Rules, Rates and Regulations

Duckett Creek Sanitary District

Revised July -2016
# TABLE OF CONTENTS

## CHAPTER 1  DEFINITIONS

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000 Definitions</td>
<td>1-7</td>
</tr>
</tbody>
</table>

## CHAPTER 2  GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.010 Projects Requiring Review by District</td>
<td>8</td>
</tr>
<tr>
<td>2.020 Regulations Governing the Use of Public/Private Wastewater Facilities</td>
<td>8-11</td>
</tr>
<tr>
<td>2.030 Submission, Review and Approval of Plans and Specifications</td>
<td>11-12</td>
</tr>
<tr>
<td>2.040 Procedures for Submittal of Plans</td>
<td>12-14</td>
</tr>
<tr>
<td>2.050 Plan Requirements</td>
<td>14-15</td>
</tr>
<tr>
<td>2.060 Sanitary Sewer Design Data, Maps and Computations</td>
<td>15</td>
</tr>
</tbody>
</table>

## CHAPTER 3  DESIGN REQUIREMENTS FOR SANITARY SEWERS

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.010 General</td>
<td>16</td>
</tr>
<tr>
<td>3.020 General Requirements of Sanitary Sewer Construction</td>
<td>16-19</td>
</tr>
<tr>
<td>3.030 Design Requirements</td>
<td>19-30</td>
</tr>
<tr>
<td>3.040 Sanitary Detention Requirements</td>
<td>30</td>
</tr>
</tbody>
</table>

## CHAPTER 4  REIMBURSEMENT RULES AND REGULATIONS

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.010 Recoupment</td>
<td>31</td>
</tr>
<tr>
<td>4.020 Reimbursement</td>
<td>31</td>
</tr>
<tr>
<td>4.030 Reimbursement Procedures and Project Costs</td>
<td>31</td>
</tr>
<tr>
<td>4.040 Objections to Certified Completed Construction Costs</td>
<td>32</td>
</tr>
<tr>
<td>4.050 Reimbursement Provisions</td>
<td>32</td>
</tr>
</tbody>
</table>

## CHAPTER 5  EASEMENTS

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.010 General</td>
<td>33</td>
</tr>
<tr>
<td>5.020 Use of Existing Easements</td>
<td>33</td>
</tr>
<tr>
<td>5.030 Location of Easements</td>
<td>33</td>
</tr>
<tr>
<td>5.040 Width of Easements</td>
<td>33</td>
</tr>
<tr>
<td>5.050 Wording of Easements</td>
<td>33</td>
</tr>
<tr>
<td>5.060 Easement Plat Preparation Information Guidelines</td>
<td>34-35</td>
</tr>
<tr>
<td>5.070 Vacation of Easements</td>
<td>36</td>
</tr>
<tr>
<td>5.080 Easement Encroachments</td>
<td>36</td>
</tr>
</tbody>
</table>

## CHAPTER 6  APPROVAL/DEDICATION OF PROJECTS WITH PUBLIC SEWERS

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.010 General</td>
<td>37</td>
</tr>
<tr>
<td>6.020 Requirement of Plan Approval</td>
<td>37</td>
</tr>
<tr>
<td>6.030 Requirements of Construction Approval</td>
<td>37-39</td>
</tr>
<tr>
<td>6.040 Dedication and Release of Construction Escrow</td>
<td>39-40</td>
</tr>
<tr>
<td>6.050 Dedication of Inspection Fees</td>
<td>40</td>
</tr>
<tr>
<td>6.060 Abandonment of Work</td>
<td>40</td>
</tr>
</tbody>
</table>

## CHAPTER 7  FEES AND DEPOSITS REQUIRED BEFORE PLAN APPROVAL

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.010 Fees Required Before Plan Approval</td>
<td>41</td>
</tr>
<tr>
<td>7.020 Deposits Required Before Plan Approval</td>
<td>41</td>
</tr>
</tbody>
</table>

## CHAPTER 8  CONSTRUCTION AUTHORIZATION AND PERMITS

<table>
<thead>
<tr>
<th>Section title</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.010 General</td>
<td>42</td>
</tr>
<tr>
<td>8.020 Fees and Deposits</td>
<td>42</td>
</tr>
<tr>
<td>8.030 Expiration and Extension of Approved Plans</td>
<td>42-43</td>
</tr>
</tbody>
</table>
CHAPTER 8  CONTINUED
8.040 Cancellation of Construction and Refund of Fees  43
8.050 Construction Permits  43
8.060 Inspection Fee Payments  43
8.070 Final Determination of Construction Inspection Fees  43

CHAPTER 9  INSPECTION, INFILTRATION AND DEFLECTION
9.010 General  44
9.020 Field Tests – Infiltration/Deflections  44-46
9.030 Low Pressure Sewer System Collector Main Testing Requirements  46
9.040 Privately Constructed Sewers and Treatment Facilities  46
9.050 Maintenance and Operation Inspection  46
9.060 Fees  46
9.070 Completion of Sanitary Sewer Construction Without Inspection  47

CHAPTER 10  CUSTOMER SERVICE CONNECTIONS
10.010 General  48
10.020 Location, Quality and Quantity of Wastewater  48
10.030 Changes in Quality and Quantity  48
10.040 Inspections of Service Connection  48
10.050 Notification of Proper Agencies  49
10.060 Plan Review  49
10.070 Inside Piping and Customer Sewer Service  49-51
10.080 Applicants Responsibility  51
10.090 Right of Entry  51

CHAPTER 11  APPLICATION/CHECKLISTS FOR PROJECTS SUBMISSION FOR REVIEW
11.010 General  52
11.020 Project Review Information Form  52
11.030 Sanitary Sewers Design Data, Maps & Computations  52
11.040 Sanitary Sewer Contract Drawings  52
11.050 Application for Construction Permit Application Form  52
11.060 Engineer’s Estimate of Cost of Construction of Public Sanitary Sewer Mains, For Escrow Purposes  52
11.070 Hydraulic Analysis, as needed, for Low Pressure Sewer System  52

CHAPTER 12  NEW SEWER SYSTEMS/AREA PUMP STATION REQUESTS
12.010 Definition  59
12.020 Request to Develop Sewer Systems/Area Pump Station  59
12.030 Watershed Approach  59
12.040 Establishing a Cost Center for Proposed Systems  59
12.050 Contract with Developer Requesting a Sewer System/Area Pump Station  60

CHAPTER 13  RATES FOR RENDERING OF SERVICE
Prelude  61
13.010 User Charge System  61
13.020 Rate Structure  61-62
13.030 Billing  62
13.040 Fees  62-63
13.050 Discontinuance of Sewer Service by the District  64
13.060 Bills for Sewer Service  65-66
CHAPTER 13  CONTINUED
  13.070 Obligation of the Customer and District  66
  13.080 Notification of Rates  67

CHAPTER 14  SANITARY LATERAL REPAIR PROGRAM
  Prelude  68
  14.010 Definitions
  14.020 Sewer Lateral Repair Fee
  14.030 Sewer Lateral Repair Fund  69
  14.040 Availability of Funds
  14.050 Rules and Regulations
CHAPTER 1. DEFINITIONS

In addition to words and terms that may be defined elsewhere in this manual, the following words and terms shall have the meanings defined below:

AASHTO: American Association of State Highway and Transportation Officials.

Backfill: The material used to fill an excavation.

Basement: Means any area of the Building Structure having its floor subgrade (below ground level) on all sides.

Base Flood: The flood having a one percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the "100-year flood."

Base Flood Elevation: The computed elevation to which floodwater is anticipated to rise during the base flood. Base Flood Elevations (BFEs) are shown on Flood Insurance Rate Maps (FIRMs) and on the flood profiles.

Bedding: The material on which the pipe or pipe fitting is supported and protected.

B.O.D.: "Biochemical Oxygen Demand": the quantity of oxygen utilized in the biochemical oxidation of organic matter in 5 days as determined by Standard Methods and expressed in milligrams per liter (mg/L).

Board: The Board of Trustees of the DCSD.

Building Structure: A walled and/or roofed structure, to include all residential, commercial and industrial structures, above or below ground, and of either temporary or permanent nature. Also structures generally having, proposed to have or may have sanitary sewer facilities or piping connections to the sanitary sewer system. Also, any attached or detached structures for which a City or County building permit is required.

CADD: Computer Aided Design Drawing with electronic file name ending with (.dwg).

C.O.D. Chemical Oxygen Demand (COD) shall be defined in accordance with, and shall be measured as prescribed in, the latest edition of “Standard Methods for the Examination of Water and Wastewater”.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Center:</td>
<td>A separate service area established by the District in which all fees and assessments are independent and based on the costs associated with that service area.</td>
</tr>
<tr>
<td>Crown/Intrados:</td>
<td>The inside top, or crown, of the sewer pipe.</td>
</tr>
<tr>
<td>Culvert:</td>
<td>A closed conduit for the free passage of surface drainage water under a highway, railroad, or other embankment.</td>
</tr>
<tr>
<td>Customer:</td>
<td>Any person, firm, corporation, individual partnership, association or governmental agency owning or occupying the premises being provided with wastewater disposal service by the DCSD.</td>
</tr>
<tr>
<td>Dedication:</td>
<td>The process by which the owner transfers the ownership or title of DCSD approved sanitary sewer mains and facilities, such as lift stations and treatment plants, to DCSD for DCSD acceptance for maintenance, operation and public use.</td>
</tr>
<tr>
<td>District:</td>
<td>Duckett Creek Sanitary District</td>
</tr>
<tr>
<td>DCSD:</td>
<td>Duckett Creek Sanitary District.</td>
</tr>
<tr>
<td>Director:</td>
<td>The Executive Director of the Duckett Creek Sanitary District or his designee.</td>
</tr>
<tr>
<td>Drop-manhole:</td>
<td>A structure permitting sanitary flows to pass from an incoming pipe at a higher elevation to an outgoing pipe at a lower elevation.</td>
</tr>
<tr>
<td>Engineer:</td>
<td>An individual registered as a Professional Engineer currently certified by law in the State of Missouri.</td>
</tr>
<tr>
<td>Flood Insurance Study:</td>
<td>The Official Report provided by the FEMA containing flood profiles; flood boundaries; floodway maps and the water surface elevation of the base flood.</td>
</tr>
<tr>
<td>Flood Plain:</td>
<td>A geographic area susceptible to periodic inundation from the overflow of natural waterways during the base (100-year) flood.</td>
</tr>
<tr>
<td>Floodway:</td>
<td>The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot and so delineated in the Flood Insurance Study.</td>
</tr>
</tbody>
</table>
Floodway Maps: Current maps from the FEMA Flood Insurance Study.

Force Main: A pressurized sewer carrying wastewater.

Freeboard: The difference in elevation (expressed in feet) between the hydraulic grade line elevation and the top of structure elevation.

Grinder Pump: A pump used to lift wastewater from an individual Building Structure.

Hydraulic Grade Line: A line coinciding with the level of flowing water at any given point (along an open channel); or the level to which water would rise in a vertical tube connected to any point along a pipe or closed conduit flowing under pressure.

HS-10: The live truck wheel loads as designated by the AASHTO Specifications.

HS-20: The live truck wheel loads as designated by the AASHTO Specifications.

Industrial Waste: The water-borne wastes, including contaminated cooling water, from industrial processes, as distinct from normal domestic sanitary wastewater.

Industrial Waste Survey: DCSD Form to be submitted to the Engineering Department of DCSD for review and recommendations.

Interceptor: A sewer with the primary purpose of transporting wastewater rather than collecting it.

Intrados/Crown: The inside top, or crown, of the sewer pipe.

Lateral Sewer and/or Customer’s Sewer Service: A private pipeline used to serve a single, individual premise and located between the premise and the point of service connection to the sanitary sewer main. Each individually owned premise must have its own individual lateral from the premise to the public main.

Lift Station: That portion of the wastewater system which is used to lift the wastewater to a higher elevation.

Low Flood Elevation: Lowest floor elevation of building structure including basement floor.

Low Pressure Sewer System: Pressurized wastewater collection system comprised of standardized, individual grinder pumps discharging into a common collector line.
Main Sewer: A pipeline which is owned and maintained by the DCSD, located on public property, right-of-way or easements, and used to transport wastewater to a central point for transfer into a Trunk Sewer line for conveyance to a treatment facility.

May: Is permissive; “Shall” is mandatory.

MBR: Membrane Bio-Reactor treatment plant.

MDNR: The Missouri Department of Natural Resources.

"n" Value: A dimensionless coefficient used in the Manning's Equation to account for frictional losses in steady uniform flow.

Non-Residential Connection: Any connection by the Owner to the District’s system other than a “Residential Connection”.

Normal Domestic Wastewater: Wastewater that has a BOD₅ concentration of not greater than 250 mg/L and a suspended solids concentration of not greater than 300 mg/L, and a COD concentration of not greater than 400 mg/L and which does not require special or extraordinary treatment, to prevent or eliminate abnormal ill-effect upon the District’s wastewater system.

Operation and Maintenance: All expenditures during the useful life of the treatment facilities for materials, labor, utilities, and other items which are necessary for managing and maintaining the wastewater facilities to achieve the capacity and performance for which such facilities were designed and constructed.

Outfall: The point location or structure where wastewater or drainage discharges.

Outlet: A service sewer connection to the collecting sewer main.

Owner: A person, firm, corporation, individual partnership, association, governmental agency, or properly authorized agent, holding title to a tract of land, building or structure.

Person: Any individual, partnership, co-partnership, firm, company, public or private corporation, association, joint stock company, trust, estate, political subdivision or any agency, board, department or bureau of the state or federal government, or any other legal entity whatever, which is recognized by law as the subject of rights and duties.

Premise: A wholly owned building or part of a building with its appurtenances (tract of land).

Private Sewer: A sewer not accepted for public maintenance as determined by the reviewing agency.
Public Sewer: A sewer, which has been accepted for public maintenance, as determined by the reviewing agency.

Reach: A distance, in pipe between two identified points.

Replacement: Expenditures for obtaining and installing equipment, accessories, or appurtenances necessary during the useful life of any system to maintain the capacity and performance for which such systems were designed and constructed. The term “operation and maintenance” includes replacement.

Residence: A building or other type of shelter intended or used for human habitation as a permanent, vacation or recreational home or building.

Residential Connection: A Connection to the District’s system by the Owner, for a permanent structure intended to serve as a place of residence and used for normal domestic wastewater.

Resolution: Any motion duly adopted by the Board of Trustees of the District.

Sampling "T": A riser section installed in the lateral for purposes of monitoring wastewater discharged.

Sanitary Detention: An "On-Site" private facility to collect and store the sanitary wastewater of a development for such time as may be required until it can be pumped or otherwise discharged into the downstream sanitary sewer system.

Sanitary Sewer: A sewer which carries wastewater.

Sanitary Wastewater: Wastewater emanating from the sanitary conveniences, including toilet, bath, laundry, lavatory, and/or kitchen sink, of residential and non-residential sources, as distinct from industrial waste.

Semi-Public: Open to some persons outside the regular constituency; having some features of a public institution.

Separate Sewer: A sewer intended to receive only wastewater or storm water runoff.

Service Area: A geographic area in which all customers in that area are served by a common collection and treatment facility.

Service Connection: The point at which the Customer's sewer service is connected to the main through a "Y" branch or saddle.

Sewage: See Wastewater.

Sewer: A pipe or closed conduit carrying wastewater.

Sewer Service: The removal and treatment of wastewater from a premise.
Sewer System: All of the public infrastructure used to treat wastewater from a service area, including the collection system, plant and personal property necessary to operate the system.

Shall: Is mandatory; “May” is permissive.

Single Family Residence: Any structure or dwelling which is intended for or is used by a single household.

Springline: The line or plane in which an arch rises from its impost. In circular pipes, the horizontal plane is through the midpoint of the section.

Standard Construction Specifications: Plans and specifications of structures or devices or pump stations or low pressure sewer systems or construction details commonly used on DCSD work and referred to on the plans or in the specifications.


Steady Flow: The quantity of water passing a cross section is constant, i.e.; has patterns and magnitudes which do not vary with time.

Sub-watershed: A drainage area within a watershed.

Suspended Solids: Solids that either float on the surface of, or are in suspension in, water, wastewater, or other liquids and which are removable by laboratory filtering.

Total Suspended Solids (TSS): All matter in water, wastewater, or other liquids; that is retained on a filter as determined by Standard Methods and expressed in milligrams per liter (mg/L). Total Suspended Solids is also known as Non-filterable Residue (NFR).

Travel Time: The time it takes for the wastewater to flow through the sewer system from one point of reference to the next point of reference.

Treatment: The reduction or elimination of pollutants in wastewater prior to discharge to waters of the State.

