EACH 15° SKEW.

3. 1 IS CONCRETE PIPE WALL THICKNESS.

DETAILED VIEW OF SLOTS FOR GRATES
A, B FOR 2 GRATES
A, B, C FOR 3 GRATES
A, B, C, D FOR 4 GRATES

SECURE GRATES TO STRUCTURE WITH
CHAIN SHACKLE, SEE STD. DWG. 128

SEEMS TO BE A REINFORCEMENT BARS TABLE AND DIMENSIONS TABLE:

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>NO. OF BARS REQ'D</th>
<th>NO. 4 REINFORCEMENT BARS</th>
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<tr>
<td>P</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>18°</td>
<td>3°</td>
<td>0°</td>
</tr>
<tr>
<td>24°</td>
<td>3°</td>
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<td>12°-10</td>
</tr>
<tr>
<td>36°</td>
<td>4°-9</td>
<td>15°-0</td>
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LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT

DIVISION OF ENGINEERING

SLOPED AND FLARED BOX INLET-OUTLET
18°-24°-30°-36° ALL SKEWS

STANDARD DRAWING NO. 162
APPROVAL:

CONTRACT:

9/26/17
## Box Inlet-Outlet Size

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<tr>
<th>Grate</th>
<th>Bar No. 1</th>
<th>Bar No. 2</th>
<th>Bar No. 3</th>
<th>Bar No. 4</th>
<th>Lbs. Structural Steel</th>
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<td>No. Bars</td>
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<td>3'-5 3/8&quot;</td>
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<tr>
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<td>3'-7 3/8&quot;</td>
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<td>1</td>
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<td>3'-1 1/2&quot;</td>
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<td>4</td>
<td>2'-0&quot;</td>
<td>8'-6 1/2&quot;</td>
<td>9'-5 1/8&quot;</td>
<td>1'-10&quot;</td>
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</tbody>
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### Notes:
1. Equally space bars No. 3.
2. Size of grate either 2'-0" or 3'-0".
3. 5 1/2" for 2'-0" grate, 7" for 3'-0" grate.
4. All components are 1" x 2" structural steel bars.
5. See Std. Dwg. 162.
6. Secure grate to structure with chain shackle, see Std. Dwg. 128.
NOTES:
1. NO. 5 STEEL BARS TO BE USED THROUGHOUT ON 12" CENTERS.
2. HEIGHT OF WALL SHALL BE DETERMINED BY THE AMOUNT OF FILL BEHIND PIPE. TOP OF WALL SHALL BE 18" ABOVE TOP O.D. OF PIPE.
3. TOP OF END SILL SHALL BE LEVEL WITH CENTERLINE OF PIPE.
4. CHANNEL LINING TO BE WIDTH OF END SILL, 18" MINIMUM THICKNESS, AND COMPOSED OF CLASS III CHANNEL LINING.
5. ALL VERTICAL OR SLOPED EXPOSED SURFACES SHALL HAVE A RUBBED FINISH.
6. ALL EXPOSED FLAT WORK TO HAVE A HAND FLOATED AND BROOMED FINISH.
7. ALL EXPOSED EDGES SHALL HAVE A ¼" CHAMFER.
8. ALL STEEL SHALL HAVE 2" MINIMUM CLEARANCE TO THE CONCRETE FACE ON THE BACKFILL SIDE OF THE WALLS.
9. FENCES REQUIRED ON HEADWALLS.
**NOTES:**

1. NO. 5 STEEL BARS SHALL BE USED THROUGHOUT ON 12" CENTERS EXCEPT ON BAFFLE WHERE HORIZONTAL AND VERTICAL STEEL WILL BE ON 6" CENTERS.
2. HEIGHT OF WALL SHALL BE DETERMINED BY THE AMOUNT OF FILL BEHIND PIPE.
3. TOP OF WALL SHALL BE 18" ABOVE TOP O.D. OF PIPE.
4. TOP OF BAFFLE SHALL BE LEVEL WITH CENTERLINE OF PIPE.
5. TOP OF BAFFLE SHALL BE LEVEL WITH CROWN OF PIPE, AND THE BOTTOM SHALL BE LEVEL WITH CENTERLINE OF PIPE.
6. CHANNEL LINING TO BE 2 TIMES THE WIDTH OF THE END SILL AND EXTEND A MINIMUM OF 4" BEYOND THE STILLING BASIN WITH AN 18" MINIMUM THICKNESS AND COMPOSED OF CLASS III CHANNEL LINING.
7. CHANNEL LINE SPILL SLOPES BEYOND SIDES OF HEADWALL WITH CLASS III CHANNEL LINING.
8. CHANNEL LINING SHALL EXTEND 4" IN WIDTH ON SLOPES AT WINGWALL AND TO DOWNSTREAM END OF CHANNEL.
9. ALL VERTICAL OR SLOPED EXPOSED SURFACES SHALL HAVE A RUBBED FINISH.
10. ALL EXPOSED FLATWORK SHALL HAVE A HANDFLOATED AND BROOCHED FINISH.
11. ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
12. ALL STEEL SHALL HAVE A 2" MINIMUM CLEARANCE TO THE CONCRETE FACE ON THE BACKFILL SIDE OF THE STRUCTURE.
13. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN THE VERTICAL FACE IS GREATER THAN 30".
14. ALL LARGER PIPES SHALL HAVE A SPECIAL DESIGN STILLING BASIN.
15. ALL LONGITUDINAL REINFORCING BARS IN BAFFLE SHALL HAVE SUFFICIENT ANCHORAGE LENGTH IN SIDEWALLS.

**CHAIN LINK FENCE SEE STD. DWG. 308**

**PLAN ELEVATION**

**ISOMETRIC VIEW**

**SIDE ELEVATION**

**FRONT ELEVATION**

**WEIR DETAIL**

**CONSTRUCTION J OINT WITH 2"X4" KEY**

**LAP VERTICAL SIDEWALL REBARS INTO BOTTOM SLAB STEEL**

**LEXINGTON**

**DIVISION OF ENGINEERING**

**IMPACT STILLING BASIN**

**27”-48” PIPES**

**LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT**
NOTES:
1. THE RETAINING WALL DEPICTED ON THIS DRAWING SHALL BE USED WHEN THE HEIGHT ("H" DIMENSION) OF THE WALL IS 2'-6" TO 12'-0" PROVIDED THE FILL COMPLIES WITH THE FOLLOWING CONDITIONS:
   - CASE 1 - TOP OF FILL IS LEVEL WITH TOP OF WALL.
   - CASE 2 - WALL IS SURCHARGED WITH DEAD LOAD FILL SLOPES OF 2:1 OR LESS.
2. AREAS AND VOLUMES HAVE BEEN COMPUTED WITHOUT DEDUCTING FOR BEVELED EDGES OR PIPE DRAINS. WHEN A RETAINING WALL VARIES IN HEIGHT, THE PRISMOIDAL FORMULA SHALL BE USED IN COMPUTING VOLUMES.
3. GRAVITY TYPE RETAINING WALLS SHALL BE CONSTRUCTED OF CLASS "A" CONCRETE.
4. TRANSVERSE EXPANSION JOINTS 1/2 INCH IN WIDTH SHALL BE PLACED AT INTERVALS OF NOT OVER 30 FEET THROUGHOUT THE LENGTH OF RETAINING WALLS AND EXPANSION JOINT MATERIAL SHALL BE PLACED THEREIN. ALL EXPOSED EDGES SHALL BE BEVELED 3/4 INCH. THE WALLS SHALL NOT BE SURCHARGED EXCEPT IN SPECIAL CASES WHEREIN SPECIAL DRAWINGS WILL BE FURNISHED.

