NOTES:

1. ARTERIAL ROADWAYS-
   USF RING AND COVER SERIES 170-CE.
   HEAVY DUTY LOAD RATING. COVER
   WEIGHT 217#, TOTAL WEIGHT 372#.

2. ALL OTHER APPLICATIONS-
   USF RING AND COVER SERIES 170-J.
   HEAVY DUTY LOAD RATING. COVER
   WEIGHT 150#, TOTAL WEIGHT 305#.

3. CITY IDENTIFIER SHALL BE USED
   FOR CITY OWNED STRUCTURES
   ONLY. PRIVATE FACILITIES SHALL
   ONLY BE IDENTIFIED AS TO USE.

RAISED 1 1/2" LETTERS
FLUSHED WITH TOP OF
COVER LABELED SANITARY,
STORM, POTABLE, OR
RECLAIMED AS APPLICABLE
GENERAL NOTES:

All utility pipe shall be installed with 3 inch wide self adhesive vinyl continuous tape, for identification purposes. Tape shall be color coded and worded as follows:

1. POTABLE WATER.
   A. COLOR: BLUE WITH BLACK OR WHITE LETTERING
   B. LETTERING: POTABLE WATER MAIN OR SIMILAR WORDING.

2. RECLAIMED WATER.
   A. COLOR: PURPLE WITH WHITE OR YELLOW LETTERING.
   B. LETTERING: RECLAIMED WATER MAIN OR SIMILAR WORDING.

3. FIRE LINES.
   A. COLOR: RED WITH BLACK OR WHITE LETTERING
   B. LETTERING: FIRE LINE OR SIMILAR WORDING.

4. GRAVITY SEWER.
   A. COLOR: BROWN OR GREEN WITH BLACK OR WHITE LETTERING.
   B. LETTERING: SEWER LINE OR SIMILAR WORDING.

5. SEWER FORCE MAIN.
   A. COLOR: GREEN WITH BLACK OR WHITE LETTERING.
   B. LETTERING: SEWER FORCE MAIN OR SIMILAR WORDING.

Pipe identification:

- 2 1/2"- 4" pipe - 3" tape is centered along top half of pipe.
  (Appropriate lettering as described above)

- 6" - 16" pipe - 6" min tape is placed along both sides of top half of pipe.
  (Appropriate lettering as described above)

- 20" and larger pipe - 6" min tape is placed on both sides of the top half of the pipe with a third strip centered along top half of pipe.
  (Appropriate lettering as described above)

Purple tape with white or other contrasting permanently impregnated lettering shall be used. The tape shall run from joint to joint along the length of the pipe.

Metal reclaimed water main with identification tape

INTERNAL WATER LINE MEASUREMENTS:

- Specified per pipe diameter

GU002-4

PUBLIC WORKS & UTILITIES ENGINEERING & DESIGN STANDARDS

CITY OF ALTAMONTE SPRINGS
950 CALABRIA DRIVE
ALTAMONTE SPRINGS, FLORIDA 32714

PIPE IDENTIFICATION

ISSUED 2017

REVISED 03/01/2017 BY DJB
A TRACING WIRE SHALL BE INSTALLED ON ALL POTABLE WATER, RECLAIMED WATER, AND SANITARY SEWER PIPE. THE WIRE SHALL BE INSTALLED SO THAT ALL PIPE, INCLUDING PIPE BRANCHES, CAN BE TRACED WITHOUT LOSS OR DESTRUCTION OF SIGNAL OR WITHOUT THE TRANSMID SIGNAL MIGRATING OFF THE WIRE. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM A CONTINUITY TEST ON ALL TRACING WIRE IN THE SERVICE LINE TO BRANCHES AND SERVICE LINES SO THAT ALL PIPE, INCLUDING PIPE BRANCHES, CAN BE TRACED WITHOUT LOSS OR DETERIORATION OF SIGNAL OR WITHOUT THE TRANSMITTED SIGNAL MIGRATING OFF THE WIRE. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM A CONTINUITY TEST ON ALL TRACING WIRE IN THE SERVICE LINE TO BRANCHES AND SERVICE LINES.