Trunk Sewer: The principal sewer to which branch sewers and sub-trunks are tributary; also called main sewers.

Uniform Flow: The flow in a pipe having a uniform cross-section and velocity at every location within a given reach.

Useful Life: The estimated period during which a treatment facility will be operated.

User Charge: A charge levied on users of a wastewater treatment facility for the user’s proportionate share of the costs of operation, maintenance and replacement of the treatment works.

U.S.G.S. United States Geological Survey
Utilities: Public service facilities for supplying gas, electricity, water, power, steam, cable T.V., telephone and telegraph communication, railway transportation, and the like. Sewers are sometimes considered utilities.

Wastewater: (Sewage) Water which carries or contains pollutants or contaminants such as ground garbage, human and animal excretions and other liquid wastes from any source (residential, commercial or industrial).

Wastewater Facility: Any structure, equipment or machinery, in whole or in part, that is made or installed to retain, stop, move, convey, regulate, control, treat or dispose of wastewater.

Wastewater System: The entire public owned sanitary sewer system owned and operated by the DCSD for the collection, storage and treatment of wastewater to serve the needs of the DCSD and its inhabitants and others, including all appurtenances and facilities connected therewith or relating thereto, together with all extensions, improvements, additions and enlargements thereto made or acquired by the DCSD. The District’s wastewater system is a Publicly Owned Treatment Works (POTW) as defined at 40 CFR Part 122 and is therefore subject to all provisions of State and Federal regulations applicable to POTWs.

Wastewater Treatment Facility: Any facility, method or process which removes, reduces or renders less obnoxious pollutants or water contaminants released from any source. It is also any device or system for the storage, treatment, recycling, and reclamation of municipal wastewater, domestic wastewater, or liquid industrial wastes. These include intercepting sewers, outfall sewers, wastewater collection systems, individual systems, pumping, power, and other equipment and their appurtenances; extensions improvement, remodeling, additions and alterations thereof; elements essential to provide a reliable recycled supply such as stand-by treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues (bio solids) resulting from such treatment (including land for composting sludge, temporary storage of such compost, and land used for the storage of treated wastewater in land treatment systems before land application); or any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste or industrial waste, and being a part of the sewer system.

Water Meter: A water volume measuring and recording device, furnished and/or installed by the DCSD or furnished and/or installed by a user and approved by the DCSD.

Watershed: The area of land from which rainfall (and/or snow melt) drains into a single point. Watersheds are also sometimes referred to as drainage basins or drainage areas. Ridges of higher ground generally form the boundaries between watersheds. At these boundaries, rain falling on one side flows toward the low point of one watershed, while rain falling on the other side of the boundary flows toward the low point of a different watershed.

Wunnenberg’s: A commercial street guide, published by St. Louis Area Maps, Inc., for the St. Louis Metropolitan Area.
CHAPTER 2. GENERAL INFORMATION

2.010 Projects Requiring Review by District

All public or private wastewater facilities proposed to be constructed, altered or reconstructed by any person or corporation, public or private, within the District boundaries, require review by the District.

2.020 Regulations Governing the Use of Public and Private Wastewater Facilities

The current Resolutions, and Rules, Rates and Regulations in effect shall be considered the governing documents and should be consulted for elaboration. Requests for variances or clarification of these regulations should be addressed to the attention of the Director of Engineering with information supporting the request. A request for variance will be reviewed by the Director of Engineering and shall be presented to the Executive Director and/or Board of Trustees for consideration.

2.020.01 Right to Modify

The District reserves the right, to prescribe additional rules and regulations or to alter existing rules and/or regulations, as it may from time to time deemed necessary or proper.

2.020.02 Unlawful Discharges and Wastewater Disposal

1. Discharges and deposits of any wastewater, industrial wastes, garbage, polluted water or any other substance that constitutes a nuisance or hazard to the public health or welfare into any natural outlet, drainage channel, or watercourse, are prohibited.

2. No cesspool, septic tank or other facility intended or used for the disposal of wastewater shall be installed.

2.020.03 Public Sewer Available

At such time that public sewers become available to homes or businesses, the District shall inform the appropriate governmental entity (city or county). If a private wastewater disposal system is being abandoned, it shall be done in accordance with St. Charles County Building Code or appropriate City Code regulations. Where an extension of public sewer systems is required as determined by the District, such extension shall be made public to ensure other areas within the District of adequate sanitary disposal.

2.020.04 Prohibited Discharges and Waste Disposal Into Sanitary Sewers

The following requirements for the use of the sanitary sewer system shall be observed. Violations of these requirements will result in the discontinuance of service to the Customer and/or charges for damages.

1. No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof water runoff, sub-surface drainage, uncontaminated cooling water or unpolluted industrial process water to any of the District’s sanitary sewer mains.

2. No person shall discharge or cause to be discharged any of the following described waters or wastes to the District’s sanitary sewer mains.
(a) Any liquid or vapor having a temperature higher than 140 degrees Fahrenheit (60 degrees Celsius).

(b) Any water or waste which may contain more than 100 milligrams per liter (mg/L) by weight, of fat, oil or grease.

(c) Any water or waste which may contain more than 25 milligrams per liter (mg/L) by weight, of soluble oils.

(d) Any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid or gas.

(e) Any garbage that has not been properly shredded.

(f) Any ashes, cinders, grit, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, paunch manure, or any solid or viscous substance capable of causing an obstruction to the flow in the sewers or other interference with the proper operation of wastewater facilities.

(g) Any waters or wastes having a pH lower than 5.5 or higher than 11.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment, humans or animals.

(h) Any waters or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, or create any hazard in the receiving waters of the wastewater treatment plant.

(i) Any waters or wastes containing Biochemical Oxygen Demand (BOD) or suspended solids (S.S.) of such character and quantity that unusual attention or expense is required to handle such materials at the wastewater treatment plant, except as discussed in 2.020.06, herein.

2.020.05 Grease, Oil or Grit Interceptors

Grease, oil, or grit interceptors shall be provided and installed by the Customer when, in the opinion of the District, they are necessary for the proper handling of liquid wastes, grit, and other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall have adequate capacity and ability to produce an acceptable discharge to the sewer and shall be located so as to be readily and easily accessible for cleaning and inspection; and, in the case of grease, located an adequate distance from the source to allow the grease to solidify. Such facilities shall be subject to inspection by the District at all times. Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, water tight, and equipped with easily removable covers which when bolted in place shall be gas tight and water tight. Any installed grease, oil or grit interceptors shall be maintained by the customer, at his/her expense, in continuously efficient operation at all times.

2.020.06 Discharges Which Overload or Adversely Affect the Operations of a Wastewater Treatment Plant

Approval from DCSD shall be obtained to discharge to the District wastewater facilities with
any or all of the following characteristics or constituents.

1. A five (5) day Biochemical Oxygen Demand (BOD$_5$) greater than 250 mg/L.

2. Total suspended solids (TSS) concentration greater than 300 mg/L.

3. A chemical oxygen demand (COD) greater than 400 mg/L.

4. Any quantity or substances having characteristics or constituents described in sub paragraph (2) of 2.020.04 herein.

5. An average daily flow greater than two (2) percent of the average daily wastewater flow of the system.

2.020.07 Preliminary Treatment

1. Where necessary, in the opinion of the DCSD, the customer shall provide at his/her expense such preliminary treatment required to:

   (a) Reduce the BOD$_5$ to 250 mg/L.

   (b) Reduce the TSS to 300 mg/L.

   (c) Reduce the COD to 400 mg/L.

   (d) Remove or reduce objectionable characteristics or constituents to within the maximum limits provided in the sub paragraph (2) of 2.020.04 herein.

   (e) Control the quantities and rates of discharges of waters or wastes.

2. Plans, specifications, and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for the approval of the District. No construction of such facilities shall commence until approval is obtained in writing from the District.

3. Where preliminary treatment facilities are provided for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation, by the Customer at his/her expense or through an agreement with the District.

2.020.08 Samples, Measurements, Tests and Analysis

1. When required by the District, the Customer at his/her expense shall provide means to monitor any waters or wastes that are discharged into any public sewer or any treatment facility maintained and operated by the District. Such means, in general, shall consist of a sampling “T” or control manhole located on the Customer’s service lateral sewer (if possible) to facilitate observation, sampling and measurement of the discharge. The sampling “T” or control manhole shall be maintained by the Customer or through an agreement with the District, so as to be safe and accessible at all times.

2. All discharges may be subject to the analytical inspection and approval of the District. Measurements, tests and analyses of the characteristics of the waters and wastes to which reference is made in sub paragraph (2) of 2.020.04 and paragraph 2.020.06 herein, shall be determined in accordance with the current edition of Standard Methods for
Examination of Water and Wastewater. Other approved testing methods as specified by the United States Environmental Protection Agency in 40 CFR PART 136 may also be used.

3. Any measurements, tests or analyses shall be made upon suitable samples taken at the sampling “T” or control manhole. In the event no sampling “T” or no control manhole is available, the control manhole shall be considered to be the downstream manhole in the public sewer nearest to the point at which the Customer’s service sewer lateral is connected.

2.020.09 Furnishing Records

It shall be the duty of every person, public utility or institution holding a permit to operate a sewer system or wastewater treatment plant to furnish records as may be required by the DCSD to ascertain compliance with the rules and regulations of the DCSD.

2.020.10 Liability of the District

1. The District shall not be liable to any Customer or to any third person for any damage resulting from any failure to remove wastewater, from any interruption of sewer service, from any wastewater backup or from any other malfunction of the District’s sanitary sewer system caused solely by storm water, acts of God (i.e. storms, floods, tornadoes), vandalism or other acts which could not be anticipated and/or controlled by the District.

2. The District shall not be liable to any Customer or to any third person for any damages caused by defective piping and/or appliances on the Customer's premises, nor shall the District be liable for damages to, or making repairs on, any broken sewer mains and/or appurtenances for which it is not the legal owner or for which the contributor has failed to provide proper and adequate easements.

3. The District shall accept monetary liability of up to $5,000 for damages to private property when any contributing factor can be traced to a problem with District equipment.

4. The District shall accept monetary liability of damage to personal property if the damage was caused solely by intentional or unintentional negligence of the District and without any negligence on the part of the Customer or third party.

5. Employees or agents of the District are expressly forbidden to demand or accept any payment or compensation for any service rendered to its Customers except as covered in these Rules and Regulations. No employee or agent of the District shall have the right or authority to bind it by any promise, agreement or representation contrary to the letter or intent of these Rules and Regulations or not provided for in these Rules and Regulations, unless such authority is in writing and is signed by the authorized representative or agent of the District.

2.030 Submission, Review and Approval of Plans and Specifications

Designs, plans and specifications of all wastewater facilities proposed to be constructed, altered or reconstructed by any person or corporation, private or public, within District boundaries, shall be submitted to the District for review, revision, approval or rejection. In addition, for projects with facilities requiring industrial pretreatment, an
Industrial Wastewater Survey Form must be completed and a set of plans submitted to the Engineering Department of the District. Such designs, plans and specifications (excluding house connections, curb cuts, etc.) shall be prepared and sealed by a Professional Engineer, registered in the State of Missouri, and shall meet the minimum standards of the District and Missouri Department of Natural Resources before approval is granted.

2.040 Procedures for Submittal of Plans

2.040.01 Preliminary Conferences

At any time prior to formal submission of project plans, the owner’s Engineer can arrange for a preliminary conference to obtain informal guidance in project plan preparation. Preliminary conferences are encouraged, especially in unique or unusual situations, to expedite the subsequent formal review and approval process.

2.040.02 Required Submittals by the Engineer

Individuals should refer to the information in this section for detailed submittal information. Plan review may be delayed if all required information is not provided.

To facilitate the review of plans before approval for construction, the Engineer shall submit with the plans all necessary data, maps, computations and checklists in Chapter 12 in support of the designs and plans. The following list of requested information is a minimum and may be supplemented by any additional information, which the Engineer considers to be helpful in the review process.

1. The following information shall be provided, as applicable:
   a. Engineer’s name, mailing address, telephone number, fax number and contact name.
   b. Owner and/or developer’s name, mailing address, telephone number, fax number and contact name.
   c. Accurate location of property relative to an intersection.
   d. “Wunnenberg’s” page and grid number for the project, the St. Charles County Locator Number for the property, and the property address.
   e. Total acreage of property.
   f. Land use of the improvement area, i.e., commercial, residential, etc.
   g. Connection fee calculations for projects connecting to a sewer system; total number of dwelling units or lots, and potable water tap size.

2. If the submittal is a revision or addendum to a previous project, the previous project shall be properly identified, and the particulars of the revision or addendum shall be described.

3. Number of Copies of Plans and Supporting Data to be submitted.

   Plans shall be complete and a minimum of two (2) sets of plans and two (2) sets of the sanitary hydraulic calculations will be required for the initial review.
4. For a pump station three (3) additional sets of plans and a total of four (4) copies of the pump station report and specifications must be submitted.

2.040.03 Subdivisions

For proposed subdivision projects, a subdivision plat shall be provided substantially ready for filing, adequately dimensioned and located from well-established points and lines to permit accurate platting on record maps. The Engineer shall provide a statement concerning the established zoning requirements of the governing municipality or St. Charles County, as appropriate, together with any other pertinent informational.

2.040.04 Projects Normally Requiring Only a Sewer Connection

Plans for connections to existing sanitary sewers for commercial, industrial, public or private non-residential projects and for multiple-dwelling projects shall show thereon:

1. Location, size and elevations of the existing sanitary sewer to which connections for the project are to be made.

2. The location, size and elevation of the required sanitary sewer connection at the point of origin.

3. Private sewers requiring permits from municipalities or St. Charles County may require project approval by such municipality for the County prior to executing a connection agreement with District.

4. Recorded easements for sanitary sewer lines as required making connection across property not owned by the owner requesting connection.

5. At the discretion of the District, additional easement for sanitary sewers may be required for future sanitary sewer connections.

6. Refer to Chapter 10 for additional requirements.

2.040.05 Return of Plans Without Review

Plans lacking the required information or those that are incomplete or difficult to read or interpret due to poor drafting, poor arrangement or poor writing, will be returned without review for correction, additional information, or redrafting as may be required.

2.040.06 Return of Plans for Revision

On completion of the review, one set of plans or a letter with comments with requested revisions and notations will be returned to the Engineer for revision of the original drawings. Four (4) additional complete sets of revised plans for further review for final approval must be resubmitted.

2.040.07 Failure to Revise or Correct Construction Plans Promptly

1. Plans returned to the Owner’s Engineer for revision, correction or additional information shall be modified and returned to the District within six (6) months for final approval or the project will be considered abandoned. Further review will be
continued only upon re-submittal as a new project, complete with all necessary data. An additional application fee will be required.

2. If an engineer fails to make recommended and/or required corrections in two re-submittals, an additional application fee may be assessed for the third submittal.

2.040.08 Application Fees

See Chapter 7 for fees associated with plan review and approval.

2.050 Plan Requirements

2.050.01 Drawing Sizes

Plan sizes shall be uniform for each set. Where practical, plan and profile sheets 24” x 36” are preferred. No drawings shall exceed 36” x 42”. When the sheet size is considerably smaller than 24” x 36”, a size which is a multiple of 8 1/2” x 11” or 8 1/2” x 14” is preferred for filing convenience. White line prints on blue background will not be approved. Good drafting practice, either manual or automated, at a suitable scale to facilitate the plan review and field construction shall be followed. The scale for a residential subdivision shall be fifty (50) feet to the inch unless otherwise authorized by the District.

2.050.02 Plan Content Requirements

1. Location of the project with respect to arterial roads, local streets, or subdivisions.

2. Key map of the entire project to scale, showing easements, sewer lines and facilities, both existing and to be constructed.

3. Recorder of Deeds book and page from St. Charles County for existing recorded easements when not part of a recorded subdivision plat.

4. Plans and profiles of each sewer line showing location, size, flow line elevations, design flows for all segments, construction gradients, hydraulic grade lines, materials, proposed and original ground lines, boring information and rock elevations along the proposed sewer line, location, depths and sizes of adjacent or crossing sewer lines and utilities and special construction requirements such as a concrete cradle or encasement, type of backfill, etc.

5. All elevations shall be based upon U.S.G.S. datum with location of the benchmark indicated on the plans. Acceptable benchmarks include those established by St. Charles County or Missouri State Highway and Transportation Departments.

6. Details of special structures transitions, headwalls, aprons and junction chambers, all adequately detailed and dimensioned, including placement of steel in reinforced concrete structures. Unless otherwise indicated, standard DCSD structures are assumed to be utilized.