SPECIAL NOTES:
SPECIAL DESIGNS SHALL BE REQUIRED WHEN ANY ONE OF THE FOLLOWING CONDITIONS EXIST:
- WALL HEIGHT IS GREATER THAN 12'-0" (CASE 1 OR CASE 2 FILL).
- WALL IS SURCHARGED WITH DEAD LOAD FILL SLOPES GREATER THAN 2:1.
- WALL IS SURCHARGED WITH A LIVE LOAD WITHIN THE LIMITS OF A 1:1 SLOPE EXTENDING FROM THE BASE OF THE WALL.
- MINIMUM VALUE FOR FIRM SOIL IS 2'-0".
- BATTER: H=3'-0" TO LESS THAN 5'-0" (VERTICAL) H=5'-0" TO LESS THAN 10'-0" (1";1") H=10'-0" TO 12'-0" (2";1")
PIPE LAID IN ROCK OR SOIL TRENCH

<table>
<thead>
<tr>
<th>PIPE BACKFILL DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZONE 1 NO. 9 STONE</td>
</tr>
<tr>
<td>ZONE 2 NO. 9 OR NO. 57 STONE</td>
</tr>
<tr>
<td>ZONE 3 COMPACTED DCA</td>
</tr>
<tr>
<td>ZONE 4 CONSOLIDATED SOIL (NO ROCK GREATER THAN 6&quot; DIAMETER) NO. 9, OR NO. 57 STONE</td>
</tr>
<tr>
<td>ZONE 5 12&quot; MAX. TOPSOIL NO ROCK ALLOWED</td>
</tr>
</tbody>
</table>

MAGNETIC MARKER TAPE

CONTRACTOR TO PROVIDE ADEQUATE MEANS TO PREVENT FLOATING OF PIPE WHEN INSTALLING CRADLE

PRECAST CONCRETE BLOCK OR BRICK BEHIND EACH BELL NOT TO EXCEED 6" SPACING

CONCRETE CLASS "A"

STANDARD CONCRETE ENCASEMENT (NOTE: AS REQUIRED BY DESIGN)

NOTES:

1. COVER, UP TO AND INCLUDING ZONE 4 SHALL BE ESTABLISHED BEFORE TRENCH EXCAVATION.

2. ALL SANITARY SEWER LINES CONSTRUCTED FROM NON-METALLIC MATERIALS SHALL HAVE MAGNETIC MARKER TAPE INSTALLED IN THE TRENCH ABOVE THE SANITARY SEWER LINE.

3. MAGNETIC MARKER TAPE FOR SANITARY SEWER ONLY.
CONCRETE PAVEMENT

EXISTING PAVEMENT & SUBBASE, VARYING DEPTH

| 12" MIN. | 12" MIN. |

SAWED JOINTS

NEAT CUT AND SQUARED EDGES WITH TACK COAT

NEW CONCRETE

ZONE 1

MAGNETIC MARKER TAPE

UNDISTURBED EARTH

ZONE 2

PIPE DIA. A

<15" 6"

15" 12"

ZONE 3

| 6" MIN. | 12" MIN. |

MAGNETIC MARKER TAPE

UNDISTURBED EARTH

BITUMINOUS PAVEMENT

FINAL SURFACE (TO BE CONSTRUCTED BY OTHERS)

JOINT SEAL, SEE NOTE 2

KYTC 2" BITUMINOUS SURFACE MIX

NEW CONCRETE

EXISTING PAVEMENT & SUBBASE, VARYING DEPTH

TACK COAT

ZONE 1

MAGNETIC MARKER TAPE

UNDISTURBED EARTH

ZONE 2

PIPE DIA. A

<15" 6"

15" 12"

ZONE 3

| 6" MIN. | 12" MIN. |

MAGNETIC MARKER TAPE

UNDISTURBED EARTH

NOTES:

1. REPLACE CONCRETE PAVEMENT WITH NEW CONCRETE PAVEMENT, 6" MINIMUM OR EXISTING THICKNESS, WHICHEVER IS GREATER. PER KYTC SPECIFICATION 601.03.03 A) CLASS A FROM STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

2. SEAL PERIMETER OF CUT PAVEMENT WITH CRACK SEALANT THAT MEETS ASTM D6690, TYPE 2.

3. MAGNETIC MARKER TAPE FOR SANITARY SEWER ONLY.

PIPE BACKFILL DESCRIPTIONS

| ZONE 1 | NO. 9 STONE OR AS SPECIFIED BY THE UTILITY |
| ZONE 2 | NO. 9 OR NO. 57 STONE |
| ZONE 3 | COMPACTED DGA |

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TO BE USED WITH STANDARD DRAWING 201-4
CONCRETE PAVEMENT

SAWED JOINTS

NEW CONCRETE

12" MIN.

12" MIN.

FLOWABLE FILL

NO. 9 STONE
OR AS SPECIFIED
BY THE UTILITY

UNDISTURBED EARTH

NOTES:

1. FLOWABLE FILL PER KYTC SPECIFICATION 601.03.03
   FROM STANDARD SPECIFICATIONS FOR ROAD AND
   BRIDGE CONSTRUCTION CURRENT EDITION.

2. REPLACE CONCRETE PAVEMENT WITH NEW
   CONCRETE PAVEMENT, 6" MINIMUM OR
   EXISTING THICKNESS, WHICHER IS GREATER,
   PER KYTC SPECIFICATION 601.03.03 A) CLASS
   A FROM STANDARD SPECIFICATIONS FOR
   ROAD AND BRIDGE CONSTRUCTION, CURRENT
   EDITION.

3. SEAL PERIMETER OF CUT PAVEMENT WITH
   CRACK SEALANT THAT MEETS ASTM D6690,
   TYPE 2.

4. UTILITY DESIGNERS AND CONTRACTORS SHALL
   ACCOUNT FOR AND PROVIDE ANY SUITABLE MEANS
   TO PREVENT PIPE/CONDUIT FLOATATION.

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT
THIS PAGE LEFT BLANK INTENTIONALLY
LONGITUDINAL EXCAVATION – ADJACENT TO CURB OR GUTTER

NOTES:
1. WHEN LESS THAN 3', THEN THE PAVEMENT SHALL BE REMOVED TO THE EDGE OF PAVEMENT AND REPLACED PER STANDARD DRAWING 201-1 OR 201-2.
2. STREET CUT SHALL BE ORIENTED EITHER PARALLEL OR PERPENDICULAR TO CURB OR GUTTER.
3. ALL SAWED JOINTS SHALL PRODUCE NEAT CUTS WITH SQUARED EDGES.

AREA SHALL BE EXCAVATED TO 8" BELOW ROADWAY SURFACE, THEN REPLACED PER STANDARD DRAWING 201-1 OR 201-2.

AREA SHALL BE MILLED 2" AND REPLACED WITH 2" BITUMINOUS SURFACE MIX.

TO BE USED WITH STANDARD DRAWINGS, 201-1 OR 201-2
### TABLE OF:

**MAXIMUM ALLOWABLE FILL HEIGHTS**

**(LIVE LOAD NOT INCLUDED)**

<table>
<thead>
<tr>
<th>DIAMETER (INCHES)</th>
<th>DUCTILE IRON PIPE</th>
<th>POLYVINYL CHLORIDE (PVC) PIPE</th>
<th>POLYVINYL CHLORIDE (PVC) PIPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MAXIMUM DEPTH OF COVER (FEET)</td>
<td>SDR-35</td>
<td>SDR-26</td>
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<tr>
<td>48</td>
<td>13</td>
<td>–</td>
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</tr>
</tbody>
</table>

* LIGHTEST CLASS OF DUCTILE IRON PIPE

**NOTES:**

1. DEPTH IS BASED ON LAYING CONDITION UTILIZING NO. 9 STONE ENCASING PIPE FROM 8" MINIMUM BELOW PIPE TO A PLANE, LEVEL WITH THE TOP OF THE PIPE AND 8" TO 12" NO. 9 STONE TO EDGE OF TRENCH.

2. WEIGHT OF SOIL AND ROCK COVER MIX IS ASSUMED TO BE APPROXIMATELY 120 LB./CU. FT.

3. DUCTILE IRON PIPE HAS FLEXIBLE LINING.

4. DESIGN ENGINEERS SHOULD USE THIS STANDARD DRAWING FOR GENERAL GUIDELINES AND SHOULD CHECK THEIR DESIGN FOR SAFE, NON-DESTRUCTIVE FILL HEIGHTS FOR ACTUAL BRAND OF PIPE PROPOSED.

5. SPECIAL TRENCHING DETAILS AND PROCEDURES SHOULD BE USED WHERE FILL DEPTHS ARE HIGHER THAN THOSE SHOWN IN TABLE.

6. INSTALLATIONS REQUIRING A DEPTH GREATER THAN 20', MUST BE APPROVED BY THE ENGINEER.
SECTION B-B

NOTES:

1. ALL BARREL JOINTS BETWEEN BASE AND BARREL, BETWEEN BARREL AND TOP, BETWEEN TOP AND ADJUSTING RINGS, BETWEEN ADJUSTING RINGS AND FRAME SHALL HAVE ONE OUTER MASTIC SEAL AND AN INNER SEAL OF NONSHRINK GROUT.

2. COAT OUTSIDE OF ADJUSTING RINGS WITH SEMI-FIBRATED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.

3. WATER STOPS SHOULD BE PROVIDED FOR INLETS AND OUTLETS OF EVERY MANHOLE, DESIGNED FOR TYPE OF PIPE USED AND WITH EXPANSIVE GROUT. SEE STD. DWG. 213 FOR WATER STOP DETAIL.