TRACING WIRE MATERIALS:

- **INSULATED JACKET:** 45 MIL, HIGH MOLECULAR WEIGHT - HIGH DENSITY POLYETHYLENE (HMW-HDPE); 30 VOLTS MAXIMUM, 1,700 LB BREAK LOAD
- **INSULATING JACKET:** 45 MIL, HIGH MOLECULAR WEIGHT - HIGH DENSITY POLYETHYLENE (HMW-HDPE); 30 VOLTS MAXIMUM, 1,700 LB BREAK LOAD

TRACING WIRE GENERAL NOTES:

- **Execution:**
  - **Direct Bury Installation:** Install in the same trench with pipe laying tracing wire flat and securely affixed to the pipe at 5'-8' intervals. Generally, the three o'clock position to avoid damage during excavation. Metallic fasteners are not recommended. If fastening is necessary, insulate the installation of bolts, screws, tapping saddles, etc. The slack should be sufficient to allow for small earth movements occurring during compaction, trench fill, or natural subsidence. No breaks, or cuts in the tracing wire or wire insulation is permitted. At water service saddles, the wire shall not be allowed to be placed between the saddle and the main.
  - **Directional Drill or Pipe Bursting Installation:** Install inside the bored holes and casing with pipe during installation. Securely attach the tracing wire to the inside of the pipe when boring or following and avoid kinking or tangling the wire. Install inside the bored holes and casing with pipe during installation.
  - **Direct Bury Lug:** Shall be DryConn™ manufactured by King Innovation, or approved equal.

TRACING WIRE IN A VAULT:

- **Tracing Wire:** Shall be brought up on the outside of the vault and placed inside the vault through a direct hole without any access steps. Coil enough wire to extend a minimum of 36' above ground. Wire should not be placed where a person entering the vault could trip on the wire.

JOINING ENDS OF TRACING WIRE:

- **Connections:** Connections into existing tracing wire connections into tracing wire used during pipe bores. Connections between one spool of tracing wire to another, and other similar connections shall be made using a direct bury nut. When connecting tracing wire ends together, strip 8' of insulation from the end of each wire. Insert the two ends firmly into the direct bury wire nut. Twist the wire nut clockwise while pushing the wires firmly into the nut. Do not over torque. Tie the wires in a loose knot below the wire nut.

JACKET COLOR:

- **The APWA Uniform Color Code shall be followed:** (Blue - Potable Water; Purple - Reclaimed Water; Green - Sanitary Sewer)

REPAIRS:

- At all repair locations where there is existing tracing wire, the wire shall be properly reconnected and spliced as outlined above. Electrical tape is not an acceptable repair since corrosion will eventually occur and the locate signal will be lost to ground at the connection.
TYPICAL VALVE AND VALVE BOX DETAIL

NOTE: COVERS AND RINGS TO TRAFFIC RATED PER FDOT STANDARDS AND SPECIFICATIONS.

- EXTENSION STEM WITH 2" SQ. WRENCH NUT AND UPPER GUIDE REQUIRED FOR MORE THAN 4' DEPTH
- BOX SHALL NOT REST ON VALVE OR PIPE
- VALVE (TYPE AS SPECIFIED)
- TRACING WIRE - SEE DETAIL GU004, COIL EXCESS TRACING WIRE IN BOX (MIN 12")

## GENERAL NOTES:

1) THE TABLE REPRESENTS THE MINIMUM SEPARATION REQUIREMENTS AS DESCRIBED IN F.D.E.P. RULES OF THE FLORIDA ADMINISTRATION CODE (F.A.C.). THESE SEPARATION REQUIREMENTS SHALL APPLY BETWEEN NEWLY PROPOSED UTILITY LINES AND EXISTING OR PROPOSED UTILITY LINES.

2) FOR THE PURPOSE OF THIS TABLE, RECLAIMED WATER SHALL MEAN UNRESTRICTED PUBLIC ACCESS REUSE WATER AS DEFINED BY F.A.C. 62-610. OTHER TYPES OF RECLAIMED WATER ARE SEWAGE AND SEPARATIONS LISTED FOR SANITARY SEWER SHALL APPLY.

3) ALL SEPARATION DISTANCES ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE UNLESS OTHERWISE SPECIFIED. CRITERION PRODUCING GREATER CLEARANCE SHALL BE USED.
   - C/C -DENOTES CENTER OF PIPE TO CENTER OF PIPE.
   - O/O -DENOTES OUTSIDE OF PIPE TO OUTSIDE OF PIPE.