7. Profiles of storm sewers, swales, ditches or channels.

8. Grading plans showing original and proposed topography, to include existing and proposed Base Flood Elevation where applicable.
9. A subdivision plat, dimensioned and substantially complete and ready for filing.

10. The location of all utilities anticipated to be encountered during construction shall be shown. Plans must be submitted to all utility companies for verification of conflicts. Storm and sanitary sewers shall be located to comply with State laws and regulations governing such placement.

11. A hydraulic analysis for LPSS systems.

2.060 Sanitary Sewer Design Data, Maps and Computations (See Chapter 3 “Design Requirements for Sanitary Sewers”)

2.060.01 General Criteria

Sufficient information shall be provided as to location, elevations, sizes, slopes, capacities, downstream pump stations and treatment facilities of the proposed project

2.060.02 Basic Design Considerations

1. Delineation of land use type(s).

2. Persons per dwelling unit.

3. Average and peak flow rate per person and per non-residential connection.

4. Industrial Waste Letter (if applicable)

5. Population equivalent for industrial/commercial areas, schools, parks, hotels/motels, institutions, and/or public buildings

6. Point of connection to existing or proposed sewer and capacity of outfall system.

7. Allowances for future extension of proposed sewer to serve upstream areas of the watershed shall include both capacity and physical access. Extension of proposed sewer(s) to the property boundary may be required for future expansion. Lowest floor elevations of homes near the project or along an outfall line may be required.

8. Treatment facility to receive flows.
CHAPTER 3. DESIGN REQUIREMENTS FOR SANITARY SEWERS

3.010 General

This section gives the minimum technical design requirements of the District for sanitary sewers and wastewater treatment facilities. Adherence to these will expedite review and approval of plans. In general, the formulae presented herein for hydraulic design represent acceptable procedures not necessarily to the exclusion of other sound and technically supportive formulae. Any departure from these design requirements should be brought to the attention of the District and discussed before submission of plans for approval, and should be justified. All construction details pertaining to sanitary sewer improvements shall be prepared in accordance with the District Standard Construction Specifications unless otherwise noted. Please contact the District for current standards and specifications.

3.020 General Requirements of Sanitary Sewer Construction

All sanitary sewers shall meet the following general requirements:

3.020.01 Size and Shape

The minimum diameter of pipe for sanitary sewers shall be eight (8) inches. Sewers, in general, shall not decrease in size in the direction of the flow. Any deviation shall be documented for review and approval by the District.

3.020.02 Materials

All materials shall conform to the District Standard Construction Specifications.

3.020.03 Bedding

The Project Plans and Project Specifications shall indicate the specific type or types of bedding, cradling, or encasement required in the various parts of the sanitary sewer construction if different than the current District Standard Construction Specifications.

Special provisions shall be made for pipes laid under or over fills or embankments in shallow or partial trenches either by specifying Ductile Iron pipe for the additional loads due to differential settlement, or by special construction methods, including ninety (90) percent modified proctor compaction of fill, to prevent or to minimize such additional loads.

Compacted granular backfill shall be required in all trench excavations within public (or private) paved streets or areas where a paved street is anticipated. Under areas to be paved the compacted granular backfill shall be placed to the sub-grade of the pavement. Under unpaved areas in the rights-of-way, the compacted granular backfill shall be placed to within two (2) feet of the finished grade. Pipes having a cover of less than three (3) feet shall be Ductile Iron Pipe and/or encased in concrete.

If the storm and sanitary sewers are parallel and in the same trench, the upper pipe shall be placed on an undisturbed shelf adjacent to the lower pipe and the lower pipe shall be bedded in compacted granular fill to the flow line of the upper pipe.
3.020.04 Pipe or Conduit Under Streets and Pavements

Any pipe or conduit material beneath a highway, road, street, or pavement, or with reasonable probability of being so located, shall have ample strength for all vertical loads, including the live load required by the highway authority having jurisdiction, but in no case shall provide for less than an AASHTO HS-20 loading. For other locations, the minimum live load shall be the HS-10 loading. Special considerations may be required for adverse conditions. Compacted granular backfill shall be utilized to the base of the pavement.

3.020.05 Joints

The joint type required for the type of pipe used and the application shall conform to the latest standards set forth in the Standard Construction Specifications of the District or as approved by the District. All Polyvinyl Chloride (PVC) to Ductile Iron Pipe (DIP) connections shall use a pre-manufactured adapter. Rubber boot/Mission-type couplings will not be allowed.

3.020.06 Monolithic Structures

Monolithic reinforced concrete structures shall be designed structurally as continuous rigid units.

3.020.07 Alignment

Sanitary sewer alignments are normally limited by the available easements, which in turn should reflect proper alignment requirements.

Sanitary sewers shall be aligned:

1. To be in a straight line between structures for all pipe sizes thirty (30) inches in diameter and smaller.

2. To be parallel with or perpendicular to the centerlines of straight streets unless otherwise unavoidable. Deviations may be made only with approval of the District.

3. To avoid meandering, offsetting and unnecessary angular changes.

4. To make angular changes in alignment in a manhole located at the angle point.

5. To avoid angular changes in direction greater than necessary and to avoid any exceeding ninety (90) degrees.

6. Straight alignment shall be checked by either using a laser beam or lamping.

3.020.08 Location

Sanitary sewer locations are determined primarily by the requirements of service and purpose. It is also necessary to consider accessibility for construction and maintenance, site availability and competing uses, and effects of easements on private property.

Sanitary Sewers shall be located:
1. To serve all property conveniently and to best advantage.

2. In public streets, roads, alleys, rights-of-way, or in sewer easements dedicated to the District.

3. In easements on private property only when unavoidable.

4. On private property along property lines or immediately adjacent to public streets, avoiding crossing through the property.

5. At a sufficient distance from existing and/or proposed buildings (including footings) and underground utilities or other sewers to avoid encroachment and reduce construction hazards.

6. To avoid interference between house connections to sanitary sewer mains.

7. In unpaved or unimproved areas whenever possible.

8. To avoid, whenever possible, any locations known to be, or probably to be, beneath curbs, paving or other improvements, particularly, when laid parallel to centerlines.

9. To avoid sinkholes and creeks.

10. No sanitary lateral clean outs or sampling "T's" shall be placed within the area of the storm water overflow path.

11. To avoid interference with free flow discharge of flood flows of a stream.

3.020.09 Flowline

The flowline of sanitary sewers shall meet the following requirements:

1. The flowline shall be straight or without gradient change between the inner walls of connected structures.

2. Gradient changes in successive reaches normally shall be consistent and regular, with small or insignificant differences in successive reaches. Gradient designations less than the nearest 0.001 foot per foot, except under special circumstances and for larger sewers, shall be avoided.

3. For sanitary sewers, the hydraulic grade line shall not rise above the crown (intrados) of the pipe.

4. When the grade of a sewer is fifteen (15) percent or greater, an anti-slip collar located at each pipe joint is required to control pipe slippage. The concrete shall penetrate at least one (1) foot into virgin (undisturbed) soil on both sides and below. Grades shall not exceed fifty (50) percent.

3.020.10 Manholes

Manholes provide access to sewers for purposes of inspection, maintenance and repair.
They also serve as junction structures for connecting lines. Requirements of sewer maintenance determine the main characteristics of manholes. Lamp holes are not acceptable.

1. Manholes shall be located at the terminus of a sewer line, changes in direction, changes of pipe size, changes of flowline gradient, and at junction points with connecting sewers.

2. For sewers thirty-three (33) inches in diameter and larger, manholes shall be located on special structures at junction points with other sewers and at changes of size or gradient.

3. Spacing of manholes shall not exceed four hundred (400) feet for pipe sizes thirty-six (36) inches in diameter and smaller, five hundred (500) feet for pipe sizes forty-two (42) inches in diameter and larger, except under special approved conditions. Spacing shall be approximately equal, whenever possible.

4. Manholes on sanitary sewers eight (8) inches in diameter shall have a minimum inside diameter of forty-two (42) inches. Manholes on sanitary sewers ten (10) inches through thirty-six (36) inches in diameter shall have a minimum inside diameter of forty-eight (48) inches. Manholes on sanitary sewers greater than thirty-six (36) inches in diameter shall be built in accordance with the District Standard Specifications. Drop manholes shall have a minimum inside diameter of forty-eight (48) inches. The District may require manholes to have a minimum inside diameter of forty-eight (48) inches for future main extensions.

5. All manholes on sanitary sewers that are located in paved areas, the 100-year flood limits, the stormwater overflow path, or in other areas determined to be subject to flooding or vandalism shall be provided with lock-type watertight manhole covers.

6. Manholes must be precast concrete conforming to ASTM C478 and C497 unless an alternate is approved by the District.

7. Brick shall not be used on manholes.

8. Waterproofing: Waterproofing will be required on the exterior of all manholes. The bitumen shall consist of two coats of asphalt, coat-tar pitch, or a coating meeting American Society for Testing and Materials (ASTM) D-41. Asphalt shall conform to the requirements of ASTM D 449. Coal-tar pitch shall conform to the requirements of ASTM D-450. Coating shall be 31 mils in thickness.

9. All pipes shall have positive drainage through manholes. No flat invert structures are allowed.

3.030 Design Requirements

3.030.01 General

All sanitary sewers shall be designed and constructed so as to conform to the following design requirements. Hydraulic calculations must be submitted as part of the plan review for all public sewer construction. Calculations must be submitted for the existing and ultimate upstream development condition.
3.030.02 Gradients

The following minimum slopes of sanitary sewers are those giving at least three (3) feet per second velocities flowing full based on Manning's formula using an "n" value of 0.013 unless otherwise directed by the District. Slopes greater than these minimums shall be used wherever possible.

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>District Minimum Slopes in Feet per 100 Feet (% Grade)</th>
<th>MoDNR Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

Pipes larger than thirty (36) inches in diameter shall maintain a cleansing velocity of three (3) feet per second.

3.030.03 Depth and Minimum Cover

Sewer depths shall be determined primarily by the requirements of pipe size, utility obstructions, required connections, future extensions, and adequate cover. The minimum depth requirements shall be as follows:

1. For sewers which may be extended in the future, the minimum depth shall be nine (9) feet below the finish grade to flowline, except where upstream topography indicates that this depth is not necessary as determined by the District.

2. The minimum depth of sewers shall be not less than three (3) feet plus the sewer diameter. The flowline of the sewer must have a vertical distance from the low point of a basement or of the lowest floor, of not less than 2.5 feet plus the sewer diameter. The minimum depth shall be increased as required to ensure a minimum of two (2) percent slope and three (3) feet of cover for a customer service house lateral.

3. At stream and channel crossings, a minimum depth of three (3) feet shall be allowed where greater depths cannot be achieved. Schedule 50 Ductile Iron pipe with restrained joints must be used unless otherwise directed by the District. Stream and channel crossings must be protected with a grouted rock blanket on the stream bank slopes and the bottom of the stream or channel.

4. Sewer depths at manholes shall be sufficient to ensure the use of standard manholes. Special manholes will only be allowed upon approval by the District.
3.030.04 Flow Design

All sanitary sewer mains shall be designed on the basis of an average per capita use of not less than one hundred (100) gallons per day, and on that basis shall be designed with capacities of four hundred (400) gallons per capita per day at peak flow unless otherwise directed by the District. Sanitary flow from day schools with gymnasiums, showers and cafeterias shall be computed on the basis of thirty (30) gallons per capita per day discharged in eight (8) hours (90 gallons per capita per day discharged in 24 hours). On this basis the daily peak flow rate shall be 90 x 4 gallons per capita per day for the lateral sewers. Sanitary flow from tourist camps and trailer courts shall be computed on the basis of 2.5 persons per each unit for each twenty four (24) hour period at fifty (50) gallons per capita per day times a peak factor of four (4). Sanitary flow from apartments, boarding schools and condominiums and other smaller facilities shall be computed at the same rate as residential property. Sanitary flow from all other types of institutions, commercial property, industrial plants, etc., shall be separate and individual studies based on a conservative ultimate anticipated flow multiplied by the peak factors applicable to each case. In the case of industrial flow, when the rate and volume can be predetermined with a reasonable degree of accuracy, no dilutions or diminishing factor shall be applied against this flow in the outfall or trunk sewers.

3.030.05 Population Factors

Family population factors for the various areas in the District are to be determined from the latest United States Census Tracts. An acceptable figure is 3.7 persons per household unit.

3.030.06 Sanitary Flow Table

<table>
<thead>
<tr>
<th>POPULATION UNIT</th>
<th>CUBIC FEET/SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Person @ 400 Gallons per Day</td>
<td>0.00062</td>
</tr>
<tr>
<td>One Household Unit @ 3.7 Persons @ 400 G/C/D</td>
<td>0.00229</td>
</tr>
</tbody>
</table>

*Basic Formula: Flow in Cu. Ft./Sec. = Population x Flow (in G/C/D) / 646,317

3.030.07 Hydraulic Grade Line

1. Hydraulic Grade Line Limits

The hydraulic grade line for sanitary sewers shall not rise above the pipe crown (intrados).

The beginning point for the hydraulic grade line computations shall be the higher elevation as determined below:

For connection to existing pipe systems

(a) Top of pipe crown (intrados) of one reach downstream of the connection point
of the existing system; or

(b) The hydraulic grade line computed for the existing system.

2. Computation Methods

Sanitary sewers shall be designed to flow not more than 80% full at ultimate peak design flow conditions. The hydraulic grade line shall be computed to show its elevation at manholes, transition structures, and junction points of flow in pipes, and shall provide for the losses and the differences in elevations as required below.

(a) Friction Loss

The major energy loss in a sanitary sewer will be the energy loss due to friction. It is determined by the equation:

\[ hf = L \times S_h \]

Where:

\[ Hf = \text{difference in water surface elevation, or head expressed in feet} \]
\[ L = \text{length (in feet) of pipe} \]
\[ S_h = \text{hydraulic slope required for a pipe of given diameter and for a given roughness "n", expressed as feet of slope per foot of length} \]

From Manning's formula:

\[ S_h = \left[ \frac{(V)(n)}{(1.486 R^{0.667})} \right]^2 \]

Where:

\[ R = \text{hydraulic radius of pipe (in feet)} \]
\[ V = \text{velocity of flow (in feet per second)} \]
\[ n = \text{Manning's value for coefficient of roughness; where } n = .013 \text{ for concrete, vitrified clay and plastic pipe; } n = .012 \text{ for concrete pipe greater than forty eight (48) inches in diameter} \]

(b) Turn Loss

Head losses in manholes due to change in direction of flow (turns) will be determined in accordance with the following:

<table>
<thead>
<tr>
<th>Change in Direction Of Flow (A)</th>
<th>Multiplier of Velocity Head Of Water Being Turned (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 Degree</td>
<td>0.7</td>
</tr>
<tr>
<td>60 Degree</td>
<td>0.55</td>
</tr>
</tbody>
</table>
### 45 Degree

<table>
<thead>
<tr>
<th>Degree</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>0.47</td>
</tr>
<tr>
<td>30</td>
<td>0.35</td>
</tr>
<tr>
<td>15</td>
<td>0.18</td>
</tr>
<tr>
<td>0</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* See following page for applicable formula

Formula: \( H_L = K(V_L)^2/2g \)

Where:

- \( H_L \) = Feet of head lost in manhole due to change in direction of the flow in the sanitary sewer main
- \( V_L \) = Velocity of flow in the pipe (in Ft./Sec.)
- \( g \) = Acceleration of gravity, (32.2 Ft./Sec./Sec.)
- \( K \) = Multiplier of Velocity Head of water being turned

(c) Junction Chamber Loss

A sewer junction occurs for large pipes or conduits too large to be brought together in a forty-two (42) inch diameter manhole where one or more branch sewers enter a main sewer. Allowances should be made for head loss due to curvature of the paths and due to impact at the converging streams.

Losses in a junction chamber for combining large flows shall be minimized by setting flowline elevations so that pipe centerlines (spring lines) will be approximately in the same planes.

At junction points for combining large flows, a manhole with a lock-down cover shall be required.

A computation method for determining junction chamber losses is presented below:

\[ H_j = \Delta y + V_{h1} - V_{h2} \]

Where:

- \( H_j \) = junction chamber loss
- \( \Delta y \) = change in hydraulic grade line through the junction in feet
- \( V_{h1} \) = upstream velocity head
- \( V_{h2} \) = downstream velocity head

Where:

\[ \Delta y = \left\{ \frac{(Q_2V_2) - [(Q_1V_1) + (Q_2V_3\cos \theta_3) + (Q_2V_5\cos \theta_5)]}{0.5(A_1 + A_2)g} \right\} \]

Where:

- \( Q_2 \) = Discharge (in cfs) at the exiting pipe
V_2 = Velocity (in fps) at the exiting pipe
A_2 = Cross sectional area of flow (in sq. ft.) for the exiting pipe
Q_1 = Discharge (in cfs) for the incoming pipe (main flow)
V_1 = Velocity (in fps) for the incoming pipe (main low)
A_1 = Cross sectional area of flow (in sq. ft.) for the incoming pipe (main flow)
Q_3,Q_n = Discharge(s) (in cfs) for the branch pipe(s)
V_3,V_n = Velocity(ies) (in fps) for the branch pipe(s)
θ_3, θ_n = The angle between the axes of the exiting pipe and the branch pipe(s)
g = Acceleration of gravity, (32.2 ft/sec/sec.)