4. MANHOLES MUST PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.

SECTION A-A

(Pipe with top half removed or paved invert)
SET FRAME CASTING IN FULL MASTIC BED, FOR WATER TIGHT FRAME & LID – SEE APPLICABLE STANDARD DRAWING

GRADE

CONCENTRIC CONICAL BARREL SECTION

PRECAST CONCRETE BARREL

MANHOLE BASE MAY BE EITHER ROUND OR SQUARE

SECTION A-A

2'-0"

2'-0" MIN.

6" MIN.

6" MIN.

5" FOR 4'-0" MANHOLE

6" FOR 5'-0" MANHOLE

MANHOLE STEPS (SEE STD. DWG. 103)

VARES

4'-0" & 5'-0"

5'-0"

SLOPE

NO. 9 STONE BEDDING

SECTION B-B

1. ALL BARREL JOINTS BETWEEN BASE AND BARREL, BETWEEN BARREL AND TOP, BETWEEN TOP AND ADJUSTING RINGS, BETWEEN ADJUSTING RINGS AND FRAME SHALL HAVE ONE OUTER MASTIC SEAL AND AN INNER SEAL OF NONSHRINK GROUT.

2. COAT OUTSIDE OF ADJUSTING RINGS WITH SEMI-FIBRATED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.

3. WATER STOP SHOULD BE PROVIDED FOR INLETS AND OUTLETS OF EVERY MANHOLE, DESIGNED FOR TYPE OF PIPE USED AND WITH EXPANSIVE GROUT. SEE STD. DWG. 213 FOR WATER STOP DETAIL.

4. NO REINFORCEMENT NEEDED IN BOTTOM SLAB AT DEPTHS UP TO 12" AT DEPTHS GREATER THAN 12" REINFORCE WITH 6 BAR - 1/2" C-C.

5. A DIFFERENCE OF FLOW ELEVATION MORE THAN 24" REQUIRES AN OUTSIDE DROP. (SEE STD. DWG. 212)

6. MANHOLE STEPS SHALL BE ALIGNED WITH STRAIGHT SIDE OF CONCENTRIC CONE SECTION, AND ALIGNED OVER THE OUTLET PIPE.

7. PIPES SHALL NOT ENTER THE CONE SECTION.

8. MANHOLES MUST PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.

NOTES:

LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT

LEONARD M. DAVIS, P.E.
SET FRAME CASTING IN MASTIC BED FOR WATERTIGHT FRAME & LID – SEE APPLICABLE STANDARD DRAWING

GRADE

CONCENTRIC CONICAL BARREL SECTION

PRECAST CONCRETE BARREL

MANHOLE STEPS (SEE STD. DWG. 103)

5" FOR 4'-0" MANHOLE
6" FOR 5'-0" MANHOLE

CONCRETE ENCASEMENT

1 PIPE DIAMETER TO GREATER THAN 1½ PIPE DIAMETER

3½"

NOTES:
1. ALL BARREL JOINTS BETWEEN BASE AND BARREL, BETWEEN BARREL AND TOP, BETWEEN TOP AND ADJUSTING RINGS, BETWEEN ADJUSTING RINGS AND FRAME SHALL HAVE ONE OUTER MASTIC SEAL AND AN INNER SEAL OF NONSHRINK GROUT.
2. COAT OUTSIDE OF ADJUSTING RINGS WITH SEMI-FIBERED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.
3. WATER STOPS SHOULD BE PROVIDED FOR INLETS AND OUTLETS OF EVERY MANHOLE, DESIGNED FOR TYPE OF PIPE USED AND WITH EXPANSIVE GROUT. SEE STD. DWG. 213 APPLICABLE FOR WATER STOP DETAIL.
4. NO REINFORCEMENT NEEDED IN BOTTOM SLAB AT DEPTHS UP TO 12', AT DEPTHS GREATER THAN 12' REINFORCE WITH NO. 4 BARS - 12" C-C.
5. PROVIDE A MINIMUM FALL OF 0.1 FOOT FROM DROP TO MANHOLE OUTLET.
6. MANHOLES SHALL PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.
7. PIPE SHALL NOT ENTER CONE SECTION.
8. MANHOLE STEPS SHALL BE ALIGNED WITH STRAIGHT SIDE OF CONCENTRIC CONE SECTION, AND ALIGNED OVER OUTLET PIPE.
9. DO NOT USE IN CASES WHERE THE DROP IS 2'-0" OR LESS.

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LEXINGTON

DIVISION OF ENGINEERING

TYPICAL PRECAST CONCRETE DROP MANHOLE FORPIPES UP TO 36"
NOTES:
1. LIFT RINGS TO BE CUT BEFORE ADDING THE NEXT RING OR TOP.
2. COAT OUTSIDE AND IN BETWEEN ADJUSTING RINGS WITH SEMI-FRIPATED ASPHALT DAMPROOFING COMPOUNDS APPLIED BY BRUSH OR SPRAY.
3. GRADE RINGS WITH NON-PARALLEL SURFACES MAY BE USED TO ADJUST CASTING TO SLOPED SURFACE.
4. CONCRETE: CLASS "A" AT 3500 PSI AT 28 DAYS, AND IN ACCORDANCE WITH ASTM C-478, OR APPROVED EQUAL.
5. NO MORE THAN 2 GRADE RINGS MAY BE USED AT ONE LOCATION AND THE MAXIMUM HEIGHT OF ALL RINGS USED SHALL NOT EXCEED 12 INCHES.
6. APPLY MASTIC BETWEEN ALL JOINTS.
GENERAL NOTES

1. SHALLOW MANHOLE TYPE CONSTRUCTION SHOWN ON STD. DWG. 210 MAY BE USED FOR ALL MANHOLES UP TO 9" IN DEPTH.
2. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
3. MANHOLES FOR PIPE LARGER THAN 36" SHALL BE SPECIALLY DESIGNED.
4. BOTTOM SLAB OF MANHOLES SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
5. MANHOLE STEPS SHALL BE INSTALLED IN A VERTICAL LINE AND SHALL COMPLY WITH OSHA STANDARDS IN ALL RESPECTS.
6. ALL FLOORS, OF MANHOLES SHALL SLOPE AT LEAST 1" PER FT. FROM WALL TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
7. CHANNEL SURFACE OF MANHOLES FROM INLET TO OUTLET SHALL HAVE SMOOTH FLOAT FINISH.
8. ELEVATIONS OF PIPES IN MANHOLES SHALL BE SUCH THAT THE TOP OF ALL INFLOW PIPES WILL BE AT AN ELEVATION EQUAL TO OR GREATER THAN THE TOP OF THE EFFLUENT PIPE.

9. A MINIMUM FALL OF 0.10 FOOT SHALL BE PROVIDED.
10. BASE OF MANHOLES GREATER THAN 12" DEEP TO BE REINFORCED WITH NO. 4 BARS AT 12" BOTH WAYS.
11. ASPHALT DAMPROOFING COMPOUND IS REQUIRED ON PRECAST MANHOLES IN WET AREAS OR OTHERWISE AS DIRECTED BY THE ENGINEER.
12. LEAKS IN MANHOLES OBSERVED DURING CONSTRUCTION OR INSPECTION SHALL BE CORRECTED IMMEDIATELY.
13. MANHOLES SHALL PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.
14. ALL INLETS, INCLUDING LATERALS, MUST HAVE FLOW CHANNELS.
15. NEW CONNECTIONS TO EXISTING SANITARY SEWER MANHOLES MUST REPLACE EXISTING BRICK MANHOLES OR DAMAGED MANHOLES AT NO EXPENSE TO THE LFUCC.
16. FIELD Poured BASES (DOGHOUSE MANHOLES) SHALL ONLY BE ALLOWED WITH PRIOR APPROVAL OF THE LFUCC.

SPECIFICATIONS

1. CASTINGS SHALL BE ASTM A-48, CLASS 35.
2. CONCRETE FOR MANHOLES, CRADLE ENCASCEMENT, ETC. SHOWN IN THESE DETAILS SHALL BE CLASS "A".
3. CONCRETE MANHOLE BARREL CONSTRUCTION SHALL CONFORM TO ASTM C-478 OR ITS LATEST REVISION.
CIRCULAR MANHOLE NOTES:
1. The angle between any two pipes (e.g. angle "Y" or "Z") must be greater than the sum of the partial angles. Refer to separate standard drawings for table of minimum partial angles. Angles smaller than listed on table shall require larger manhole selection.

2. The maximum deflection angle between any incoming pipe and the centerline extension of the discharge pipe shall be no more than 90° for pipes up to 24" in diameter. The maximum deflection angle for 27" to 36" pipes shall be 75°.

