APPENDIX A: DEFINITIONS

Abandoned – To remove from service for all functional use.

American Association of State Highway Transportation Officials (AASHTO) Standards – The latest edition of applicable standards as approved and published by AASHTO.

American Concrete Institute (ACI) Standards – The latest edition of applicable standards as approved and published by ACI.

American National Standards Institute (ANSI) Standards – The latest edition of applicable standards as approved and published by the American National Standards Institute, Inc.

American Society of Mechanical Engineers (ASME) Standards – The latest edition of applicable standards as approved and published by the American Society of Mechanical Engineers.

American Society for Testing and Materials (ASTM) Standards – The latest edition of applicable standards as approved and published by the American Society for Testing and Materials.

AMERICAN WATER WORKS ASSOCIATION (AWWA) - an organization which develops, adopts and publishes standards for the construction, operation and maintenance of improvements to water systems.

Apartment – A dwelling unit in an apartment building.

Apartment Building – A building or any portion thereof, which contains three or more dwelling units, located in the same building lot. An apartment building is a multi-family dwelling.

APPROVED - Material, equipment, workmanship, process, or method that has been accepted by MUPB as suitable for the proposed use.

AS-BUILT - A certification by the OWNER/DEVELOPER whose stamp appears on the plans that the measurements, depths, materials, and facilities that are shown on the plans are true and correct and are constructed in accordance with the DESIGN and CONSTRUCTION MANUAL for WATER, SANITARY SEWER & LIFT STATIONS of the MUPB.

Average Daily Demand (ADD) – The arithmetic average of all daily flow determinations taken within a period of 24 consecutive hours.

American Water Works Association (AWWA) Standards – The latest edition of applicable standards as approved and published by the American Water Works Association.

Barriers – Railroads, arterial and collector roadways, divided thoroughfares, highways, buildings, man-made or natural obstacles, etc. which restrict Fire Department operations.

Backfill – (a) The refilling of an excavation after a structure has been placed therein. (b) The material placed in an excavation in process of backfilling.

Bacteria – Single-celled microorganisms that lack chlorophyll. Some bacteria can cause human, animal, or plant diseases; others are essential in pollution control because they break down organic matter in the air and in the water.

Barrel, Manhole – The vertical portion of a manhole used to gain access to a sewer or sewer structure.

Base Manhole – The bottom or supporting structure on which the manhole barrel rests.

Bedding – The earth or other materials, on which a sewer of other structure is supported.

Bell – The recessed, over enlarged, female end of a pipe into which the male or spigot end fits.

Blow Off – A waste gate or device for discharging accumulated solids or for emptying a depressed sewer. A device for flushing a water main.

Blueline Stream – A natural surface drainage structure shown on USGS topographic maps as a solid blue line. Also, classified by Kentucky Division of Water as a natural drainage structure having continuous flow during normal weather conditions.

Booster Station – A station at which potable water is pumped via the water distribution: often to a storage tank or via constant pressure system.

Borings – Surface investigation performed to classify the types of soils.

Branch, Y (Wye) – A pipe joined to another pipe (usually at 60 degrees with alignment of the other) molded together and manufactured as a whole unit.

Capacity – The amount of flow in terms of cubic feet per second that a conduit can or will discharge. Capacity depends on factors such as velocity, coefficient of roughness, size, shape, and slope of the conduit.
Carrier Pipe – A pipe used to carry water or wastewater, as opposed to an exterior protective casing pipe.

Casing Pipe/Casing - Encasement pipe, usually steel, that is most commonly used in underground construction to protect utility lines of various types from getting damaged.

Castings – Metallic objects (normally cast iron) formed of molten in a mold. Examples are: manhole lids; manhole rims; valve and meter boxes; etc.

cfs – Cubic feet per second, a measure of the amount of flow in a pipe or in a stream.

Chamfer – A flat surface created by slicing off a square edge or corner.

Chlorination – The application of chlorine to drinking water or sewer for disinfection or the oxidation of undesirable compounds or microorganisms.

Chlorine – An element ordinarily existing as a greenish-yellow gas about 2.5 times as heavy as air. At atmospheric pressure and a temperature of -30.1 degrees Fahrenheit, the gas becomes an amber liquid about 1.5 times as heavy as water. The chemical symbol of chlorine is Cl. Its atomic weight is 35.457, and its molecular weight is 70.914.

Coefficient – A numerical quantity interposed in a formula which expresses the relationship between two or more variables, which may be derived by theoretical or experimental methods.