Where:

θ = The angle between the axes of the outfall and the incoming pipe(s)

(c) Losses at Junctions of Several Flows in Manholes

The computation of losses in a manhole with several flows entering the structure should utilize the principle of the conservation of energy. This involves both the elevation of water surface and momentum (mass times the velocity head). Thus, at a manhole with two or more incoming pipes, the sum of the energy content for inflows is equal to the sum of the energy content of the outflows plus the additional energy required by the turbulence of the flows passing through the structure.

The upstream hydraulic grade line may be calculated as follows:

H_u = [V_D^2/2g] - [((Q_U/Q_D)(1-K)(V_U^2/2g)) + ((Q_{L1}/Q_D)(1-K)(V_{L1}^2/2g)) + ((Q_{LN}/Q_D)(1-K)(V_{LN}^2/2g))] + H_D

Where:

H_U = Upstream hydraulic grade line (in feet)
Q_U = Upstream main line discharge (in cubic feet per second)
Q_D = Downstream main line discharge (in cubic feet per second)
Q_{L1}-Q_{LN} = Pipe discharges (in cubic feet per second)
V_U = Upstream main line velocity (in feet per second)
V_D = Downstream main line velocity (in feet per second)
V_{L1}-V_{LN} = Pipe velocities (in feet per second)
H_D = Downstream hydraulic grade line (in feet)
K = Multiplier of velocity of water being turned
g = Acceleration of gravity (32.2 ft/sec/sec.)

The above equation does not apply when two (2) almost equal and opposing flows, each perpendicular to the downstream pipe, meet and no other flows exist in the structure. In this case the head loss is considered as the total velocity head of the downstream discharge.

(f) Transition Loss

The relative importance of the transition loss is dependent on the velocity head of the flow. If the velocity and velocity head of the flow are quite low, the
transition losses cannot be very great. However, even small losses may be significant in flat terrain. The sewer design shall provide for the consideration of the necessary transitions and resulting energy losses. The possibility of objectionable deposits is to be considered in the design of transitions.

For design purposes it shall be assumed that the energy loss and changes in depth, velocity and invert elevation, if any, occur at the center of the transition. These changes shall be distributed throughout the length of the transition in actual detailing. The designer shall carry the energy head, piezometric head, and invert as elevations, and work from the energy grade line.

(g) Closed Conduits

Transitions in small sewers may be confined within a manhole. Special structures may be required for larger sewers. The energy loss in a transition shall be expressed as a coefficient multiplied by the change in velocity head \((\Delta V^2/g)\) in which \(\Delta V\) is the change in velocity before and after the transition. The coefficient may vary from zero to one, depending on the design of the transition.

If the areas before and after a transition are known, it is often convenient to express the transition loss in terms of the area ratios and either the velocity upstream or downstream.

For an expansion:

\[
H_L = K(V_1-V_2)^2/2g \quad \Box \quad \{K(V_1)^2/2g\}[1-(A_1/A_2)]^2
\]

Where:
- \(H_L\) = the energy loss
- \(K\) = a coefficient for a sudden expansion = 1
  - for a well-designed transition = 0.2
- \(V_1\) = Velocity before transition
- \(V_2\) = Velocity after transition
- \(g\) = Acceleration of gravity 32.2 Ft./Sec./Sec.
- \(A_1\) = Area before transition
- \(A_2\) = Area after transition

For a contraction:

\[
H_L = K[(V_2)^2/2g][(1/C_c)-1]^2 \quad \Box \quad K[(V_2)^2/2g][1-(A_2/A_1)]^2
\]

Where:
- \(H_L\) = The energy loss
- \(K\) = Coefficient for a well-designed transition = 0.5
- \(V_2\) = Velocity after transition
- \(g\) = Acceleration of gravity 32.2 Ft./Sec./Sec.
- \(C_c\) = Coefficient of contraction
- \(A_1\) = Area before transition
- \(A_2\) = Area after transition
The above equations may be applied to approximate the energy loss through a manhole for a circular pipe flowing full. If the invert is fully developed, that is, semi-circular on the bottom and vertical on the sides from one-half depth up to the top of the pipe, for the expansion $A_1/A_2 = 0.88$, and for the contraction $A_2/A_1 = 0.88$. The expansion is sudden; therefore, $K = 1$. The contraction may be rounded if the downstream pipe has a bell or socket. In this case, $K$ may be assumed to be 0.2.

The expansion energy loss is $0.014 [(V_1)^2/2g]$ and the contraction energy loss is $0.010 [(V_2)^2/2g]$. Thus it may be seen that if the invert is fully developed, the manhole loss is small.

3.030.08 Infiltration

An additional amount of flow due to infiltration shall be evaluated. All sanitary sewers shall be limited to a maximum of One hundred (100) gallons per inch of diameter per day per mile of line, as required by MDNR Specifications, when tested by appropriate water or low-pressure air. In addition, there shall be no visible leaks.

3.030.09 Special Situations and Design Requirements

1. Connections to Manholes

   (a) When it is necessary that wastewater flow enter a manhole at a height more than two (2) feet above its flowline, an inside drop is to be used, and a forty-eight (48) inch diameter manhole is required. The last length of pipe of a sewer main that enters above the flowline on the manhole shall be Ductile Iron Pipe (DIP). Two inside drops are not allowed into one manhole unless authorized by the District. An outside drop is required for incoming pipe diameters larger than twelve (12) inches. Sewer lines shall not enter the manhole in the transition conical section, or through a joint. Manhole inverts shall be shaped to ensure proper flow through drop structures.

   (b) If it is necessary to enter a manhole with a force main this shall be done no greater than twelve (12) inches above the flowline of the manhole, unless authorized by the District, and the manhole invert should be shaped to ensure proper flow through the structure.

   Due to the detention time of the wastewater in the wet well and in the force main, and the potential detrimental effects of the release of hydrogen sulfide from the force main on the concrete structure of the manhole, the concrete manhole shall be protected by a liner or epoxy coating.

   (c) The number of lines coming into one manhole shall be kept to a minimum. A special detail may be required to ensure the proper constructability and maintenance of the structure.

   (d) The projection of the centerline of pipes entering and existing manholes at the flowline shall pass through the center point of the manhole (the center line of the pipes extend radially from the manhole) and the manhole invert shall be shaped to ensure proper flow through the structure.
(e) All connections to manholes are subject to District review and approval and shall be made at the District's discretion. (Such connections should be made at an elevation that will prevent wastewater from the larger sewer backing up and standing in the smaller sewer).

(f) Connections to existing structures may require rehabilitation or reconstruction of the structure being utilized. This work shall be considered part of the project being proposed.

2. Adjusting Manholes to Grade

When a project requires a manhole to be adjusted to grade, the maximum distance allowed from the top of the cone section to grade is eighteen (18) inches of rise and the maximum distance allowed from the top manhole step to grade is 31 inches. When adjustments to raise or lower a manhole are required, the method of adjustment must be stated on the project plans and approved by the District. Brick shall not be used.

3. Customer Service Laterals - Also see Chapter 10.

(a) House Laterals shall have a minimum diameter of four (4) inches.

(b) Commercial and Industrial Laterals shall have a minimum diameter of six (6) inches.

(c) Connection to Manholes

The connection of building laterals is generally made directly to the sanitary sewer main with a “T” or “Y”. Connection to a manhole may be authorized by the District. Such a connection should be at an elevation to eliminate wastewater standing in the building lateral. In such situations an invert in the manhole base must be constructed.

(d) A clean out with metal frame and cover at grade shall be provided at a minimum of every 100 feet and at every change in direction or slope.

4. Swimming Pools

Swimming pool backwash connections to the sanitary sewer must not exceed fifty gallons per minute (50 gpm). Backwash shall be connected to the sanitary sewer main through the house lateral (preferable through the house plumbing which in turn is connected to the house lateral and sanitary sewer main). Commercial swimming pools will require a Missouri State Operating Permit.

5. Storm Sewers Crossing Sanitary Sewers

When a storm pipe crosses over a sanitary sewer and the vertical clearance is less than two (2) feet, the sanitary sewer must be Ductile Iron Pipe (DIP) or concrete encased through the crossing and for ten (10) lineal feet each side of the crossing unless otherwise directed by the District.

When a storm pipe crosses under a sanitary sewer, the sanitary sewer must be Ductile Iron Pipe (DIP) through the crossing and for ten (10) lineal feet each side of the crossing unless otherwise directed by the District.
6. Location in Conjunction with Water Service

(a) Protection of Water Supplies:

i. Water Supply Interconnections: Any physical connection between a public or private potable water supply system and a sanitary sewer, or appurtenances thereto which would permit the passage of any wastewater or polluted water into the potable supply shall not be allowed. No water pipe shall pass through or come in contact with any part of a sanitary sewer manhole.

ii. Relation to Water Supply Structures: Sanitary sewers shall meet the requirements of 10 CSR 20-8.120(10)(B)1 with respect to minimum distances from public water supply wells or other water supply sources and structures.

(b) Relation to Water Mains:

i. Horizontal Separation: Sanitary sewer mains shall be laid at least 10 feet horizontally from any existing or proposed water main. The distances shall be measured outer surface to outer surface. Where it is not possible to maintain a 10-foot separation, any alternate proposal must be submitted for review by the District for approval. Such a deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer.

ii. Crossings: Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. The water main shall cross above the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where it is not possible for the water main to cross over the sewer, any alternate proposal must be submitted for review by the District for approval.

iii. Special Conditions: When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer shall be Ductile Iron Pipe (DIP), and shall be pressure tested to (150 psi) to assure water tightness prior to backfilling.

7. Sanitary Sampling “T”

A sanitary sampling “T” or control manhole is required for non-residential, commercial, and industrial projects. The “T” must be a minimum of six (6) inches in diameter. The “T” or control manhole must be located in the private building lateral and in an easement or public right-of-way as directed by the District. A detail of the "T" or control manhole must be provided on the plans.

8. Abandonment of Sanitary Sewer Services

Any abandoned sanitary sewers and/or appurtenances must either be removed or filled
with grout as directed by the District. Sanitary sewer laterals, from buildings to be demolished, shall be removed or filled with grout unless the lateral is to be used for the replacement building. The connection to the sanitary sewer main must be broken in an easement or public right-of-way as close as possible to the sewer main. A cap and/or plug must be used to seal out any potential inflow or infiltration into the sanitary sewer main. A detail must be provided for review and approval by the District. The District must be notified to inspect the work.

9. Private Force Main Connections

Private force main connections to the public sewer and low pressure sewer systems (LPSS) will only be considered where site topography does not allow for gravity lateral service to the sanitary sewer or the gravity extension of the sanitary sewer is not feasible. See current publication of the District Low Pressure Sewer System (LPSS) Specifications. The District will consider the construction of a public pump station. See the District Pump Station Design Requirements for public pump stations. For proposed low pressure sewer systems, a gravity sewer extension feasibility study, (economic analysis) including projected design and construction costs and easement requirements for both the gravity and LPSS system, must be submitted for review by the District and approval.

All LPSS’s, grinder pumps and wastewater force main installations must be designed and constructed in accordance with the District and local building code requirements. The ownership, operation and maintenance of the grinder pump and pressure discharge lateral shall be the responsibility of the property owner. All mains and valve boxes of the LPSS shall be located in proper dedicated easements.

10. Oil/Gas Separators and Grit Traps

If required by the District, grease, oil, grit and sand interceptors or traps shall be provided when such devices are necessary for the proper handling of liquid wastes containing grease or oil in excessive amounts or any flammable wastes, grit and sand, or other harmful materials which can be trapped. Such interceptors or traps shall not be required for private dwelling units. Prior to the installation of any interceptor or trap, drawings and specifications shall be submitted to the District for approval. All interceptors and traps shall be located so as to be readily accessible for cleaning and inspection, and in the case of grease, an adequate distance from the source to permit cooling of the mixture.

Grease and oil interceptors or traps shall be constructed of impervious materials capable of withstanding sudden and extreme changes in temperature. All such devices shall be of substantial construction, watertight, and equipped with easily removable covers which, when bolted in place, shall be gas tight and watertight, unless otherwise approved by the District.

All grease, oil and sand interceptors or traps shall be installed and maintained in effective operation at all times by and at the expense of the user.

11. Stream Crossing

(a) Sanitary sewer crossings of streams shall be by burial below the streambed. Ductile Iron Pipe (DIP) shall be used for all stream crossings and concrete
encasements may be required. The DIP shall extend a minimum of ten (10) feet beyond the top of the stream bank. Pre-manufactured adapters shall be used at all Polyvinyl Chloride (PVC) to DIP connections. Rubber boot/Mission-type couplings will not be allowed. It is recommended that manholes be located on both sides of the crossing at the point of change in pipe material. The manholes should be a minimum of ten (10) feet from the top of the bank on both sides of the crossing. The trench backfill in the stream bottom and bank shall be compacted. Grouted riprap shall be constructed as required on the plan. The minimum width of riprap shall be the width of the trench and may include all disturbed slopes. The surface of the riprap shall be flush with adjacent grade. All edges of the riprap shall have a one (1) foot wide toe wall extending a minimum of two (2) feet below grade. Grout shall be high slump concrete. Riprap rock shall be 6” - 12” clean (MSD-5). Larger stone may be required as specified by the District.

(b) Aerial crossings may be authorized for special situations, but will require detailed site-specific installation drawings for review and approval.

12. Shared Customer Service Laterals

Shared (or common) customer service laterals (house laterals) will only be allowed by District authorization and only for single owner multi-family structures (condominiums/apartments). In all other cases, each building shall be provided with a separate lateral sewer from the building to the public or private sanitary sewer main within the boundaries of the property line extensions. The lateral shall be installed in accordance with the local building code.

13. Conflict With Other Underground Utilities

Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.

3.040 Sanitary Detention Requirements

3.040.01 Surcharged Sanitary Sewers

When it has been determined that the outfall sewer or the downstream system serving a proposed development is overcharged, the District may require the developer to provide special facilities that the District deems necessary. For example, a sanitary holding tank (detention) for eighteen (18) hours of storage with discharge during the off-peak hours, or upgrading the downstream system to provide additional capacity, may be required.

In the design of such facilities, consideration should be given for the protection of structures and equipment against corrosive and/or explosive gasses that may result from the detention of wastewater.
CHAPTER 4. REIMBURSEMENT RULES AND REGULATIONS

4.010 Recoupment

Due to the fact that the District’s current sewer systems (Plant #1 on Greens Bottom Road and Plant #2 in the Missouri Research Park and their associated collector lines) are reaching capacity and there is no longer a need to construct lengthy collector lines, the District will no longer consider recoupment contracts.

4.020 Reimbursement

If the District finds it is in the public interest to require a developer to upsize sewer lines or pump stations to serve areas outside the legal boundaries of the subject development, the District may develop an agreement to reimburse the developer for the additional cost to upgrade or upsize.

4.020.01 Increased Pipe Diameter Required On-Site/Off-Site

If, at the request of the District, the owner(s) installs within the legal boundaries of the subject development (recoupment area) sanitary sewer lines larger in diameter than required to serve the owner's development and/or upsize the Off-Site sanitary line serving the subject development, the District may authorize reimbursement for the additional cost. (Minimum pipe size to serve any development shall not be less than 8” in diameter). Such added costs shall be limited to the material cost for the larger diameter sewer pipe less the material cost of the smaller diameter sewer pipe required by the District to serve only the owner’s development. (For example, the material cost of a 12” diameter sewer pipe minus the material cost of a necessary 8” diameter sewer pipe)

4.020.02 Extension of Sanitary Sewer Lines

The District may authorize reimbursement for “on-site” sewer main extensions which are directed by the District, and which do not benefit the subject development.

4.020.03 Upsizing Newly Constructed Pump Stations

The District may authorize reimbursement for upsizing costs of pump station and/or force main which are directed by the District, and which do not benefit the subject development. Reimbursable expenditures are limited to items specifically associated with upsizing facility (emergency storage, force main, wet well, etc.) for the initial installation.