EXAMPLE FOR SANITARY MANHOLE SIZE SELECTION:
For manhole shown at right, the angle between the 18" and 30" pipes is 85° and the angle between the 30" and 36" pipes is 105°. The table indicates that for a 5'-0" diameter manhole the minimum partial angle for an 18" pipe is 34° and for a 30" pipe is 50°. The sum of the partial angles is 84°, this sum is less than the 85°. Therefore, a 5'-0" manhole diameter is acceptable.

TABLE OF MINIMUM PARTIAL ANGLES FOR SANITARY MANHOLES

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>4'-0&quot; P. ANGLE</th>
<th>1'-10&quot; L. DIST.</th>
<th>5'-0&quot; P. ANGLE</th>
<th>2'-3&quot; L. DIST.</th>
</tr>
</thead>
<tbody>
<tr>
<td>15&quot;</td>
<td>38°</td>
<td>1'-10&quot;</td>
<td>30°</td>
<td>2'-3&quot;</td>
</tr>
<tr>
<td>18&quot;</td>
<td>43°</td>
<td>1'-8&quot;</td>
<td>34°</td>
<td>2'-3&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>53°</td>
<td>1'-6&quot;</td>
<td>39°</td>
<td>2'-2&quot;</td>
</tr>
<tr>
<td>27&quot;</td>
<td>-</td>
<td>-</td>
<td>45°</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>30&quot;</td>
<td>-</td>
<td>-</td>
<td>50°</td>
<td>1'-1&quot;</td>
</tr>
</tbody>
</table>
NOTE:
MANHOLE FRAME & LID ASSEMBLY SHALL HAVE A MINIMUM LID WEIGHT OF 120 LBS. AND A TOTAL MINIMUM FRAME & LID WEIGHT OF 305 LBS. WITH ALL STEEL IN ACCORDANCE WITH ASTM A-48 CLASS 33 SPEC.

FRAME DETAIL

SET FRAME CASTING IN FULL MORTAR BED. FOR WATERTIGHT MANHOLE FRAME AND LID — SEE APPLICABLE STANDARD DRAWING

COVER DETAIL

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NOTE:
MANHOLE FRAME & LID ASSEMBLY SHALL BE NEENAH #R-1916-D OR APPROVED EQUAL, HAVE A MINIMUM LID WEIGHT OF 150 LBS. AND A TOTAL MINIMUM FRAME & LID WEIGHT OF 335 LBS. WITH ALL STEEL IN ACCORDANCE WITH ASTM A-48 CLASS 35 SPEC. OR HIGHER.

FRAME DETAIL

WATERTIGHT DETAIL

COVER DETAIL
SECTION A--A

NOTE:

LATERAL LENGTH REQUIREMENT IS THE GREATER OF:
6'-0" AS PROJECTED ON THE HORIZ. PLANE
1'-0" OUTSIDE THE EASEMENT
1'-0" INSIDE THE PROPERTY LINE

LATERAL MATERIAL & INSTALLATION SHALL COMPLY WITH SANITARY SEWER AND PUMP STATION MANUAL, LFUCCG, LATEST EDITION.

SANITARY SEWER LINE

CRUSHED STONE NO. 9, SEE APPLICABLE STANDARD DRAWING

45° MIN. COVER, UNLESS APPROVED BY THE ENGINEER, AND SHALL MEET STATE PLUMBING CODE

SEE STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING

"T" BRANCH

GRADE

SEE STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING

IN GENERAL ALL LATERALS SHALL BE INSTALLED TO WITHIN 6' OF THE FINISHED SURFACE GRADE

6" TO 12" 45° ANGLE

MIN. SLOPE 1/8" PER FT.

EASEMENT/PROPERTY LINE

PER LFUCC DCE/DWG MANUAL, INSERT EASILY REMOVABLE WATERTIGHT PLUG AT END.

PROVIDE NO. 5 BAR 6" LONG TO PROTECT END OF PIPE FROM TRENCHING EQUIPMENT

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SECTION A-A

NOTE:
LATERAL LENGTH REQUIREMENT IS THE GREATER OF:
6'-0" AS PROJECTED ON THE HORIZ. PLANE
1'-0" OUTSIDE THE EASEMENT
1'-0" INSIDE THE PROPERTY LINE

LATERAL MATERIAL & INSTALLATION SHALL COMPLY WITH SANITARY SEWER AND PUMP STATION MANUAL LFUGG, LATEST EDITION.

SEEN STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING.

PER LFUGG DOE/DWO MANUAL, INSERT EASILY REMOVABLE WATERTIGHT PLUG AT END.

6" TO 12" 45° ANGLE

30" MIN. COVER, UNLESS APPROVED BY THE ENGINEER, AND SHALL MEET STATE PLUMBING CODE.

PROVIDE NO. 5 BAR 6' LONG TO PROTECT END OF PIPE FROM TRENCHING EQUIPMENT.

SEE STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING.

CRUSHED STONE NO. 9, SEE STD. DWG. 200

SANITARY SEWER LINE

EASEMENT/PROPERTY LINE

T BRANCH

MIN. SLOPE 1/8" PER FT.

45° MIN.

6" MAX. DEPTH

6'
REFER TO STD. DWG. 231 FOR DETAILS OF "HOUSE LATERAL FOR GREATER THAN 6' DEEP SEWER IN SOIL" AND STD. DWG. 232 FOR DETAILS OF "HOUSE LATERAL FOR SHALLOW SEWER IN SOIL OR ROCK EXCAVATION".

SEE STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING.

PIPE AND INSTALLATION PER STATE PLUMBING CODE AND LFUGC ENG/DWAQ MANUALS.

NOTE: SEWER PIPE FROM HOUSE TO THE LONG SUEEP "L" MUST BE IN ACCORDANCE WITH STATE PLUMBING CODE AND LFUGC ENG/DWAQ MANUALS.

FERNCO ADAPTER OR APPROVED EQUAL, OR METALLIC TAPE WRAPPED AROUND OUTSIDE OF PIPE.

GROUND LINE

"CLEAN - OUT" TEE

APPROVED CONNECTION DEVICE
NOTES:

SEWER PIPE FROM HOUSE TO CLEANOUT MUST BE IN ACCORDANCE WITH STATE PLUMBING CODE AND LFUCG ENG/OWAG MANUALS.

TWO-WAY CLEANOUT TEE IS TO BE INSTALLED BY THE PLUMBER AND OR CONTRACTOR PRIOR TO CONNECTION OF THE LATERAL TO PUBLIC SANITARY SEWER LINE.

CLEANOUT TO BE INSTALLED AT THE END OF PUBLICLY MAINTAINED SEWER. POINT TO BE DETERMINED BY THE DIVISION OF ENGINEERING.

CLEANOUTS INSTALLED IN A LOCATION SUBJECT TO VEHICULAR TRAFFIC SHALL HAVE A STANDARD ROAD-RATED MANHOLE FRAME AND COVER INSTALLED ABOVE IT, PER STANDARD DRAWING 220.
CREEK CROSSING DETAIL FOR SOIL CREEKBED

CREEK CROSSING DETAIL FOR ROCK CREEKBED

NOTES:

1. A WATERSTOP SHALL BE PROVIDED ON THE UPSTREAM SIDE OF THE DOWNSTREAM MANHOLE.
2. PIPE TO BE DUCTILE IRON WHEN DEPTH OF COVER IS LESS THAN 4'.
3. SPECIAL DESIGN REQUIRED WHEN COVER IS 36” OR LESS.
4. CONTRACTOR SHALL USE THE CREEK CROSSING DETAIL THAT CORRESPONDS TO THE CHANNEL BED ENCOUNTERED.

LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT
GENERAL NOTES:

1. THIS STRUCTURE IS TO BE ACCESSIBLE FOR MAINTENANCE OR INSPECTION WITH COVERS AND CLEANOUTS BROUGHT TO GRADE.

2. DESIGN CRITERIA SHALL BE HS-20 LOADING.

3. FLOW TO THE INTERCEPTOR SHALL EXCLUDE SANITARY SEWAGE AND SURFACE DRAINAGE.

4. DESIGN AND CAPACITY OF GREASE INTERCEPTOR TO BE CERTIFIED BY ENGINEER IN ACCORD WITH KENTUCKY STATE PLUMBING CODE AND REVIEWED FOR CAPACITY BY THE DIVISION OF WATER QUALITY PRIOR TO CONSTRUCTION.