Coefficient, Roughness – A factor, “n”, in the Kutter, Manning, Hazen-Williams, and other formulae that represent the effect of roughness of the confining channel or conduit material upon the energy losses in the flowing water.

Collar – (a) A cylindrical ring of either brick or precast concrete, secured upon the cone or barrel of a manhole upon which the frame will rest.
(b) A cylindrical monolithic concrete encasement for securing a joint and preventing shear by movement.

Collector – A pipe that is generally between 8 inches and less than 15 inches that collects sewage from neighborhoods and groups of businesses and delivers sewage to a single, larger interceptor pipe.

Collector System – A network of lateral and branch sewers in a defined area, which collects and transports sewerage to a larger sewer.

Combined Sewer – A sewer intended to receive both wastewater and storm water.

Conduit – A continuous piping or passage system for transporting water or sewerage underground. Also, used for containing wires and cables of other utilities.

Connection, House – See Property Service Connection.

Construction Documents – The Standards Manual, Construction Plans, and Special Provisions, with all amendments, modifications and supplements.

Construction Plans – The approved plans, profiles, typical cross sections, working drawings and supplemental drawings, or exact reproductions thereof, which show the location, character, dimensions, and details of the work to be done.

Contamination – The presence of any foreign substance (organic, inorganic, radiological, or biological) in water which tends to degrade its quality so as to constitute a health hazard or impair the usefulness of the water.

Contractor – The individual, firm, corporation or any acceptable combination thereof, or joint venture, contracting with a Developer or MUPB for performance of prescribed work.

Cradle – Type of bedding, usually of gravel or concrete, being laid upwards from the trench bottom to the spring line of the pipe.

Crown – The highest inside part of a conduit; the inner top of a conduit.

Cul-de-sac – An alley or street having no outlet at one end, usually having an area at its dead end for turning around.

Culvert – A closed conduit, typically of pre-cast or monolithic structure of sufficient length for the passage of water.

Dechlorination – Removal of residual chlorine in water by a chemical or physical process.

Dimension Ratio (DR) [Pressure Flow] – The outside pipe diameter divided by the pipe wall minimum thickness. The DR provides a method of specifying product dimensions to maintain mechanical properties regardless of size. For a given dimension ratio the pipe stiffness remains constant for all pipe sizes.

Discharge – (a) As applied to a sewer or stream, the rate of flow, or volume of water flowing therein at a given place and within a given time. (b) The act, in water or other liquid, of passing through an opening or along a conduit or channel. (c) The water or other liquid that emerges from an opening or passes along a conduit or channel.

Disinfectant – Any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone that may be added to the water in any part of the treatment or distribution process that is intended to kill or inactivate pathogenic microorganisms.

Disinfection – A process which inactivates pathogenic organism in the water by chemical oxidants or equivalent agents. The term includes lift stations, ground and elevated storage tanks, potable water mains, potable water service lines, and all associated valves, fittings, and meters, but excludes potable water customer service lines.

Division of Water (DOW) – See Kentucky Division of Water.

Drainage Area – A tributary area that is generally limited by a topographic area, but may be also limited by political boundary or economic factors.

Duplex – Two single family dwelling units per lot.

Dwelling – A building or portion thereof designed and used exclusively for residential occupancy, including one- and two-family dwellings but not including hotels, motels, or lodging houses.

Dwelling Unit – A single unit providing complete independent living facilities for one of more persons including permanent provisions for living, sleeping, eating, cooking, and sanitation.

Dynamic Head – In pumping water, a head usually expressed in pounds per square inch (p.s.i.) representing both the pressure due to the elevation to which the water is pumped and that due to friction of the water in the pipe; the head against which a pump works.

Effluent – The water or wastewater that flows from a basin, treatment process or treatment plant.

Encasement – Usually monolithic concrete used to enclose the periphery of a conduit.

Encasement Pipe – A smooth protective steel pipe which encases a carrier pipe for various types of crossings including roadways, creeks, and railroads.

Engineer of Record – professional engineer, licensed in the State of Texas responsible for the sealing of construction plans, studies, calculations, and/or any other engineering documents.

ENGINEER – A Licensed Professional Engineer, registered in the Commonwealth of Kentucky as set out in KRS Chapter 322.

Equivalent Residential Unit (ERU) – being equal in measurement to a single-family residential unit. Used to create a hypothetical number to represent flow to residential units.

FINAL INSPECTION – Final Inspection shall mean the final review of the construction activities in the field prior to MUPB's acceptance of operation.