4) REQUIRES PRIOR APPROVAL FROM FDEP.
NOTES: (HORIZONTAL)

1. A MINIMUM SEPARATION OF SIX (6) FEET, OUTSIDE TO OUTSIDE, SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER, GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, OR WASTEWATER FORCE MAIN.

2. A MINIMUM HORIZONTAL SEPARATION OF THREE (3) FEET, OUTSIDE TO OUTSIDE, SHALL BE MAINTAINED BETWEEN WATER MAINS AND RECLAIMED WATER LINES CARRYING UNRESTRICTED PUBLIC ACCESS REUSE WATER, AND STORM SEWER LINES.

3. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND SANITARY GRAVITY SEWERS SHALL BE REDUCED TO THREE FEET (3') WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES (6") ABOVE THE TOP OF THE SEWER (62-555.314(C)).
1. A minimum of vertical separation of at least six inches (6"), and preferably twelve inches (12") above, or at least twelve inches (12") below, outside to outside of pipe barrel, shall be maintained between water main, sanitary gravity sewer, or storm sewer. Minimum vertical separation of 12" outside to outside shall be maintained for crossing pressure pipes (reclaimed water, storm force main, or sanitary force main).

2. It is preferable to lay the water main above the crossing hazard.

3. Where it is not possible to maintain the required separation, it shall be reported to the city engineer. Deviations and other alternatives shall be considered on a case-by-case basis and must receive specific approval by F.D.E.P., in accordance with Florida statute 62-555.314(5), prior to implementation.

NOTES: (HORIZONTAL)

4. There shall be at least a six foot (6') horizontal separation between water mains and sanitary force mains without exception. Field problems shall be reported to the city engineer. Specific solutions must be accepted by F.D.E.P. prior to implementation.

5. No water pipe shall pass through or come in contact with any part of a sanitary sewer manhole or storm sewer structure.
NOTES:

SERVICE LINE CONTINUATION SEE DETAIL:

1. RW002 - RECLAIMED WATER SINGLE SERVICE CONNECTION.
2. PW004 - POTABLE WATER SINGLE SERVICE CONNECTION.
3. PW005 - POTABLE WATER DOUBLE SERVICE CONNECTION.
NOTE:
ALL PIPE AND FITTINGS MUST BE SCHEDULE 80 P.V.C.
FINISHED GRADE

6" OF GRAVEL OR CRUSHED ROCK BEDDING

WATER MAIN

FINISHED GRADE

TRACING WIRE - SEE DETAIL GU004, COIL EXCESS TRACING WIRE IN BOX (MIN 12")

VALVE BOX

4" GATE VALVE

RESTRAINED REDUCER AS REQUIRED

METER BOX WITH COVER

6" OF GRAVEL OR CRUSHED ROCK BEDDING

36" MIN

36" MIN

FOUR-INCH FLUSHING VALVE ASSEMBLY

GU010-3

ISSUED 2017

REVISED 03/01/2017 BY DJB
REPLACEMENT OF FLEXIBLE PAVEMENT FOR PERMITTED PAVEMENT CUT

DENSITY PROCEDURES:

THE BACK FILL FOR THE FIRST AND SECOND STAGES SHALL BE PLACED IN 6" LAYERS (COMPACTED THICKNESS) AND SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180. TEST REPORTS SHALL BE FURNISHED TO THE CITY.

STAGE #1

THE PERMITTEE SHALL PROVIDE ADEQUATE COMPACTED FILL BENEATH THE HAUNCHES OF THE PIPE, USING MECHANICAL TAMPS SUITABLE FOR THIS PURPOSE. THIS COMPACTION APPLIES TO THE MATERIAL PLACED BENEATH THE HAUNCHES OF THE PIPE AND ABOVE ANY BEDDING REQUIRED.

STAGE #2

THE PERMITTEE SHALL OBTAIN A WELL-COMPACTED BED AND FILL ALONG THE SIDES OF THE PIPE AND TO A POINT INDICATING THE TOP OF SUB-GRADE MATERIAL.

GENERAL NOTES:

BASE AND BACK FILL MATERIALS SHALL BE EITHER OF THE SAME TYPE AND COMPOSITION AS THE MATERIALS REMOVED, OR OF EQUAL OR GREATER STRUCTURAL ADEQUACY. MATERIALS CONTAMINATED WITH DELETERIOUS SUBSTANCES DURING EXCAVATION SHALL NOT BE USED.

REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE, (MINIMUM 12”)

BASE MATERIAL SHALL BE PLACED IN TWO OR THREE LAYERS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO THE SPECIFIED DENSITY.

 ASPHALT CONCRETE PAYMENT THICKNESS SHALL EQUAL EXISTING THICKNESS BUT NOT LESS THAN TWO (2) INCHES.

SURFACE TREATED PAVEMENT JOINT SHALL BE LAPPED AND FEATHERED.

SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.

LIMESTONE, SAND-CLAY, SHELL, ETC. BASES:

6" LAYERS COMPACTED THICKNESS DENSITY REQUIREMENTS:

98% UNDER ROADWAY
98% OUTSIDE THE TRAVELED ROADWAY, SUCH AS INTERSECTIONS, CROSSOVERS, TURNOUTS, ETC.
95% SHOULDER PAVEMENT METHOD ASSHTO T-180

OPEN CUT DETAIL
### MINIMUM DESIGN CRITERIA

**Bedding Type:** 2  
**Design Pressure:** 150 PSI  
**Safety Factor:** 1.5  
**Depth of Cover:** 3.0 FT

**Minimum Footage of Pipe Restraint**

- **H-B:** Horizontal Bend  
- **VU-B:** Vertical-Up Bend  
- **VD-B:** Vertical Down Bend

**Notes:**

1. For lengths of pipe and number of joints to be restrained, see Table.

2. Only ductile iron pipe fittings shall be used at joints to be restrained unless otherwise specified by the City Engineer.

---

### Pipe Size

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>4&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
<th>10&quot;</th>
<th>12&quot;</th>
<th>16&quot;</th>
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<td><strong>H-B</strong></td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>8</td>
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<tr>
<td><strong>VU-B</strong></td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>8</td>
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<td><strong>22.5°</strong></td>
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<td>23</td>
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<tr>
<td><strong>VU-B</strong></td>
<td>6</td>
<td>18</td>
<td>23</td>
<td>28</td>
<td>32</td>
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<td><strong>H-B</strong></td>
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<td>56</td>
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<td>14</td>
<td>43</td>
<td>56</td>
<td>67</td>
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<td>136</td>
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<tr>
<td><strong>VD-B</strong></td>
<td>46</td>
<td>92</td>
<td>119</td>
<td>143</td>
<td>168</td>
<td>214</td>
<td>299</td>
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<tr>
<td><strong>Dead End Plug and Valve</strong></td>
<td>46</td>
<td>92</td>
<td>119</td>
<td>143</td>
<td>168</td>
<td>214</td>
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<td><strong>TEE</strong></td>
<td>17</td>
<td>81</td>
<td>119</td>
<td>143</td>
<td>168</td>
<td>214</td>
<td>299</td>
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</tbody>
</table>

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**Restrainted Joint Detail**

**Diagram:**

- Standard Joints
- Restrainted Joints
- Total Length of Restraint for PVC
- Mechanical Joint Valve

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**City of Altamonte Springs**

950 Calabria Drive  
Altamonte Springs, Florida 32714

**Public Works & Utilities Engineering & Design Standards**

GU012-0  
Issued 2017  
Revised 03/01/2017 by DJB
BONNET AND NOZZLE CAPS COLOR FINAL COAT:

TO BE APPLIED BY THE CITY OF ALTAMONTE SPRINGS.

BARREL FINAL COAT:

1. TRAFFIC SAFETY YELLOW ON PUBLIC WATER SYSTEM.
2. RED ON PRIVATE WATER SYSTEMS.

NOTE:
PAINT SHALL BE PORTER PAINTS (SAFETY) DTM ACRYLIC GLOSS ENAMEL #2912 OR EQUAL.
# Utility Concurrency Review

## Existing Potable Water and Sanitary Sewer Capacity Table

This form is used to develop an estimate of the capacity required by the proposed project.