5. MULTIPLE COMPARTMENT INTERCEPTORS ARE ACCEPTABLE.

6. THE MINIMUM CAPACITY OF INTERCEPTORS IS 1000 GALLONS.

7. PIPE CLEANOUT TEE SHALL BE THE SAME SIZE AS THE PIPE AND BE WITHIN 6" OF THE GREASE INTERCEPTOR ON THE OUTLET LINE. THE INLET LINE CLEANOUT IS OPTIONAL.

8. MANUFACTURER WILL PROVIDE GREASE TRAP WITH TWO(2) ACCESS POINTS AS SHOWN. PLUMBING CONTRACTOR TO INSTALL FIXTURES AS SHOWN.

9. DIAMETER OF PIPE IN GREASE INTERCEPTOR SHALL BE THE SAME DIAMETER AS THE INLET LATERAL PIPE.

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT

DIVISION OF ENGINEERING

GREASE INTERCEPTOR
TYPICAL CONFIGURATION

STANDARD DRAWING NO. 250

APPROVED: ____________________________

DATE: 4/6/17

CONTRACTOR: ____________________________

DATE: 9/28/17
REMOVE PORTION OF EXISTING MANHOLE & REPLACE WITH WATER-PROOF NON-SHRINK GROUT OR MORTAR AND A WATERTIGHT GASKET

REMOVE PORTION OF EXISTING CONCRETE BENCH, FINISH FLOW LINE SURFACE SMOOTH

FLEXIBLE ACID RESISTANT NEOPRENE GASKET WATERSTOP

NEW SEWER PIPE

1" MIN (TYP)

FLEXIBLE ACID RESISTANT NEOPRENE GASKET WATERSTOP

REMOVE PORTION OF EXISTING MANHOLE & REPLACE WITH WATER-PROOF NON-SHRINK GROUT OR MORTAR AND A WATERTIGHT GASKET

EXISTING MANHOLE

EXISTING SEWER

ALL HOLES CUT INTO SEWER MANHOLES SHALL BE CORE DRILLED.

SEWER CONNECTION TO EXISTING MANHOLE
NOTES:

1. CONCRETE SHALL BE KDOT CLASS "A".

2. SAWED CONTRACTION JOINTS SHALL BE CONSTRUCTED EVERY 20 FEET, WITH A MIN. DEPTH OF 3", IN ACCORDANCE WITH KDOT STANDARD SPECIFICATION.

3. ALL CURB & GUTTER SHOULD BE CONSTRUCTED ON COMPACTED SUBGRADE OR DGA.

4. FULL DEPTH EXPANSION JOINTS SHALL BE CONSTRUCTED AT ALL BREAKS IN ALIGNMENT, AT CONTACT WITH NEW OR EXISTING CONCRETE, AT ALL DRAINAGE INLETS, AT THE BEGINNING AND ENDING POINTS OF CURVES, AND NOT TO EXCEED 200" MAXIMUM SPACING FOR SLIP FORM APPLICATION AND 30" MAXIMUM SPACING FOR HAND PLACED.

5. ALL CONCRETE SHALL BE CURED WITH WHITE PIGMENTED MEMBRANE FORMING COMPOUND (AASHTO M 148, TYPE 2).
INTEGRAL CURB, TYPE 1

NOTES:
1. CONCRETE SHALL BE KDOT CLASS "A".
2. SAWS contraction joints SHALL BE CONSTRUCTED EVERY 20 FEET, 3" MINIMUM DEPTH.
3. THE CONTRACTOR HAS THE OPTION OF CONSTRUCTING THE STANDARD INTEGRAL CURB AS DETAILED IN EITHER TYPE 1 OR 2. IF TYPE 2 IS CHOSEN A LONGITUDINAL CONSTRUCTION JOINT SHALL BE REQUIRED AND THE REMAINING PAVEMENT AND CURB SHALL BE CONSTRUCTED MONOLITHIC WITHOUT A HORIZONTAL CONSTRUCTION JOINT AND ACCOMPANYING REINFORCING STEEL (TYPE 1).
4. FULL DEPTH EXPANSION JOINTS SHALL BE CONSTRUCTED AT ALL BREAKS IN ALIGNMENT, AT ALL DRAINAGE INLETS AND AT THE BEGINNING AND ENDING POINTS OF CURVES.
5. ALL CONCRETE, EXCEPT BONDING SURFACES, SHALL BE CURED WITH WHITE PIGMENTED MEMBRANE FORMING COMPOUND (AASHTO M 148, TYPE 2).

HEADER CURB

MONOLITHIC CURB AND SIDEWALK
SIDEWALK/CURB AND CUTTER

NOTES:

1. CONCRETE SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED ON A THOROUGHLY COMPACTED SUB-GRADING AND SHALL BE FOUR AND ONE HALF (4 1/2) INCHES IN THICKNESS AND A MINIMUM WIDTH OF FIVE (5) FEET. CONCRETE SHALL MEET THE REQUIREMENTS FOR CLASS "A" AND SHALL BE COATED WITH WHITE PIGMENTED CURING COMPOUND TYPE 2, ALL AS SPECIFIED IN KYTC SPECIFICATION, SECTION B23.02.

2. FULL DEPTH EXPANSION JOINTS SHALL BE PLACED AT CONTACT WITH NEW OR EXISTING CONCRETE, EXISTING CONCRETE, AT ABUTTING RIGID STRUCTURES OR FEATURES SUCH AS BUILDINGS, DRIVEWAYS, UTILITY POLES, FIRE HYDRANTS, ETC. AND NOT TO EXCEED 200' MAXIMUM SPACING FOR SLIP FORM APPLICATION AND 32' FOR HAND PLACED. EXPANSION MATERIAL SHALL BE 1/2" ASPHALTIC MATERIAL OR APPROVED EQUAL MEETING KYTC 807.04.03.

3. CONTROL JOINTS SHALL BE PLACED AT INTERVALS EQUIVALENT TO THE SIDEWALK WIDTH, WITH A DEPTH OF 1/4 THE SIDEWALK THICKNESS.

4. THE SIDEWALKS SHALL BE PLACED ADJACENT TO THE STREET RIGHT-OF-WAY LINE. SLOPE TOWARD CURB SHALL BE ONE QUARTER (1/4) OF AN INCH TO THE FOOT. CONSTRUCTION IN EXISTING NEIGHBORHOODS SHALL REQUIRE THE CONTRACTOR TO MATCH EXISTING GRADE AND SIDEWALK WIDTH UNLESS SPECIFIED OTHERWISE BY THE DIVISION OF ENGINEERING.

5. SIDEWALK REPAIR FOR ANY CUTS MADE FOR UTILITY WORK REPLACEMENT SHALL BE FULL PANEL MATCHING THE ORIGINAL DIMENSIONS.
NOTES:
1. INLET LOCATIONS WILL VARY, DEPENDENT ON CROSSWALK AND RAMP LOCATION.
2. THE RAMP SHALL BE CONSTRUCTED OF CLASS A CONCRETE, AND SHALL UTILIZE CAST IN PLACE REPLACEABLE TACTILE WARNING TILES, SUCH AS ADA SOLUTIONS, INC. ACCESSIBLE TACTILE SYSTEMS, ARMOR-TILE HERCULITE OR APPROVED EQUAL. TILE COLOR SHALL BE FEDERAL YELLOW.
3. THE NORMAL GUTTER LINE SHOULD BE MAINTAINED THROUGH THE RAMP.
4. RAMPS SHOULD BE LOCATED WITHIN MARKED LIMITS OF CROSSWALKS.
5. WHERE NO CURB EXISTS, STREET EDGE SHALL BE SAW CUT, OR AS DIRECTED BY L.F.U.G. ENGINEER.
6. MAXIMUM CROSS SLOPE OF SIDEWALK 1/4": 1".
7. SIDEWALK REPAIR FOR ANY CUTS MADE FOR UTILITY WORK REPLACEMENT SHALL BE FULL PANEL MATCHING THE ORIGINAL DIMENSIONS.

SHEET NOTES:
1. MAXIMUM RAMP SLOPE 1": 1".
2. 1/8" EXPANSION JOINT AT BACK OF CURBLINE AND SIDEWALK LINE, FULL DEPTH.
3. NO RAMP PERMITTED.
4. SLOPE VARIES UNIFORMLY TO A MAXIMUM OF 1": 1" AT GUTTER LINE.
5. MAXIMUM CROSS SLOPE OF LANDING 1/4": 1" IN ALL DIRECTIONS.
6. MAXIMUM LONGITUDINAL SLOPE 1/2": 1", OR ALONG THE CENTERLINE GRADE OF THE ADJACENT ROADWAY.