Firm pumping capacity – The pumping capacity of the station handling the expected peak flow or the maximum hourly demand with the largest pump out of service.

Flap Gate – A gate that opens and closes by rotation around a hinge or hinges at the top of the gate permitting the fluid to pass only in one direction.

Flood Level – The stage of a stream at the time of a flood.

Flood Plain – The land contained within the perimeter of the probable limiting flood.

Flood Frequency – The frequency with which the maximum flood may be expected to occur at a site an any average interval of years. Frequency analysis defines the "N-year flood" as the flood that will, over a long period of time, be equaled or exceeded once every N years.

Flow, Dry-Weather (Sanitary) – The flow of wastewater in a sewer during dry weather. Such flow consists mainly of sewerage and wastes with no stormwater or groundwater included.

Flow, Wet Weather (Sanitary) – The flow of wastewater in a sewer during wet weather. Such flow consists of sewerage, stormwater and/or groundwater.

Flushing Duration – The minimum amount of time required to provide a complete changeover of water volume within the dead-end section of pipeline.

fps – Velocity expressed in Feet per Second

Force Main (FM) – A pipe under internal pressure created by beingon the discharge side of a lift station.

FULL-TIME RESIDENT INSPECTOR - The OWNER/DEVELOPER, or his representative, who is required to be on the job site during any construction of facilities that are to become part of the MUPB to ensure that the proposed improvements are constructed in accordance with approved plans and the Design & Construction Manual for Water, Sanitary Sewer & Lift Stations.. **OWNER/DEVELOPER shall submit to MUPB for approval prior to construction a resume of inspector prior to construction commencing. Inspector shall have water and sewer experience and be familiar with MUPB WATER, SANITARY SEWER AND LIFT STATION MANUAL.**

Gas – Gas shall refer to the Natural Gas Distribution where natural gas is consumed by any one customer and is measured by on-site meters, which essentially keep track of the volume of natural gas consumed at that location.

General Manager – the person employed by MUPB board to oversee all of the operations of MUPB.

gpad – Gallons per acre per day.

gpd – Gallons per day.

gpcd – Gallons per capita per day.

gpm – Gallons per minute.

Grade – (a) The inclination or slope of a stream channel, conduit or natural ground surface, usually expressed as the ratio or percentage of vertical rise or fall per 100 feet of

horizontal distance. See Slope. (b) The elevation of the invert of the bottom of a pipe line, culvert, sewer, etc.

Grade, Hydraulic – In a closed conduit under pressure, a line joining the elevation to which water would rise in pipes freely vented and under atmospheric pressure. See Gradient, Hydraulic; also, Line, Hydraulic Grade.

Gradient – The rate of change of any characteristic per unit of length or slope. The term is usually applied to such things as elevations, velocity, pressure, etc. See Slope.

Gradient, Hydraulic – The slope of the hydraulic grade line, the rate of change of pressure head, the ratio of the loss in the sum of the pressure head, and positive head of the flow distance.

Groundwater – Subsurface water occupying the zone of saturation. In a strict sense, the term applies only to water below the water table.

Head – The height of the free surface above any point in a hydraulic system; a measure of the pressure or force exerted by the fluid.

Head, Friction – The head lost by water flowing in a conduit as the result of intermolecular friction or disturbances setup by the contact between the moving water and its containing conduit.

Head, Loss of – The vertical distance or height through which a body must fall freely under the force of gravity to acquire the velocity that it possesses. It si equal to the square of the velocity divided by twice the acceleration of gravity.

Hydraulic Grade Line – A hydraulic profile of the piezometric level of water at all points along the line. The term is usually applied to water moving in a conduit, open channel, stream, etc. In an open channel it is the free water surface.

IMPROVEMENTS – Construction work, including materials and workmanship, to the water and/or sewer utility systems which are part of, will become part of, or be connected to the MUPB system. Water improvements include, but are not limited to, water mains, valves, fire hydrants, service lines, pumps, etc. Sewer improvements include, but are not limited to, sewer mains, manholes, lift stations, service laterals, etc.

Inflow and Infiltration (I&I) - Inflow and infiltration are terms used to describe the ways that stormwater and groundwater enter into dedicated wastewater systems.

Infiltration – Refers to groundwater that enters a sewer system through such sources as defective pipes, pipe joints, connections, or manholes.