4.030 Reimbursement Procedures and Project Costs

The owner must initiate a formal letter requesting reimbursement. Plans, specifications and three competitive bids for the complete cost of construction or a copy of the proposed contract for the construction and a tributary area map must be submitted to and receive the approval of the District before plan approval by the District. Construction inspection and final inspection shall be performed on all construction of reimbursement sewer facilities.

Certified costs actually expended for labor and materials, engineering fees and other essential construction costs of the sewer facility shall be furnished to the District for approval. Connection fees, application fees and inspection fees are not eligible for reimbursement. For any required easement acquisition costs, the District may authorize an allowance in accordance with the District’s established rates per linear foot of easement. The owner must furnish the District with necessary paid invoices with lien waivers attached as evidence of full payment. The Director of Engineering shall examine these costs and upon his approval, as rendered or as adjusted, they shall be
certified by him as the complete construction costs of the sewer facility.

4.040 Objections to Certified Completed Construction Costs

Any person objecting to the amount of the approved reimbursement may appeal to the Board of Trustees of the District by filing, in writing, with the Secretary of said Board, the specific objections to said costs. Upon receiving such appeal, the Board of Trustees will consider the matter, and after consideration of all the facts will finally certify the approved total construction costs of the sewer facility.

4.050 Reimbursement Provisions

4.050.01 Reimbursement Maximum

Total reimbursement may not exceed the total eligible cost of the sewer facilities.

4.050.02 Source of Reimbursement

Reimbursements for sewer main improvements shall be derived strictly from one-half of the connection fees received by DCSD for connections of lots and parcels within the subject development (reimbursement area). The reimbursement area shall be specified and delineated on an Exhibit attached to the Agreement. Reimbursement area shall be defined as the real estate proposed for development by the owner(s) of said real estate.

Reimbursements for approved pump station and forcemain improvements shall be derived strictly from one-half of the connection fees received by DCSD for connections of lots and parcels served by the pump station. The reimbursement area shall be specified and delineated on an Exhibit attached to the Agreement. Reimbursement area shall be defined as the real estate proposed for subject development, and future developments within the watershed served by the pump station within 30 months of the execution of the agreement.
CHAPTER 5. EASEMENTS

5.010 General

All sanitary sewers shall be constructed in easements with working room and suitable ingress and egress. Before existing easements without designated working room may be used, temporary construction easements must be negotiated with the respective property owner(s). All public sanitary sewers shall be constructed in public rights-of-way or in easements. In the event proper easements are not established prior to construction, the owner (developer/contractor) proceeds at his/her own risk. All easements and record plats shall be submitted to the District for review and approval prior to recording. The owner shall be responsible for acquiring and recording all necessary easements. All easements shall be irrevocable, of clear title and free of defect, liens, encumbrances or adverse claims. Should the developer/contractor be unable to obtain a necessary easement for future public sewer lines, the District may assist in acquiring the easement if the District’s Board of Trustees finds that it will be an overall benefit to the District. In all situations the owner shall be responsible for all costs associated with the acquiring of easements.

5.020 Use of Existing Easements

Every existing easement to be used shall be shown on the plans submitted for review and approval. The information on the plans shall include the St. Charles Co. book and page numbers of the recorded instrument. All restrictive clauses as to the use of the easements, i.e. for utility purposes, storm sewers only, sanitary sewers only, etc. shall be noted on the plan adjacent to the pertinent easement. Construction of a sewer in the same easement with a water or gas main will not be approved unless the easement is of such size that the locations of the sewer and utility relative to each other comply with dimensional clearances required by the regulatory authorities.

5.030 Location of Easements

In locating easements, consideration shall be given to the property owner's interests. Undue splitting and angling across property shall be avoided. Easement locations shall be fixed by distances to known property lines or public right-of-way lines and, where necessary, by angles.

5.040 Width of Easements

The width of the easement shall be sufficient to allow proper access for maintenance of the sewer. Easement widths shall provide a two and one half (2'6") minimum clearance between outside limit of structures to easement line with a ten (10) foot minimum width. All easements shall include additional space adjacent to the right-of-way so granted as may be required for working room. Increased easement widths may be required for sewers deeper than ten (10) feet, oversized pipes or structures and/or in areas with restricted or confined working room.

5.050 Wording of Easements

Easements should be prepared on District standard forms which carry the proper wording for the easement dedication. (There are various forms, some for easements on property owned by an individual or individuals, and some for corporate owners.) Easement verbiage for sanitary sewer easements acquired by the owner, which are to be granted and dedicated to the District, shall be as per standard format. Any extraordinary terms, conditions, stipulations or demands pertaining to the acquisition of the easement by the owner, shall not be entered onto the District easement documents. It is recommended that said extraordinary terms, conditions, stipulations or demands be documented by separate contract between the owner and easement grantor(s). Variations in wording are acceptable only where necessary, and approved by the District. Print and original signatures and initialing shall be in black or dark blue ink. A standard Easement Plat labeled "Exhibit A" shall also be initialed and dated in ink by grantor(s).
5.060   Easement Plat Preparation Information Guidelines

5.060.01   Label Established Lines Affecting Tract and/or Mentioned in its Legal Description:

The following lines shall be shown, where pertinent:

(1) Lot lines.
(2) Subdivision lines (affected, adjacent, or near).
(3) Section lines (or sub-section lines).
(4) U.S. Survey lines.
(5) Street, road, highway and/or alley lines.

Property is to be located in relation to known corners along the above listed established lines.

5.060.02   Identify Parcel or Tract:

The following written information shall be shown, where pertinent:

1. Legal subdivision name, with Lot and Block, Plat Book and Page; if in a recorded subdivision.
2. For metes and bounds described parcels, the current owner with Book and Page labeled across tract; add N/F (Now or Formerly) preceding owners' names.
3. Fully dimension owner's property (or as much as shown).
4. Show "North" arrow and scale with "North" to top or side of plat.
5. Above owner's name indicate property locator number per current assessor's records.

5.060.03   Provide Accurate Title Box Information:

The following information shall be shown, where pertinent:

1. Label as "Easement Plat".
2. Describe only where easement is sought, not wherein the entire owner's land lies.
3. Use as applicable in St. Charles County:
   (a) Subdivision name, Lot Number, Block Number, and Plat Book Number and Page Number, followed by municipality (if incorporated), followed by "St. Charles County, MO"; or
   (b) Section Number (or fractional section), followed by Township and Range, followed by Municipality (if incorporated), followed by "St. Charles County, MO"; or
5.060.04  **Easement Plat Drafting Guidelines**  (Refer to current District guidelines that elaborate on the following):

1. **General**

   (a) The standard blank plat labeled "Exhibit A" is to be used in preparation of easement plats or temporary construction licenses. Mylars will not be accepted.

   (b) Use line weights, symbols, style, and size of lettering in uniform directions that will make an uncluttered, easy-to-read plat; i.e. show all that is necessary, but nothing extraneous.

   For clarity purposes, dark blue or black lettering and lines should be used.

   i. No lettering shall be smaller than (10) point print or #100 "Leroy" lettering guide, assuming easement is not to be reduced when recorded.

   ii. The resultant easement plat or temporary construction license should be easily understandable by property owners and portray all information necessary for a surveyor, with adequate field notes, to stake it out on the ground.

   (c) No title blocks of any kind, other than shown in examples, shall be used.

   (d) At the top left-hand corner, outside of plat border, indicate the District's exact project name and reference number as appropriate.

   (e) In the bottom left-hand corner outside of the plat border, indicate the date of the most recent version of the Easement Plat.

2. **Show complete location and alignment of Easement required with:**

   (a) Distances along intersected property line to nearest property corners.

   (b) Bearing (or angle) and distance for each course of easement across property.

   (c) All calculated and set distances are to be to the nearest hundredth of a foot and bearings to the nearest second.

   (d) Indicate easement width(s), and information so that a metes and bounds description for the easement could be written and the area calculated. Show existing easements and indicate appropriate Deed Book and Page, or Plat Book and Page.

   (e) Show only pertinent information. Do not show items such as building lines, sewers, areas, etc.
5.070 Vacation of Easements

The District shall consider vacating its rights within an easement or public right-of-way when it determines that the easement or right-of-way is not required for any existing or future wastewater facility.

The vacation of an easement or the District's rights within a public right-of-way requires the written approval of the Director. In order to determine if the easement or right-of-way may be vacated, the following information must be provided to the District:

1. A letter from the petitioner stating the reason for the request to vacate.
2. A legal description of the area to be vacated, prepared by a registered land surveyor, and an Easement Vacation Plat, prepared in the format outlined in Section 5.060.

If the District determines that there is no future need for the easement or right-of-way in question, the District will record the vacation within fourteen (14) days of the District's execution/authorization to vacate.

The petitioner will be required to submit the recording fee for the recording of the vacation document.

Should the District determine that it is necessary to retain its rights within the easement or public right-of-way in question; the petitioner will be notified in writing that the request has been denied.

5.080 Easement Encroachment

The District shall consider allowing the encroachment of a structure over or onto an easement in which it has rights, only in cases when there is no reasonable way to relocate the existing sewer.

The District may require that the structure which would encroach over or onto an easement be constructed with a pier and grade beam foundation design, with the piers extending a minimum of two (2) feet below the flowline of the sewer.

In addition, the District may require that the sewer be structurally rehabilitated before allowing such encroachment. All costs associated with this rehabilitation will be the responsibility of the petitioner.

The following information must be submitted before the District will consider an encroachment:

1. A letter of request from the petitioner stating the reason for the encroachment.
2. Three (3) sets of plans showing the existing sewer, the existing easement, the proposed structure, and the proposed foundation design in plan and profile relative to the sewer. The foundation design calculations must also be submitted. All data for the proposed structural/foundation improvements shall be prepared by an engineer.

Upon receipt of this information, the existing sewer will be inspected to determine its condition. Based on this inspection and a review of the plans, the District will determine if the encroachment will be allowed and what, if any, sewer rehabilitation, will be required.

If the encroachment is to be allowed, the property owner will be required to enter into an "Encroachment Agreement" with the District. The property owner will also be required to submit a recording fee for the recording of this document.

If the encroachment is denied, the petitioner will be notified in writing of this denial.
CHAPTER 6. APPROVAL AND DEDICATION OF PROJECTS WITH PUBLIC SEWERS

6.010 General

The District will accept for dedication, all public sewers, pump stations and wastewater treatment facilities within easements dedicated to the District that have been constructed to District standards and for which the requirements stated herein have been met.

The maintenance of these public facilities will remain the responsibility of the project Owner until such time that they have been accepted for dedication by the District.

6.020 Requirements for Plan Approval

6.020.01 Agreement to Dedicate and Use

An executed "Agreement to Dedicate and Use" will be required for projects with public sewer facilities. The District will provide three (3) copies of this document to the Owner as part of the plan review process. The dedication forms must be executed by the record Owner and returned to the District. The District will execute the documents and return one (1) copy to the Owner. Plan Approval will not be given for a project having public sewer facilities until the “Agreement to Dedicate and Use” has been executed by both parties.

6.020.02 Construction Escrow Deposit and Cash Deposit Agreement

Prior to the issuance of construction authorizations, a construction escrow deposit for all public facilities will be required as stated in Chapter 7.

6.030 Requirements for Construction Approval

6.030.01 Construction Inspection

All public sewer facilities must be inspected and approved by the District. It is the responsibility of the Owner's Contractor to contact the District’s Engineering Department to arrange for this inspection. The District will not grant construction approval for any public sewer facilities which were not constructed in accordance with approved plans and District inspection.

The District will not allow the physical connection of the new public sanitary sewer construction to the existing system until construction approval has been given. Occupancy permits will be withheld by St. Charles County or the local municipality until construction approval is given.

6.030.02 Field Changes and Plan Revisions

It is the intent and purpose of "Field Change" approvals to minimize the need for a formal plan revision for minor changes to the approved plans, and to minimize delays in construction. The following are the general procedures for processing a Field Change.

1. Initial requests for a change may be made verbally to the District Engineering
Department by the Owner, the Owner's Engineer or the Owner's Contractor, and followed up with a letter stating the requested change(s) and the reason for the change(s).

2. Upon receipt of the request, the District will evaluate the proposed change(s) to determine if it is to be allowed. In addition, if the request is made by someone other than the Owner's Engineer, the petitioner must formally contact the owner’s Engineer to obtain authorization for the change, and submit a letter of authorization.

3. If determined to be necessary, revised hydraulic calculations may be required from the Owner's Engineer.

4. If the change is allowed, the Owner's Engineer will be required to submit four (4) sets of the plan sheet(s) indicating the change. These plans may be photo copies of the original plans with the change(s) noted in red.

5. The District Engineering Department will notify their field inspector of the approved field change and send copies of the changed plans to the appropriate District personnel, the Owner and Engineer.

6. The Owner will be responsible for payment of all applicable inspection fees associated with the change(s) prior to Construction Approval.

7. Field changes must be indicated on the "As-Built" drawings.

8. The contractor proceeds at his own risk for field changes not pre-approved by the District.

6.030.03 As-Built Drawings

As-built drawings, certified by a Land Surveyor or Engineer registered in the State of Missouri must be submitted to District for review and acceptance prior to final construction approval. As a minimum, the following information shall be provided for the as-builds:

1. Sanitary Sewers

   (a) As-built drawings shall indicate the vertical and horizontal location of the sanitary sewers and structures in plan and profile view.

   (b) Provide electronic copy of as-built drawings in AutoCAD (dwg) format in the Missouri Coordinate System, East Zone.

2. Pump Station Construction

   (a) As-Built Drawings shall indicate the physical location of the pump station, retention, access road and other related structures.

   (b) Shop drawings of all structures are required.

   (c) Equipment manuals and pump operating curves for any items which differ from the original design as a result of a field change are required.
3. Subdivision Plats

A recorded copy of the subdivision plat **must** be submitted with the As-Built drawings. Street addresses **must** be shown on each lot.

4. Geotechnical Engineer's Certification

Geotechnical Engineer's Certification will be required verifying that all work associated with the treatment of sinkholes, placement of compacted fill, and other soil-related work was completed in accordance with the approved Geotechnical Report.

**6.030.04 Notification of Construction Approval**

The District will notify the Owner when construction approval is given.

**6.040 Dedication and Release of Construction Escrow**

Upon completion of the entire approved project sanitary sewers (including jetting for compaction of all bedding and backfill), the District will perform an initial inspection upon receipt of a written request from the Owner. Mandrel tests will be required as part of this inspection. These tests must be performed by the owner or his representative (contractor) in the presence of a District inspector.

1. If there are no deficiencies, the District will typically release, within fourteen (14) days of the initial inspection approval, ninety percent (90%) of the construction monies held in escrow. The District reserves the right to withhold escrow release(s) for non-functional or incomplete systems.

2. If deficiencies are noted within the system, the Owner has thirty (30) days to correct these deficiencies.
   
   (a) If the deficiencies are not corrected within this period, the District may contact St. Charles County or the local municipality and request that all un-issued building permits and occupancy permits be withheld until the deficiencies are corrected. Extensions may be granted for inclement weather or other extenuating circumstances. A subsequent re-inspection of the entire system may be required.

   (b) Upon correction of the deficiencies, the Owner will be responsible for requesting a re-inspection of the system.

   (c) Upon District re-inspection of the system and subsequent inspection approval, the District will release escrow in accordance with sub paragraph (1) of 6.040 herein.

3. Final Dedication Inspection

Prior to field inspections for final dedication, sanitary sewer As-Built Plans and copies of recorded easement documents must be submitted. Upon completion of one hundred (100) percent of the project (all finish grading, final manhole adjustments, recorded subdivision plat showing easements and the District's approval of As-Built Plans for the project) and within two (2) years of the execution of the escrow deposit agreement, the District will perform a final dedication inspection upon receipt of a written request from the Owner.
(a) Prior to dedication of facilities to the District, it is the owner’s responsibility to provide sanitary sewer mains and easements of clear title, without known defects, liens, encumbrances or adverse claims.

(b) If there are no deficiencies, the District will release within fourteen (14) days of the inspection the remaining ten percent (10%) of the construction and as-built monies held in escrow provided a final Sanitary Sewer Dedication Agreement for the project has been executed by both the Owner and the District.

(c) If deficiencies are noted within the system, the Owner must correct these deficiencies before the remaining monies will be released.
   
   i. Upon correction of the deficiencies, the Owner will be responsible for requesting a re-inspection of the system.

   ii. The District will release within fourteen (14) days of the second inspection the remaining ten per-cent (10%) of the monies held in escrow, provided all deficiencies have been corrected to the District's satisfaction, and the Final Dedication Agreement is executed by both the Owner and the District.

   iii. Fees for multiple inspections will be required as stated in Chapter 7.