PLAN VIEW

CROSS SECTION

PROFILE

SIDEWALK RAMP

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT
### MAXIMUM ALLOWABLE APRON AND DRIVEWAY WIDTHS

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>DRIVEWAY</th>
<th>APRON</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGLE RESIDENTIAL</td>
<td>12'</td>
<td>18'</td>
</tr>
<tr>
<td>DOUBLE OR JOINT</td>
<td>20'</td>
<td>26'</td>
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</tbody>
</table>

### SECTION A-A
- Expansion Joint
- Curb depressed, full width of flare.
- Top of curb
- Gutter line
- Driveway
- Varies

### SECTION B-B
- Expansion Joint
- Space contraction joints evenly across driveway.

### SECTION C-C
- 1/2'-1' Back of walk transition

### SECTION D-D
- Expansion Joint
- Back of curb
- Front of curb

---

### ENTRANCE WITHOUT UTILITY STRIP

- Street with parking lane
- Street without parking lane

### ENTRANCE WITH UTILITY STRIP

- Expansion joint
- Back of curb
- Front of curb

### NOTES:
1. Drop back of sidewalk grade 1 1/2' over 3' to provide a maximum slope of 1":11".
2. Provide a sawed joint along center line of apron.
3. Maximum drop at back of sidewalk shall not exceed 1 1/2'.
4. Maximum cross slope on sidewalk shall not exceed 1":11" (8.3%).
5. Maximum slope on apron shall not exceed 1":11" (8.3%).
6. Entire apron from back of curb to back of sidewalk shall be constructed with a single pour.
7. All expansion joints shall be full depth.
### Maximum Allowable Apron and Driveway Widths

<table>
<thead>
<tr>
<th>Classification</th>
<th>Driveway</th>
<th>Standard Apron</th>
<th>Alternate Apron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Residential</td>
<td>30'</td>
<td>5' Straight Flare=40' Curb Cut</td>
<td>10' Radial Flare=50' Curb Cut</td>
</tr>
<tr>
<td>Commercial Loading</td>
<td>30'</td>
<td>15' Straight Flare=60' Curb Cut</td>
<td>20' Radial Flare=70' Curb Cut</td>
</tr>
<tr>
<td>Industrial</td>
<td>40'</td>
<td>20' Straight Flare=80' Curb Cut</td>
<td>25' Radial Flare=90' Curb Cut</td>
</tr>
</tbody>
</table>

### Section C–C

Front of sidewalk elevation determined by adding 1/2 " 1" across utility strip from top of curb. If coming off 1 1/2 " lip add another 4 1/2 " to determine elevation at front of sidewalk.

### Section A–A

Curb depressed, full width of flares.

### Section B–B

Gutter line

### Section D–D

Driveway

---

**NOTES:**
1. Provide a sawed joint along center line of apron.
2. Maximum cross slope on sidewalk shall not exceed 1/4 ".
3. Maximum slope on apron shall not exceed 1/2 ".
4. No catch basins will be put in aprons.
5. All expansion joints shall be full depth.

---

**LEXINGTON**

**DIVISION OF ENGINEERING**

**COMMERCIAL ENTRANCE DETAILS**

---

**LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT**
NOTES:
1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.

2. 3' HIGH FENCE SHALL HAVE 3' FABRIC HEIGHT. 4' HIGH FENCE SHALL HAVE 4' FABRIC HEIGHT.
   5' HIGH FENCE SHALL HAVE 5' FABRIC HEIGHT. 6' HIGH FENCE SHALL HAVE 6' FABRIC HEIGHT.

3. BRACE BANDS SHALL BE 7/8"X1/4" GALVANIZED STEEL 5/8"X1 1/4" CARRIAGE BOLT.

4. POST CAPS AND SOCKET TYPE BRACE END CONNECTIONS SHALL BE GALVANIZED MALLEABLE IRON OR OTHER TYPE AS APPROVED BY THE ENGINEER. THEY SHALL BE DESIGNED IN A MANNER TO EXCLUDE MOISTURE FROM INSIDE POSTS AND RAILS.

5. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL—ASTM A—120 SHALL GOVERN.

6. STRUCTURAL SHAPES SHALL CONFORM TO STD. SPEC. 816.07.01 EXCEPT YIELD SHALL BE A MIN. 45,000 P.S.I.

7. INDISCRIMINATE MIXING OF POSTS WILL NOT BE PERMITTED.

8. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO. 9 GAGE) WIRE WOVEN IN 2 INCH MESH.

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
NOTES:

1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.

2. A 15/8" O.D. AT 2.27 LB. PER L.F. OR 1 ½"X1 5/8" ROLL FORMED SECTION AT 1.35 LB. PER L.F.
   BOTTOM RAIL SHALL BE REQUIRED AROUND ALL UTILITY INSTALLATIONS AND AT OTHER LOCATIONS
   DESIGNATED BY THE ENGINEER.

3. 8' HIGH FENCE SHALL HAVE 7' FABRIC HEIGHT. 9' HIGH FENCE SHALL HAVE 8' FABRIC HEIGHT. 10'
   HIGH FENCE SHALL HAVE 9' FABRIC HEIGHT. 11' HIGH FENCE SHALL HAVE 10' FABRIC HEIGHT. 12'
   HIGH FENCE SHALL HAVE 11' FABRIC HEIGHT.

4. BRACE BAND SHALL BE 7/8"X1/4" GALVANIZED STEEL WITH 5/8"X1 1/4" CARRIAGE BOLTS. POST
   CAPS AND SOCKET TYPE BRACE END CONNECTION SHALL BE GALVANIZED MALLEABLE IRON OR
   OTHER TYPE AS APPROVED BY THE ENGINEER. THEY SHALL BE DESIGNED IN A MANNER TO
   EXCLUDE MOISTURE FROM INSIDE POSTS AND RAILS.

5. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL – ASTM A-120 SHALL GOVERN.

6. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO.9 GAGE) WIRE WOVEN
   IN 2 INCH MESH.

---

**LEGEND—(ALTERNATES)**

<table>
<thead>
<tr>
<th>TUBULAR</th>
<th>ROLL FORMED</th>
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</thead>
<tbody>
<tr>
<td>2 ½&quot; O.D.</td>
<td>3.5&quot;X3.5&quot; O 5.14#/L.F.</td>
</tr>
<tr>
<td>2&quot; O.D.</td>
<td>2.25&quot; H-COL O 3.26#/L.F. OR 2.25&quot; C-COL O 2.64#/L.F.</td>
</tr>
<tr>
<td>¾&quot; TRUSS ROD &amp; TIGHTENER</td>
<td>0.375&quot;@TRUSS ROD &amp; TIGHTENER</td>
</tr>
<tr>
<td>APPROVED CAPS</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>1 ½&quot; BRACE</td>
<td>1.25&quot;X1.625 O 1.35#/L.F.</td>
</tr>
<tr>
<td>1&quot; O.D.</td>
<td>1.25&quot;X1.625 O 1.35#/L.F.</td>
</tr>
<tr>
<td>5/8&quot;X3/4&quot; FLAT STRETCHER BAR</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>BRACE BAND &amp; TENSION BAND</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>BARBED WIRE</td>
<td>BARBED WIRE</td>
</tr>
<tr>
<td>BARBED WIRE ARMS</td>
<td>BARBED WIRE ARMS</td>
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</tbody>
</table>

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LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT

LEXINGTON DIVISION OF ENGINEERING

CHAIN LINK FENCE 8’–12’

DETAIL "A" ROLL FORMED

---

CHAIN LINK FENCE MOUNTED TO CONCRETE HEADWALL OR CONCRETE HEADWALL OR RETAINING WALL

- FOR POST MOUNTING SEE DETAIL "B"
- SEAL WITH SILICONE GROUT
- CORE DRILLED OR PRESSET SLEEVE
- DETAIL "B"
**VEHICULAR GATE (3'-6' HIGH FENCE)**

**PEDESTRIAN GATE (3'-6' HIGH FENCE)**

**NOTES:**
1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.

2. VEHICULAR AND PEDESTRIAN GATES SHALL HAVE HEAVY PRESSURIZED STEEL CORNERS SECURELY RIVETED OR SHALL BE MACHINE NOTCHED, AND ELECTRICALLY WELDED SO AS TO BE RIGID AND WATER TIGHT; AND EQUIPPED WITH PADLOCKING DEVICE AND GROUND STOP.