Inflow – Refers to water other than wastewater that enters a sewer system from means such as roof gutters, yard drains, area drains, springs, openings in manhole covers, cross

connections runoff and/or any other source that directs rainwater directly into the sewer system.

Interceptor – A pipe that gathers wastewater flow from several smaller collector pipes.

International Fire Code (IFC) – The latest edition adopted by the City Council of the City of Morehead, Kentucky for the purpose of prescribing regulations governing conditions hazardous to life and property.

Intruder-Resistant Fence – A fence at least 6 feet high, constructed of wood, concrete, masonry, or metal with 3 strands of barbed wire extending outward from the top of the fence at a 45° angle with the smooth side of the fence on the outside wall. In lieu of barbed wire, the fence must be at least 8 feet high. These fences must be in good working order and close enough to the ground to prevent intruder passage beneath the fence.

Invert – The floor, bottom or lowest point of the internal cross-section of a sewer or other conduit.

KAR – Kentucky Administrative Regulations

Kentucky Energy and Environment Cabinet (KEEC) – The environmental agency for the Commonwealth of Kentucky which serves the public by enforcing laws relating to natural resources and the environment. It keeps citizens safe and healthy, while supporting a positive business climate.

Kentucky Division of Water (KDOW) – The Division of Water manages, protects, and enhances the quality and quantity of the Commonwealth's water resources for present and future generations through voluntary, regulatory, and educational programs.

Kentucky Transportation Cabinet (KTC) – The state's transportation department that is responsible for planning, designing, building, operating, and maintaining the state's transportation system.

Lamp Hole – 8" diameter clean out on the end of a long 8" sanitary stub.

Lathes – Wooden 1" x 2" survey stakes.

Life Cycle Costs – estimating the entire costs associated with the assest from initial capital costs to the end of its useful life.

Lift Station – a station at which wastewater is pumped via a force main.

Manhole – An opening by which a man may enter or leave a sewer, conduit, or other closed structure for inspection, cleaning, and other maintenance operations, closed by a removable cover.

Manual on Uniform Traffic Control Devices (MUTCD) – The manual defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public travel. The MUTCD is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F.

MGD – Million gallons per day.

Maximum Daily Demand (MDD) – The total amount of water used during the day of heaviest consumption in any given year and the minimum rate, which the high service pumps must be capable of pumping. Water must be supplied to the pumps at this rate.

Maximum/Peak Hourly Demand (PHD) – The rate at which water is drawn from the entire system during the hour of maximum consumption on the day of maximum demand. This rate is generally of a short duration and is most economically provided for by the use of elevated storage in addition to water supplied to the system by pumps. The distribution system, including storage and pumping capacity, must be able to satisfy this demand.

Milligrams per liter (mg/L) – A measure of the concentration by weight of a substance per unit volume. One mg/L is equivalent to one part per million (ppm).

Mils – A unit of length equal to one thousandth of an inch.

Minimum Hourly Demand – This is the rate at which water is drawn from the distribution system during the hour of minimum demand on the day of maximum demand. This demand rate is used in the water distribution analysis to determine the adequacies of the system to replenish elevated storage.

Monolithic – Cast-in-place, rather than precast.

Multi-family – Three or more dwelling units per lot.

National Fire Protection Association (NFPA) Standards – The latest edition of applicable standards as approved and published by the National Fire Protection Association.

NEMA – An abbreviation for National Electrical Manufacturers Association.

NREPC – The Commonwealth of Kentucky's Natural Resource and Environmental Protection Cabinet.

Outfall – The conduit leading to the discharge stream, through which, the effluent flows.

OWNER / DEVELOPER - An individual, group of individuals, partnership, firm, association, or corporation that is constructing, or is having constructed, water and/or sewer improvements that are to become a part of, or be connected to, the Morehead Utility Plant Board.

Peak – A maximum quantity that occurs over a relatively short period of time, such as an hour or day.

Peak Demand – The maximum load placed on a water plant or booster station.

Peak Flow – The maximum load placed on a wastewater plant or lift station.

Peak, Instantaneous – The maximum rate that ever occurs, possibly for only a moment.

Peaking Factor – The maximum flow to average flow ratio used in water/wastewater flow calculations.

Peak Flow – The highest 2-hour wet weather wastewater flow expected under any operational condition.

Potable Water – Water suitable for dirnking or cooking purposes from health and aesthetic considerations.

Precast – That which is formed in a mold or form and distributed by the manufacturer as a complete unit.

Property Service Connection – That portion of a sewer system located within an easement or right-of-way which transports sewerage from private property to the main line.