(d) If the sanitary sewer construction and/or its related documents are not completed within two (2) years of the execution of the escrow deposit agreement, the remaining escrow will not be returned to the Owner and will be used by the District at its discretion to complete the sewer project or correct any deficiencies. (See 8.010.02)

6.050 Dedication of Inspection Fees

The Owner(s) of all projects with public sanitary sewer facilities will be responsible for payment of District Inspection Fees. Inspection hours will be logged on each project by District inspectors. Prior to final escrow release, the District will notify the Owner of the total amount of inspection hours and respective inspection fees due for final escrow release and District acceptance of public dedication. District receipt of inspection fee payment is required prior to final escrow release and acceptance of public dedication of the project.

6.060 Abandonment of Work

Upon receipt of a written statement from the Owner that further work on the project has been abandoned, the District shall determine whether or not the uncompleted work is required to ensure the public health, safety and welfare. Should it be determined that completion of the work is necessary, the District shall utilize the monies deposited in the construction escrow for the project to complete this work.

Should the District determine that the completion of the work is not required; the construction escrow monies shall be released in accordance with Section 6.040.
CHAPTER 7. FEES AND DEPOSITS REQUIRED BEFORE PLAN APPROVAL

7.010 Fees Required Before Plan Approval

The District will require that certain fees be paid prior to the acceptance of the plans for review, or the subsequent approval of these plans. Failure to submit the fees in a timely manner could delay the review and approval of the plans. No plans will be approved until all required fees have been paid.

7.010.01 Application Fee

The District will charge a fee to review the plans for a project. (See Chapter 13 for current fee structure)

7.010.02 Connection and System Development Fees

A Connection Fee shall be required for all projects which require sanitary sewer service. This fee will be determined in accordance with the District’s current rates and fees. (See Chapter 13 for current fee structure)

7.010.03 Recording Fees

The Owner will be responsible for paying the recording fees for all documents to be recorded with the Recorder of Deeds for St. Charles County. (See Chapter 13 for current fee structure)

7.020 Deposits Required Before Plan Approval

For projects with public sewer facilities, or private facilities requiring District construction inspection, certain deposits will be required prior to the approval of plans. All escrow deposits must be in accordance with the District’s typical Escrow Agreement and guaranteed by the agreement terms with a bonded/insured Bank, Savings and Loan, Title Company or other recognized financial institution.

7.020.01 As-Built Cost

The As-Built cost must be included in the sewer construction escrow deposit.

7.020.02 Construction Escrow Deposit

The Owner will be required to submit to the District a Construction Escrow deposit in the amount of one hundred (100) percent of the District approved estimated construction cost of the entire public wastewater facilities and private facilities to be constructed under District inspection. The escrow amount will be computed by the Owner’s engineer and approved by the District prior to the plan approval.

Release of the construction escrow deposit will be made as stated in Chapter 6.
CHAPTER 8. CONSTRUCTION AUTHORIZATION AND PERMITS

8.010  General

8.010.01  Plan Approval Required

Any person, firm or corporation desiring to construct, install, relocate, connect or reconnect any sanitary sewer, whether public or private, within the boundaries of the District shall cause plans and specifications to be prepared by a registered Professional Engineer, licensed in the State of Missouri, and shall cause the same to be submitted to the District for examination, revision, and approval according to the design standards of the District. Such approval shall be subject to the execution of a Connection Agreement (including payment of connection fees), an Agreement to Dedicate and Use, and an Escrow Agreement, and no such facilities shall be constructed without an approval from the District. All such plans and specifications shall be prepared in such form and manner as may be prescribed by the District.

8.010.02  Defaults

No person shall be entitled to an approval of plans while such person is in default in the performance of any of the obligations to the District with respect to previous plans or any service rendered.

8.020  Fees and Deposits

The fees and deposits required for plan approval are stated in Chapter 7.

8.020.01  Connection Agreement and Fees

Prior to executing a Connection Agreement with the District, the connection fees must be paid and the plans and specifications for the project must be satisfactory. Indiscriminate tapping in any sewer line is not permitted. The District prohibits leaving any sewer connection open, unsealed, or incomplete in a manner that permits storm water, ground water, or surface water to enter any District sanitary sewer. Any person found guilty of violation is subject to fine, placement of a lien on the subject property, potable water shut off and/or disconnection from the District sanitary sewers.

8.020.02  Connection to Existing Sanitary Sewer

In all cases where a connection is to be made to an existing sanitary sewer, District Engineering Department shall be contacted at least 24 hours in advance. All connections to such existing sewer shall be inspected by the District. The proper connection fee shall be paid prior to making any connection to a sanitary sewer.
8.030 Expiration and Extension of Approved Plans

Plans approved for construction, but wherein construction has not commenced, shall be held by the District for no more than **one year**, at which time the documents including the plans and escrow requirements will be subject to review and revision by the District. Plan revisions and revised escrow requirements may be required for continuance of the project or the project must be voided.

1. Written requests for an extension or continuance shall be addressed to the Engineering Department.

2. Not more than **one** extension or continuance shall be granted on any plan approval without showing cause and the approval of the Director.

8.040 Cancellation of Construction and Refunds of Fees

8.040.01 Prior to the Start of Work

A refund of the connection fees and cancellation of the plan approval may be made for **any plan approval which has not expired** upon receipt of a written statement from the Owner that the project has been abandoned. The plan approval letter with the written statement must be submitted to the District Engineering Department.

No refund of the Application Fee shall be made.

8.050 Construction Permits

8.050.01 Issuance of Construction Permit

1. Construction permit will not be issued until plan approval, applicable fees have been paid and required agreements have been executed.

2. Issued construction permits will be valid for the specified project and period (not to exceed two (2) years) or such time project has been formally dedicated and accepted by the District.

8.050.02 Work Performed Without Construction Permit

1. Owner is held responsible for obtaining construction permit prior to starting work. Failure to do so may result in fines and/or unveiling covered work for inspection at the owner’s expense.

2. Final dedication and acceptance of the project by the District may be delayed until issue is resolved to the District’s satisfaction.

8.060 Inspection Fee Payment

All construction, installation, relocation, connection or reconnection to any sanitary sewer within the boundaries of the District shall be subject to inspection by the District. The District shall determine when payment of inspection fees will be due. Payment of inspection fees will be required prior to final approval and acceptance of the work.
8.070 Final Determination of Construction Inspection Fees

Upon completion of construction of a project, receipt of final as-built documents, and after the permittee has complied with all other terms of these rules and regulations, the District shall compute the actual inspection fee based on field measurements. The District shall be paid or refund shall be made to the permittee, as the case may be. All outstanding fees must be made before final construction approval is given.
CHAPTER 9. INSPECTION, INFILTRATION & DEFLECTION

9.010 General

A Field inspection by District personnel shall be made to verify that such works have been installed and constructed in accordance with the plans, designs and specifications previously approved by the District.

Before granting final approval or accepting of any dedication to the District of a completed sewer facility, the District shall determine whether or not all requirements due under terms of any and all approvals and authorizations issued by the District and contracts with the District with respect to such sewer facilities have been satisfied.

9.020 Field Tests – Infiltration/Deflection

1. The Contractor shall be responsible for the following:
   - Performing and recording all tests on sanitary sewer system.
   - Furnishing all equipment, mandrels, hoses, water, piping connections, test pumping equipment, pressure gauges, pumps, bulkheads, regulators, and any other miscellaneous items as required. Certification of gauges will be required from the gauge manufacturer. Certification and calibration data shall be available to the District whenever air tests are performed.
   - Any by-pass pumping as required.
   - Making any corrections required as a result of tests. Having corrections inspected and approved and completing retesting of any part of the system that failed during any initial tests.
   - Payment of all costs associated with field tests or retesting unless otherwise indicated in project specifications.

2. Reach Integrity Testing

   All sanitary sewers shall sustain a maximum leakage limit of 100 gallons/inch of pipe diameter/mile of line/day, as required by the Missouri Department of Natural Resources Specifications. To ensure compliance, leakage tests are required and shall be performed for sanitary sewers by low pressure “Air Testing”, “Infiltration/Exfiltration Testing”, or “Joint Testing” as indicated in the following paragraphs and approved by the District. If the groundwater level requires a test pressure greater than 6 psi gauge, or if groundwater level is two (2) feet or more above top of pipe at the upstream end, an “Infiltration Test” shall be used. All visible leaks shall be repaired from the exterior of the pipe or structure.

   a. Replacement of Existing Sewers/Test Method Modifications. Where existing sewers are being replaced with new sewers in the same location as the existing sewers, modifications to the methods of testing will be considered and tests will be performed as approved and directed by the District.

   b. Air Testing. Air testing shall be performed after completion of the backfill operation. As applicable, for pipe diameters eight (8) inch through 27 inch, the air test for leakage shall conform to ASTM C-828 “Standard Test Method For Low-Pressure Air Test of Vitrified Clay Pipe Lines” or ASTM F1417 “Installation Acceptance of Plastic Gravity Sewer Lines Using
Low Pressure Air”. The air tests shall not be conducted unless the pipe is secured so that the application of air pressure will not separate the pipe joints. Air testing shall start with a stabilized test pressure of 3.5 psi. If the pressure drops more than 1.0 psi during the test time, the line is presumed to have failed the test. The test time for each type of pipe shall be as indicated in the appropriate ASTM specification. For example, the testing times for 400 feet of plastic pipe sewer lines shall be as follows: 8-inch diameter 10:08 (min:s); 10-inch diameter 15:49 (min:s); 12-inch diameter 22:47 (min:s).

c. Infiltration/Exfiltration Testing. After completion of the backfill operation, if infiltration/exfiltration testing is used, it shall follow the procedures as outlined in ASTM C-969 “Standard Practice For Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines”. This procedure shall be used for all types of pipe materials as applicable. The length of total reaches tested shall not exceed 700 feet. For infiltration testing, the ground water must be at least two (2) feet above the crown of the pipe for the entire length of the test section. If the ground water level is less than two (2) feet above the crown of the pipe from the highest elevation of the sewer, the exfiltration test shall be used. In either case, measurement of leakage shall not exceed 100 gallons/ inch of pipe diameter/mile of line/day. For exfiltration testing, the leakage loss shall be measured over a timed test period as directed by the District. In any case, the testing time period for the exfiltration test shall be no less than one hour.

d. Joint Testing. Joint tests for sanitary sewer using air or water shall be performed on all types of pipe materials larger than 27 inches in diameter following the procedure of ASTM C-1103 “Standard Practice For Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines”. Each joint will be tested at the time of installation prior to complete backfilling of the trench. The sewer shall be kept clean prior to testing so that equipment used in conducting the test can properly seal against the pipe. The test shall not be conducted unless the pipe is secured so that the application of air or water pressure will not separate the pipe joint. The equipment used for conducting the test shall span the joint and be securely placed. Air or water pressure shall be applied into the joint test area at a minimum pressure of 3.5 psi greater than the pressure exerted by ground water above the pipe. Maintain the pressure for at least 10 seconds after established pressure has been reached and stabilized. A maximum pressure drop of one (1) psi is allowable. In addition, after backfilling and prior to acceptance, any visible leaks are to be repaired as approved by the District.

3. Mandrel Testing

Prior to construction approval, after completion of the backfill operation and the jetting or compaction processes, all flexible pipe shall be tested, by the use of an approved nine (9) arm mandrel to insure that no pipe deflection has occurred greater than 5% of the inside diameter of the pipe. These tests shall be performed without mechanical pulling devices and without additional cost to the District. Ductile iron pipe will not require a mandrel test unless required by the Project Plans or Specifications.

4. Manhole Testing

For the purpose of leakage tests, all precast concrete and poured in place concrete sanitary sewer manholes shall be considered pipe of equivalent diameter and shall be tested by an appropriate test method such as exfiltration or vacuum testing after the complete installation.

a. Vacuum Testing. A vacuum test shall be in accordance with ASTM C-1244 “Standard Test Method For concrete Sewer Manholes By The Negative Air Pressure (Vacuum) Test”. The required test period is one (1) minute (minimum) for all sized
and manhole depths. After the complete installation of the manhole, including the frame installation, a vacuum test shall be performed at 10” Hg (mercury). After the pressure has stabilized, a maximum of 1” Hg drop in a minimum of one (1) minute will be allowed for manholes up to 48” in diameter. For larger manholes, the time for a maximum of 1” Hg drop shall be a minimum of two (2) minutes. If the vacuum test fails to meet the above requirements, repeat test after all leaks and defects have been repaired.

b. Exfiltration Testing. If exfiltration testing is used, it shall follow the procedures as outlined in ASTM C-969 “Standard Practice for Infiltration And Exfiltration Acceptance Testing Of Installed Precast Concrete Pipe Sewer Lines”. For exfiltration testing, the allowable leakage limit is 100 gallons/inch of pipe diameter/mile of line/day when the average head on the test section is three feet or less. After plugging all inlet and outlet pipes, the structure shall be filled with water to the top of the manhole frame. After allowance for water absorption or refilling, if required, the leakage loss shall be measured over a timed test period as directed by the District. In any case, the testing time period for the exfiltration test shall be no less than one (1) hour.

9.030 Low Pressure Sewer System Collector Main Testing Requirements

Successful Field Pressure Testing of the Common Collector Main system shall be required prior to initial 90% Escrow Release. Contractor shall perform test in presence of District Inspector.

1. Pressure tests shall be made only after the completion of backfilling operations and after the concrete thrust blocks have set for at least thirty-six (36) hours.

2. The pipeline shall be slowly filled with water. During filling of the pipe and before applying the specified pressure, all air shall be expelled from the pipeline via exercise of the Air Release Valves, Valve Vault Valve Sets and/or Cleanouts. Contractor to verify said Air Release Valve operation.

3. The specified pressure measured at the lowest point of elevation shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Design Engineer and/or Inspector.

4. Test pressure of seventy (70) PSI to ninety (90) PSI shall be maintained for a duration of one (1) hour unless otherwise directed by the Engineer and/or Inspector. Minimum allowable pressure shall be fifty (50) PSI.

9.040 Privately Constructed Sewers and Treatment Facilities

All privately constructed sewers and wastewater treatment facilities shall have obtained the proper approval and authorization and shall be subject to District inspection. All privately constructed sanitary sewers and wastewater treatment facilities shall be subject to the rates, rules and regulations of the District, specified herein, as required for consideration for District acceptance of public dedication. These sewers and facilities shall have had "As-built" plans submitted for final review and approval before dedication or acceptance.

9.050 Maintenance and Operation Inspection

Operation and maintenance of any private, semi-public or industrial wastewater disposal or treatment facility shall be subject to inspection by the District at all times.
9.060   Fees

The Owner of a sanitary sewer facility or wastewater treatment facility approved by the District or subject to District inspection shall be responsible for payment of inspection fees for District inspection of construction of said facilities. Inspection fees delineated in Chapter 14 shall be required.

9.070   Completion of Sanitary Sewer Construction Without Inspection

Failure to obtain District field inspection of a project shall require that some method be submitted to the District to satisfy the District that the work has been installed and constructed in accordance with the plans, designs and specifications previously approved by the District. This may involve exposing any and/or all of the work for inspection.
CHAPTER 10. CUSTOMER SERVICE CONNECTIONS

10.010 General

A written application or contract, properly executed, may be required for new service connection prior to commencing construction of facilities to be connected to the District’s sanitary sewer mains.

10.020 Location, Quality and Quantity of Wastewater.

1. The Customer shall, upon request of the District, present in writing to the District the location of the building and the quality and quantity of the wastewater to be discharged to the District’s mains. The District will then advise the type or form and character of the waste collection and treatment facilities available.

2. The Customers service connection will be made through a “Y” branch or “saddle type connection” at the sanitary sewer main which shall be located in dedicated sanitary sewer (utility) easement or public right-of-way. The location and type of the connection shall be reviewed by the District for approval.

3. Any change in the location of an existing service connection requested by the Customer shall be made at the Customer’s expense.

4. Customer service will not be extended along public streets or roadways or through property of others, except within dedicated easements, for connection with sanitary sewer mains. If a service connection is requested at a point not already served by a sanitary sewer main or a sanitary sewer main of adequate capacity, the sanitary sewer main may be extended or modified. Any sanitary sewer main extension or modification shall be submitted to the District for review and approval.

10.030 Change of Quality or Quantity

Any substantial change of the quality or quantity of the wastewater discharged to the District sanitary sewer system shall be submitted in writing to the District for approval.