3. ALL WELDED JOINTS SHALL BE CLEANED AND PAINTED WITH TWO (2) COATS OF ALUMINUM PAINT.

4. 3' HIGH GATES SHALL HAVE 3' FABRIC HEIGHT. 4' HIGH GATES SHALL HAVE 4' FABRIC HEIGHT.
5. HIGH GATES SHALL HAVE 5' FABRIC HEIGHT. 6' HIGH GATES SHALL HAVE 6' FABRIC HEIGHT.
6. HIGH GATES SHALL HAVE 7' FABRIC HEIGHT. 9' HIGH GATES SHALL HAVE 8' FABRIC HEIGHT.
7. HIGH GATES SHALL HAVE 9' FABRIC HEIGHT. 11' HIGH GATES SHALL HAVE 10' FABRIC HEIGHT.
8. HIGH GATES SHALL HAVE 11' FABRIC HEIGHT.

5. SEE DETAIL "A" FOR BARBED WIRE INSTALLATION ON 8' TO 12' HIGH PEDESTRIAN GATES.

6. SEE DETAIL "A" FOR BARBED WIRE INSTALLATION ON 8' TO 12' HIGH VEHICULAR GATES.

7. THE CONTRACTOR IS NOT TO ORDER GATES UNTIL THEIR NECESSITY AND LOCATION HAVE BEEN CERTIFIED BY THE ENGINEER.

8. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL – ASTM A-120 SHALL GOVERN.

9. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO.9 GAGE) WIRE WOVEN 2 INCH MESH.

- 6' TO 13' WIDTH FOR SINGLE GATE OR 12' TO 26' WIDTH FOR DOUBLE GATE.
- 4' TO 6' WIDTH
PLANK FENCE

NOTES:
1. POSTS ARE TO BE DRIVEN 2'-6" INTO GROUND AND TOPS CUT AT AN ANGLE TO DRAIN WATER.
2. FENCE SHALL BE PAINTED BLACK OR WHITE WITH PAINT AND APPLICATION RATE AS APPROVED BY THE ENGINEER.
3. HARDWOODS APPROVED ARE RED OAK, WHITE OAK, AND POPLAR.
RIGHT-OF-WAY FENCE

NOTES:
1. WOVEN-WIRE USED FABRIC IN RIGHT-OF-WAY FENCE SHALL BE EITHER ALUMINUM-COATED STEEL NO. 1047-6-9 OR ZINC-COATED STEEL NO. 1047-6-9.
2. ALL FENCE FITTINGS SHALL COMPLY WITH ASTM F 626.
3. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL – ASTM F 1083 SHALL GOVERN.
   4. STUDDED "T" POST AT 1.33 LBS. PER FOOT. OR – ROLL FORM POST AT 1.35 LBS. PER FOOT. (SEE DETAIL)
   5. NOT REQUIRED FOR ROLL FORM POST.

ROLL FORM POST

PLAN VIEW OF CLIP INSTALLED IN ROLL FORM POST

ISOMETRIC EXPLODED VIEW OF ROLL FORM POST AND CLIPS
CLIPS SHALL BE SPRING STEEL ALUMINUM - FINISHED

LEXINGTON – FAYETTE URBAN COUNTY GOVERNMENT

LEXINGTON
DIVISION OF ENGINEERING

WOVEN WIRE
RIGHT-OF-WAY FENCE
TYPE 1

ALTERNATE METHODS OF SECURING VERTICAL STAY WIRE TO THE HORIZONTAL WIRE OF THE FABRIC.
DETAIL "A"
NOTES:
1. ON INTERMEDIATE PULL POST ASSEMBLIES, BRACE WIRES SHALL BE REQUIRED FOR BOTH DIRECTIONS.
2. WOVEN-WIRE FABRIC USED IN RIGHT-OF-WAY FENCE SHALL BE EITHER ALUMINUM-COATED STEEL NO. 1047-6-9 OR ZINC-COATED STEEL NO. 1047-6-9.
**VEHICULAR GATE**
CONNECTED TO METAL POSTS

**NOTES:**

**MATERIALS:**

O.D. depicted for tubular posts is nominal — ASTM F 1083 shall govern.

Gates shall have heavy pressed steel corners securely riveted or shall be machine notched and electrically welded so as to be rigid and water tight. All welded joints shall be cleaned and painted with two (2) coats of aluminum paint.

**GENERAL:**
① 6’ to 13’ width for single gate and 12’ to 26’ width for double gate.
② 4’ to 6’ width

**BASIC OF PAYMENT:**
The contract unit price for woven wire gates shall be:
① Elements single vehicular woven wire gate
② Elements double vehicular woven wire gate
③ Elements pedestrian woven wire gate
① — ② as shown on plans

**CONSTRUCTION REQUIREMENTS:**
Fabric tie wires shall be spaced 12 inches on centers. The contractor is not to order gates until their necessity and location have been certified by the engineer.
NOTES:
1. MAT REINFORCEMENT
   NO. 4 REINFORCEMENT BARS, LONG. BARS 6"O.C. AND TRANSV. BARS 12"O.C., MIN.
   GRADE 40, OR WELDED WIRE FABRIC - 6X6-W4XW4, 58 LBS./100 SQ. FT.
2. NO. 4 REINFORCEMENT BARS ADDITIONALLY AS SHOWN.
3. ROUND ALL EXPOSED EDGES AND CORNERS ¼" R.
4. MAT REINFORCEMENT IN BOTTOM OF THE STEPS SHALL BE WIRE FABRIC OR BAR MAT.
5. HANDRAIL SHALL BE REQUIRED WITH THREE OR MORE STEPS.

<table>
<thead>
<tr>
<th>SLOPE</th>
<th>LOCATION</th>
<th>ADDITIONAL NO. 4 BAR REINF. (LBS)</th>
<th>MAT REINFORCEMENT WIRE FABRIC (SQ.FT.)</th>
<th>BAR MAT (LBS)</th>
<th>CU. YDS. CLASS &quot;A&quot; CONCRETE 4' WIDTH</th>
<th>4' WIDTH</th>
<th>4' WIDTH</th>
<th>4' WIDTH</th>
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<tbody>
<tr>
<td>2:1</td>
<td>BOTTOM LANDING</td>
<td>23.547</td>
<td>3.340</td>
<td>11.776</td>
<td>2.975</td>
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<td>5.991</td>
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<td>TOP LANDING</td>
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</table>

① APPROXIMATE QUANTITY TO ADD FOR EACH ADDITIONAL FOOT OF WIDTH OVER 4'-0".

SECTION A-A 2:1 SLOPE

STEP DETAIL FOR 1 1/1 SLOPE
SLEEVE CONNECTIONS
3" x 2" x 1" CAP
WELDED ON END OF
TOP RAIL AND
BOTTOM RAIL

2 1/2" x 1 1/2" TOP RAIL

1 1/2" x 1 1/2" BOTTOM RAIL

CONCRETE LINE

3" SQ PICKETS

2" x 2" x 4" POST

FOOT TRAFFIC
FOOT TRAFFIC
1-1/8" - BIKE TRAFFIC
36" - BIKE TRAFFIC
44" - BIKE TRAFFIC

SECTION

NOTE:
1. HANDBRAYS SHALL BE DN 40
SCHEDULE 40 ALUMINUM PIPE
IN ACCORDANCE WITH
ASTM-B221 OR B210 ALLOY
6061-T6.

2. SQUARE BARS SHALL BE DN
40 SCHEDULE ALUMINUM IN
ACCORDANCE WITH ASTM
-B221 OR B210 ALLOY
6061-T6.

3. ALL METAL TO BE POWDER
COATED BLACK IN
ACCORDANCE WITH AAMA
2605.

4. GROUT POSTS TO CONCRETE
SEE POST SETTINGS DETAIL
THIS SHEET.

5. ANCHOR POSTS IN CORED OR
FORMED HOLES.

6. ALUMINUM SURFACES, SUCH
AS EXPOSED ENDS, IN
CONTACT WITH CONCRETE,
GROUT, OR DISSIMILAR METALS
SHALL BE PROTECTED WITH A
COAT OF BITUMINOUS PAINT.