Proposed – That which is to have immediate consideration for construction.

psi – Pounds per square inch.

ppm – measurement of the concentration by weight of a substance per unit volume.

Sanitary Sewers – Sewers intended to carry wastewater from houses, business, industries, commercial and institutional customers to the WWTP.

Service Area – A defined geographic area in which MUPB provides water, sanitary, storm and/or gas service.

Sewer Lateral – A sewerthat receives wastewater from a single connection (house, business, etc.)

Sewer Line – A pipe utilized to collect and transport wastewater to a downstream lift station or the WWTP. Sewer line can mean force main or gravity line.

Sewer Line Extension (SLE) – A proposed construction project which extends a sewer system: it may include gravity sewer lines, manholes, force main(s), lift station and/or grinders.

Sewer Outfall – A sewer that receives wastewater and/or stormwater and carries it to a point of final discharge.

Sewer System – A network of sewer lines and lift stations that collect wastewater that discharge at a common WWTP.

SHALL – means a mandatory requirement.

Single family dwelling [attached] – A dwelling unit that is joined to another dwelling at one or more sides by a party wall or abutting separate wall, which is designed for occupancy by one family and is located on a separately platted lot, delineated by front, side and rear lot lines and is served by separate utility connections and meters as a single family dwelling (e.g. town homes, condos, etc.).

Single family dwelling [detached] – A dwelling unit designed and constructed for occupancy by not more than one family, located on a lot or separate building tract and having no physical connection to a building located on any other lot or tract, and occupied by only one family.

Slope – The incline of the invert of a pipe expressed as a decimal or as feet per stated length measured horizontally in feet.

Special Provisions – Additions and revisions to the Standards Manual covering conditions peculiar to an individual project.

Specifications – A general term applied to all directions, provisions, and requirements pertaining to the performance of the work.

Standard Dimension Ratio (SDR) [Gravity Flow] – The pipe diameter divided by the pipe wall thickness and provides a method of specifying product dimensions to maintain mechanical properties regardless of size. For a given dimension ratio the pipe stiffness remains constant for all pipe sizes.

Standard Drawings – Drawings approved for repetitive use, showing details to be used where appropriate. Individual standard drawings attached to, or cited in, the plans become a part of the Construction Documents.

Storm Sewer – A separate sewer that carries runoff from storms, surface drainage and street, and does not include domestic or industrial wastes.

Subgrade – The bottom of a trench or other excavation that is somehow below the predetermined elevation of the bottom of the final excavation or structure, the intervening space being backfilled with some special material such as gravel, broken stone, or tamped earth, or impervious lining. The term is also applied to the elevation of such bottom.

Sump – A depression that serves as a receptacle for liquids to be pumped.

Surface Water – Water on the earth's surface open to the atmosphere, such as rivers, streams, and oceans.

TCP – Traffic control plan.

TEN STATES STANDARDS – As applicable for either water supply or sanitary sewer, reference shall refer to the Recommended Standards for Water Works (Latest Edition, Policies for the Review and Approval of Plans and Specifications for Public Water Supplies or the Recommended Standards for Wastewater Facilities (Latest Edition), Policies for the Design, Review, and Approval of Plans and Specifications for Wastewater Collection and Treatment Facilities.

Topography – The configuration of a surface area including its relief, or relative elevations, and the location of its natural and constructed features.

Transition – A short section of a conduit used as a conversion section to unite two conduits having different hydraulic elements.

Tributary – Flowing into another; A river or stream flowing into a larger river or stream.

Trunk Sewer – A sewer that receives many tributary branches which serves a large area.

UL – An abbreviation for Underwriter's Laboratory

USGS – Abbreviation for United States Geological Survey.

Velocity, Self-Cleaning - The minimum velocity in sewers necessary to keep solids in suspension and prevent their deposition and the subsequent nuisances from stoppages and odors on decomposition.

VFD – A variable frequency drive (VFD) is a type of adjustable-speed drive used in electro-mechanical drive systems to control AC motor speed and torque by varying motor input frequency and voltage.

UTILITY – The Morehead Utility Plant Board (MUPB) or authorized representative thereof.

Water Age – Water age or residence time is the amount of time water spends in the distribution system between the treatment plant and the consumer and is a function of flow rate, distance from the treatment plant, storage, system demand and distribution system network, and other factors.

Watershed – The area drained by a given stream or segment of a stream.

WTP – Water Treatment Plant.

WWTP – Wastewater Treatment Plant.