<table>
<thead>
<tr>
<th>A = Type of Use</th>
<th>B = Units (SF, DU, Population, Seat, Etc.)</th>
<th>C = Calculation Method</th>
<th>Existing Potable Water GPD</th>
<th>Existing Sanitary Sewer GPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td></td>
<td></td>
<td>175 GPD per 1,000 SQ. FT.</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td></td>
<td></td>
<td>150 GPD per 1,000 SQ. FT.</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
<td></td>
<td>25 GPD per 1,000 SQ. FT.</td>
<td></td>
</tr>
<tr>
<td>Hotel/motel</td>
<td></td>
<td></td>
<td>175 GPD per room</td>
<td></td>
</tr>
<tr>
<td>Single family residential</td>
<td></td>
<td></td>
<td>300 GPD per unit</td>
<td></td>
</tr>
<tr>
<td>Multifamily residential</td>
<td></td>
<td></td>
<td>135 GPD per unit</td>
<td></td>
</tr>
<tr>
<td>Public education facilities</td>
<td></td>
<td></td>
<td>15 GPD per student and instructor</td>
<td></td>
</tr>
<tr>
<td>Restaurant - using reusable service articles and operating 16 hours or less per day</td>
<td></td>
<td>40 GPD per seat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant - using reusable service articles and operating more than 16 hours per day</td>
<td></td>
<td>60 GPD per seat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant - using single service articles only and operating 16 hours or less per day</td>
<td></td>
<td>20 GPD per seat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant - using single service articles only and operating more than 16 hours per day</td>
<td></td>
<td>35 GPD per seat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar and cocktail lounge (add per pool table or video game)</td>
<td></td>
<td>20 GPD per seat (15 GPD per table or game)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive-in restaurant</td>
<td></td>
<td></td>
<td>50 GPD per car space</td>
<td></td>
</tr>
<tr>
<td>Carry-out only, including caterers: 1. Floor space calculation</td>
<td></td>
<td>1.50 GPD per 100 SQ. FT</td>
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<tr>
<td>2. Employee calculation</td>
<td></td>
<td>+ 8 GPD per employee per 8-hour shift</td>
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<tr>
<td>Other:</td>
<td></td>
<td></td>
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<td></td>
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</table>

## Totals

### Existing Potable Water & Sanitary Sewer Capacity Table

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**GU014-0**

**Issued 2017**

**Revised 03/01/2017 by DJB**

City of Altamonte Springs
950 Calabria Drive
Altamonte Springs, Florida 32714
## Proposed Potable Water and Sanitary Sewer Capacity Table

**This form is used to develop an estimate of the capacity required by the proposed project.**

<table>
<thead>
<tr>
<th>A = Type of Use</th>
<th>B = Units (SF, DU, Population, Seat, etc.)</th>
<th>C = Calculation Method</th>
<th>Proposed Potable</th>
<th>Proposed Sanitary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commercial</strong></td>
<td><strong>175 GPD PER 1,000 SQ. FT.</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Office</strong></td>
<td><strong>150 GPD PER 1,000 SQ. FT.</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Industrial</strong></td>
<td><strong>25 GPD PER 1,000 SQ. FT.</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Hotel/Motel</strong></td>
<td><strong>175 GPD PER ROOM</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Single Family Residential</strong></td>
<td><strong>300 GPD PER UNIT</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Multi Family Residential</strong></td>
<td><strong>135 GPD PER UNIT</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Public Education Facilities</strong></td>
<td><strong>15 GPD PER STUDENT AND INSTRUCTOR</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Restaurant - Using Reusable Service Articles and Operating 16 Hours or Less Per Day</strong></td>
<td><strong>40 GPD PER SEAT</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Restaurant - Using Reusable Service Articles and Operating More Than 16 Hours Per Day</strong></td>
<td><strong>60 GPD PER SEAT</strong></td>
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<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Restaurant - Using Single Service Articles Only and Operating 16 Hours or Less Per Day</strong></td>
<td><strong>20 GPD PER SEAT</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Restaurant - Using Single Service Articles Only and Operating More Than 16 Hours Per Day</strong></td>
<td><strong>35 GPD PER SEAT</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Bar and Cocktail Lounge (Add Per Pool Table or Video Game)</strong></td>
<td><strong>20 GPD PER SEAT</strong> (15 GPD PER TABLE OR GAME)</td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
</tr>
<tr>
<td><strong>Drive-In Restaurant</strong></td>
<td><strong>50 GPD PER CAR SPACE</strong></td>
<td></td>
<td><strong>D</strong> = (B X C)</td>
<td><strong>E</strong> = (B X C)</td>
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**Additional Calculations for Carry-Out Only, Including Caterers:**

1. **Floor Space Calculation:**
   - **1.50 GPD PER 100 SQ. FT**

2. **Employee Calculation:**
   - **8 GPD PER EMPLOYEE PER 8-HOUR SHIFT**

**Other:**

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**Totals**