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
DETAIL “A”

4” PAVED SHOULDER 1:11-0" SLOPE

DETAIL “B”

6” DENSE GRADED AGGREGATE 1:11-0" SLOPE

DETAIL “C”

COMPACTED SOIL

18” MINIMUM EXCAVATED AND COMPACTED SOIL

PAVED SHOULDER

SURVEY VARIES

GRADE

1/4":1-0"

SEE DETAIL “A”

ROCK SHOULDER

SURVEY VARIES

GRADE

1/4":1-0"

SEE DETAIL “B”

SOIL SHOULDER

SURVEY VARIES

GRADE

1/4":1-0"

SEE DETAIL “C”

NOTES:
1. SLOPES AND DRAINAGE DITCHES OUTSIDE THE P/W SHALL BE APPROVED BY THE ENGINEER.
2. DRAINAGE DITCH SIDE SLOPES SHALL BE 2:1 MAXIMUM.
NOTES:
1. ALL SAW CUTS SHALL BE NEAT AND STRAIGHT.
2. IMMEDIATELY BEFORE LAYING NEW BITUMINOUS COURSES, ALL SAW CUT EDGES SHALL BE CLEANED OF DUST AND DEBRIS AND SPRAYED WITH A BITUMINOUS TACK COAT.
3. EDGE KEY SHALL NOT BE REQUIRED IF BOTH EXISTING AND NEW PAVEMENT ARE TO RECEIVE AN OVERLAY AS PART OF THIS CONTRACT.
4. SEAL PERIMETER OF CUT PAVEMENT WITH CRACK SEALANT THAT MEETS ASTM D6690, TYPE 2.

BITUMINOUS PAVEMENT JOINTS

SECTION A-A
LONGITUDINAL EDGE KEY

SECTION B-B
TRANSVERSE EDGE KEY
TYPICAL SECTION

CASE 1

BITUMINOUS SURFACE
BITUMINOUS BASE
DOA
FILL MATERIAL
6" PERFORATED PIPE
FILTER FABRIC
FILTER FABRIC

CASE 2

NOTES:
1. SUBGRADE DRAINAGE, AS DEPICTED, IS INTENDED FOR USE WITH THE SURFACING PHASE OF CONSTRUCTION, AND SHALL BE INSTALLED ONLY AFTER THE SUBGRADE HAS BEEN COMPLETED, AND PRIOR TO CONSTRUCTING PAVING MATERIALS.

2. THE CAP SHALL BE A STANDARD MANUFACTURED ITEM FURNISHED BY THE PIPE SUPPLIER.

3. TERMINATE PERFORATED PIPE IN CATCH BASIN AT AN ELEVATION WHICH PROVIDES POSITIVE DRAINAGE (MAY REQUIRE ADDITIONAL OPENING IN CATCH BASIN WALL).

4. BACKFILL TO CONSIST OF NO. 78, 8, 9 OR COARSE AGGREGATE OR NATURAL SAND. THE FILL MATERIAL SHALL BE THOROUGHLY COMPACTED IN LAYERS NOT EXCEEDING 6 INCHES LOOSE MEASUREMENT.

5. CONNECTIONS TO DRAINAGE STRUCTURES AND PIPE TERMINI SHALL BE NON-PERFORATED PIPE MEETING THE REQUIREMENTS OF THE PERFORATED PIPE, EXCEPT FOR PERFORATIONS.

6. ALL RAISED NON-PAVED MEDANS SHALL HAVE SUBGRADE DRAINAGE ASSOCIATED WITH CURBS AND GUTTER.

TYPICAL SUBGRADE DRAINAGE LOCATIONS

SAG VERTICAL CURVE

L₁ = 100 FT. OR THE LENGTH REQUIRED TO REACH THE 1X SLOPE POINT, WHICHEVER IS LARGER.

HILLSIDE

L₂ = 100 FT. OR THE LENGTH TO THE CREST OF THE HILL, WHICHEVER IS LARGER.

CUT TO FILL

L₃ = 100 FT. OR THE LENGTH REQUIRED TO REACH THE CREST OF THE HILL, WHICHEVER IS LARGER.
1. For installation of perforated pipe see Detail Sheet #320

2. Perforated pipe shall completely surround all islands

3. For islands greater than 50" long or wide, perforated pipe surrounding island and leading to the curb inlet shall be 6" diameter.
NOTES:
1. SUBGRADE DRAINAGE, AS DEPICTED, IS INTENDED FOR USE WITH THE ROADWAY CONSTRUCTION PHASE AND SHALL BE INSTALLED ONLY AFTER THE SUBGRADE HAS BEEN COMPLETED, AND PRIOR TO PLACING PAVING MATERIALS.
2. SUBGRADE DRAINAGE WILL NOT BE REQUIRED WHEN:
   A. AGGREGATE SUBGRADE OR NATURAL BANK GRAVEL IS SPECIFIED.
   B. POROUS OR FREE DRaining SUBGRADES ARE EVIDENT.
   C. DIRECTED BY THE LFX/O/E ENGINEER.
3. THE END CAP SHALL BE A STANDARD MANUFACTURED ITEM FURNISHED BY THE PIPE SUPPLIER.
4. FLOW SHALL BE DIRECTED TOWARD THE HIGH SIDE OF THE ROADWAY WHEN POSSIBLE.
5. IF ROCK IS ENCOUNTERED WITHIN 24” OF SUBGRADE, PERFORATED PIPE IS REQUIRED TO THE FULL LENGTH OF ROCK. POSITIVE OUTLET IS REQUIRED.
6. A MIN. OF 100’ OF PERFORATED PIPE IS REQUIRED UPHILL FROM BASINS ON GRADE AND 100’ OF PERFORATED PIPE IS REQUIRED EACH WAY FROM SAG BASINS.

APPROXIMATELY 8 TO 12 FEET OF PIPE AT THE OUTLET SHALL BE NON-PERFORATED PIPE MEETING THE REQUIREMENTS OF THE PERFORATED PIPE, EXCEPT FOR PERFORATIONS.

TYPICAL SUBGRADE DRAINAGE LOCATIONS

LEXINGTON — FAYETTE URBAN COUNTY GOVERNMENT
**Detail for Transverse Underdrain**

**Cut to Fill Condition**

1. Underdrains will be required on upgrade bench. This perforated pipe underdrain should be placed in rock or shale formations if possible. Exact locations to be determined by the engineer on construction.

2. Benching and underdrain shall be required at all transitions from rock cuts to fill whether or not underdrain is required.

3. If rock is encountered within 24" of subgrade, perforated pipe is required the full length of rock. Positive outlet is required.

**Detail 1**

- Normal embankment material
- Ground line
- Subgrade line
- Rock line
- 2' Min.
- 3' Min.
- 5' Min.
- O.D. Pipe +12"
- 100' Min.

**Detail 2**

- Possible additional locations of perforated pipe as determined by the engineer
- Outlet underdrains shall be located at approximately 300' intervals or as directed by the engineer. Underdrains may be connected to cross drains.

**Section A-A**

- Tie non-perforated pipe into storm sewer
- 1% min. slope
- Rock line
- Existing ground
- See detail 2

**Detail for Longitudinal Underdrains**

- Backfill material (No. 78, 8, 9m coarse aggregate or natural sand)
- O.D. pipe +12"
- 2' Min.
- 3' Min.

**Notes:**

1. All perforated and non-perforated pipe shall comply with ASTM & KDOT specifications.

2. Limits of first bench.

3. Backfill material.
LEXINGTON—FAYETTE URBAN COUNTY GOVERNMENT

PROJECT TITLE XXXXXXX
PROJECT COST $XXXXXX

LOCATION MAP

MAYOR’S NAME
URBAN COUNTY COUNCIL
DEPARTMENT OF
DIVISION OF

NOTES:

1. FURNISHED AND ERECTED BY THE CONTRACTOR AT THE CONTRACTOR’S EXPENSE, IN ADDITION TO THE NORMAL WARNING AND REGULATORY SIGNS.
2. OF GOOD QUALITY EXTERIOR PLYWOOD OR OTHER APPROVED MATERIAL.
3. PAINTED WITH SOLID BLUE LETTERS ON A WHITE BACKGROUND.
4. UPDATED AS NEEDED TO INDICATE THE APPROPRIATE MAYOR’S NAME.
5. FRAMED AND BRACED SO AS TO REMAIN VERTICAL AND PLAINLY VISIBLE TO THE TRAVELING PUBLIC.
6. ERECTED PRIOR TO STARTING CONSTRUCTION WORK.
7. ERECTED AT EACH END OF THE PROJECT AT LOCATIONS DIRECTED BY THE ENGINEER AND AT OTHER LOCATIONS SPECIFIED ON THE PLANS OR IN THE PROPOSAL.
8. KEPT CLEAN AND IN GOOD CONDITION FOR THE DURATION OF THE CONSTRUCTION AS DIRECTED BY THE ENGINEER.
9. THE COST SHOWN APPLIES ONLY TO THE PORTION OF PROJECT UNDER CONSTRUCTION IN A CONTINUOUS SECTION. IN THE EVENT THE PROJECT CONSISTS OF MORE THAN ONE CONTINUOUS SECTION THE COST SHOWN SHALL BE FOR THE PARTICULAR SECTION WHERE WORK IS IN PROGRESS.
10. NOT TO BE USED ON FEDERAL AID TRANSPORTATION PROJECTS.

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