10.040 Inspection of Service Connection

The Customer or the Customer’s plumbing contractor shall notify the District twenty-four (24) hours in advance of commencing excavation for connecting the Customer’s service connections to the District’s sanitary sewer main(s) in order that the District may inspect such connection. Failure of Customer to provide for the inspection may result in connection(s) being uncovered at the Customer’s expense in order that the connection(s) may be inspected by District personnel for proper installation. Furthermore, the Customer, Customer’s contractor or subdivision owner shall locate all manholes located on the tract of land for which a service connection is being requested and shall make certain that all such manholes are brought to proper
grade and elevation and shall be inspected at the time of inspection of the service connection. In the event that it is determined subsequently that a manhole has been covered, not accessible or brought to grade, the District shall notify the Customer, Customer’s contractor or subdivision owner of such deficiency, and they shall be required to correct such condition. Failure to correct such condition shall cause the District to take appropriate action to bring such manhole to proper grade and level. In such event, the District shall assess to the Customer, Customer’s contractor or subdivision owner the costs incurred by the District in locating or raising such manholes to acceptable grade and level. The minimum cost assessed shall be $300.00.

10.050 Notification of Proper Agencies

The District on completion of an application and/or contract for a new service connection shall notify the proper St. Charles County or City Authorities when major water users or new subdivisions are to be supplied with sanitary sewer service, or its acceptance of the new customer service connection and the availability of facilities for continuous service for the specified Customer location.

10.060 Plan Review

The District shall review all plans for service connections and shall submit the plans within a reasonable length of time.

10.070 Inside Piping and Customer Sewer Service

The customer will provide his/her lateral sewer service at his/her expense and risk.

10.070.01 Contingencies for Lateral Sewer Service

As a condition of service, inside piping and building lateral sewer construction must meet all of the requirements of the latest editions of Plumbing Rules and Regulations of St. Charles County Missouri, at the time of connection to the sanitary sewer system. The District shall deny service where footing drains, downspouts, or other sources of uncontaminated water are permitted to enter the system through either the inside piping or through the building sewer.

10.070.02 Separate and Independent Lateral Sewer for Each Customer

A separate and independent lateral sewer shall be required for every building, except where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court yard, or driveway, the lateral sewer service from the front building may be extended to the rear building and the whole considered as one lateral sewer service, provided that the secondary building sewer service is solely owned by and for the use of the occupants of the main building as part of their quarters. See sub paragraph (12) of 3.030.09 herein.

10.070.03 Reuse of Old Existing Lateral Sewer
Old lateral sewer services may be used in connection with new buildings only when they are found on examination and test to meet all requirements of the District, and/or criteria indicated in Section 10.070.01 as deemed necessary by the District.

10.070.04 Pipe Materials

The lateral sewer service shall be Ductile Iron Pipe, plastic pipe, or equal or other suitable material approved by the District, all meeting ASTM specifications. Joints shall be tight and water proof. Any part of the Customer’s lateral sewer service that is located within ten feet (10’) of a water service pipe shall be constructed of Ductile Iron Pipe with leaded or neoprene gasket joints. Ductile pipe with neoprene gasket or lead joints may be required where the lateral sewer service is exposed to damage by tree roots. If installed in filled or unstable ground, the lateral sewer service shall be of Ductile Iron Pipe, except that non-metallic material may be accepted if laid on a suitable concrete bed or cradle as approved by the District.

10.070.05 Pipe Size and Slope

The size and slope of the lateral sewer service shall be subject to the approval of the District, but in no event shall the diameter be less than four (4) inches. The slope of such four (4) inch pipe shall not be less than one-fourth (1/4) inch per foot (2% slope). The diameter of all non-residential sewer laterals shall be no less than six (6) inches.

10.070.06 Location, Elevation, Grade and Alignment

Whenever possible the Customer’s lateral sewer service shall be brought to the building at an elevation below the basement floor. No building sewer shall be laid parallel to or within three (3) feet of any bearing wall. The depth shall be sufficient to afford protection from frost. The lateral sewer service shall be laid at a uniform grade and in straight alignment insofar as possible. Changes in direction shall be made only with proper fittings and clean-out provisions.

10.070.07 Lift Required for Building Wastewater Discharge

When any building lateral sewer is too low to permit gravity flow to the District’s main, the sanitary wastewater carried by such lateral sewers shall be lifted by approved artificial means and discharged to the building sewer. Wastewater ejector shall not be used. Where individual private pressurized sewer lateral(s) connect to gravity sanitary sewer main(s), the connection shall be at a manhole and as approved by the District. See sub paragraph (9) of 3.030.09 herein.

10.070.08 Excavation and Backfill

All excavations required for the installation of a Customers lateral sewer service shall be open trench work. Pipe laying and backfill shall be performed in accordance with the latest published Engineering Specifications of the Manufacturer of the materials used and
the St. Charles county Plumbing Code. An aggregate bedding is recommended to maintain proper slope and alignment. All connections to the District’s public sanitary sewer main require an inspection and approval by the District. Only those jointing materials and methods which are approved by the District may be used.

10.070.09 Connection to the Main Sewer

The connection of the Customers lateral sewer service into the main sewer shall be made at a “Y” branch, if such branch is available at a suitable location. If there is no properly located “Y” branch and if the District’s sanitary sewer main is twelve (12) inches in diameter or less, a “Y” branch must be installed. Where the District’s main is greater than twelve (12) inches in diameter, and no properly located “Y” branch is available to receive the Customer’s lateral sewer service, a “Y” branch shall be installed with entry in the downstream direction at an angle of about forty-five (45) degrees and the flow line being approximately at the spring line of the District’s main. A smooth neat joint or connection shall be made, and the joint or connection made secure and watertight by encasement in concrete. Special fittings may be used for the connection or joint only when approved by the District. Lateral sewer service connections to manholes may be allowed only with the District’s prior authorization and inspection.

10.080 Applicant’s Responsibility

1. All facilities above described are to be constructed and maintained by the applicant, and shall be subject to the inspection, approval or rejection by the District, and shall be in accordance with the rules and regulations of the District, or other governing authority, which are in effect at that time. The more stringent codes shall apply. However, repairs or replacement of existing facilities must be in accordance with current codes and regulations.

2. It is the owner’s responsibility to secure, establish and provide proof of established permanent easementation and/or right-of-way for sewer lateral facilities located off of the owner’s property.

10.090 Right of Entry

On taking of service from the District, the customer agrees to provide access to the premises during reasonable hours in order that the District may inspect the water using and disposal facilities connected to the District’s sewer mains.
CHAPTER 11. APPLICATION AND CHECK LISTS FOR PROJECT SUBMISSION FOR REVIEW

11.010 General

The submittal of all project information for all wastewater projects shall be verified by the Check Lists provided herein. It shall be the responsibility of the submitting Engineer to see that all applicable information listed on the Check Lists is provided to District. This includes the design information as well as information on the plans and specifications. Two (2) copies of the Check List shall be submitted with the design information, plans, and specifications.

11.010.01 Sewer Facility Projects

All Sewer Facility Project submittals should include Check List #1 and Check List #2. For any Check List item not pertinent to the specific project being submitted for review, the submitting Engineer shall insert the letters "N.A." for Not Applicable.

11.020 Project Review Information Form

This Form is required on ALL Project submittals. A copy is included in this manual. Separates will be available for Owners, Developers and Design Engineers.

11.030 Sanitary Sewers Design Data, Maps & Computations - Check List No. 1

A copy is included in this manual. Separates will be available for Owners, Developers and Design Engineers.

11.040 Sanitary Sewer Contract Drawings - Check List No. 2

A copy is included in this manual. Separates will be available for Owners, Developers and Design Engineers.

11.050 Application For Construction Permit Application Form

An Application and Fee must be submitted with design information, plans, and specifications prior to review of project. The Application Fee is nonrefundable. Refer to Section 7. Fees and Deposits Required Before Plan Approval.

11.060 Engineer's Estimate of Cost of Construction of Public Sanitary Sewer Mains, for Escrow Purposes.

Estimate of cost to construct the public main portion of the proposed sanitary sewer system requires District review and approval. Contractor’s bid may be used in lieu of an engineer’s cost estimate.

11.070 Hydraulic Analysis, as needed, for Low Pressure Sewer System.

Hydraulic calculations shall be submitted and sealed by the engineer certifying flow calculations used to determine line sizes for the complete system to include any future expansions.
PLAN REVIEW INFORMATION SHEET

Complete this information sheet in its entirety; submit with required number of plans (see page two)

1. Engineer’s Name: ________________________________________________________________

   Street: ___________________________ City ______________________________

   State: _________ Zip Code __________ Phone: (  ) ___________________________

   Contact: __________________________________ Fax (  ) _____________________

2. Owner’s Name: ________________________________________________________________

   Street: ___________________________ City ______________________________

   State: _________ Zip Code __________ Phone: (  ) ___________________________

   Contact: __________________________________ Fax (  ) _____________________

3. Type of ownership (circle one) Corporate Individual Partnership

4. Location Information

   a. Accurate Location of property relative to an intersection: __________________________

       (If not at an intersection, the distance from the property to the nearest intersection)

   b. Wunnenberg’s page number _____________ and grid number _____________

   c. Street Address of Project ________________________________________________

5. Acreage of Improvement _________________ Total Acreage of Property __________

6. State usage of development (commercial, industrial, apartments, condominiums, subdivision, etc.)
7. Size of water meter required for proposed non-residential facilities, to include subdivision recreation area, clubhouse, etc.

_________________________________________________________________
Domestic Size ________________ Fire/Irrigation ______________________
Number of Apartment Units, Condos or Lots___________________________

8. If this submittal is a revision and/or addendum to a previous project, please note Duckett Creek Sanitary District Permit Number P# _________________, and describe below. *(Changes should be delineated on the plans accordingly.)*

_______________________________________________________________________

_______________________________________________________________________

WORKSHEET TO DETERMINE NUMBER OF REQUIRED PLANS

<table>
<thead>
<tr>
<th>PLEASE CHECK</th>
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<td></td>
<td>2</td>
<td>Minimum Number Required for initial Duckett Creek Sanitary District review.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Project has Pump Station or Low Pressure Sewer System.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Required for this Project.</td>
</tr>
</tbody>
</table>

*Failure to submit the correct number of plans may result in the delay or rejection of project for review.

Please note that a minimum of four (4) complete plan sets is required for final Duckett Creek Sanitary District Permit approval stamp and signature.*
APPLICATION FOR CONSTRUCTION PERMIT – SEWER EXTENSION

DUCKETT CREEK SANITARY DISTRICT
3550 Highway K
O'Fallon, MO 63368-8384

Do not attempt to complete this form before reading the accompanying instructions. NOTE: A construction permit fee must accompany this application

FOR DISTRICT USE ONLY: Application No. _____________ MO ________ Date _____________

NAME OF PROJECT

LOCATION OF PROJECT

OWNER’S NAME

_______________________________________
Address   City    State          Zip Code

_______________________________________
Telephone Number

BRIEF DESCRIPTION ______________________________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________

_______________________________________
DESIGN INFORMATION

A. Population or number of lots to be served by this extension: _____________________________

B. Estimated flow to be contributed by this extension: _________________________________

C. Industrial Waste: Type __________________________________________________________

Flow __________________________________________________________

D. Receiving Sewer: Size __________________________________________________________

Capacity _______________________________________________________

E. Will 5 acres or more of land be disturbed? _________________________________________

If yes, was a Land Disturbance Stormwater Permit obtained by MDNR? __________________

RECEIVING TREATMENT FACILITY NAME OR TYPE OF TREATMENT PLANT

Location of Treatment Facility _______________________________________________________

_________________________________________________________________________________

Has the continuing authority that operates the treatment facility and/or flow collection system approved or agreed to accept the additional sewage flow? Yes ______ No ______

I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THE APPLICATION, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE, COMPLETE AND ACCURATE, AND IF GRANTED THIS PERMIT, I AGREE TO ABIDE BY THE DUCKETT CREEK SANITARY DISTRICT RULES, REGULATIONS, ORDERS AND DECISIONS, SUBJECT TO ANY LEGITIMATE APPEAL AVAILABLE TO APPLICANT UNDER THE RULES AND REGULATIONS OF THE DUCKETT CREEK SANITARY DISTRICT.

_________________________________________________________________________________

APPLICANT'S SIGNATURE (see instructions) DATE

NAME PRINTED TITLE OR CORPORATE POSITION
INSTRUCTIONS FOR FILLING OUT APPLICATION
FOR CONSTRUCTION PERMIT - SEWER EXTENSION

Construction permit fees shall be tendered together with this application. Incomplete construction permit applications and related engineering documents will be returned by the district if they are not completed in the time frame established by the district in a comment letter to the owner. Construction permit fees for returned applications shall be forfeited. Construction permit fees for applications being processed by the district that are withdrawn by the applicant shall be forfeited. The construction permit fees are as follows:

$75 For a Sewer Extension Under 1,000 feet in length

$300 For a Sewer Extension Over 1,000 feet in length or for construction of a lift station

NOTE: Applicants proposing to build more than one construction unit are only required to pay the highest fee. Example: If two lift stations and 2,000 feet of sewer line were being constructed, the construction permit fee would only be the highest number of $300. If 500 feet of sewer line and one lift station were being constructed, the fee would be $300.

Different application and construction fees are applicable if a sewage treatment device is to be constructed.

1. Give the name of the project or the name of the subdivision in which the sewers are being constructed.

2. Describe the location by street name or give the most accurate alternative geographic information.

3. Legal name and address of the owner or applicant.

4. Briefly describe the project by providing the following information:

   a. Total number of manholes
   b. Size of sewers and the total linear feet of each size.
   c. Number of lift stations and design average and peak flow capacities of each lift station.
   d. Size and length of force mains.

5. Provide the name and address of the treatment facility. If the treatment facility has no address provide the most accurate geographic information. In the alternative the treatment facility may be described as a 3-cell wastewater stabilization pond, 40,000 gallons-per-day extended aeration treatment facility, etc.

6. If the continuing authority has not agreed to accept the additional flow or in some cases to accept the sewer extension, this application will be considered incomplete.
7. All applications must be signed as follows:

   a. For a corporation, by an officer of at least the level of plant manager;

   b. For a partnership or sole proprietorship, by a general partner or the proprietor;

   c. For a municipal, state, federal, or other public facility, by either a principal executive officer or ranking public official.

This completed form, along with the construction permit fee should be returned to the address shown at the top of page one of the application form.

If there are any questions concerning this form, please direct your questions to:

Duckett Creek Sanitary District  
Attention: Engineering Department  
3550 Highway K  
O’Fallon, MO 63368-8384  
(636) 441-1244   FAX (636) 498-8150
CHAPTER 12. NEW SEWER SYSTEM/AREA PUMP STATION REQUESTS

12.010  DEFINITION

Treatment Plants: These systems normally serve smaller geographical areas or watersheds where it is not feasible to connect to one of the large wastewater plants. Contingent upon MDNR approval, these plants are located in the sub-watershed which it services and discharges its effluent to the nearest creek or stream within that watershed.

Area Pump Stations: Pump Station located and designed to serve multiple properties within the watershed.

Unless specified in this Chapter, all rules and regulations of the District shall apply to all sewer systems.

12.020  REQUEST TO DEVELOP A SEWER SYSTEM/AREA PUMP STATION

Treatment Plant: Any developer may request that the District consider developing or operating a sewer system to serve a development project. The request shall be in writing to the Director and shall provide detailed information on the exact location of the proposed development, the development plans, the current zoning for the property and any stream analysis required by MDNR. The District may request additional information as desired.

Area Pump Station: Any developer may request the District to consider an Area Pump Station to serve a development project. The request shall be in writing to the Director and shall provide detailed information on the exact location of the proposed development, the development plans and the current zoning for the properties it will serve. The District may request additional information as desired.

If it is in the best interest of the District and the public to establish a sewer system for the development project, the Director shall develop a plan for the system and present it to the Board of Trustees. If approved by the Board, a contract shall be developed between the Board of Trustees and the Developer that details the responsibilities of both the District and the Developer in the establishment of the system.

12.030  WATERSHED APPROACH

When any new sewer system is considered, the District shall take a watershed approach in determining the location and size of the collection and Treatment Plant/Area Pump Station. The District shall analyze the area surrounding the proposed development to ascertain the potential need to provide sanitary sewers to these surrounding areas. The plan for the watershed shall identify all potential areas to be served and the method by which the system will be designed to accommodate this area and a financial analysis of cost of the system to the District and its customers.

12.040  ESTABLISHING A COST CENTER FOR A PROPOSED SYSTEM

Each sanitary sewer system shall be an individual cost center that reflects the construction and operational costs of the system. The fees and charges as described in Section 13 shall be adjusted and established independently for each cost center.

12.40.01  A specific connection fee shall be established for each system based on the overall cost to the District of building and maintaining the collection and treatment facilities.

12.40.02  The District shall charge its customers the user rates established District-wide for treatment of the wastewater. However, an additional surcharge may be assessed to assist in covering additional costs associated with the construction and maintenance of the system.
12.050 CONTRACT WITH DEVELOPER REQUESTING A SEWER SYSTEM/AREA PUMP STATION

A contract shall be developed between the District and the Developer that details the responsibilities of both the District and the Developer in the establishment of the system. Contracts may include shared costs by the Developer and the District and shared revenue from connection fees and surcharges assessed to recoup those costs. Approval of the contract is contingent upon review and acceptance by the District's Board of Trustees. It is assumed that each system will vary in size, topography, length of time to develop, number of homes per acre, overall cost for the plant and related infrastructure, etc. Therefore, each contract will differ in the responsibilities assigned to the developer.
CHAPTER 13. RATES FOR RENDERING SERVICE

PRELUDE

It is determined and declared to be necessary and conducive to the protection of the public health, safety, welfare and convenience of the Duckett Creek Sanitary District (the District) to collect charges from all users who contribute wastewater to the District’s treatment facilities. The proceeds of such charges so derived will be used for the purpose of operating, maintaining, replacement and retiring the debt for such public wastewater treatment facilities.

The District will review the user charge system annually and revise user charge rates as necessary to ensure that the system generates adequate revenues to pay the costs of operation and maintenance including debt service and replacement.

13.010 USER CHARGE SYSTEM

The annualized user charge system shall generate adequate annual revenues to pay the cost of operations and maintenance and equipment replacement of the treatment facilities along with the reserve accounts and required debt service.

13.020 RATE STRUCTURE

13.020.01 Classes of Users and Charges

The following classes of users and charges are hereby established:

1. Residential Users: $21.75 per month for operation and maintenance and equipment replacement and reserves and debt service.

2. Non-residential Users: $3.05/1000 gallons of less than or equal to normal domestic strength wastewater based on water meter readings for operation and maintenance and equipment replacement and reserves and debt service. The minimum charge will be $21.75 per month.

13.020.02 Surcharge

1. Users who contribute greater than normal strength wastewater with Biochemical Oxygen Demand (BOD) concentration greater than 250 mg/L and/or Total Suspended Solids (TSS) concentration greater than 300 mg/L and/or a Chemical Oxygen Demand (COD) concentration greater than 400 mg/L shall be subject to a surcharge as follows:

   $0.43/pound BOD in excess of normal wastewater

   $0.15/pound TSS in excess of normal wastewater.

2. An additional surcharge may be assessed to users/customers in a special use situation to recover additional charges for actual treatment and capital costs.
13.020.03 **Wastes Causing Increased Cost of Operations and Maintenance**

Any user who discharges any pollutants which cause an increase in the cost of managing the effluent or the sludge from the District’s treatment facilities, or any user which discharges any substance which singly or by interaction with other substances causes identifiable increases in the cost of operation, maintenance, or replacement of the treatment facilities, shall pay for such increased costs. The charge to each user will be as determined by qualified personnel and approved by the Executive Director.

13.020.04 **Other Charges**

The District may establish other charges to provide for the cost of services it incurs in the various collection functions. Those costs may include but are not limited to charges for non-sufficient fund checks, lien filings and releases.

Additional rates, fees and charges may be added to amounts established in this chapter for costs incurred by Chapter 12: New Sewer Systems/Area Pump Stations

13.030 **BILLING**

13.030.01 **Frequency of Billing**

1. Designated residential users shall be billed quarterly.

2. Nonresidential and designated surcharge users shall be billed monthly.

13.030.02 **Delinquency**

All billings shall be delinquent if not paid within thirty (30) days of the due bill date.

13.030.03 **Delinquent Charge**

Any delinquent account shall be subject to a three and one-half percent (3.5%) late charge per month. Income generated by these delinquent charges may be utilized in a manner consistent with the Revised State Statues.

13.040 **FEES**

13.040.01 **Application Fees**

The following fees shall be due upon initial application for the review of project plans for the purpose of obtaining a construction permit:

- **Sanitary Sewer Main Extensions**
  - Less than or equal to 1000 linear feet $75
  - Greater than 1000 lineal feet $300
- **Lift Stations** $300
13.040.02 Connection and System Development Fees

1. The Connection Fee is based upon domestic water meter size as per the following Fee Schedule.

<table>
<thead>
<tr>
<th>Water Meter Size</th>
<th>Connection Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to and Including 0.750 Inch</td>
<td>$800</td>
</tr>
<tr>
<td>1.0 Inch</td>
<td>$1,800</td>
</tr>
<tr>
<td>1.5 Inch</td>
<td>$8,000</td>
</tr>
<tr>
<td>2 Inch</td>
<td>$12,000</td>
</tr>
<tr>
<td>3 Inch</td>
<td>$20,760</td>
</tr>
<tr>
<td>4 Inch</td>
<td>$24,260</td>
</tr>
<tr>
<td>Above 4 Inches</td>
<td>$30,000</td>
</tr>
</tbody>
</table>

*effective November 1, 2005*

3. Unknown Water Meter Size

If all water meter size(s) for project site to be permitted are unknown prior to issuance of District Construction Permit, Sanitary Sewer Connection Fee may be determined by calculation of developed acreage multiplied by $5,600 per acre and/or in combination with platted metered areas. In cases where acreage calculation was utilized, and prior to expiration of District Permit, the developer of the project may submit to the District actual meter sizes for platted areas within the permitted project, to determine calculation and/or adjustment of Connection Fee amount. The term “developed acreage” shall mean acreage of entire project site to be permitted, less that acreage in flood plain, retention or detention basins, park-lands and open-air sports fields.

13.040.03 Inspection Fees

A project inspection fee shall be paid to the District at the rate of $38.00 per hour.
13.050 DISCONTINUANCE OF SEWER SERVICE BY THE DISTRICT

The District reserves the right to discontinue sewer services for any of the following reasons:

1. For failure to comply with terms of sewer contract
2. For nonpayment of sewer bill or connection fee.
3. For resale of sewer service.
4. For unauthorized sewer connection to District sewer mains, unauthorized opening of sewer mains during construction or permitting entry of storm water, ground water or other objectionable materials.
5. For unauthorized connection of footing drains, downspouts or connections permitting surface water, ground water or storm water entry into sanitary sewer.
6. For violation of any District Rules or Regulations.

13.050.01 Violation

In the event a Customer is in violation of any of District Rules or Regulations the District shall have the right to disconnect and/or plug the customer's or violator's sanitary sewer lateral within the District's easement in which event the total cost of disconnection and re-establishment of service shall be at the expense of the customer, but in an amount not less than $250.00.

13.050.02 Collection of Additional Costs

Discontinuance of sewer service to a premise for any reason shall not prevent the District from pursuing any lawful remedy or action of law for the collection of monies due. The District shall have the right to recover costs associated with collections, disconnection or reconnection collection charges, reasonable attorney fees, and any other charges incurred for the collection of such debt.

13.050.03 Renewal of Disconnection

When wastewater service to a customer has been terminated for any reason other than temporary vacancy of the premises, it will be renewed only after the conditions, circumstances or practices which caused the service to be discontinued are corrected to the satisfaction of the District and upon payment by the customer to the District of all applicable fees and charges set forth in these Rules, Rates, and Regulations.

13.050.04 Notification

Prior to physical discontinuance of sewer service, the District will mail or deliver a dated notice giving the customer ten (10) days to conform to the Rules and Regulations of the District, except as set forth below and shall state the violation. The ten (10) days written notice may be waived where discharge of materials into the District sewer main may be judged to be detrimental to the public health and safety, cause damage to the sewer facilities or is illegally or unlawfully connected.

13.050.05 Right of Refusal

The District has the right to refuse or to immediately disconnect sewer service to any premise to protect itself against fraud, abuse, and improper or unauthorized connections or to protect District's facilities from physical or process harm.
13.060 BILLS FOR SEWER SERVICE

The charges for wastewater service shall be at the rates specified in the applicable rate schedules. The point of assumption of a customer’s wastewater shall be at the sewer main or lateral service connection.

13.060.01 Customer Liability

A customer who has made application or is being provided with sewer service to a premise shall be held liable for all sewer service furnished to such premise until the customer notifies the District in writing to discontinue service.

13.060.02 Customer Responsibility

Each customer is responsible to notify the District that they are using the services of the District and for furnishing the District with his/her correct address. Failure to receive a bill for wastewater service shall not be considered an excuse for non-payment nor reason to permit an extension of the date when the account would be considered delinquent.

13.060.03 Customer Address for Billing

Bills and notices relating to the District or its business will be mailed or delivered to the customer’s mailing address unless the District is notified in writing by the customer of a change of address.

13.060.04 Payments

Payments will be accepted at District Administrative Offices via U.S. Mail or by acceptable electronic methods. Payments may be made in the form of cash, money order, check or acceptable credit card.

13.060.05 Billing Mistakes or Errors

The District will not be bound by bills rendered under mistake of fact as to the quantity of service rendered or as a result of clerical error.

13.060.06 Payment by Location

A separate bill shall be rendered for each customer location except for charges where multiple locations are billed to one customer.

13.060.07 Estimated Meter Readings

Where water usage determines wastewater charges and an actual meter reading is not available, an estimated meter reading will be used for billing calculations. The estimated bill will be calculated based on three (3) prior actual reads. The District, at its discretion, will bill based on prior months estimates. At such time as actual readings are available, the customer billing amount will be adjusted accordingly.

13.060.08 Partial Billing Periods

When bills are rendered for a period of less than a complete billing period due to the connection or termination of service, the billing shall be for the proportionate part of the charge.
13.060.09 Meter Water Not Entering the Sanitary Sewers

All customers whose wastewater service charges are in excess of 30,000 gallons of water per month, and who can show to the satisfaction of the District that a portion of the water does not and cannot enter the sanitary sewer system, the District may determine the percentage of metered water entering the sanitary sewer system. Such percentage shall then constitute the basis of wastewater service charges. The District, at its discretion, may require or permit the installation of additional meters at the expense of the customer in such a manner as to determine the quantity of wastewater actually entering the sewer system.

13.060.010 Multiple Accounts at One Address

Where both residential and commercial classes of service are supplied through one service to the same customer on the same premises, the service shall be billed as one commercial customer.

13.070 OBLIGATIONS OF THE CUSTOMER AND DISTRICT

Every customer, upon signing an application for service rendered by the District, or upon taking of service, shall be considered to have expressed consent to be bound by District rates. The District reserves the right, to prescribe additional rates, or to alter existing rates, as it may from time to time deem necessary or proper to cover its costs.
13.080 NOTIFICATION OF RATES

CURRENT DISTRICT RATE AND FEE SCHEDULE

Application Fees

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary Sewer Main Extension</td>
<td></td>
</tr>
<tr>
<td>Less than or equal to 1,000 linear feet</td>
<td>$ 75</td>
</tr>
<tr>
<td>More than 1,000 linear feet</td>
<td>$ 300</td>
</tr>
<tr>
<td>Lift Stations</td>
<td>$ 300</td>
</tr>
</tbody>
</table>

Connection Fees

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential (Per Lot)</td>
<td>$ 800</td>
</tr>
<tr>
<td>Commercial (By Water Meter Size)</td>
<td></td>
</tr>
<tr>
<td>&lt; or = .750 Inch</td>
<td>$ 800</td>
</tr>
<tr>
<td>1.0 Inch</td>
<td>$ 1,800</td>
</tr>
<tr>
<td>1.5 Inch</td>
<td>$ 8,000</td>
</tr>
<tr>
<td>2.0 Inch</td>
<td>$12,000</td>
</tr>
<tr>
<td>3.0 Inch</td>
<td>$20,760</td>
</tr>
<tr>
<td>4.0 Inch</td>
<td>$24,260</td>
</tr>
<tr>
<td>&gt; 4.0 Inch</td>
<td>$30,000</td>
</tr>
<tr>
<td>Unknown Meter Size (By Acre)</td>
<td>$ 5,600</td>
</tr>
</tbody>
</table>

Inspection Fees (By the Hour)

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$38.00</td>
</tr>
</tbody>
</table>

User Rates

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>$21.75 per Month</td>
</tr>
<tr>
<td>Non-Residential</td>
<td>$3.05 per 1,000 Gallons</td>
</tr>
<tr>
<td>Surcharge Rates</td>
<td>Based on Cost Center</td>
</tr>
</tbody>
</table>

---

1. See “Rules, Rates and Regulations Handbook” for specific application of this fee.
2. See “Rules, Rates and Regulations Handbook” for specific application of this fee.
CHAPTER 14. SANITARY LATERAL REPAIR PROGRAM

Prelude

On April 5, 2016, the eligible voters in the Duckett Creek Sanitary District voted on Proposition L, a proposal to fund a sewer lateral repair program. Voters authorized the fee, not to exceed $36.00 to be placed on their annual property tax bill to fund the program. The District has decided to initially set the fee at $28 per year and this fee will first appear on the 2016 property tax notices sent by the St. Charles County Collector’s Office.

14.010 DEFINITIONS

Residential Property. Real estate within the Duckett Creek Sewer District of St. Charles County, Missouri, consisting of property identified by a single locator number in which the St. Charles County Assessor’s Office classifies as: Class One – Single Family Residence (r), Class Thirteen – Duplex (r), Class Fourteen – Condo Residential (r), Class Nineteen – Single Unit Apartment (r), Class Thirty-One - Residential Triplex (r), Class Forty-One - Four Units (r), Class Fifty-Four - Five Units (r), or Class Sixty-Four – Six Units (r). Included are lateral sewer service lines serving six or fewer dwelling units on such residential property and condominiums that have six or fewer condominium units per building and any condominium responsible for its own individual lateral sewer line. Also included is any property included in Section 249.424 RSMo. Excluded from this definition is any property in the Duckett Creek Sewer District that is located within any city, town, village or unincorporated area of a county that already imposes a lateral fee under Section 249.422 RSMo, or other relevant statutes.

Sanitary Lateral. That portion of the residential property’s sanitary sewer piping that runs between the sewer main and the foundation of the dwelling unit or units.

14.020 SEWER LATERAL REPAIR FEE

An annual fee up to $36.00 shall be collected from all eligible residential properties that are customers of Duckett Creek Sewer District and are within the Duckett Creek Sewer District of St. Charles County, Missouri except that the fee shall not be imposed on property in the sewer district that is located within any city, town, village or unincorporated area of a county that already imposes a fee under section 249.422 RSMo, or other relevant statutes for the purposes of paying the cost of certain repairs of defective lateral sewer service lines, and the reasonable costs to administer the program. The fee shall initially be set at $28 but may be modified from time to time by the Board of Trustees. The Sewer Lateral Repair Fee will be placed on the annual property tax bill, collected by the St. Charles County Collector and remitted to Duckett Creek.

14.030 SEWER LATERAL REPAIR FUND

A Special account shall be created solely for the purpose of paying for all or a portion of the costs reasonably associated with and necessary to administer and carry out the defective lateral sewer service line
repairs. All interest generated on deposited funds shall accrue to the special account established for the repair of lateral sewer service lines, and shall be known as the Sewer Lateral Repair Fund. The Duckett Creek Sewer District Director of Finance and Administration or her/his designee shall administer and disburse funds from this fund upon authorization of the Executive Director or his/her designee.

14.040 AVAILABLITY OF FUNDS

Administration of the Sewer Lateral Repair Program shall be contingent upon the availability of funds collected or anticipated to be collected pursuant to the yearly fee imposed by Section 14.020 above.

14.050 RULES AND REGULATIONS

14.050.01 The Executive Director shall propose to the District’s Board of Trustees amendments to the rules and regulations to carry out the purposes and intent of the Sewer Lateral Repair Program to protect the public safety, health and welfare and to administer the program in an effective, efficient and timely manner.

14.050.02 Owner Participation in the Sewer Lateral Repair Program

A. Complete the Application titled “Residential Sanitary Sewer Lateral Repair Program Application”.

B. If the sewer lateral crosses into a neighbor’s yard, the neighbor may be required to sign an application giving consent for access to their property dependent upon location of lateral repair work. Failure to obtain consent may cause denial of application.

C. Applicant must be current on payment of St. Charles County Property Taxes, Sewer Lateral Repair Fee and District’s billing accounts. Application will be denied until issue is remedied.

14.050.03 District Participation in the Sewer Lateral Repair Program

A. District will solicit Time and Material bids from qualified contractors prior to each fiscal year beginning on January 1st and ending on December 31st to perform this work. The District intends to select a minimum of 3 (three) contractors to perform lateral repair work generated from approved sewer lateral repair applications throughout the fiscal year. The District intends to bundle multiple repair work from the repair-list and award work based on evaluation of the cost for each individual repair.

B. Sewer Lateral Repair Program will provide up to $7,500 on repair work for each qualified application per fiscal year. Repair costs exceeding $7,500 shall require approval of the Executive Director.